

**ENERGY SECURITY AND NUCLEAR ENERGY
PROLIFERATION IN OIL-POOR COUNTRIES IN THE
MIDDLE EAST AND NORTH AFRICA**

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Abstract.

The Middle East and North Africa (MENA) is a diverse geographic space that is endowed with significant fossil fuel resources. However, the distribution of hydrocarbons is uneven, and a considerable part of the MENA lacks significant oil and natural gas deposits. These countries are disadvantaged vis-a-vis their energy-rich, regional neighbours and experience energy security risks that arise from the lack of fossil fuels. Some of these energy importers pursue nuclear energy development to mitigate their scarcity-borne energy insecurities. This study is interested in the association between resource scarcity, energy security and nuclear energy and studies specifically how energy security thinking is linked with the pursued of nuclear energy development in three oil-poor countries in the MENA. Precisely, this study analyses elite perceptions and utilises framing and securitisation analysis to ascertain the official and news media discourses on energy security and nuclear energy proliferation in Egypt, Jordan, and Türkiye. The analytical focus rests on the identification of perceptive congruence or divergence between official and news media discourses and across case study countries. One underlying assumption of this study is that perceptions that are shared by the elites and the news media coalesce to form a unified, national position. This study demonstrates how elite and news media discourses align in their understanding of energy security as primarily a function of security of supply and in their perception that nuclear energy development is primarily motivated by energy security concerns. Furthermore, this study also shows how a lack of oil resources has affected the case study countries' energy security thinking and underlies their drive for nuclear energy development. The acquired, empirical data is used further to study noteworthy trends in the data, including Jordan's energy independence-based energy security conceptualisation, the pro-nuclear orientation of the sampled news media discourses, or the need for co-operation in emergent nuclear energy programmes.

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List of Abbreviations.

| | |
|-----------------|--|
| AGP | Arab Gas Pipeline |
| AKP | Justice and Development Party |
| APERC | Asia Pacific Energy Research Centre |
| ASE | Atomstroyexport |
| bbl | Barrel of Crude Oil |
| Bcf | Billion Cubic Feet |
| BOO | Build-Own-Operate |
| BOTAS | Petroleum Pipeline Corporation |
| BTC | Baku-Tbilisi-Ceyhan Pipeline |
| CNNC | China National Nuclear Cooperation |
| CO ₂ | Carbon Dioxide |
| CSP | Concentrating Solar Power |
| DSM | Demand-side Management |
| EC | European Commission |
| EEHC | Egyptian Electricity Holding Company |
| EETC | Egyptian Electricity Transmission Company |
| EEZ | Exclusive Economic Zone |
| EMG | Eastern Mediterranean Gas Pipeline |
| ENRRA | Egyptian Nuclear and Radiological Regulatory Authority |
| EPC | Engineering, Procurement, and Construction |
| EPDK | Energy Market Regulatory Authority |
| EU | European Union |
| EÜAS | Electricity Generation Company |
| FDI | Foreign Direct Investment |
| GDP | Gross Domestic Product |
| GEA | Global Energy Assessment |
| GERD | Grand Ethiopian Renaissance Dam |
| GW | Gigawatt |
| GWh | Gigawatt-hour |
| IAEA | International Atomic Energy Agency |
| IEA | International Energy Agency |
| IPE | International Political Economy |
| IPP | Independent Power Producer |
| IR | International Relations |
| IRENA | International Renewable Energy Agency |
| ISES | Integrated Sustainable Energy Strategy |
| JAEC | Jordan Atomic Energy Agency |
| JD | Jordanian Dinar |
| JNPC | Jordan Nuclear Power Company |
| JNRC | Jordan Nuclear Regulatory Commission |
| JOTC | Jordan Oil Terminals Company |
| JREEEF | Jordan Renewable Energy and Energy Efficiency Fund |

| | |
|------------|--|
| KEPCO | Korea Electric Power Corporation |
| LNG | Liquified Natural Gas |
| MEMR | Ministry of Energy and Mineral Resources |
| MENA | Middle East and North Africa |
| MENR | Ministry of Energy and Natural Resources |
| MERE | Ministry of Electricity and Renewable Energy |
| MFA | Ministry of Foreign Affairs |
| MOD | Ministry of Development |
| MOE | Ministry of Environment |
| MOU | Memorandum of Understanding |
| MPED | Ministry of Planning and Economic Development |
| MPIC | Ministry of Planning and International Cooperation |
| MPMAR | Ministry of Planning, Monitoring and Administrative Reform |
| MW | Megawatt |
| NATO | North Atlantic Treaty Organisation |
| NEA | Nuclear Energy Agency |
| NEEAP | National Energy Efficiency Action Plan |
| NEPCO | National Electric Power Company |
| NIATR | Nuclear Energy Association of Türkiye |
| NPP | Nuclear Power Plant |
| NPPA | Nuclear Power Plants Authority |
| NREA | New and Renewable Energy Authority |
| OECD | Organisation for Economic Co-operation and Development |
| OPEC | Organisation of the Petroleum Exporting Countries |
| OSCE | Organisation for Security and Cooperation in Europe |
| PSB | Presidency of Strategy and Budget |
| PWR | Pressurised Water Reactor |
| REEE II-TA | European Renewable Energy and Energy Efficiency Program |
| REEEL | Renewable Energy and Energy Efficiency Law |
| SDG | Sustainable Development Goals |
| SEED | Site and External Event Design |
| SIS | State Information Service |
| SMR | Small Modular Reactor |
| Solar PV | Solar Photovoltaic |
| SUMED | Suez-Mediterranean Pipeline |
| TAEK | Turkish Atomic Energy Authority |
| TANAP | Trans Anatolian Natural Gas Pipeline Project |
| TETAS | Turkish Electricity Trading and Contracting Company |
| TFC | Total Final Consumption |
| TPAO | Turkish Petroleum Corporation |
| TPES | Total Primary Energy Supply |
| TÜNAS | Türkiye Nuclear Energy Company |
| TWh | Terawatt-hour |
| UAE | United Arab Emirates |
| UK | United Kingdom |
| US | United States |

US\$
YEKDEM

United States Dollar
Renewable Energy Support Mechanism

1. Introduction.

1.1. Introduction.

This study focusses on three oil-poor states in the Middle East and North Africa (Egypt, Jordan, Türkiye) and combines three distinct research methodologies into one combined research design. The following sections introduce and contextualise the three inquiries, report on the gaps in the literature they intend to fill and detail the research aims and methodologies.

The Middle East and North Africa (MENA) is a place of great diversity and inequality that is made up of states with varying levels of natural energy resources. States with abundant fossil fuel reserves have benefitted greatly from energy export revenues, while net energy-importers are financially disadvantaged vis-à-vis their resource-rich, regional neighbours (Tuma, 1980; Sowers, 2014). Unfortunately, observers often disregard the region's heterogenous resource distribution and pay little attention to its formative effect on energy security thinking and energy system transformations.

The importance of energy security in oil-importing countries in the MENA is elevated due to the lack of significant, indigenous oil resources (Griffiths, 2017). Consequently, oil-poor states in the MENA try to transform their energy systems to increase energy independence, lessen energy import costs, and lower their susceptibility to energy supply disruptions (Cohen, Joutz and Loungani, 2011; Gralla et al., 2017; Schuetze and Hussein, 2023). One possible energy security strategy path involves the development of domestic energy technologies, such as nuclear energy. The three case study countries all pursue nuclear energy development and generally understand nuclear energy as a low-carbon, baseload provider of electricity that can improve their energy

security (Jewell, 2011a, 2011b; Krane, Myers Jaffe and Ellass, 2016). Hence, at the surface, energy security and nuclear energy development are seemingly interlinked.

However, the academic scholarship has not yet determined conclusively the energy security conceptualisations of the case study countries, the motivating factors of nuclear energy development in the case study countries and established to what extent resource scarcity and energy security thinking affect the decision to pursue nuclear energy development. The available literature has also not yet established to what extent elite energy security and nuclear energy understandings mirror national news media narratives. Additionally, there remain questions about the securitisation of energy security and nuclear energy in news media discourses in the case study countries. This study closes these gaps in the literature and responds to three research questions:

- I. What is the elite perception of energy security and nuclear energy proliferation in oil-poor countries in the MENA?
- II. To what extent do energy security and nuclear energy news media frames differ between oil-poor countries in the MENA?
- III. To what extent are news frames securitised in media discourses on energy security and nuclear energy proliferation in oil-poor countries in the MENA?

The core features of this study that differentiate this work from alternative, existent studies are the integration of multiple, concurrent research methodologies; the combined inquiry of energy security and nuclear energy; and the characteristics of the case study countries. Precisely, the distinguishing attributes of the case study countries are the focus on oil-poor countries, the focus on three individual case study

countries, and the focus on the MENA region. This study uses textual analysis, framing analysis, and securitisation analysis to produce country-specific data that permits an effective engagement with the research questions.

Overall, this study's combined inquiry into energy security and nuclear energy in oil-poor countries in the MENA populates a scientific niche that has not been developed yet. The resultant insights represent new and important knowledge about energy transitions in oil-poor countries in the MENA, the formative effect of resource scarcity on energy security thinking, and the effect of energy security thinking on nuclear energy development. Hence, the importance of this study arises, at least to some extent, from its ability to ascertain the case study countries' energy security and nuclear energy thinking. The energy security thinking, for instance, contextualises the case study countries' energy system transformations that align with a global shift towards increasingly sustainable energy systems (Cherp et al., 2017a; Gralla et al., 2017; Szulecki and Kuszniir, 2018). This study captures the elite perceptions, as well as public and popular discourses of energy security that reveal the ideological drivers and discourses of the case study countries' energy system transitions. Thus, this study explains the operational logic and popular narratives underlying energy strategy choices, which aids the understanding of the domestic and international energy agency of oil-poor countries in the MENA. It also raises the profile and underlines the importance of energy-importers in the MENA; a specific country type that is defined by comparatively limited academic coverage (Vivoda, 2009).

This study also elucidates the reasons for the pursuit of nuclear energy in oil-poor countries in the MENA. The desire to develop nuclear energy capacities in the MENA has resulted in much international scrutiny as especially the Iranian nuclear energy programme is often perceived as a ploy to acquire nuclear weapon capacities (Reardon, 2017; Al-Saidi and Haghirian, 2020). Thus, international discourses about

nuclear energy programmes in the region are often distinguished by overt scepticism that questions the underlying motives for the pursuit of nuclear energy (El-Genk, 2008; Asculai, 2012; Krane, Myers Jaffe and Ellass, 2016). This study empowers oil-poor countries in the MENA and their emerging nuclear energy programmes by capturing and studying the motivating factors driving their national nuclear energy programmes. By educating international audiences about the case study countries' nuclear energy motivations and energy security needs, the persistent fear of a Middle East and North Africa with nuclear power capacities may be moderated.

Importantly, this study sits at the nexus between international relations, international political economy, energy studies, security studies, and Middle Eastern studies and integrates ideas, references literature, and uses theories that are linked to all five disciplines. Yet, overall, this work is perhaps best described as a constructivist study of energy perceptions due to its use of textual and framing analysis, and its reliance on securitisation analysis to assess energy discourses. This study's application of securitisation theory in the context of resource deficiency, energy, and the Middle East produces new knowledge and closes a gap in the available literature. Precisely, to the best of author's knowledge, Christou and Adamides (2013) and Iseri (2019) are the only studies that investigate the securitisation of energy in the context of the MENA. This study, however, represents the first systematic and comparative inquiry into energy securitisation in the context of oil-poor countries in the MENA. More specifically, this study signifies the first comparative analysis of the securitisation of energy in news media discourses in Egypt, Jordan, and Türkiye.

After the introduction chapter, the literature review chapter introduces the available literature on energy security and nuclear energy in the context of the MENA and identifies gaps in the literature, which validate the need for this study. Following, the theory chapter outlines the study's theoretical construct, focussing especially on

securitisation theory and the engagement with energy in the international relations scholarship. Next, the methodology chapter describes this study's methodological strategy, paying particular attention to framing analysis and the combined implementation of framing and securitisation analysis. The data and data analysis portion of this study begins with the country profiles chapter that presents energy system data for each case study country, which permits an informed engagement with the research objectives. Then, the data analysis chapter presents the collected textual, framing, and securitisation data and conclusively responds to the research questions. The penultimate chapter is the discussion chapter that presents and engages with interesting and noteworthy trends in the data that have materialised during the data analysis process. Finally, the conclusion chapter summarises the results of this study and reviews the key insights.

1.2. Inquiry (1) – The elite perception of energy security and nuclear energy proliferation in oil-poor countries in the MENA.

Resource-deficiency directly impacts a country's ability to operate autonomously as both domestic and international agency is inhibited by resource scarcity and energy supply security is intrinsically interlinked with energy interdependencies (Wilson, 2021). Precisely, energy-deficient countries are forced to import adequate energy supply quantities and engage in international energy trade relations with energy exporting countries to satisfy their energy demand, which imposes on them energy supply security risks (Klare, 2001, 2009; Dannreuther, 2010, 2013; Klare, 2015). Such insecurity in energy supply may arise from malevolent actions by energy trading partners, such as calculated energy supply disruptions, or from fluctuations in international energy prices (A. Cherp and Jewell, 2011c; Smith Stegen, 2011). Thus, resource scarcity raises the security importance assigned to the reliable and adequate supply of the missing resource (Neumayer, 2000; Pryke, 2017). This study is interested in this dynamic and examines the official, elite response to energy scarcity-induced energy insecurity both in relation to energy security and nuclear energy. Precisely, this study analyses how the elites perceive energy security and what motivating factors drive nuclear energy development in the case study countries. Consequently, this study responds to the first research question:

R.Q. 1. What is the elite perception of energy security and nuclear energy proliferation in oil-poor countries in the MENA?

This study sources elite perceptions from official government publications, including policy documents, speeches, website publications, and interviews. These data sources provide the text corpus from which the elite perceptions of energy security and nuclear energy are attained. The data acquisition process relies on a review of the

available, official government publications. Importantly, this study brings together official statements and elite views to provide a comprehensive and longitudinal representation of the energy security conceptualisation and nuclear energy motivation in the case study countries. Hence, unlike individual policy documents, this study has captured elite views over an extended timeframe and has, therefore, been able to generate a complete and long-term representation of elite perceptions of energy security and nuclear energy. Also, the ability to comparatively assess the elite position, thereby determining congruence and divergence, sets this inquiry apart from single case study analyses or official policy declarations.

This study's results indicate a diverse but ultimately aligned elite understanding of energy security and nuclear energy. Overall, the energy security conceptualisation and nuclear energy motivation in all three case study countries relies on similar factors that are, however, implemented to varying degrees. Thus, the case study countries are distinguished by country-specific energy security conceptualisations and nuclear energy motivations that imply a case-dependency in energy security and nuclear energy perceptions.

Importantly, while there are countless studies on energy in the MENA (Fattouh and El-Katiri, 2013; El-Katiri, 2014; El-Katiri and Fattouh, 2015; IEA, 2020a; Chentouf and Allouch, 2022; Hafner, Raimondi and Bonometti, 2023), the focus on energy security defines this study, as in the context of the MENA there is only limited engagement with energy security. Moreover, there is an expansive literature on energy in the MENA that focusses exclusively on oil-exporting countries (Kahia, Ben Aïssa and Charfeddine, 2016; Poudineh, Sen and Fattouh, 2018, 2020; Krupa, Poudineh and Harvey, 2019; Olawuyi, 2021; Matallah, 2022; Matallah et al., 2023), while oil-importers receive comparatively little coverage. Consequently, to the best of author's

knowledge, this study signifies the only available study that investigates energy security by focussing on multiple oil-importing countries in the MENA.

1.3. Inquiry (2) – The difference in energy security and nuclear energy news media frames between oil-poor countries in the MENA.

Another important dimension of the energy situation in a country are news media discourses that hold dominant narratives associated with energy security and nuclear energy. Importantly, news media discourses convey both popular and public opinions. Precisely, a wealth of research has demonstrated that news media discourses and public opinions are mutually constitutive, which means that news media discourses shape public opinions and vice versa (Garyantes and Murphy, 2010). Importantly, it is especially framing analysis that can capture ideological cues that are embedded in text and mirror public and popular narratives (Gitlin, 1980; Hall, 1985; Page and Shapiro, 1992). Specifically, the agenda-setting effect of mass media, which is effectively captured through framing analysis, shapes the perceptions of individuals (McCombs and Shaw, 1972, 1993; Dearing and Rogers., 1996; Soroka, 2002a, 2002b).

The study of popular and public discourses is also important as both energy security and nuclear energy are highly contentious topics that provoke considerable public participation, which is reflected in popular discourses. Specifically, one of the characteristic features of energy security is that it is inherently performative (Bridge, 2015). Precisely, the security intensification of energy is driven by elite, calculative techniques that mark energy as a matter of strategic importance (Bridge, 2015). Hence, elite energy discourses seek to shape opinion and persuade, thereby changing behaviours, values and attitudes of audiences (Soules, 2015a; Nyman and Zeng, 2016). This process of security intensification is captured, at least to some extent, by elite voices in mass media where it influences public opinions. Similarly, nuclear energy is a highly controversial energy technology that has traditionally prompted polarising public opinions. The high level of perceived importance of nuclear energy is reflected in the influential role of public participation that can potentially undermine national

nuclear energy programmes (Chung, 1990; van de Graaff, 2016; Roh, 2017). This also illustrates that nuclear energy discussions occur in the public and popular domains.

This study captures these popular and public discourses on energy security and nuclear energy by determining the framing of these issues in national news media publications (Gitlin, 1980). Specifically, this study begins by determining how news media discourses in the case study countries frame energy security and nuclear energy. Next, this study also ascertains how the framing of energy security and nuclear energy in news discourses differs between the case study countries. The explicit aim of the inquiry is to determine country-specific divergence and congruence in energy security conceptualisations and the motivating factors for nuclear energy development. To this end, this study answers the second research question:

R.Q. 2. To what extent do energy security and nuclear energy news media frames differ between oil-poor countries in the MENA?

This study sources the news corpus from national news outlets that offer English-language, online newspapers that are either digitalised print publications or purely digital, online publications. Overall, 18 different news outlets have provided 887 energy security and nuclear energy-related news articles across the three case study countries. The variety in the elite perceptions of energy security and nuclear energy data is effectively captured by four discrete energy security and four nuclear energy master frame categories. Overall, the inductive analysis of the sampled news media discourses produced 83 energy security-related sub-frames and 57 nuclear energy-related sub-frames. The sampled news media articles were subsequently assessed to identify and search for the presence of the sub-frame categories, which produced 2,464 frame attributions in the energy security-related news articles and 973 frame attributions in the nuclear energy-related news articles. The distribution of frame

attributions across the inductive master frame and sub-frame categories indicates a significant context-dependency as the frame distribution varies between the case study countries. Thus, unlike in the elite perceptions data, there is no common perceptive behaviour detectable.

The sampled news media discourses on energy security and nuclear energy indicate a profound country-dependency, which is reflected in the dominance of differing frames that indicate perceptive divergence between the case study countries.

1.4. Inquiry (3) – The securitisation (or security intensification) of energy security and nuclear energy proliferation in oil-poor countries in the MENA.

Securitisation is a method for the analysis of security discourses and signifies one of the Copenhagen School's most influential contributions to security studies theory (Wæver, 1995; Buzan, Wæver and de Wilde, 1998; Buzan and Wæver, 2003). A securitisation methodology follows a pre-set order of distinct steps that begin with a securitisation move that defines an existential threat to a referent object's survival, before recommending exceptional measures that must be accepted by the target audience to successfully accomplish securitisation (Buzan, Wæver and de Wilde, 1998; Buzan and Wæver, 2003). Importantly, securitisation events do not occur in isolation but are embedded in distinctive, formative political and social contexts (McDonald, 2008; Ciutā, 2010; Szulecki, 2020). This study acknowledges the importance of contextual factors for the interpretation of security discourses and speech acts and identifies two principal contextual factors. Precisely, the securitisation analysis is affected by the geographic space and the security sector to which it is applied. Specifically, a securitisation methodology is applied in the context of the MENA with its idiosyncratic, non-Western features that span across political, socio-cultural, economic, and religious domains, and in the context of energy insecurity concerns and energy sector dynamics (Greenwood and Wæver, 2013; Wilson, 2019). Yet, despite well-founded reservations about its applicability to non-Western contexts, securitisation theory is useable beyond the West (Wilkinson, 2007). Nyman and Zeng (2016), for instance, employ a traditional securitisation methodology to assess security discourses in China and conclude that *"the language and grammar of security still play an important role in legitimation and prioritisation"* (p. 310). However, the Copenhagen School's traditional securitisation methodology is ill-equipped for applications to the non-West (Wilkinson, 2007; Vuori, 2008; Greenwood and Wæver,

2013). Securitisation theory has to be sharpened conceptually in order to effectively capture securitisation events in non-Western, non-democracies (Vuori, 2008).

Moreover, energy discourses are not necessarily intensified to the level of securitisation (Fischhendler and Katz, 2013; Heinrich, 2018). This study, therefore, adopts Heinrich and Szulecki's (2018) securitisation methodology and Stępk'a's (2022) master frame concept, and integrates supplementary security categories that populate the conceptual space between securitisation and politicisation. These middling security categories consist of riskification and security jargon and together with securitisation effectively capture instances of security intensification in the context of energy and the MENA.

This study begins by determining the extent of the security intensification of news media discourses on energy security and nuclear energy in the case study countries. Next, this study also ascertains how the security intensification of energy security and nuclear energy in news discourses differs between the case study countries. The explicit aim of the inquiry is to determine country-specific divergence and congruence in the security intensification of energy security and nuclear energy in the case study countries. Inquiry (3) utilises this security intensification data to respond to the third research question:

R.Q. 3. *To what extent are news frames securitised in media discourses on energy security and nuclear energy proliferation in oil-poor countries in the MENA?*

The security intensification analysis relied on the same news corpus data utilised in Inquiry (2). The sampled news media discourses were analysed and searched for security intensifications, which produced a total of 611 discrete instances of security intensification across the three case study countries. Most security intensification

utterances were classed as riskification events, while securitisation and security jargon utterances were significantly less prominent. Importantly, this study sources two dimensions of security intensification; namely, security intensification utterances linked with two framing effects, the 'problematic effect' and the 'endorsing remedy' effect. Both effects are identified by Entman (2004) as the two most important framing techniques. The 'problematic effect' framing factor captures the perceived problem of the discourse, which is then remedied through the solution presented in the 'endorsing remedy' framing factor. Thus, the 'problem' and 'remedy' framing factors align perfectly with the securitisation move's constitutive connection between existential threat and extra-ordinary counter-measure. The combined utilisation of both framing and securitisation methodologies produces targeted data on the security intensification of perceived problems and solutions, which effectively captures the perceived energy security strategies and motivating factors of nuclear energy development. Importantly, this technique of combining the utilisation of framing and securitisation analysis has been pioneered by Mortensgaard (2020).

This study perceives securitisation analysis as a constructivist methodology (Heinrich and Szulecki, 2018). Therefore, this study's inquiry into the securitisation of news media discourses contributes to the limited constructivist literature on non-Western geographies, and specifically the MENA (Bertucci, Hayes and James, 2016). Constructivism remains a largely Western-centric paradigm that fails to fully capture issues of pre-Westphalian civilisations beyond its core reference regions of the West (Acharya, 2011). Consequently, this study contributes to the limited constructivist literature on energy and security in the MENA.

The 'Introduction' chapter has introduced the context and research objectives of this study, while also explaining why this study is needed. This chapter has also presented the three research questions and the accompanying research methodologies and

referenced gaps in the literature that this study closes. Next, the 'Literature Review' chapter reviews the available literature on energy security and nuclear energy, presents the literature that offers a combined engagement with energy security and nuclear energy, and locates this study in the available literature. The 'Literature Review' chapter also identifies areas in the literature that are covered insufficiently by the available literature and determines how this study permeates these gaps in the literature and how it contributes to further the understanding of energy security and nuclear energy in the context of oil scarcity in the MENA.

2. Literature Review.

2.1. Introduction.

The literature review chapter focusses on energy security and nuclear energy as these are the two central themes of this study. This study begins by assessing the market-centric, multidimensional, case-specific, and geopolitical energy security literature. Next, the literature on energy security in the context of developing, resource-deficient, and MENA countries is reviewed to contextualise this study's energy security inquiry. Then, the literature on interpretive, qualitative energy security studies is critically examined, before investigating energy securitisation in the context of the MENA. Finally, this study's understanding of energy security is defined as "*any energy security assessment should start with choosing or operationalising an appropriate definition*" (Cherp and Jewell, 2013, p. 150).

The next sub-sections in this chapter review the literature on nuclear power development. Precisely, the global, regional, national, and multistate literature on nuclear power is reviewed. Following, the literature on national motivations for nuclear energy is reviewed.

The literature review chapter concludes by reviewing the limited literature on the nexus between energy security and nuclear energy.

2.2. Energy Security.

2.2.1. Introduction.

Research on energy security spans a wide and varied field that encompasses a multitude of disciplines, structural concepts, and theoretical orientations. Energy-intensive, present-day economies impel states to monitor the availability, accessibility, affordability and acceptability of energy, and resolutely pursue energy supply security (APEREC, 2007). Simultaneously, 'energy security' has been recast as a widely referenced buzzword, often employed to generically reference energy-related angst. Joskow (2009) recognises the multiplicity in policy goals and oftentimes erroneous reference to energy security and proclaims that *"[t]here is one thing that has not changed since the early 1970s. If you cannot think of a reasoned rationale for some policy based on standard economic reasoning, then argue that the policy is necessary to promote 'energy security'"* (p. 11). Such undefined, non-specific application of the term 'energy security' is illustrative of its *"polysemic"* and *"slippery"* character that has resulted in a myriad of often conflicting energy security definitions (Chester, 2010, p. 887). A particular understanding of energy security is often aligned with a specific scientific discipline and is also heavily influenced by context and place (Månsson, Johansson and Nilsson, 2014; Chalvatzis and Ioannidis, 2017a). The multitude of energy security dimensions create idiosyncratic, context-dependent policy responses and make energy security a highly diverse and complex concept that inevitably inspires differing readings (Chester, 2010; Cherp and Jewell, 2011; Fischhendler and Nathan, 2014). Unsurprisingly, thus, the scientific community has not reached consent on a commonly accepted definition of energy security and multiple competing definitions exist.

2.2.2. *Market-centric approaches to energy security.*

Energy interdependency and an intensive global energy trade practice converge within the liberal energy security agenda and form tolerated tactics in the collective pursuit of absolute gains. The liberal school of energy security studies is firmly rooted in economics and international finance and produces energy market-focussed literature since the 1980s (Bielecki, 2002). Deese (1979) and Yergin (1988) are early proponents of energy market models that connect energy affordability and energy security. The affordability dimension has since occupied a focal position in the energy security scholarship (APEREC, 2007; Le Coq and Paltseva, 2008; Kruyt et al., 2009; Chester, 2010; Cherp and Jewell, 2011b; Cherp and Jewell, 2011, 2014; Hughes, 2012); sitting prominently in the International Energy Agency's energy security definition: *"the uninterrupted availability of energy sources at an affordable price"* (IEA and OECD, 2020, para. 1).

Scheepers et al. (2006) define security of supply risk in market-centric energy security definitions as *"a shortage in energy supply, either a relative shortage, i.e. a mismatch in supply and demand inducing price increases, or a partial or complete disruption of energy supplies"* (p. 13). Energy security strategies are, therefore, expected to 'repair' energy markets; primarily by stimulating competition and removing regulation (Chester, 2010). The majority of economic, energy security models assess the effects of downstream supply disruptions or price increases on individual energy users and national economies. Several studies use basic economic indicators, such as energy use by sector or per capita, to assess the effect of high energy prices on importing countries' welfare, macroeconomy and balance of trade (Mondal, Denich and Vlek, 2010; Sovacool and Mukherjee, 2011; Xia et al., 2011; Sarica and Tyner, 2013). These indicator-based approaches have merit in cross-national comparisons but generate a static image of economic vulnerability as they disregard pre- and post-price shock

realities. They are, thus, unable to appraise the adaptive aptitude of users or gauge the sensitivity of an economy.

2.2.3. *Multidimensional approaches to energy security.*

A prominent example of multidimensional energy security concepts is presented in the European Commission's (2000) Green Paper 'Towards a European strategy for the security of energy supply', which defines energy security as *"the uninterrupted physical availability of energy products on the market, at a price which is affordable for all consumers (private and industrial), while respecting environmental concerns and looking towards sustainable development"* (p. 2). This inclusive understanding of energy security marks a clear departure from traditional, one-dimensional, and narrow conceptions. Importantly, the European Commission (EC) pursues a clear context-dependency in its energy security approach and acknowledges the need for individualised, country-specific energy security strategies (European Commission, 2000, 2001, 2017, 2018; Scheepers et al., 2006, 2007).

Another literary sub-segment strives for holistic energy security concepts and approaches often amass seemingly boundless lists of energy security indicators. Prominently, APERC (2007) adapted Penchansky and Thomas' (1981) four As framework to the study of energy security; linking energy availability, affordability, acceptability and accessibility. Chester (2010) proposes four slightly amended dimensions: availability, adequacy, affordability, sustainability. Similarly, von Hippel et al. (2011) assort energy security indicators into economic, technological, environmental, energy supply, military, security, social and cultural categories. Finally, Vivoda (2010) proposes eleven indicators, Azzuni and Breyer (2018) define 15 indicators, while Sovacool and Mukherjee (2011) identify 320 simple and 52 complex energy security indicators.

While the four As framework has had a considerable impact on the energy security discourse, it is inherently ambiguous. APERC's (2007) original four As model, for

example, fails to specify for whom energy resources ought to be acceptable or affordable; a quality criteria suggested by Baldwin (1997). Moreover, the affordability dimension has remained unspecified, which has resulted in various interpretations, such as 'profitability of investments' (APEREC, 2007), 'energy price standards for end-consumers' (Kruyt et al., 2009; Hughes, 2012) or 'government energy subsidy levels' (Sharifuddin, 2014).

2.2.4. Case-specific and context-dependent approaches to energy security.

Energy insecurity is a highly case-specific problem involving a multitude of distinguishing dimensions (Chester, 2010; Cherp and Jewell, 2011b, 2011a; Winzer, 2012; Johansson, 2013; Månsson, Johansson and Nilsson, 2014). In theory, thus, energy security definitions should be tailored to the defining, case-specific energy security situation. Instead, a large share of the normative energy security literature endeavours to formulate universal conceptualisations of energy security; an aspiration that has produced much of the discourse discussed above. Johansson (2013) stresses the flawed logic informing 'universal' energy security concepts and perceives energy systems as active agents that produce idiosyncratic energy insecurities. Energy security is, thus, intrinsically subject and case-dependent; *"[i]t is therefore improbable, and perhaps undesirable, for researchers to agree upon one single definition and interpretation of energy security."* (Månsson, Johansson and Nilsson, 2014, p. 2).

The quest for universal energy security conceptualisations is further undermined by a disconnected scholarship that integrates an expansive range of methodologies, perceptions and discourses as *"energy security has [...] become an umbrella term for many different policy goals"* (Winzer, 2012, p. 36). Consequently, *"there is no common interpretation"* (Checchi, Behrens and Egenhofer, 2009, p. 1) as *"the concept of [...] energy security seems rather blurred"* (Löschel, Moslener and Rübhelke, 2010, p. 1665) and *"slippery"* (Chester, 2010, p. 887). Consequently, energy security interpretations have become fragmented and oftentimes contradictory (Cherp and Jewell, 2011a), which has resulted in a multitude of competing energy security definitions. Ang, Choong and Ng (2015), for example, identify 83 distinct energy security definitions.

The energy security scholarship has been trapped between two polarising, divergent conceptions. Narrow, one-dimensional notions of energy security *"neglect the*

comprehensiveness of energy challenges”, while multidimensional approaches are *“so broad that they lack precision and coherence”* (Sovacool and Mukherjee, 2011, p. 5343). A thriving sub-field in the study of energy security strives to overcome these shortcomings by developing multidimensional, context-specific energy security concepts that dissociate themselves from the pretence of universal applicability.

A prominent example of this ‘constructivist’ school of thought is Cherp and Jewell's (2011c) ‘three perspectives on energy security’ model, which identifies three discrete evolutionary strands of energy security policymaking. Hence, energy security is understood as a policy problem, while also recognising that *“energy security challenges began first and foremost as separate policy problems”* (Cherp and Jewell, 2011b, p. 206). Cherp and Jewell's (2011c) framework suggests ‘spheres of relevance’ instead of prescribing a pre-set systemisation, thus, researchers can draw from the three perspectives to generate tailored energy security approaches.

The Global Energy Assessment (GEA, 2012) is another highly responsive approach to the classification of energy security that stresses the centrality of ‘vital energy systems’ in energy security processes and risks. This approach argues that solutions to energy insecurities must target ‘vital energy systems’ via focussed, context-dependent policymaking. Similarly, Chester (2010) understands energy security as an intrinsically polysemic concept *“capable of holding multiple dimensions and taking on different specificities depending on the country (or continent), timeframe or energy source to which it is applied”* (Chester, 2010, p. 887). Chester (2010) also highlights the interlinkages between perceptions of decision-makers and thought-leaders, and energy security policy. Differences in the interpretation of energy insecurity may result from *“variation in different stakeholders’ perception of what security means and how to reach a desirable level”* or from *“national differences, such as whether the country*

of the stakeholder is resource-rich or net importer” (Månsson, Johansson and Nilsson, 2014, p. 2).

2.2.5. Energy security in energy-deficient countries.

Energy systems in resource-deficient countries are defined by a characteristic, shared insecurity dimension: resource scarcity. An early theory of scarcity was developed by Thomas Malthus, who identifies two core elements that may lead to disruptive scarcity: limited resources and consumption or population growth (Malthus, 1798). Similarly, Daniel Yergin argues that energy insecurities are rooted in the *"anxiety over whether there will be sufficient resources to meet the world's energy requirements in the decades ahead"* (Yergin, 2006, p. 70); an anxiety that is particularly profound in resource-deficient economies. Specifically, energy system vulnerabilities in oil-poor countries are directly linked to domestic oil scarcity (Yergin, 2006; Sovacool, Valentine, et al., 2012; Knox-Hayes et al., 2013). In fact, resource-deficiency exerts a disproportionate effect on energy security and outweighs other insecurity stimuli (Li, Shi and Yao, 2016). Von Hippel et al. (2011), for example, associate *"differences in energy security thinking between countries"* (p. 6721) with *"the degree to which a country is energy resource-rich or energy resource-poor"* (p. 6721). Li, Shi and Yao (2016) employ an analytical, three-level framework to conceptualise the energy security of four resource-poor, advanced island economies. Their study analyses the vulnerability, efficiency, and sustainability of their case studies' energy systems; and finds that a lack of indigenous resources has led to a severe energy import dependency. Their study also determines that all four case study countries hedge against energy import disruptions by integrating demand-side measures to limit energy system inefficiencies. Li, Shi and Yao (2016) further identify a clear policy-focus on security of supply, which *"is the top measure for resource-poor economies to improve their energy security"* (Yao, Shi and Andrews-Speed, 2018, p. 394). The centrality of demand-side and other security of supply policies in national energy security strategies of resource-poor economies is clearly discernible.

Conventional energy policy aims to control supply and assumes a fixed demand behaviour (von Hippel et al., 2010). Since the mid 1980s, however, this understanding has shifted as energy demand-side management (DSM) has become an important tool for energy policymakers (von Hippel et al., 2010). The primary purpose of DSM policies is a change in *“end users’ electricity consumption habits, either via a reduction or a change in the patterns of electricity use”* (Carley, 2012, p. 7). DSM strategies employ three different programmes; energy efficiency, conservation, and load management; all of which are expected to conserve energy, reduce the need for energy imports and lessen the susceptibility to energy import disruptions (E3G, 2011; Carley, 2012; Skillings and Dimsdale, 2014). The application of DSM programmes is also expected to inhabit an important position in global efforts to mitigate the environmental cost of increasing electricity end-uses (Auffhammer, Blumstein and Fowlie, 2008). DSM policies are often prescribed in a twin-track strategy with security of supply policies (Rutherford, Scharpf and Carrington, 2007; Auffhammer, Blumstein and Fowlie, 2008; Stirling, 2008; Sovacool, 2009; Sarkar and Singh, 2010; Blum and Legey, 2012; Carley, 2012; Jewell, Cherp and Riahi, 2014).

For instance, the European Union, a resource-poor, highly import dependent group of countries, has three core energy security goals: efficiency, security of energy supply and sustainability (European Commission, 2000, 2001, 2016, 2017, 2018; Scheepers et al., 2006, 2007; Faure, Stanković and Jakšić, 2016). Similarly, Taiwan relies exclusively on security of supply and DSM policies to alleviate energy insecurities that arise from energy supply shortages, price fluctuations and inefficiencies, and a lack of environmental sustainability (Chuang and Ma, 2013). Moreover, Japan, a severely import dependent economy, relies heavily on energy conservation and security of supply strategies in its pursuit of energy security (Evans, 2006; Koike, Mogi and Albedaiwi, 2008; Zhu et al., 2020). However, these energy-policy trends in resource-poor economies are not exclusively associated with advanced, developed countries.

For example, Vietnam, a resource-poor, developing country, has implemented security of supply and DSM policies to counteract the effects of energy inefficiencies and import deficiencies (Do and Sharma, 2011). Furthermore, an unspecified small, developing, oil-importing economy's energy security strategy is assessed by Schubert and Turnovsky (2011b), who find that security of supply and DSM strategies are their case study's primary energy security policies. Finally, von Hippel et al. (2011) identify energy import dependency, oil price fluctuation and energy inefficiency as the key energy insecurity dimensions in a group of non-specified developing, oil-importing countries in North-East Asia. Again, policies to boost security of supply and DSM sit at the core of their case studies' national energy security strategies.

The energy diversification dimension signifies the most prominent security of supply policy in net energy-importing countries (Gupta, 2008; GNESD, 2010; IEA, 2019c). Stokes (2007), for example, equates both concepts in his study on U.S. energy security policy and argues that energy security is exclusively dependent on energy supply diversification. Yergin (2006) perceives diversification less determinative but asserts that "*[s]ince Churchill's day, the key to energy security has been diversification*" (p. 70).

2.2.6. Geopolitical approaches to energy security.

The lack of indigenous hydrocarbon resources has shaped the perception of energy security in resource-deficient countries and has resulted in a strong emphasis on 'national energy security' (von Hippel et al., 2011). Energy import-dependent economies lack the operational flexibility in their energy systems to counterbalance energy supply deficits and are "*spurred to focus on national energy security because of their increased sense of vulnerability*" (von Hippel et al., 2011, p. 6722). Conversely, energy-abundant countries have a more diverse and extensive range of energy security options and are more likely to have the operational leeway to focus on global energy security (von Hippel et al., 2011). 'National energy security' is an inward-looking, realist variant of energy security that centres on 'security of supply' and informed energy policy in energy-rich and energy-poor states during the 1970s (Yergin, 1991; Klare, 2009).

'Security of supply' is a terminology most intimately associated with early, realist-thought on 'national' energy security (Yergin, 2006; von Hippel et al., 2011). Following the 1st WW and a technological shift towards oil-powered, military and industrial machinery, the security of oil supply became a matter of national security (Sagan, 1988; Colgan, 2013). The securitisation of vital energy systems and the centrality of oil security to industrial growth profoundly transformed the global energy system, instigated conflicts, prompted alliances and shaped contemporary geopolitical realities (Yergin, 1991, 2006, 2011; Klare, 2001, 2004, 2015). After the 2nd WW, many countries, especially member-states of the Organisation for Economic Co-operation and Development (OECD), became heavily dependent on oil imports from the Middle East. Oil fuelled the post-war, economic recovery and was considered an abundant and cost-effective energy option until the OPEC-induced oil crisis of 1973-74 led to price shocks and severely throttled the global oil supply (Paust and Blaustein, 1974).

The shortfall in oil supply volumes motivated the formation of the International Energy Agency (IEA) and resulted in the close association of energy security with security of supply (UNDP, 2000; Martin and Haarje, 2005).

The concept of 'security of supply' has since evolved from the traditional, geopolitical concept of pure resource availability and has been integrated with environmental, competitive market and international trade analysis (Bishop, Amaratunga and Rodriguez, 2008; Chalvatzis and Hooper, 2009). However, energy supply disruptions and fuel price volatility remain the concept's primary risk categories, while diversity and interdependency policies are the main hedging strategies against energy supply insecurities (Hickey, Lon Carlson and Loomis, 2010). Security of supply, dependency and diversity share considerable contextual overlap and are pooled under the availability category in energy security models (APEREC, 2007; Kruyt et al., 2009; GEA, 2012; Cherp and Jewell, 2014). Specifically, Sovacool and Mukherjee (2011) equate the availability dimension with the pursuit of "*sufficient energy resources, stockpiles and fuels*" (p. 5346) and three discrete sub-components: security of supply and production, dependency, diversification.

2.2.7. Energy security in energy-deficient countries in the MENA.

The present regional context in the MENA “suggests that driving forces for the evolution of energy policy are energy security and energy cost minimization” (Griffiths, 2017, p. 266). Energy system transitions are expected to positively affect both energy cost and security by promoting energy supply diversification and energy demand management policies, such as energy efficiency measures and energy subsidy reforms (Griffiths and Weijermars, 2013; Miller, Iles and Jones, 2013; Cherp et al., 2017b, 2018; World Energy Council, 2019b, 2020). The regional discourse on energy efficiency is closely aligned with the sustainability dimension, both of which influence energy policymaking in resource-deficient and resource-abundant economies (World Energy Council, 2018, 2019a; Al-Muhanna, 2020).

Energy supply diversification and the development of renewable energy capacities are central aspects of regional energy policies that have led to an extensive literature on the potential for renewable energy in the MENA (Marktanner and Salman, 2011; Boubaker, 2012; Hawila et al., 2014; Brand, 2016; Carafa, Frisari and Vidican, 2016; Aghahosseini, Bogdanov and Breyer, 2020) and on policies to stimulate the intra-regional growth of renewables (Alnaser and Alnaser, 2011; Al-Amir and Abu-Hijleh, 2013; Bhutto et al., 2014; Abdmouleh, Alammari and Gastli, 2015; Atalay, Biermann and Kalfagianni, 2016). Other studies argue that the prospect of intra-regional, renewable energy transitions is negatively affected by a lack of regional integration and cross-border electricity interconnections (Devarajan, 2016; World Energy Council, 2019a). Energy subsidies signify another source of insecurity that forms a critical aspect of fiscal policies and energy demand management, and has inspired MENA-centred energy security studies (Fattouh and El-Katiri, 2013; El-Katiri and Fattouh, 2015; Verme, 2017). Energy subsidy reforms are primarily driven by fiscal pressures that have triggered subsidy reforms in both net-oil exporting and importing economies in the

MENA (Fattouh, Sen and Moerenhout, 2016). Resource-deficient, net-oil importers, such as Egypt, Jordan and Morocco have successfully implemented subsidy reform programmes that have predominantly focussed on electricity tariffs and fuel products (Fattouh and El-Katiri, 2013; El-Katiri and Fattouh, 2015; Whitley and van der Burg, 2015; Verme, 2017).

Winzer (2012) echoes Chester's (2010) and Cherp and Jewell's (2011c) critical stance on universal energy security definitions, emphasising especially the diversity of associated policy goals that blur the field of energy security. Winzer's (2012) energy security concept rests on the assumption that energy insecurities arise from threats to the energy supply chain; a factor that is particularly profound in energy systems that over-rely on a particular energy type. Due to the overwhelming number of potential effects on energy supply chains and the difficulty of measuring these effects simultaneously, energy security approaches *"limit the concept of energy security along one or several of the following dimensions: the sources of risk, the scope of the impact measure, and different severity filters such as the speed, size, sustention, spread, singularity or sureness of impacts"* (Winzer, 2012, p. 41). Consequently, Winzer (2012) proposes to narrow down the concept of energy security to 'energy supply security', which allows states to narrow down policy goals and tackle energy insecurity more effectively. As outlined above, the concept of energy security is increasingly intermixed with sustainability and economic efficiency policies; therefore, *"[a] narrower [energy security] concept can more easily be quantified, facilitates the trade-off between different policy goals and can reduce the double counting of aspects that lie on the conceptual boundaries"* (Winzer, 2012, p. 41). Winzer (2012), therefore, understands energy security as *"the continuity of energy supplies relative to demand"* (p. 36) and argues that *"[t]he additional meanings that are attached to the term 'energy security' are largely contained in other policy goals. The suggested limitation*

would therefore not remove these concerns from the policy agenda but only reduce double counting and avoid the problem of securitisation" (p. 41).

This study adopts Winzer's (2012) energy security model as it offers the most effective conceptualisation of energy security in resource-deficient economies in the MENA. Notwithstanding the multiplicity in energy policy targets, energy security in resource-deficient economies in the MENA remains synonymous with 'security of supply' and 'demand-side management' responses. Both of those factors are prominently featured in Winzer's (2012) energy security definition; "*the continuity of energy supplies*" (p. 36) denotes the 'security of supply' dimension, while "*relative to demand*" (p. 36) indicates the 'demand-side' focus. Hence, Winzer's (2012) narrow energy security concept corresponds closely with the narrow energy security definition of energy-poor states in the MENA.

2.2.8. Elite attitudes and energy securitisation.

The analysis of energy security is shaped by one of two principle methodological, epistemological conventions; precisely, authors need to make a “*choice between perceptions and facts in deciding what constitutes a significant energy security concern*” (Cherp and Jewell, 2013, p. 147). Studies that assume a primarily fact-based energy security dimension conceptualise energy security as an objective attribute of energy systems that is readily comparable and quantifiable (Gupta, 2008; Le Coq and Paltseva, 2008, 2012; Sharifuddin, 2014; Radovanović, Filipović and Pavlović, 2017). This convention is prominently featured in the market-centric and multidimensional energy security literature. Conversely, study designs that assess (energy) attitudes, understand energy security as a subjective property that holds a variety of discrete meanings (Sovacool, Valentine, et al., 2012; Knox-Hayes et al., 2013; Sovacool and Brown, 2015; Brown and Sovacool, 2017; Valentine, Sovacool and Brown, 2017). Importantly, studies that explore energy security attitudes must “[f]ocus on those opinions that matter; e.g. policy makers and other social actors who cannot afford to hold irrelevant or superfluous views” (Cherp, 2012, p. 842). This study, for instance, ‘focusses on opinions that matter’ by sourcing elite attitudes from official government discourses.

Qualitative studies on energy policy are distinguished by the relative, geographic scope of the inquiry. Precisely, the available literature explores energy policy and energy security in the local (Rafey and Sovacool, 2011; Moore, 2017), national (Bambawale and Sovacool, 2011b; Valentine, Sovacool and Matsuura, 2011; Knox-Hayes et al., 2013; Leung et al., 2014; Gorbacheva and Sovacool, 2015; Sovacool and Tambo, 2016; Brown and Sovacool, 2017), regional (Sovacool, 2010, 2013a; Sovacool, D’Agostino, et al., 2012; Sovacool et al., 2018) and global (Sovacool, Valentine, et al., 2012; Sovacool, 2013b, 2016) context. Within these spatial contexts, the literature

explores energy security in various regions; such as, South-East Asia (Sovacool, 2010), Asia Pacific (Sovacool, 2013a), 'Nordic region' (Sovacool et al., 2018), and countries; such as, China (Leung et al., 2014), Denmark (Sovacool and Tambo, 2016), India (Bambawale and Sovacool, 2011b), Japan (Valentine, Sovacool and Matsuura, 2011), Russia (Gorbacheva and Sovacool, 2015), South Africa (Rafey and Sovacool, 2011), US (Brown and Sovacool, 2017). However, to the best of author's knowledge, Moore (2017) is the only empirical, purely qualitative study that assesses energy security in the context of the MENA. Moreover, multiple studies conduct multi-state case study analysis in a regional context; Sovacool (2010), for instance, qualitatively compares renewable electricity support in ten countries in South-East Asia. Similarly, Sovacool, D'Agostino, et al. (2012) explore climate change adaptation approaches in four Asian countries: Bangladesh, Bhutan, Cambodia, Maldives. However, to the best of author's knowledge, this study is the first systematic, qualitative study that explores energy security through a multi-case study approach in the regional context of the MENA.

2.2.9. Contribution to the literature on energy securitisation in the context of the MENA.

The literature on the securitisation of energy is limited but diverse, focussing on both western and non-western contexts. For instance, Natorski and Herranz Surrallés (2008) and McGowan (2011) investigate energy securitisation discourses in the EU, while Szulecki and Kuszniir (2018) and Heinrich and Szulecki (2018) explore the securitisation of electricity sectors in Germany and Poland. Similarly, Judge and Maltby (2017) assess the securitisation and riskification of energy in the UK and Poland, and Szulecki (2020) reports on the securitisation of a nuclear power project in Poland. Empirical studies on energy securitisation in non-western contexts, however, are less extensive and include studies on China (Nyman, 2013, 2014; Leung et al., 2014; Nyman and Zeng, 2016) and Russia and Australia (Wilson, 2019).

Overall, studies on securitisation in the MENA are limited and are either focussed on regional-level, sectarian conflicts (Malmvig, 2014; Darwich and Fakhoury, 2016), study regional securitisation dynamics involving Saudi Arabia (Kapur and Mabon, 2018; Mabon, 2018a, 2018b) or critically assess the applicability of securitisation theory to the Egyptian Revolution of 2011 (Greenwood and Wæver, 2013). However, to the best of author's knowledge, Christou and Adamides (2013) and Iseri (2019) are the only studies that investigate the securitisation of energy in the context of the MENA. Specifically, Christou and Adamides (2013) critically evaluate the intra-regional securitisation of natural gas resources in the context of the Arab Spring, focussing on the MENA as a whole. Whereas, Iseri (2019) combines 'regional security complex theory' with securitisation theory to explain the securitisation of energy transportation routes by Türkiye in the context of energy discoveries in the Eastern Mediterranean.

This study's contribution to the securitisation literature is three-fold. Firstly, this study contributes to the literature on energy securitisation in two specific ways. Precisely, existing energy securitisation studies often focus on a specific energy sector or energy type; i.e., gas sector (Christou and Adamides, 2013; Heinrich, 2018), nuclear power (Szulecki, 2020) and shale gas (Nyman, 2014). This study, however, contributes to a section of the available literature that studies energy securitisation by focussing on the electricity sector (Heinrich and Szulecki, 2018; Szulecki and Kuszniir, 2018). Moreover, this study also adds to literature on the securitisation of energy that recognises and analyses multiple, additional security intensification levels; i.e., securitisation (Natorski and Herranz Surrallés, 2008; McGowan, 2011; Judge and Maltby, 2017), riskification (Abrahamsen, 2005; Vuori, 2008; Corry, 2011; Salter, 2011; Stetter et al., 2011), and security jargon (Fischhendler and Katz, 2013; Heinrich, 2018; Heinrich and Szulecki, 2018; Jewell and Brutschin, 2019).

Secondly, this study contributes to the literature on energy securitisation in the context of the MENA. As outlined above, the available literature is limited and, to the best of author's knowledge, no study has systematically and comparatively assessed the securitisation of energy in oil-poor states in the MENA, nor in this study's case study countries. Therefore, this study produces novel, country-specific insights into energy securitisation dynamics and discourses in Egypt, Jordan, and Türkiye.

2.3. Nuclear Energy.

2.3.1. Introduction.

In 2011, von Hippel et al. (2011) formulated four key questions that defined the most important energy security factors of future energy systems. The third question reads: *“Is nuclear power expansion plausible given the physical, financial, and proliferation constraints on new nuclear units in countries that already have and do not have nuclear power?”* (von Hippel et al., 2011, p. 6729). Von Hippel et al. (2011) highlight the instrumental role of the energy security and nuclear energy nexus in future energy security regimes and foresee an enduring utility of nuclear energy. In 2023, nuclear energy’s role in the global energy system continues to evolve; however, growing concerns about the environmental sustainability of current energy regimes and the global rise of electricity have deepened the alignment of both dimensions (Bruggink and van der Zwaan, 2002; Mallah, 2011; El-Anis, 2012; Kessides, 2014; Stirling, 2014b; Black et al., 2015; Gralla et al., 2016; Hejazi, 2017; Sovacool and Walter, 2018). Nuclear power and energy security are a logical pairing; energy insecurity arises, at least partly, from energy import dependencies, while, at first glance, ample, global uranium reserves promise autonomous electricity generation to nuclear power states. Moreover, energy insecurity in energy-intensive, emergent economies comes in the form of steeply rising electricity consumption that is often sustained through energy imports (Kuik, Lima and Gupta, 2011). Indigenous nuclear energy capacities diversify the electricity-mix and can lessen the effect of energy import disruptions (IEA, 2019f).

A key, distinguishing attribute of the literature on nuclear energy policy is the increase in publication volume following major nuclear incidents. In a post-Fukushima world, the literature emanates a profound sense of urgency as the nuclear-related scholarship scrambles to make sense of a changing technology environment.

2.3.2. Nuclear energy policy – global perspectives.

The literature is dominated by studies on the global dimensions of nuclear energy policy that advance generalised theories and policy recommendations and lack a distinct place-specificity. Within this section of the nuclear energy literature, the majority of works are descriptive, review and viewpoint studies. Barkatullah and Ahmad (2017), for instance, report on global trends in financing nuclear power projects, while others review the psychological effects of nuclear power (Edwards et al., 2019), global greenhouse gas emission trends (Sovacool, 2008), the political economy of nuclear power (Hultman, 2011), nuclear law (Rautenbach, Tonhauser and Wetherall, 2006; Cameron, 2007; Heffron, 2015), nuclear energy and geopolitics (De Blasio and Nephew, 2017) and nuclear technology innovation (Ingersoll, 2009; Vujić et al., 2012; Hidayatullah, Susyadi and Subki, 2015). Official guidance reports and documents published primarily by international institutions, such as the International Atomic Energy Agency (IAEA) or the OECD's Nuclear Energy Agency (NEA), signify key texts in the generalised, prescriptive literature on nuclear energy. These documents define optimal state practice in regulating and systematising national nuclear programmes (IAEA, 2007a, 2009, 2012b, 2014b, 2015a, 2016b, 2016a, 2018) but also amass and redistribute best practice recommendations from member-states on nuclear safety (IAEA, 1999, 2006b, 2006d, 2016d), security (IAEA, 2006c; OECD, 2007; IAEA, 2013a), finance (IAEA, 2008, 2017b; OECD and NEA, 2009, 2015) and infrastructure (IAEA, 2006a, 2007b, 2012a, 2014a, 2015a, 2015b, 2016b, 2017a).

Empirical work is considerably less common in generalised studies on nuclear energy policy. The majority of available, empirical studies, however, employ quantitative methods (Cantor and Hewlett, 1988; Navarro, 1988; Fuhrmann, 2012). Cardin, Zhang and Nuttall (2017), for example, determine the most economic deployment options in uncertain market conditions through numerical, real option and flexibility analysis.

Similarly, Gralla et al. (2017) use descriptive and statistical techniques to explore the technological, socio-economic and environmental characteristics of nuclear adopter states. Finally, a comparatively limited corpus of qualitative studies engages with global, generalised nuclear energy policies. For instance, Gralla et al. (2016) study the typical framing of sustainability in national energy strategies of nuclear power states, while Bisconti (2018) reviews long-term survey data to show the development of public opinions on nuclear energy over time.

2.3.3. Nuclear energy policy – national perspectives.

Another sub-segment of the nuclear energy policy literature focusses on national-level analysis. Most of those studies are single country case-study analyses and include review, quantitative and qualitative studies. The review and viewpoint literature includes studies on Jordan's nuclear energy policy (El-Anis, 2012), Germany's nuclear phase-out (Kramm, 2012), the United States' nuclear energy strategy (Gattie, 2020), nuclear projects in the UK (Watson and Scott, 2009) and nuclear power development in Türkiye (Jewell and Ates, 2015). Several high-profile, annual publications provide a generalised overview of the nuclear energy sector and offer detailed, national case study data (IEA, 2005, 2017; CIPS, 2017; IEA, 2018, 2019g; Schneider and Froggatt, 2019).

Empirical studies occupy a considerably larger literary segment than in the generalised, global literature on nuclear energy policy. Quantitative studies on national nuclear policies assess the role of nuclear energy in Türkiye's long-term energy strategy (Melikoglu, 2016), analyse the economics of Saudi Arabia's nuclear ambitions (Ahmad and Ramana, 2014), and measure public acceptance of nuclear energy in South Korea (Roh, 2017). In the context of the Middle East, most empirical, quantitative work analyses the UAE and its nuclear energy project. While the literature engages with common nuclear energy-related themes, such as spent fuel storage (Al Saadi and Yi, 2015) or the environmental sustainability of nuclear energy in the UAE (Al Farra and Abu-Hijleh, 2012), studies also focus on the interlinkages between desalination and nuclear power (Jung et al., 2014; Mohsen et al., 2016), a climate and region-specific dimension.

Moreover, a large volume of qualitative, case study works has been published; such as an innovative field experiment on public opinions of nuclear energy in Hong Kong

(Kwok, Yeung and Xu, 2017) or an analysis of security framing in nuclear power discourses in the UK (Peoples, 2014). Others investigate the effect of climate change and energy supply benefits on public acceptance of nuclear energy in Switzerland (Visschers, Keller and Siegrist, 2011), assess individual preferences for nuclear technology types in Italy (Contu, Strazzera and Mourato, 2016) and analyse public communications on nuclear power in Poland (Wagner, Grobelski and Harembki, 2016).

2.3.4. Nuclear energy policy - regional and multi-state perspectives.

Overall, the corpus on regional and sub-regional aspects of nuclear power policy is limited and dominated by descriptive, viewpoint and review literature. For example, Kessides (2014) outlines nuclear energy's potential role in Africa's sustainable development process, while Pradhan (2010) reviews the discussions around security and nuclear power in West Asia. The Middle East and North Africa (MENA) is covered comparatively extensive by the descriptive, review-based literature on regional aspects of nuclear energy policy. Krane, Myers Jaffe and Ellass (2016), for instance, report on the potential for nuclear power development in the Middle East, El-Genk (2008) reviews the challenges and opportunities for nuclear energy proliferation in the region, and Sukin (2015) evaluates the effects of Iran's nuclear power programme on regional nuclear energy projects. Other studies advance normative and prescriptive, policy recommendations through review and viewpoint publications; such as Shaker's (2014) proposal for a regionalised nuclear fuel cycle in the Middle East; the prescription of inclusive governance tactics in the energy choice management of North African countries (Marktanner and Salman, 2011); calls for systematic intra-regional, geopolitical de-escalation to improve the likelihood of regional nuclear energy proliferation (Bahgat, 2005); or a critique of the narrow politico-economic justification for nuclear power in the region (Al-Saidi and Haghirian, 2020).

To the best of author's knowledge, the only study that has systematically, empirically assessed nuclear energy policy, pertaining to a conventionally sized nuclear reactor (~1 GWe), and focussed on a sub-regional cluster of countries in the MENA is Jessica Jewell's 2011 article '*A nuclear-powered North Africa: Just a desert mirage or is there something on the horizon?*'. Jewell (2011a) applies an analytical model presented in Jewell (2011b) to assess the motivations and capacities for nuclear power development in five North African countries. Jewell's (2011b) work distances itself from

military-driven discourses on nuclear power that focus almost exclusively on nuclear weapon proliferation (Fitzpatrick, 2008; Fuhrmann, 2009; Gartzke and Jo, 2009; Sukin, 2015; Ahmad, Salahieh and Snyder, 2017). Instead, her analytical model assesses economic, political, and technical, non-military dimensions of nuclear power.

2.3.5. Motivations and ideology in nuclear energy policymaking.

Generally, there seems to be consent that nuclear power development is driven by several concurrent factors. Firstly, adopter states are eager to mitigate energy import dependencies by ramping up indigenous electricity generation capacity (Visschers, Keller and Siegrist, 2011; Fuhrmann, 2012; Vivoda, 2012; Gourley and Stulberg, 2013a; Peoples, 2014), and are especially intrigued by the prospect of affordable power (Jewell, 2011b, 2011a; Jewell and Ates, 2015; Cherp et al., 2017b, 2018). Secondly, the use of nuclear energy is also determined by the capacity to launch nuclear energy programmes (Jewell, 2011b, 2011a; Brutschin and Jewell, 2018). This perspective rests on the assumption that nuclear power policy is principally driven by national factors and closely aligned with national security strategy, a view reflected in the literature (Valentine, Sovacool and Matsuura, 2011; Sovacool et al., 2012). Sovacool and Valentine (2013), for instance, point to the 'substantive imperative' of national security in nuclear energy policies, while Brutschin and Jewell (2018) stress the dominance of national factors in the national justifications for nuclear power programmes. Importantly, several other principal motivating factors of nuclear energy development are identified by the available literature. Davis (2022), for example, demonstrates that nuclear energy development in newcomer countries is exclusively motivated by a combination of individual drivers that include climate change, energy security, foreign relationships, electricity exports, international influence, and national prestige. Similarly, Jewell and Ates (2015) name several motivating factors of nuclear energy development, such as electricity diversity, nuclear weapons, import dependence, climate change, electricity demand, national prestige, and the export of indigenous nuclear technology. Particularly relevant to this study, Jewell (2011a) analyses the motivations for nuclear energy development in five North African countries (Algeria, Egypt, Libya, Morocco, and Tunisia) and identifies energy demand, energy security, and energy for desalination as the core motivating factors.

An extensive literature has studied the motivations for, and barriers to nuclear power from a global perspective. Adamantiades and Kessides (2009), for example, present a broad analysis of the perceived benefits and threats of nuclear energy proliferation, and define positive and negative attributes of nuclear energy programmes. Another study evaluates the demographic variability in benefit, risk and value perceptions of nuclear energy, again advancing a generalised, global perspective (Harris et al., 2018). More specifically, studies have highlighted the health (Dai et al., 2019), environmental (Mallah, 2011), political (Griffiths, 2017), energy security (Lidsky and Miller, 2002; El-Anis, 2012; Kessides, 2012) and geopolitical (Marktanner and Salman, 2011) benefits of nuclear energy programmes; while others have pointed to the negative economic (Apergis and Payne, 2014), geopolitical (De Blasio and Nephew, 2017; Reardon, 2017) and environmental (Sovacool, 2008) effects. In the context of the MENA, the awareness of country-specific motivations for nuclear energy proliferation is an important factor as *"[t]he majority of governments in the region have varying perceptions of the need for nuclear energy, the purpose of specific nuclear programmes and the opportunities and challenges such programmes entail"* (El-Anis, 2012, p. 25).

Perceptions and ideologies play a significant role in nuclear energy matters and are most intimately associated with the analysis of public views on nuclear energy (Moula et al., 2013; Song, Kim and Han, 2013; Stigka, Paravantis and Mihalakakou, 2014; Wu, 2017); however, perceptions and ideologies can also contextualise and rationalise nuclear energy policy. For instance, Stott (1981) investigates the motivations for sustained investment in nuclear power programmes during the mid to late 1970s and identifies a direct association between elite ideology and nuclear energy policy. Stott's (1981) study finds that ideological factors outweigh technical and economic considerations in energy policy decision-making and signify *"the roots of the faith"* (p.

106) in nuclear energy. In Great Britain, for example, the nuclear energy programme was heavily inspired by technocratic ideologies, such as technological optimism and nationalism, and social democratic ideologies, such as a centralised electricity system (Stott, 1981). Hence, understanding nuclear energy policies *“entails understanding the different perspectives on risk, costs, and benefits of nuclear power, and also requires an understanding of both the technocratic perspective on these issues as well as their perceptions within the polity”* (Hultman, 2011, pp. 404–405).

In the context of the MENA, El-Anis (2014) considers *“the collective and individual perceptions of [...] decision-makers”* (p. 464) to assess Jordan’s nuclear energy policymaking. He understands the national interest as a construct of ideology and perception, and agrees that *“it is through the national interest that policy-makers understand the goals to be pursued by a state’s foreign policy”* (Weldes, 1996, p. 276). El-Anis' (2014) constructivist approach perceives *“discourses as constitutive of material reality”* (Lee and Smith, 2009, p. 1095) and analyses perceptions of the ‘self’ and ‘others’ in official discourses by the Jordanian Atomic Energy Commission (JAEC) and Jordan’s ruling monarch, King Abdullah II.

Overall, empirical, qualitative studies that investigate nuclear energy policy through multi-state, case study analyses are very limited. Teräväinen, Lehtonen and Martiskainen (2011) utilise documentary analysis and semi-structured interviews to investigate ideologies, debates, and discursive practices in nuclear energy discourses in the EU, focussing specifically on Finland, France, and the UK. Similarly, Ho et al. (2019) use qualitative, focus group data to assess the trust dimension in the public acceptance discourse in South-East Asia by conducting case study analyses of Thailand and Vietnam. However, to the best of author’s knowledge, this study is the first work that conducts a multi-state, and empirical, qualitative analysis of nuclear energy policy in the MENA.

More specifically, in alignment with the constructivist perspective outlined above, this study assumes an inherent subjectivity in the motivations for nuclear energy proliferation, which is illustrated by the variability and context-dependency of national nuclear policy drivers. The usage of generic motivations in the analysis of nuclear power policy is deemed ineffective; instead, country-specific motivation data offers a more reliable and accurate representation of the underlying motivations for national nuclear programmes. This study builds on El-Anis' (2012, 2014, 2016) work on the political economy of nuclear energy and energy security but widens the scope to include multiple oil-poor countries in the MENA.

2.4. Linking energy security and nuclear energy.

In the context of nuclear energy policy, energy security is restricted to its function as a justification and motivation for nuclear power development. This is reflected in the literature on nuclear energy policy that insistently references the positive effect of nuclear energy proliferation on energy security. Riahi et al. (2012), for instance, claim that *“nuclear energy can potentially contribute to energy security objectives”* (p. 1237). The same causal link between energy insecurity mitigation and nuclear power development can be observed in the literature on nuclear energy in the MENA. Jewell (2011a), for example, identifies three primary motivations for nuclear power development in North Africa, all of which fall into the ‘security of supply’ category: energy security, energy demand growth and energy for desalination. Similarly, El-Anis (2012) argues that energy security *“has often been a stated rationale in the emerging nuclear energy programmes in the region”* (p. 25), a perception echoed by Marktanner and Salman (2011) and Supersberger and Führer (2011).

Importantly, energy security is simply an aggregate representation of energy security indicators, a proxy terminology. Without dis-aggregation, the term ‘energy security’ holds broad and unspecific information; reference to the underlying indicator framework, however, conveys detailed and specific energy security data. The International Energy Agency, for example, finds that nuclear energy can affect energy security by diversifying the electricity and primary energy supply, lessening the exposure to fuel price volatility and raising energy system reliability (IEA, 2019f).

Similar to Jewell, Cherp and Riahi (2012) and Cherp et al. (2013, 2014), the OECD’s Nuclear Energy Agency (NEA) names an even more extensive list of external and internal energy security indicators. Precisely, according to the NEA, nuclear energy development bolsters energy security externally by hedging against geopolitical

energy supply risks and offering autonomous electricity generation (OECD and NEA, 2010). Internally, nuclear energy development can positively affect energy security through operational reliability and price stability (OECD and NEA, 2010). Hence, nuclear energy can affect energy systems and security across political, engineering, and economic dimensions.

This study is distinguished by its dis-aggregated understanding of energy security in the energy security-nuclear energy nexus and considers all relevant energy security dimensions; unlike most of the relevant literature. To the best of author's knowledge, OECD and NEA (2010), Jewell, Cherp and Riahi (2012) and Cherp et al. (2013, 2014) are the only studies that rely on highly disaggregated conceptualisations of energy security in the analysis of the energy security-nuclear energy nexus. This study contributes to this limited literature by conducting a differentiated analysis of the energy security motivation for nuclear energy development in oil-poor economies in the MENA.

2.5. Summary.

The preceding chapter has presented the literature on energy security in the context of oil-poor countries in the MENA. The energy security literature has produced market-centric, multidimensional, context-dependent, and geopolitical concepts of energy security. The 'Literature Review' chapter has presented these literatures and identified an energy security conceptualisation from within this literature that effectively captures the energy security situation in the case study countries. The 'Literature Review' presents Winzer's (2012) energy security conceptualisation as the most appropriate energy security understanding in the context of this study. Winzer's (2012) energy security definition acknowledges the context-dependent nature of energy security and recognises that energy security in oil-poor countries is understood primarily as a narrow, security of supply-based concept.

The 'Literature Review' chapter has also reviewed the literature on securitisation and focusses especially on the concept's engagement with elite perceptions, energy, and the MENA. The preceding chapter has outlined the breadth of the securitisation literature but identifies clear gaps in the literature that this study fills.

Furthermore, the preceding 'Literature Review' chapter has shown the literature on nuclear energy and differentiates purposefully between global, national, and regional nuclear energy literature. This study has also reviewed the literature on the motivations for nuclear energy and validates the need for this study by placing it in a niche of the available literature that has, thus far, been covered insufficiently.

This chapter ends by presenting the literature that engages with energy security and nuclear energy concurrently and combines both concepts in analysis.

The next chapter is the 'Theory' chapter, which presents securitisation theory and its engagement with energy and the non-West, before reviewing the literature on energy in the international relations' (IR) scholarship. The 'Theory' chapter also explains why the traditional securitisation theorisation is inadequate for this study and proposes amendments that make securitisation theory viable in the context of this study.

3. Theory.

3.1. Security Studies and the 'widener' vs. 'traditionalist' debate.

Buzan, Waever and de Wilde's (1998) *'Security: A New Framework for Analysis'* aims to develop and present a novel framework for the analysis of security events, thereby contributing to the security studies literature. They base their work on earlier deliberations that have questioned the prevalence of the military dimension and the state in security conceptualisations. A variety of academic and policy-orientated sources have questioned the primacy of the military element in security studies. For instance, academics have questioned the validity of purely military-centred security conceptualisations; such voices have emerged, among others, from within the scholarships on peace research, international political economy, feminism, and strategic studies (Buzan, Waever and de Wilde, 1998). Generally, voices in favour of a re-imagined security conceptualisation have sought to widen the security agenda by recognising and accepting the legitimacy of security events in the societal, environmental, and economic sectors, in addition to state-centred security events that have traditionally emerged from the military sector (Buzan, Waever and de Wilde, 1998). The rise of this separatist ideology has led to a dichotomous distinction between two competing understandings of security studies, the new view of the wideners and a traditional military-centred view of the traditionalists.

The emergence of the widening perspective is grounded in the discontent with a significantly narrowed field of security studies that had emerged as a direct consequence of the Cold War and its fixation with nuclear proliferation and military-centred security understandings. This 'traditional' understanding of the study of security is more broadly known as political realism, comprising both its 'classical' and neo-realist (or 'structural') variants. Political realism defines the states as the central

security object and perceives war as the key security risk. This has solidified the 'traditional' position, which holds that "*[a] nation is secure to the extent to which it is not in danger of having to sacrifice core values, if it wishes to avoid war, and is able, if challenged to maintain them by victory in such a war*" (Lippman, 1943, p. 51, cited in Ayooob, 1997, p. 124). Similarly, neo-realist scholar Stephen Walt (1991) understands security studies as "*the study of threat, use, and control of military force*" (p. 212), which is often cited to summarise the realist position. According to Walt (1991), the competition for power between states is the driving principle of international security, which is measured in terms of military strength (or coercive capability). Furthermore, the state is assumed to be the principal 'referent object', which must be protected, and the focus rests primarily on the military sector, while other issues are only deemed important if they "*bear directly on the likelihood and character of war*" (Walt, 1991, p. 213).

Several 'wideners', such as Ullman (1983); Nye and Lynn-Jones (1988); Brown (1989); Crawford (1991); and Haftendorn (1991), overtly promulgated the need for a widened security conceptualisation, often sensing the urgency of emergent, non-military sources of threat. Specifically, Ullman (1983) and Buzan (Buzan, 2016) have both widened the threat definition and aligned themselves with a more general formulation that largely disregards the military dimension. Similarly, de Wilde and Wæver, class themselves as wideners, de Wilde by virtue of his liberal-pluralist background and Wæver on account of his postmodern realist conviction (Buzan, Wæver and de Wilde, 1998).

Buzan, Wæver and de Wilde's (1998) 'securitisation analysis' is a widened security framework that acknowledges and integrates the traditionalist position. The framework is heavily marked by 'widener' ideology as it recognises a variety of distinct types of threats. Buzan, Wæver and de Wilde (1998) disagree with the idea that war

and force sit at the centre of security studies and relevant themes are necessarily related to war and force. Instead, they present a more extreme understanding of security studies that analyses military and non-military threats and evaluates the securitisation of such threats. Also, Buzan, Waever and de Wilde (1998) accept the traditionalists' concern about a lack of intellectual coherence but disagree with the traditionalists' logic of receding towards a military core. They seek ideological coherence by testing the logic of security and learn what differentiates securitisation and security from a purely political position. Buzan, Waever and de Wilde (1998) are eager to develop a system that transcends the existing differences between the wideners and the traditionalists' view. To realise their objectives, Buzan, Waever and de Wilde (1998) aim to form security conceptualisations that are more precise than a specific problem or threat. Specifically, problems or threats may emerge from an expansive range of distinct plains, both military and non-military, but must satisfy precisely defined criteria to count as security issues, which surpass the purely political.

3.2. Securitisation theory.

The Copenhagen School's understanding of security signifies one of the most prominent, constructivist approaches to security studies (Heinrich and Szulecki, 2018). Specifically, the concept of 'securitisation', alongside 'regional security complex' and 'sectoral security' theory (Buzan and Waever, 2003), represents the Copenhagen School's most influential contribution to security studies theory (Buzan, Waever and de Wilde, 1998).

Securitisation begins with a securitisation move; a process that is initiated by a securitising actor who defines a referent object and develops a threat narrative that declares an existential threat to the referent object's survival (Buzan, Waever and de Wilde, 1998). The threat narrative is then conversed through a speech act that recommends exceptional measures beyond commonly accepted rules; this concludes the securitisation move that must be accepted by the target audience to successfully accomplish securitisation (Buzan, Waever and de Wilde, 1998; Buzan and Waever, 2003). Securitisation may, thus, be described as a multi-stage process of security creation. One of the most prominent definitions of securitisation reads: *"when a securitising actor uses a rhetoric of existential threat and thereby takes an issue out of what under those conditions is 'normal politics', we have a case of securitisation"* (Buzan, Waever and de Wilde, 1998, pp. 24–25; Buzan and Waever, 2003, p. 491; Balzacq, Léonard and Ruzicka, 2015, p. 495).

In sum, the principal idea underpinning securitisation is that an issue attains enough saliency to achieve audience approval, which empowers authorized stakeholders to employ whatever means they deem necessary. Alternatively, *"securitisation combines the politics of threat design with that of threat management"* (Balzacq, Léonard and Ruzicka, 2015, p. 495).

Importantly, the Copenhagen School's theoretical construct interjoins neorealist, poststructuralist and constructivist principles; three principally disjunctive research paradigms (Booth, 2007). The realist influence is reflected in the School's traditional, realist stance towards conflict, survival and war. Williams (2003) and Huysmans (1998), for instance, trace the School's Schmittian roots, while Buzan (1991) adopts Kenneth Waltz's neorealist stance on the anarchic nature of state behaviour in his 'sectors of security' concept. However, Buzan, Waever and de Wilde (1998) also hold the epistemological position that securitisation is best studied in discourses as reference to extra-discursive indicators is not required. The centrality of discourses and the 'self-referential' practice of securitisation align with the post-structuralist assumption of a subjective 'production' of truth and knowledge that renders external influences irrelevant (Balzacq, 2005; Stritzel, 2007; Hansen, 2011). Finally, the concept of 'intersubjectivity' is a core component of securitisation theory; Buzan, Waever and de Wilde (1998), for instance, define securitisation as *"the intersubjective establishment of an existential threat with a saliency sufficient to have substantial political effects"* (p. 25). Hence, the Copenhagen School holds that security is socially constructed (Buzan, Waever and de Wilde, 1998). This indicates the constructivist roots of securitisation theory and its concomitant methodology, as 'intersubjectivity' and the social construction of security signify foundational principles of Wendt's constructivist understanding of structuralism (Wendt, 1995).

As outlined above, traditional security studies propagated a belief system that centred on war and the state, whereas critical security studies (or 'wideners') entailed a more expansive agenda. While realists believe that military strength is the principal factor of security and insecurity, social constructivists such as Alexander Wendt (1999) claim that security threats are created through inter-subjective interaction. Hence, mainstream social constructivists argue that discourse and dialogue between

individuals and groups forms threats, which makes 'security' a context-specific, social construction (Wendt, 1999). Moreover, threats do not exist autonomously without us knowing of them; instead, they are formed through processes (i.e., description of a threat in political speeches) and actors (i.e., state representatives) (Wendt, 1992). As threats arise from social interaction, the traditional idea that material factors such as military capacity define security is disregarded. Therefore, discursive and ideational factors (i.e., identities, norms, beliefs, and ideas) inhabit a much more prominent position in constructivist approaches (Katzenstein, 1996). The constructivist scholars Emanuel Adler and Michael Barnett, for instance, analyse the Organisation for Security and Cooperation in Europe (OSCE) and the North Atlantic Treaty Organisation (NATO) and showcase how security communities can utilise common interests to form the foundation that facilitates cooperation rather than conflict (Adler and Barnett, 1998).

This study understands securitisation theory as a primarily constructivist concept that paralleled the rise of constructivism in a dissatisfied IR discipline searching for novel explanatory theories on security inequality and state behaviour in a post-Cold War era (Kilroy Jr., 2018). Both constructivism and securitisation theory move beyond systemic, state-level analysis and hold that *"security is what agents make of it"* (Huysmans, 2002, p. 42). This study, therefore, agrees with Heinrich and Szulecki (2018) who describe the Copenhagen School as *"one of the leading constructivist approaches to security studies"* (p. 34).

3.3. Context and securitisation analysis: Towards a context-dependent theorisation.

Importantly, securitisation moves do not occur in isolation but are rooted in distinctive social and political contexts that define the threat dimension. Logically, the context that holds the securitisation process, and in particular the speech act, is of importance as it reveals the conditions that underlie the securitisation move. However, the Copenhagen School's objective of developing a universally applicable framework (for the analysis of threat narratives through speech acts) undervalues formative contextual factors that condition the construction of security (Abrahamsen, 2005; Salter, 2008; Balzacq, 2010; Ciutā, 2010; Heinrich and Szulecki, 2018; Szulecki, 2020). Buzan, Waever and de Wilde (1998) acknowledge this problem but fail to fundamentally redress it; an unexpected shortcoming given Waever's work on the influence of identity narratives on security understandings in Europe (Wæver, 1996; Hansen and Wæver, 2001)

Despite the peripheral role of context in securitisation theory, McDonald (2008) identifies three primary forms of engagement with the context of the speech act in the Copenhagen School. Firstly, the designation of threat approach contends that the securitisation sector defines the threat dimension (McDonald, 2008). Perhaps the most prominent distinction between sectors in the analysis of securitisation dynamics is the differentiation between societal and state sectors, which exposes and reiterates the distinction between nation and state (Waever et al., 1993). Secondly, the facilitating conditions approach consults the "*conditions historically associated with that threat*" (Waever, 2000, pp. 252–253), refers to the institutional context and considers the role of the securitising actor to understand the dynamics that facilitate the securitisation move (Buzan, Waever and de Wilde, 1998). Thirdly, the explicit recognition of an audience of securitisation, defined by the context of the threat and the anticipated

response to the threat, signifies another contextual factor in securitisation theory (McDonald, 2008).

Overall, the importance of context to the application of securitisation theory introduces two primary challenges to this study. Firstly, the act of securitisation is assessed in the context of the energy sector; hence, the designation of threat is defined by energy insecurity concerns and energy sector dynamics. Secondly, the facilitating conditions that underlie the securitisation move are highly idiosyncratic in the context of the MENA. Specifically, the region is distinguished by a distinct political, socio-cultural, economic and religious organisation that differs markedly from the Western-centric assumptions that underlie securitisation theory (Greenwood and Wæver, 2013). Both of these contextual factors affect the application of Buzan, Wæver and de Wilde's (1998) securitisation methodology in the context of this study.

3.4. Theoretical approaches to energy in the International Relations scholarship.

The management of international energy relations sits high on the agenda of most states. Energy sustains infrastructure and powers industries, which makes energy an essential building block of the modern economic existence. However, the uneven geographic distribution of energy deposits has resulted in an imbalanced concentration of wealth arising from the trade of energy resources. While there are exemptions to the rule, most countries are either classed as net-importing consumers or as net-exporting producers, which underlies a global network of interdependencies connecting energy-rich with energy-poor states.

Observing this relationship from a purely economic position, energy interdependencies are seemingly mutually beneficial as energy producers eager to sell are linked to consumers that need to buy. From an international political perspective, however, there is perpetual tension between competing interests (Ravenhill, 2013). Producers are eager to take in maximum rents from energy exploitation, while consumers try to minimise energy costs and ensure reliable supply of energy to power industries and households. These oppositional forces can trigger inter-state conflicts over energy that can span a broad spectrum of intensities: ranging from disagreements in energy negotiations, through investment and trade sanctions, to 'resource wars' that involve clashes over access to energy resources.

A central issue of the IR scholarship revolves around the question whether networks of energy interdependencies are distinguished by inter-state cooperation or conflict. On the one hand, cooperation is an important factor that facilitates shared interests in energy matters, while also convincing parties of the good policy intentions of others (Victor and Yueh, 2010a). Cooperation may also set standards for national energy

policies, which helps to integrate global energy markets, betters market transparency and depresses transaction costs (Goldthau and Witte, 2009a). Moreover, cooperation can also aid the transition to novel forms of energy such as renewables that can counter threats arising from climate change pressures and the gradual depletion of hydrocarbons (Lesage, Van de Graaf and Westphal, 2016). On the other side, energy relations and the question of access can initiate disputes between energy consumers and producers (Ravenhill, 2013). Producer states have at times employed the 'energy weapon', which is a diplomatic ploy to blackmail consumer states during which energy supplies are only fulfilled if certain concessions have been satisfied (O'Sullivan, 2013). Also, the importance of uninterrupted energy supplies to consumer states is exceedingly high and almost exclusively labelled as an issue of national security (Phillips, 2013). Recognising changes to the balance between conflictual and cooperative tendencies is important to understand the nature of configurations in inter-state energy relations (Wilson, 2019).

Overall, the rise of international energy conflicts has reignited interest amongst IR specialists in the dynamics surrounding international energy politics. Russia's use of the 'energy weapon' is one of the most notable conflicts, which saw Russia withhold (or threaten to withhold) natural gas supplies to its neighbouring Eastern European countries (Smith Stegen, 2011; Wigell and Vihma, 2016). Another influential series of disputes has arisen in the South China Sea, where territorial claims have been aggravated by the discovery of deep-sea hydrocarbon deposits, which has sparked a race between China, Japan, and several other regional actors to successfully establish territorial sovereignty over the disputed maritime geographies (Emmers, 2013; Hiebert, Nguyen and Poling, 2014). Furthermore, in Central Asia, observers have warned about the intensification of a 'great game' between rival powers for pipeline access and ownership of the region's abundant energy deposits (Stulberg, 2012; Chen and Fazilov, 2018; Freeman, 2018). Energy disputes have reified the centrality of

energy in international relations, which has markedly influenced the first of two competing theoretical concepts in the IR's engagement with energy.

The first theoretical construct is frequently called the 'geopolitical approach' and understands energy as a key factor in inter-state conflict. This account, which is closely reminiscent of concepts in structural realism, denotes the dominant theme in scholarly and popular discussions on energy politics (Dannreuther, 2013). It holds an 'access-based' perspective of energy security, which recognises the existential importance of exceedingly scarce fossil fuel assets to the survival of modern militaries and economies, while identifying the accessibility of these rare commodities as the solution to energy insecurity issues (Klare, 2009). To consumers, the dependence on exporters and the risk of interruptions to energy supplies signify existential security threats (Russett, 1984; Glaser, 2013a). Conversely for producers, the high economic significance of energy commodities makes them a central strategic instrument in a country's foreign policy repertoire. This can range from the energy weapon, which is classed as a behavioural threat, to energy diplomacy, which associates preferential treatment with favourable behaviour (O'Sullivan, 2013). Energy sanctions are common foreign policy tools that have been employed sixty-five times since 1938, which indicates its importance as an instrument of coercive diplomacy (Fischhendler, Herman and Maoz, 2017). Confirming its association with structural realism, the geopolitical approach also contends that inter-state relations are necessarily defined by conflict. Moreover, global energy resources are thought to be progressively declining and fixed assets that underlie zero-sum competition by states over access and/or control (Jain, 2014).

Contrasting the geopolitical approach is a rival theorisation that has been coined the 'global energy governance approach', which leans on ideas from the neoliberal institutionalist agenda in IR theory and claims that energy is best understood as a

cooperative international field (Goldthau and Witte, 2009b). Their reasoning relies on the belief that interdependence is core feature of energy politics, as almost all states do not have access to all energy assets needed by their economies (Nance and Boettcher, 2017). Resultant, 'energy 'globalisation' has grown exponentially since the 1990s, as the diversity and density of energy trade networks has expanded gradually (Overland, 2016). Furthermore, cooperating in energy matters can have mutually beneficial outcomes. For consumers, high energy prices and restricted supply can negatively affect energy security. Conversely, for producer economies, market volatility undermines the implementation of investments in energy infrastructure and associated projects (Victor and Yueh, 2010b). For both, however, escalating worries about a lack of energy and climate change propel the implementation of 'energy transitions' that shift dependence on fossil fuels to more modern energy sources such as renewables and natural gas (Bradshaw, 2013). Here, energy relationships are perceived as potentially cooperative, which means that conflict and insecurity are not understood as inherent factors but conditional effects that arise from some sort of 'market failure' (Goldthau, 2011). Crucially, such market failure can possibly be reverted by acting collectively in two specific ways.

Firstly, the global energy governance approach holds a 'market-based' understanding of energy security (Chester, 2010). In this perspective, energy insecurities can be eliminated by ensuring that international energy markets function efficiently, which deviates notable from the access-based understanding of the geopolitical perspective. Scholars note that open and competitive markets deal with energy security issues through price manipulation, whose rising value frees up extra supply (Harris and Naughton, 2007). Market dynamics can also lessen the politicisation of energy interdependencies, by permitting investment and trade between willing actors (McGowan, 2008). Hence, international markets are seen as 'global public goods',

which may positively affect energy security in all economies (Goldthau, Hoxtell and Witte, 2010; Dubash and Florini, 2011).

Secondly, governments are incentivised to collectively augment or support international markets. Collective action can come in various forms but may entail the generation of trust between governments, information sharing, the coordination of policies to improve markets, and the dialogues that determine who profits from the benefits and costs of interdependencies (Wilson, 2017). Adopting a neoliberal institutionalist position, Colgan, Keohane and Van de Graaf (2012) claim that these joint beliefs caused the evolution of an 'energy regime complex', which describes a range of informal and formal institutions that manage energy interdependencies. In sum, observers conclude that functioning international markets paired with supporting institutions define the 'rules of the game' for energy and lessen the possibility of conflict and foster positive-sum collaboration (Goldthau and Witte, 2009a).

Notwithstanding their conflictual predictions, the two IR concepts are similar in their systemic approach to theorisation. They understand energy politics as an inherently international inter-state process, while the behaviour of states is only explained by referencing the lack of consent about the nature of energy interdependencies. Precisely, the discussions revolve around the question whether energy interdependencies are described by securitised, zero-sum conflicts or, alternatively, by non-securitised, positive-sum cooperation. Hence, the two IR theories on energy align with the 'neo-neo' debate between realists and neo-liberalists (Baldwin, 1993).

3.5. Energy securitisation.

The application of securitisation analysis to energy issues has produced a variety of studies; ranging from simple documentations of 'energy security' utterances that advocate technology options (Watson and Scott, 2009; Littlefield, 2013) to studies that investigate the reasons for un/successful securitisation attempts (Fischhendler and Nathan, 2014; Leung et al., 2014; Fischhendler, 2018). Importantly, within the energy security literature, energy insecurity risks are generally communicated and understood as threats to the 'continuity' (Winzer, 2012) and 'functioning' (Australian Government, 2009) of the economic system, the survival of the state (A. Cherp and Jewell, 2011c), and the accomplishment of major national objectives and values (Yergin, 1988).

Overall, however, the literature explicitly linking energy to securitisation theory is limited. Leung et al. (2014) is a publication that directly investigates energy securitisation through application of principles from securitisation theory. They argue that energy policy problems are cast as energy (in)security issues if they are perceived as affecting the survival or stability of a country, the 'continuity' (Winzer, 2012) and 'functioning' (Australian Government, 2009) of the economic sector or the achievement of 'major national values and objectives' (Yergin, 1988). Their study shows that China places great emphasise on strengthening its oil supply chains, while tolerating and exacerbating vulnerabilities in its domestic electricity supply (Leung et al., 2014). This behaviour is rooted in history, linked to energy system properties and the control of influential institutional agents that favour the securitisation of oil supply chains over other vital energy systems (Leung et al., 2014).

Conversely, in the traditional security understanding of the Copenhagen School, energy is categorised as an internationally traded commodity that is affected by market forces and, consequently, classed strictly as an economic referent object

(Buzan, Wæver and de Wilde, 1998). The theory further deduces that energy resources are non-scarce and energy insecurity poses an existential threat only to the economic sector, while other sectors are not affected

Overall, the designation of energy as a purely economic factor seems illogical in the context of the Copenhagen Schools' understanding of security.

The School's understanding of security studies has been motivated by the inability of traditional military and state-centred IR to empirically and theoretically accommodate emerging security issues, such as intrastate conflict, migration and transnational crime (Buzan and Wæver, 1997, p. 242). To capture these 'new' security threats, Buzan, Wæver and de Wilde (1998) created a widened security agenda that is divided into five individual security sectors: political, military, societal, economic, environmental. The Copenhagen School seeks to merge security data from these sectors into a 'complex whole' (Buzan, Wæver and de Wilde, 1998, p. 8).

Moreover, security is understood as a dynamic concept; while rooted in the military sector, it has slowly penetrated other sectors where its importance has gradually increased (Wæver, 1995). Importantly, the "very swift" emergence and the cross-sector impact of military threats are the primary factors that initially classified security as a military concern (Buzan, 1991, p. 117). This study argues that energy satisfies both classification standards. Precisely, the 'swiftness' in impact is a hallmark of present-day energy systems, where upstream disruptions can 'swiftly' reverberate along highly responsive, trans-border supply systems (Jewell, 2011c; IEA, 2019b). Also, energy is a prominent 'cross-sector' factor that is intimately linked to security in all security sectors (Cherp and Jewell, 2014).

This study reasons that energy security intensifications cannot be captured effectively through reference to a single sector but contends also that energy should not be classified as an autonomous security sector. Instead, the immediacy and imminence of energy security threats make it a principle subject of securitisation, while simultaneously shaping the security intensification of non-energy referent objects across all security sectors (Heinrich and Szulecki, 2018). Precisely, energy security is rarely intensified independently; instead, energy security may be an insecurity factor in all five security sectors (Christou and Adamides, 2013, p. 510). Natorski and Herranz Surrallés (2008), for instance, uncover a multi-sectoral framing practice in energy security debates amongst EU member states and institutions; precisely, energy insecurities were framed as economic, environmental, societal, and political problems.

The imminence and immediacy of energy (in)security threats mean that its effects extend beyond any one sector and may be felt across various sectors (Christou and Adamides, 2013). This is demonstrated by several case studies on states in the Middle East and North Africa. For example, Israel's position elucidates how, in practice, energy relations are not securitised as an economic variable but are almost unvaryingly connected to political securitisation processes. Bahgat (2010) explains that Israel decided to securitise inter-state relations with Iran during the 1970's, which prohibited the development of mutually beneficial cross-border relations as neighbouring states. Both Israel and Iran failed to pursue policies of appeasement and opted instead to watch idle as political relations continued to sour. Since the rise of Ayatollah Khomeini in 1979, energy collaboration has remained an improbable undertaking that has fallen victim to securitisation at the political and military level.

Similarly, the discovery of natural gas reserves in the Eastern Mediterranean has also shown how energy can intensify the securitisation in the military and political sectors. Christou and Adamides (2013) report that the exploitation of gas deposits in the EEZ's

(Exclusive Economic Zone) of Cyprus, Israel, Lebanon, and Syria indicates the significance of energy exploitation in the creation of the new Middle East. Precisely, the threat of energy development intensified prevailing disagreements over sovereignty as maritime borders remain highly contested territorial markers that have motivated Egyptian, Lebanese, Palestinian, and Syrian calls for Israel to stop accessing their gas reserves (Bahgat, 2011; Shaffer, 2011). Hezbollah have intensified this contestation and asserted their desire to protect the natural resources of Lebanon, which forced an insistent response by Israel that reiterated its commitment to protect its national interests (Bahgat, 2010). The contribution of energy to the prevailing maritime border dispute has fabricated a securitisation event in the political sector that revolves around questions of sovereignty. Crucially, the political threat to sovereignty and the inability to extract national oil deposits is likely to be subsumed by the military sector (Christou and Adamides, 2013). The examples listed above showcase clearly that energy is best studied in a cross-sectoral manner under the assumption of a widened and inclusive security agenda. This is due to the cross-sectoral operation of energy issues that can amplify pre-existent insecurity situations in a multitude of sectors.

In absence of a discrete energy sector, Buzan, Waever and de Wilde's (1998) security sector model simply captures the spectrum of potential national security threats. Therefore, the School's security sector framework offers a non-specific systematisation that has not been adapted for the classification of energy-specific spheres of insecurity. Precisely, using the five security sectors to systematise energy insecurity risks implies that the security relevance of energy is limited to, and captured comprehensively by the economic, environmental, military, societal, and political sectors. This study seeks a more targeted classification and utilises (energy) security frames and logics to avoid the Copenhagen School's restrictive sector systematisation and precisely capture national, energy insecurity factors.

To this end, this study adopts Wilson's (2019) securitisation-focussed, energy security logics that define three *"referent objects which states often consider to be under existential threat by developments in the energy sphere: their economic, regime and geopolitical security"* (p. 118). Specifically, Wilson (2019, p. 119) defines energy securitisation as a conditional outcome that is shaped by international and domestic, state-specific insecurity factors that are not mutually exclusive; instead, states may be exposed to multiple insecurity drivers at once. Wilson (2019) reports a strong case-specificity in the predisposition to energy securitisation, which arises primarily from economic, regime and geopolitical insecurity factors; three factors of particular security significance in energy import-dependent states in the MENA (Christou and Adamides, 2013; Greenwood and Wæver, 2013).

The practical implications of adopting Wilson's (2019) security logics concept are two-fold. Firstly, this study sources instances of security intensification through speech acts from any security 'sector' that is involved in the economic, regime or geopolitical security of the case study countries; thereby dismissing the Copenhagen School's understanding of energy as a purely economic factor. Secondly, the case-specific character of energy in/security factors indicates variability in security intensification levels. Specifically, energy securitisation is best *"conceptualised as a continuous rather than binary variable [...] [and] measured in terms of degrees rather than absolute presence/absence"* (Wilson, 2019, p. 119). This study concurs and differentiates between security intensification and securitisation, with the latter signifying albeit one possible security intensification level. Reference to multiple, distinct degrees of (energy) security intensification allows for a more precise and nuanced classification of (energy) security discourses, an important factor also for the application of securitisation analysis to the MENA.

3.6. Securitisation theory in the non-West.

The importance of context in securitisation analysis arises also from the facilitating conditions of the security intensification act (or securitisation move), which are highly place-specific (McDonald, 2008). This study conducts securitisation analyses of discourses in the MENA, a region with highly idiosyncratic facilitating conditions that differ markedly from the Copenhagen School in their understanding of ruler, society, politics and rights (Chatterjee, 2004; Greenwood and Wæver, 2013; Kapur and Mabon, 2018; Mabon, 2018a). Overall, securitisation theory is increasingly being applied to non-Western contexts as scientists try to comprehend the function of political actors and discourses in security constructions beyond Western, liberal democracies (Acharya and Buzan, 2017). At the same time, scholars critically evaluate the capacity of securitisation theory to effectively explain security processes in the non-West; a practice that has suggested changes to the theory for a more effective application to illiberal and undemocratic settings (Kapur and Mabon, 2018). Concerns about the functionality of securitisation theory in the East are rooted in more fundamental critiques of IR theory in the non-West.

3.7. Western-centricity in securitisation theory.

The concept of securitisation is anchored locally; beyond the West, however, local embeddedness generates conceptual challenges. Often, western understandings of issues, such as regime-society relations, politics or sovereignty remain unchanged in applications to post-colonial contexts in the non-West (Greenwood and Wæver, 2013; Mabon, 2018a). Wilkinson, for example, notes the centrality of the 'Westphalian straitjacket' in the Copenhagen School's securitisation theory and finds that *"there is a presumption that European understandings of society and the state are universal"* (2007, p. 5). This presumption overlooks the formative function of colonisation and decolonisation processes that have created disparate societies, which signify highly specific theory environments (Buzan and Little, 2001; Greenwood and Wæver, 2013). Critics have, therefore, questioned whether securitisation theory can be applied to the non-West (Wilkinson, 2007).

In the contemporary world of IR, ideas, concepts and theories that have been developed in the West are often considered to effectively portray realities in non-Western worlds, while place-specific, socio-historical circumstances receive only limited consideration (Wilkinson, 2007). This phenomenon has been coined the 'Westphalian straitjacket' of IR, which is defined as *"the strong tendency to assume that the model established in seventeenth century Europe should define what the international system is for all times and places"* (Buzan and Little, 2001, p. 25). Wilkinson (2007) sets out to assess the prevailing presence of the Westphalian straitjacket in her application of securitisation theory to a non-West setting and find out whether the *"historical and Eurocentric arrogance"* (Buzan and Little, 2001, p. 25) has prevailed. The answer to this question in Wilkinson's (2007) mind is a resounding yes. Her article concludes that the Westphalian straitjacket remains tightly strapped as Euro-American presumptions about identity, society, and the state continue to

dominate non-Western applications of securitisation theory. She also finds that a Western democratic system is implicitly expected in non-Western environments, which means that security events are Westernised and edited by applying the theoretical framework (2007).

Concerns about a Eurocentric and Western bias in securitisation theory can be narrowed down to differences in normality; a subjective concept that varies between societal, religious, political and economic contexts (Mabon, 2018b). Precisely, the process and logic of securitisation theory rests on several expectations of Western 'normality' that are not necessarily present in non-Western environments.

However, despite well-founded reservations about its applicability to non-Western contexts, securitisation theory is useable beyond the West. Nyman and Zeng (2016), for instance, employ a traditional securitisation methodology to assess security discourses in China and conclude that *"the language and grammar of security still play an important role in legitimation and prioritisation"* (p. 310). This contradicts the assumption that securitisation is absent in non-liberal-democratic systems as 'extraordinary' measures are not contingent on audience approval (Vuori, 2008). On the contrary, even non-Western, non-democracies use deliberate security construction to control subordinates, deter threats, legitimise policy and elevate the status of discourses (Alagappa, 1995). Precisely, legitimacy remains a principal concern in autocracies as *"pure coercion does not exist and leaders require a minimum degree of consent and persuasive power"* (Darwich and Fakhoury, 2016, p. 726). Importantly, normal politics in non-democratic systems are not linked to democratic procedures but are instead constituted by socio-historical structures that constrain political leaders (Darwich and Fakhoury, 2016). In sum, securitisation theory can be applied to non-democratic systems outside of Europe as 'special politics' (or 'extra-ordinary')

measures) are justified through processes of security intensification (Wilkinson, 2007; Vuori, 2008; Christou and Adamides, 2013; Nyman and Zeng, 2016; Mabon, 2018b).

However, the Copenhagen School's traditional securitisation methodology is ill-equipped for applications to the non-West (Wilkinson, 2007; Vuori, 2008; Greenwood and Wæver, 2013). Securitisation theory has to be sharpened conceptually in order to effectively capture security intensifications in non-Western, non-democracies and overcome the contextual hurdles outlined above (Vuori, 2008, p. 66). Specifically, in the non-West, the process of security intensification is less dichotomous than traditionally implied in securitisation theory; precisely, *"the complex act of securitisation can contain several kinds of perlocutionary intentions and effects"* (Vuori, 2008, p. 66). Resultant, security intensifications in the non-West come in various forms and are not limited to the Copenhagen School's binary distinction between securitisation and politicisation.

3.8. Summary.

The preceding 'Theory' chapter has outlined the Copenhagen School's securitisation theory and illustrated its roots in security studies theory. Special attention has been directed at context in securitisation theory as this study's focus on energy and the MENA signify contextual factors that deviate from the theory's European roots. This chapter has consequently reviewed the literature on energy securitisation and developed the argument that energy is captured most effectively in the context of this study by applying Wilson's (2019) security logics concept. Similarly, this chapter has also analysed the theories on securitisation in the non-West and argued that securitisation theory's constructivist roots make it an effective concept for the analysis of energy security and nuclear energy in the non-West. This chapter ends by stressing the western-centric foundations of securitisation theory and declaring that the traditional securitisation theorisation must be amended to effectively capture energy security intensifications in the MENA.

The 'Theory' chapter has also reviewed the engagement of the international relations scholarship with energy and presented the two domineering theoretical concepts: the geopolitical approach and the global governance approach.

The next chapter is the 'Methodology' chapter that presents this study's multi-pronged research design.

4. Methodology.

4.1. Inquiry (1) - Elite discourses, state-controlled media, and the opinion-making process.

Elite government discourses communicate and report in a deliberate and calculated manner and are expected to influence the attitudes of a target audience (Gehlbach and Sonin, 2014). After all, “*something is a security problem when the elites declare it to be so*” (Waever, 1995, p. 54). Consequently, elite government discourses hold and reveal elite government attitudes (Aberbach, Chesney and Rockman, 1975). Precisely, elite attitudes extracted from elite government discourses reflect the government’s (or regime’s) intended reading of the subject matter, which in turn indicates executive beliefs that underlie state governance and public policy (Dye, 1972; Aberbach, Chesney and Rockman, 1975; Gehlbach and Sonin, 2014). Hence, in the context of this study, the understanding of elite attitudes towards energy security and nuclear power contextualises and elucidates national, energy policymaking. Precisely, Lassance (2020) defines policy as “*[a]n institutionalised proposal to solve a central problem, guided by a conception*” (p. 9); elite government attitudes hold and reveal this conception (Swaine et al., 2013). Therefore, this study’s analysis of elite government attitudes captures the ruling elite’s principal security logic that informs energy (security) policymaking.

This study focusses on elite government discourses as they are direct, primary sources of elite views, often containing original policy statements. Elite discourses are particularly effective sources for energy security and nuclear energy proliferation corpora, as the energy sector is comparatively technocratic and closed-off, which means that almost all authorisation to securitise rests with government elites and market participants (Judge and Maltby, 2017, pp. 186–187). Importantly, the state-led

dissemination of information through state-owned/controlled media channels is not only a vital public relations instrument but also a powerful tool for social and political mobilisation (Buzan, 1992, p. 13). This is of particular importance to this study, as energy security is inherently performative (Bridge, 2015). Precisely, the security intensification of energy is driven by elite, calculative techniques that mark energy as a matter of strategic importance (Bridge, 2015, p. 329). Hence, elite energy security discourses seek to shape opinion and persuade, thereby changing behaviours, values and attitudes of audiences (Soules, 2015a, p. 3; Nyman and Zeng, 2016, p. 302). Crucially, persuasion is closely linked to propaganda; i.e., the purposeful manipulation of cognitions to the benefit of the propagandist (Jowett and O'Donnell, 2006, p. 7). In fact, the performative acts of persuasion and propaganda in elite (energy) security discourses hold and reveal elite attitudes on (energy) security (Djankov et al., 2003). This study takes advantage of the performative nature of energy security and gains direct access to elite attitudes by analysing the performative acts of energy security persuasion and propaganda in state-owned/controlled media discourses.

Moreover, nuclear energy is also frequently discussed in the public realm as the topic is highly contentious and arguments about nuclear energy regularly permeate elite discourses. Particularly state-led public acceptance campaigns are frequently embedded in elite discourses (Moula *et al.*, 2013; Kim, Kim and Kim, 2014). Precisely, elite sources are almost always eager to steer the public perception of nuclear energy and are regularly involved in public relations campaigns that advertise the positive features of nuclear power (Gamson and Modigliani, 1989). Thus, just like energy security, nuclear energy is often debated and covered in elite discourses.

This study sources data from official government publications to respond to the first research question:

R.Q. 1. *What is the elite perception of energy security and nuclear energy proliferation in oil-poor countries in the MENA?*

This study sources elite perceptions from official government publications, including policy documents, speeches, websites, presentations, and interviews. These data sources provide the text corpus from which the elite perceptions of energy security and nuclear energy are attained. Importantly, all official government documents have been identified and obtained through online searches and the 'snowball sampling' method (Parker, Scott and Geddes, 2019). The data acquisition process relies on a review of the available, official government publications and involves the individual analysis of both energy security and nuclear energy-related texts. Precisely, the elite documents and texts are searched for information on energy security conceptualisations and nuclear energy motivations. One of the reasons for focussing on these specific data dimensions is the fact that official, elite texts on energy security are almost exclusively focussed on describing the national energy insecurity risks, while also proposing policy solutions. Likewise, the sourced texts on nuclear energy are almost all concerned with justifying the decision to pursue nuclear energy development. Hence, the sourced nuclear energy discourses present their reasons for nuclear energy proliferation; potentially to educate their populace. It is important to note that this study refers to the process of reviewing the elite texts as textual analysis.

Importantly, the sourced data is presented in a time sensitive manner and begins with relevant, comparatively early policy discourses before presenting progressively more current elite discourses. Overall, both the analysis of energy security and nuclear energy perceptions relies on at least fifteen discrete data sources for each case study country. The data is deemed to be representative of the official, elite position if related texts are sourced from official government pages; are embedded in official online government websites; or are provided by websites of international organisations (e.g.,

IAEA or IEA) and are clearly marked by official government insignia. Sourced documents covered a maximum period of 11 years, ranging from 2012 to 2023, most documents, however, were published in the last five years. This timeframe lends itself well for analysis as all three countries have experienced a 5-year period of relative political and economic stability. A timeframe between 5 to 10 years is effective as it coincides closely with the onset of the 'nuclear renaissance' and the subsequent intensification of public debates about nuclear energy programmes in the case study countries (Gourley and Stulberg, 2013b). Moreover, the topic of energy security has become and remains an omnipresent issue in countries around the world since the early 1970's (Yergin, 1991, 2011). Resultant, debates on energy security and nuclear energy proliferation are likely to have permeated elite discourses during the last 5 to 10 years. Importantly, all data that has been obtained is in English.

Within the sourced elite texts, special attention was directed at direct quotes of elites, such as in forewords or in in-text quotations. Moreover, the relative, perceived quality of data sources varies, as, for instance, this study has favoured official government policy literature, such as annual reports or energy policy documents, over text embedded in government websites, as the enduring accuracy and time profile of the text segment is not accessible. Conversely, official policy documents are time sensitive and demonstrate an official policy position at a specifically defined moment in time. Importantly, the raw data is publicly accessible and has not been produced empirically. However, this study brings together official statements and elite views to provide a comprehensive and longitudinal representation of the energy security conceptualisation and nuclear energy motivation in the case study countries. Hence, unlike individual policy documents, this study has captured elite views over an extended timeframe and has, therefore, been able to generate a complete and long-term representation of elite perceptions of energy security and nuclear energy. Thus, this study has been able to identify energy policy changes over time. Also, the ability

to comparatively assess the elite position, thereby determining congruence and divergence, sets this inquiry apart from single case study analyses or official policy declarations.

4.2. Inquiry (2) - The value of public discourses: Ideology and the agenda-setting process.

This study also sources energy security and nuclear energy news media discourses. Importantly, news media discourses do not only reveal popular narratives but are also indicative of public opinions. The main reason for this causal relationship is the fact that *“events take place beyond the realm of personal experience – if we learn about these events, it is almost surely the product of media coverage”* (Soroka, 2003, p. 43). Thus, as much research has established, news media discourses directly shape public opinions (Iyengar and Simon, 1993; Seaver, 1998; Soroka, 2002b; Garyantes and Murphy, 2010).

To comprehend the influential effect of news media discourses on public opinion it is useful to consult the concepts of ideology and frames. The concept of ideology refers to the thinking, production, and processing of information associated with a particular group of people (Mannheim, 1936; Althusser, 1971; Williams, 1977; Van Dijk, 1998). Ideologies also perform a sense-making function, as noted by Hall (1985), who defines ideologies as *“frameworks of thinking and calculation about the world - the ‘ideas’ which people use to figure out how the social world works, what their place is in it and what they ought to do”* (p. 99). Thus, ideologies disseminate specific social cues that hold a particular understanding of how individuals should conduct themselves and interpret their reality (Garyantes and Murphy, 2010). This is reflected in its impact on news media discourses which always contain many ideological markers that are often integrated unconsciously by journalists, who may become *“inscribed by an ideology to which they do not consciously commit themselves, and which, instead, “writes them””* (Hall, 1985, p. 101). Therefore, the media represents an influential vehicle for ideologies that are presented, intensified, and distributed.

A common method of expressing ideologies in news media discourses is framing (Tuchman, 1978; Gitlin, 1980; Hackett, 1984). Specifically, both framing and ideologies provide context and meaning, and function by accentuating certain perceptions, which raises their salience, and excluding others. Overall, there seems to be consent in the academic literature that frames can exert a noticeable effect on the audience's decision-making (Iyengar, 1991; Iyengar and Simon, 1993; Edy and Meirick, 2007; Garyantes and Murphy, 2010; Watson, 2011; Mercado-Sáez, Marco-Crespo and Álvarez-Villa, 2019). Precisely, ideological views expressed through frames communicate a specific behavioural cue that indicates how to interpret news media discourses, thereby shaping public opinion (Gitlin, 1980). Page and Shapiro (1992), for instance, confirm that television coverage of foreign policy issues does not just affect the salience of these issues in public discourses but also exerts a considerable formative effect on public opinion. Specifically, the coverage of certain policy issues in television programmes explains the public's alignment with, or rejection of these issues (Page and Shapiro, 1992). Crucially, the formative effect of news media discourses on public opinion is also inverted as both concepts are mutually constitutive and public opinions also affect news media discourses (Chu and Recchia, 2022).

Over the years, empirical research on the underlying processes and effects of the media's agenda-setting practice has indicated a significant causal link between news media discourses and public opinion (McCombs and Shaw, 1972, 1993; Dearing and Rogers., 1996; Soroka, 2002b, 2002a). The influential function of news media discourses in affecting public opinion by determining the agenda is succinctly described by Cohen (1963) who asserts that the press *"may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about"* (p. 13). Soroka (2003) also studies the formative association between news frames and public opinion and finds a remarkably

significant effect of foreign affairs media discourses on the presence and prominence of associated foreign affairs frames in the public perception. Specifically, Soroka (2003) concludes that “[e]vidence suggests that the changing salience of foreign affairs for the public is in large part reflective of media content” (p. 44).

It is worth noting that the available research on the formative link between news media discourses and public opinion has been studied primarily in the context of the United States, a democratic regime in the western world. However, available research has identified the presence of an agenda-setting effect in studies on public opinion and news media discourses in Europe (Peters, 1994; McCombs et al., 1997; Princen, 2007; Maniou and Bantimaroudis, 2018), China (Zhang, Shao and Bowman, 2011; Luo, 2014), Japan (Kremers, 2014), and Saudi Arabia (Albalawi and Sixsmith, 2015). Thus, these studies have empirically confirmed that news media discourses are “telling its readers what to think about” (Cohen, 1963, p. 13), which shapes public opinion. Of particular interest to this study is the agenda-setting research on China and Saudi Arabia, which demonstrate the presence of agenda-setting processes in non-democratic, non-western countries. Consequently, this study expects that the agenda-setting effect of the media is present in the case study countries and news media discourses exert a formative effect on public opinion. It is this interplay between news media frame and public opinion that elevates the explanatory merit of news media discourses and validates this study’s decision to investigate news media discourses.

4.2.1. Data collection.

This study sources the news corpus from national news outlets that offer English-language, online newspapers that are either digitalised print publications or purely digital, online publications. The online news discourses are provided by LexisNexis, an online database that holds international newspaper texts. The maximum age of news publications is about 13 years and ranges from 2010 to 2023. However, most news discourses have been published in the last five years. This timeframe is an effective period for the analysis of news media discourses as the domestic political and economic situations in the case study countries have remained relatively stable in the last five years.

All news texts have been sourced initially via the search function in LexisNexis. Using the search terms 'energy security', 'energy independence', 'energy supply security', 'energy diversity', 'diversification', 'energy availability', 'nuclear energy', 'nuclear power', 'nuclear reactor', and 'uranium' in successive searches, this study identified potentially relevant news articles. Each article was then assessed independently to evaluate the context and content beyond the simple utterance of the search term. All articles that were deemed to be of substantive relevance to the research objectives were eventually assigned to the final set of corpus data.

Using the search terms outlined above, LexisNexis produced over 10,000 news articles linked to both energy security and nuclear energy proliferation in the three case study countries. After removing duplicates, short overly descriptive texts, and articles where the content beyond the search term is deemed to be of insufficient quality a total of 887 news articles from 18 different news outlets in the case study countries remain (Table 1.). In Egypt (n=206), news articles on energy security (n=106) and nuclear energy proliferation (n=100) are almost equally distributed. Similarly, news items on

Table 1. Sampled news media outlets in Egypt, Jordan, and Türkiye, including number of articles.

| Country | Name of news outlet (Energy security) | Number of articles | Name of news outlet (Nuclear energy) | Number of articles |
|----------------|---------------------------------------|--------------------|--------------------------------------|--------------------|
| Egypt | Arab Finance | 3 | | |
| | CNEgypt | 3 | CNEgypt | 2 |
| | Daily News Egypt | 60 | Daily News Egypt | 56 |
| | Egypt Independent | 12 | Egypt Independent | 23 |
| | Egypt Today | 21 | Egypt Today | 16 |
| | Gulf Oil & Gas | 4 | | |
| | Mid-East Info | 3 | Mid-East Info | 2 |
| | | n = 106 | Middle East Business News | 1 |
| | | | | n = 100 |
| Jordan | Jordan News Agency (PETRA) | 42 | Jordan News Agency (PETRA) | 36 |
| | The Jordan Times | 143 | The Jordan Times | 133 |
| | | n = 185 | | n = 169 |
| | Anadolu Agency | 160 | Anadolu Agency | 77 |
| | Intellinews – Turkey This Week | 14 | Intellinews – Turkey This Week | 10 |
| Türkiye | Intellinews – Turkey Today | 5 | Journal of Turkish Weekly | 9 |
| | Today's Zaman (Turkey) | 21 | Mideast Mirror | 10 |
| | | | Today's Zaman (Turkey) | 10 |
| | | | TRT World | 1 |
| | | n = 200 | | n = 127 |

energy security (n=185) and nuclear energy proliferation (n=169) are closely matched in Jordan (n=354). In Türkiye (n=327), however, the frequency distribution of news articles is more skewed between energy security (n=200) and nuclear energy proliferation (n=127).

This study has used MAXQDA, a qualitative analysis software that lends itself well for the identification, organisation, and subsequent analysis of frames. In fact, framing analysis benefits greatly from MAXQDA's organisational benefits, which permit a systematised identification and analysis process (Laimbigler, 2021).

4.2.2. Inductive and deductive framing analysis and the coding process.

This study adopts a hybrid approach to the framing analysis, combining both inductive and deductive coding methods, which allows for the spontaneous emergence of new framings, while are producing quantitative data on frame distributions (Fereday and Muir-Cochrane, 2006). The aim of inductive framing analyses is to obtain a general understanding of frames; frames are also not defined prior to the coding process but emerge organically from the material (Gamson and Modigliani, 1989; Van Gorp, 2007). Conversely, a deductive analysis utilises existent frame categories and measures their frequency (Vossen, 2020).

This study inductively attains master frames, to permit later deductive analysis, from the elite perceptions of energy security and nuclear energy data produced in Inquiry 1. The frame sponsor of the master frame categories is the publishing entity, in this case the state. The process of identifying the inductive master frames consists of an initial in-depth reading of the elite perception data to gain an understanding of individual texts and their meaning, while beginning to identify re-occurring themes. The master frame categories gradually materialise from the elite perceptions data; a process that relies heavily on triangulation and comparison between documents. The analysis of the data on the elite perceptions of both energy security and nuclear energy produces four inductive master frame categories. Following the inductive process of identifying master frame categories this study searches the sampled news media discourses for the presence of the master frame categories and determines additional sub-frames that are assigned to individual master frame categories. The practice of inductively determining master frames and sub-frames is needed to capture all available frames and produce a 'reliable' and 'valid' framing construct (Matthes and Kohring, 2008). Moreover, measuring the frequency distribution of frames and the practice of cross-referencing between news articles and established

frames reveals the presence or absence of frames (Stephens, Rand and Melnick, 2009; Smith et al., 2018).

The first inductive energy security master frame is named 'Energy Supply Security', which is presented as a key policy measure to alleviate energy insecurities (Table 2.). The second inductive energy security frame is titled 'Market Liberalisation' and promotes the introduction of open-market principles in the national energy sector to lessen energy security threats. Thirdly, the inductive master frame 'Green Energy Transition' links energy security with an energy system transformation that relies exclusively on sustainable energy practices and renewable energy technologies. Fourthly, the 'Energy Hub' master frame prescribes the operation as an energy exchange hub as an effective strategy to mitigate energy insecurity risks.

The four energy security master frames contain a total of 83 sub-frames that are established through an inductive framing analysis of the sampled news media discourses on energy security. The 'Energy Supply Security' master frame includes a total of 25 sub-frames; the 'Market Liberalisation' master frame contains 6 sub-frames; the 'Green Energy Transition' master frame comprises 32 sub-frames; and the 'Energy Hub' master frame has 20 sub-frames. Overall, a total of 2464 distinct energy security frame attributions, including inductive master frames and inductive sub-frames, were made across 466 news articles from the three case study countries. Importantly, the complete list of energy security and nuclear energy-related master frame and sub-frame attributions for all three countries is presented in the Appendix.

The first inductive nuclear energy master frame is titled 'Energy Security' and identifies energy security concerns as the principal driver of nuclear energy adoption (Table 3.). Next, the second inductive nuclear energy master frame has been coined 'Environmental Sustainability' and emphasises the environmental sustainability of

Table 2. Energy Security - Inductive Master Frames – Elite perception of energy security in Egypt, Jordan, and Türkiye.

| Frames | Description | Themes |
|--------------------------------|---|--|
| Energy Supply Security | 'Rely on energy supply security policies to improve energy security' | Increase energy imports; diversify energy supply (energy types, supplier country, and trade routes); improve energy independence; lessen energy import dependence; explore, exploit, and utilise indigenous coal, oil (shale), and natural gas resources; expand the power generation and transmission capacity; develop strategic fuel storage capacity; grow oil refining capacity; develop indigenous energy resources (localisation); implement strong and reliable energy infrastructure; introduce effective demand management; introduce upstream fiscal incentives |
| Market Liberalisation | 'Open up the domestic energy market to increase energy security' | Attract private sector investment; privatise the electricity sector; attract independent power producers (IPP); attract international companies' investment in oil and natural gas exploration; improve predictability and transparency of energy pricing; promote privatisation of coal mining sector; implement market for the trade of waste heat; improve investment environment; introduce free market conditions |
| Green Energy Transition | 'Achieve energy security through an energy system transformation that relies predominantly on renewable energy sources' | Increase utilisation of renewable energy technologies; grow reliance on nuclear energy; limit energy sector emissions; lower energy intensity; improve supply-side and demand-side energy efficiency; reform electricity tariff structure; implement sustainable energy consumption trends; incentivise green investments through feed-in-tariffs; offer net metering schemes; offer engineering, procurement, and construction (EPC) tenders; introduce a 'direct proposal scheme'; introduce build-own-operate (BOO) schemes; develop hydrogen resources; reduce energy losses in transport and distribution (T&D) |
| Energy Hub | 'Operate as an energy hub to improve energy security' | Transit and export of excess natural gas (LNG) and electricity capacity; develop interconnector network; develop oil and natural gas pipeline network; construct an LNG terminal; establish natural gas spot market platform |

Table 3. Nuclear Energy – Inductive Master Frames – Elite perception of nuclear energy in Egypt, Jordan, and Türkiye.

| Frames | Description | Themes |
|-------------------------------------|--|--|
| Energy Security | <i>'Develop indigenous nuclear energy capacities to improve energy security'</i> | Increase energy independence; explore, exploit, and utilise indigenous uranium resources; generate cost-effective electricity; cover increased electricity demand; diversify the energy supply; lower energy import dependency; optimise fuel-mix for power generation; avoid utilising costly fossil fuels for power generation; take advantage of stable electricity prices; acquire hedge against oil price volatility; use indigenous uranium resources as hedge against fluctuations in uranium prices; mitigate (malevolent) energy supply disruptions |
| Environmental Sustainability | <i>'Take advantage of nuclear energy's green credentials'</i> | Contribute to green energy transition; low-carbon electricity source; reduce dependence on fossil fuel resources; decrease air pollution emissions; offers opportunities to counter global warming; lower susceptibility to extreme weather patterns; offers carbon-free baseload energy |
| Utility | <i>'Benefit from the added advantages of nuclear power proliferation'</i> | Initiate localisation processes that produce employment opportunities and boost the national economy; generate electricity for export; contribute to the transformation into an energy hub; generate electricity for water desalination; generate electricity that can support major infrastructure projects; improve inter-state relations through nuclear energy co-operation; gain project management experience of large-scale infrastructure projects; avoid opportunity cost of using indigenous fossil fuel resources for electricity generation; nationalisation of nuclear energy; take advantage of demonstrable record of nuclear safety; increase the regional attractiveness through the NPP; educate local NPP workforce; develop the local infrastructure |
| National Prestige | <i>'Acquire nuclear energy capacities to increase national prestige'</i> | Join the league of countries with nuclear energy; acquire international recognition of the country's achievements; realisation of a long nuclear dream; equate the nuclear power project with other major national achievements; praise the safety credentials of NPP; accentuate the technological superiority of NPP technologies; nuclear energy is a national energy |

nuclear energy, especially in comparison to high-carbon alternatives. The third inductive nuclear energy master frame is named 'Utility' and identifies the perks and added benefits associated with nuclear power integration as key motivating factors. Finally, the fourth inductive nuclear energy master frame is 'National Prestige' that isolates the gains in international status associated with nuclear power development as primary drivers of nuclear energy adoption.

The four nuclear energy master frames contain a total of 57 sub-frames that are established through an inductive framing analysis of the sampled news media discourses on nuclear energy. The 'Energy Security' master frame includes a total of 21 sub-frames; the 'Environmental Sustainability' master frame contains 7 sub-frames; the 'Utility' master frame comprises 20 sub-frames; and the 'National Prestige' master frame has 9 sub-frames. Overall, a total of 973 distinct nuclear energy frame attributions, including inductive master frames and inductive sub-frames, were made across 396 news articles from the three case study countries.

Importantly, the inductive analysis of the sampled news media discourses relies on a gradual process of identifying suitable sub-frames that are assigned to the most appropriate master frame category. As the sub-frames emerge organically from the data, this study conducts two consecutive coding run-troughs of the sampled news media discourses of the three case study countries to effectively capture all frame attributions linked with the emergent sub-frames. Precisely, a sub-frame might have emerged only after several news media discourses have been analysed, which means that earlier news media discourses have not been searched for this particular sub-frame. Consecutive coding runs ensure that all news media discourses are searched for all sub-frames. Importantly, the inductively determined master frames and sub-frames are applied deductively to the news media discourses, which means that the frequency and proportional distribution of individual frame categories in the news

media discourses is determined. Especially the proportional distribution reveals the variance of frame attributions across the four master frame categories for each case study country. Furthermore, the country-specific distribution of frame attributions permits a comparison between case study countries, which reflects distinct national news media narratives.

This study of divergence and congruence between the frame distributions of individual case study countries informs the second research question:

R.Q. 2. *To what extent do energy security and nuclear energy news media frames differ between oil-poor countries in the MENA?*

This study sought out a “*guarantee of qualitative rigor*” by establishing the appropriateness of sample size volumes (Morse, 2015, p. 587). Here, the author has decided to take advantage of the concept of ‘saturation’, the ‘gold standard’ in qualitative inquiries, which is often equated with ‘no new codes’ or ‘no new data’ (Guest, Bunce and Johnson, 2006; Fusch and Ness, 2015). Precisely, the sufficiency assessment relies on a saturation effect that can be detected in the data. Namely, at some point in the coding process ‘no new codes’ emerge, and the coding pool has been ‘saturated’. News text samples linked to energy security and nuclear energy proliferation for all case studies have indicated a high level of saturation. Specifically, most frames initially emerged in the first 50% of the sample pool, samples assessed at a later point produced replicate frames almost exclusively, while new frames emerged very rarely. It can, therefore, be concluded that based on the saturation of the sample pool, this study’s sample size is sufficient to permit a rigorous and reliable qualitative analysis (Vasileiou et al., 2018).

Overall, the performance of an inductive framing analysis is not as simple as it may seem as cultural frames may be concealed in the text and subliminally influence the coder (Vossen, 2020). Furthermore, a researcher must remain mindful that the individual cognitive condition as well as pre-existent mental factors may obscure the frame identification process (Van Gorp, 2010). To mitigate this potential problem, this study has employed the 'constant comparative method', which involves continuously comparing newly emergent frames with previously defined frames (Corbin and Strauss, 2008). This practice permits the refinement of preliminary frames, while also complementing the available frame collection.

The author is aware that news and media environments in the MENA are constantly evolving and new media technologies have repeatedly supplanted established news channels (Seib, 2007; Wheeler, 2017; Radcliffe and Abuhmaid, 2023). Nonetheless, even in today's media environment, daily news publications remain highly influential and popular, and continue to significantly influence public opinion (Djerf-Pierre and Shehata, 2017)..

4.3. Inquiry (3) - Securitisation theory and framing theory: Commonality and Uniqueness.

Overall, the actor-audience model advanced by the Copenhagen School is too simplistic a representation of the world (Mortensgaard, 2020). Especially, in capturing the process of security intensification, the Copenhagen School has failed to consider the influential and formative function of the media. This is a problematic oversight in an age where new media technologies are constantly emerging. In recognition of this omission, it is necessary to find novel ways to integrate the media in studies that assess the making and unmaking of threats. Fortunately, securitisation theory and the Copenhagen School, its conceptual originators, are very accommodating to proposed amendments to the theory and welcome the theoretical development of its core concepts, a factor alluded to by Wilkinson (2007, pp. 8–9). However, while available publications have engaged with the media's role in securitisation (see Williams, 2003; Vuori, 2010; Hansen, 2011), our understanding of the media's function in securitisation processes remains incomplete (Mortensgaard, 2020). One possible path for the integration of media analysis and securitisation theory is offered by framing theory.

Frames may be understood as *"conceptual structures or sets of beliefs that organise political thought, policies, and discourse"* (Van Dijk, 2001, p. 360). To frame means to *"select some aspects of a perceived reality and make them more salient"* (Entman, 1993, p. 53); moreover, frames are also expected to schematically assess the *"world out there"* by using language (Goffman, 1974, p. 21). Closely resembling the context-sensitive understanding of securitisation theory, framing is also described as *"an active, processual phenomenon that implies agency and contention at the level of reality construction"* (Benford and Snow, 2000, p. 614). Inter alia, framing theory engages with the uncertainties about how collective meaning is constructed via

discourse and studies how collective meaning is shaped by shared assumptions (Gamson et al., 1992).

Framing and securitisation share considerable conceptual overlap but nonetheless remain quite distinct bodies of work. The Copenhagen School's theorisation of securitisation analysis is a well-defined, mid-level theory that is exclusively focussed on security, which is *"defined in terms of existential threats that justify the use of extraordinary measures"* (Watson, 2011, p. 282). The theoretical footing of securitisation theory draws from a variety of disciplines, the concept is, however, principally employed by security studies' practitioners involved in the study of international politics. Moreover, securitisation analysis remains heavily reliant on discourse analysis as its primary methodological approach, a factor of the original theorisation challenged, for instance, by Wilkinson (2007, 2011).

Conversely, framing theory has emerged from a fragmented and exceedingly large field of study, while remaining theoretically imprecise. Framing theory has its conceptual and theoretical roots in several academic disciplines, such as sociology and psychology. Its diverse heritage may be one of the factors that has led to a lack of consistency in theorisation (Watson, 2011). Gamson and Modigliani, for example, demonstrated in 1987 how visual images, catchphrases, and metaphors may be employed to inform a specific frame (Gamson and Modigliani, 1987)..

However, despite several dissimilarities that differentiate these two concepts, both understand the political and social space very similarly. Buzan, Wæver and de Wilde (1998) define securitisation as *"the process through which an issue is presented as an existential threat requiring emergency measures and justifying actions outside the normal bounds of political procedure"* (p. 24). Also, the success of securitisation moves depends on three distinct facilitating conditions; namely, *"linguistic-*

grammatical composition, social capital of the securitising actor and existing social knowledge" (Buzan, Waever and de Wilde, 1998, p. 33). Buzan, Wæver and de Wilde's (1998) definition of securitisation aligns strikingly well with Robert Entman's (1993) description of framing as *"selecting some aspects of a perceived reality and making them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation"* (p. 52).

Another point of conceptual overlap lies in the assertion by both concepts that linguistic-grammatical composition is an indispensable component in the sense-making of political outcomes (Watson, 2011). They share the foundational assumption that societal actors can and do construct threats via discursive practices (Gamson et al., 1992; Buzan, Waever and de Wilde, 1998). Furthermore, much of the early literature on securitisation theory identified speech act theory as a central component (Waever, 1995; Buzan, Waever and de Wilde, 1998), while later works have started to distance themselves from a purely speech-act-centred conceptualisation (Williams, 2003; Balzacq, 2005; Stritzel, 2007). While the debates among securitisation scholars are still ongoing in regards to the function of the speech-act, it is fair to proclaim that most commentators distance themselves from a 'decisionistic' and speech-act-based conceptualisation of securitisation towards an understanding that acknowledges the *"process through which security and security threats are brought into being in particular social contexts"* (McDonald, 2008, p. 563). Again, framing is depicted in a similar way as *"an active, processual phenomenon that implies agency and contention ... it is active in the sense that something is being done and processual in the sense that what is evolving is the work of organisations or actors"* (Benford and Snow, 2000, p. 614).

As presented in the theory chapter and summarised above, securitisation theory is intrinsically linked to exceptionalism as a central component of the Copenhagen School's original theorisation. However, energy security discourses are not necessarily escalated to the level of existential threats and extraordinary measures, and, instead, operate frequently below the threshold of exceptionalism (Szulecki, 2016; Heinrich, 2018; Heinrich and Szulecki, 2018; Lis, 2018). This study is, therefore, looking for theoretical guidance and inspiration from alternative approaches to securitisation analysis that offer a methodological system and conceptual understanding beyond the logic of exceptionalism. Accordingly, this study draws inspiration from the theoretical debates around the idea of 'risk'.

4.3.1. Risk: an alternative to exceptionalist security logic.

The Copenhagen School utilises exceptionalism to demarcate security and mitigate the risk that everything becomes security. Therefore, the Copenhagen School links securitisation theory with the exceptionalist idea, which doesn't follow normal politics, requires existential threats, and is founded on the notion that security is about survival and the need for extraordinary measures. Doty (1998, pp. 79–80) comments on the profound 'exceptionalisation' of security that holds security in a 'straight jacket' and claims that this practice eliminates the possibility of assessing other potentially relevant security conceptualisations that are not intensified to an exceptional level. This inadequacy has garnered a wealth of critical coverage in contemporary commentary on securitisation theory, implying that a more inclusive and less restrictive security conceptualisation is needed (Wilkinson, 2007; Corry, 2011; Lupovici, 2014; Hammerstad and Boas, 2015; Stępką, 2022).

A core benefit of interlinking framing analysis with securitisation theory lies with the liberating effect on securitisation theory that results in the acceptance of a more dynamic and political reading of security that considers its different forms. It diverts attention away from existential threats and extra-ordinary counter-measures and advertises the view that several competing security logics exist (Van Munster, 2009; Bourbeau, 2011). Through naming, storytelling and collective sense making, actors promote and mobilise their distinct methods to respond to, and think of problems, instilling a specific understanding about the nature of security. Huysmans (2014) echoes this view and argues that security is shaped in this politicised domain. This politicised vision of security is fluid, "*constantly written and rewritten, challenged, and therefore inherently unstable*" (Gad and Petersen, 2011, p. 318). In his foreign policy analysis of the post-Cold War United States, Campbell (1992) suggests that security understandings are dynamic and associated with multiple meanings, yet remain

contextually and culturally distinct. Campbell (1992) fittingly proclaims that *“events or factors which we identify as dangerous therefore come to be ascribed as such only through an interpretation of their various contexts and dimensions of dangerousness”* (p.2). Similarly, Fierke (1997) comments that security meanings are fluctuating and are affected by forceful discourses used to distinguish friend-enemy associations and perceived threats.

Securitisation scholars have gradually opened up to debates about expanding securitisation theory to capture additional security conceptualisations that are not exceptional (Bigo, 2000; Bourbeau, 2013; Gray and Franck, 2019). Corry (2011), for example, suggests to distance securitisation theory from its realist footing and consider the concept of ‘riskification’ instead, which is more receptive to contemporary security discourses. Corry suggests a re-interpretation of securitisation theory that revolves around risk and uncertainty and results in the deployment of a pre-cautionary response (Corry, 2011). As he aptly points out:

“rather than engendering a politics of exception, emergency time-frames and violent and secretive means as a securitisation does, ‘riskification’ leads to long-termism, the defusing of friend-enemy relations as the construction of external existential threats is replaced by focus on internal vulnerabilities, resilience and a focus on conditions of possibility for harm, rather than direct causes of harm”
(Corry, 2013, p. 5)

Correspondingly, the securitisation scholarship has integrated several additional security conceptualisations, studying, for instance, resilience (Bourbeau, 2013) or human security (Watson, 2011).

The concept of risk indicates an additional way of viewing security intensifications that deviate from the exceptionalist logic of the Copenhagen School's theorisation. This study draws from the liberating effect of both perspectives that suggest a theoretical pathway towards an effective approach to the study of energy securitisations. To operationalise the ideas advanced by both concepts, this study utilises the concept of master frames, which is reviewed in the next section.

4.3.2. *Security master frame: Beyond exceptionalism and risk.*

A point of contention lies with the variety and difference in levels of abstraction that differentiate the frameworks of securitisation and framing. Whereas framing engages with numerous social fields, problem definitions and processes, securitisation is limited to the field of security. Watson (2011) advocates against understanding this as a mark of incompatibility, and suggests instead that securitisation analyses one distinct master frame, which can be perceived as a concept that integrates various groups and agendas into a unified framework (see Gerhards and Rucht, 1992; Carroll and Ratner, 1996). This study endeavours to avoid the problematic effect of 'making everything security', and, instead, follows Watson's (2011) and Štěpka's (2022) understanding of securitisation as transcending the state of exceptionalism, while forming part of a wider collection of security concepts, a concept that is labelled the 'security master frame'. Broadly, a master frame can be summarised as an inclusive institutional and historical conception of meaning (Gahan and Pekarek, 2013). It can be perceived as frame of varying perceptions that is inclusive and holds additional alternative perceptions that respond to a key issue (Mooney and Hunt, 1996). Alternatively, Snow and Benford (2000) explain that master frames are *"very broad in interpretive scope, inclusivity, flexibility and cultural resonance, and can incorporate a number of specific issue frames"* (p. 619). Master frames are encompassing concepts that apply to a multitude of problems and situations (Benford, 2013). While master frames are fluctuating, necessarily inclusive and adapting to changing situations, it is also defined by its stability and its ability to withstand manipulation (Carroll and Ratner, 1996).

This study argues that the idea of an inclusive yet stable security master frame permits the continuation of the securitisation theory's rendering process of security, while also becoming receptive to other distinct problem definitions and security logics that arise

from divergent interpretive experiences, perceptions, and communities. Given the nature of energy securitisation efforts, which often reside below the exceptionalism threshold, the idea of a 'security master frame' allows for the integration of additional and multiple security logics that expand beyond a purely exceptionalist logic advanced by the Copenhagen School.

4.3.3. Securitisation and framing theory: A linked framework.

Overall, framing theory has been commended for aiding in the comprehension of “*the diversity and fluidity in how issues are conceptualised*” (Pan and Kosicki, 1993, p. 70) and how such conceptualisations influence changes in policy. However, the available literature on framing theory is expansive (Mortensgaard, 2020). Subsequently, this study will pay particular attention to, and draw inspiration from Entman’s ‘Projections of Power’ (Entman, 2004), which is essential literature on framing in a media context. Entman’s (2004) beliefs about the framing practice are inspected to identify opportunities for an integrated methodological model that can generate reliable and informative data on elite energy discourses in oil-poor states in the MENA.

This study draws particular inspiration from Lin Alexandra Mortensgaard’s (2020) study on migration movements along the EU’s southern border and their coverage in four Danish newspapers. Mortensgaard (2020) illustrates that the media can perform as a securitising agent, while demonstrating how contesting frames compete for authority and evolve over time. She proposes a joined approach reasoning that frames are vessels for securitisation language, thereby suggesting a conceptual logic that permits a bridging of securitisation theory and framing analysis. Another notable contribution to the literature on interconnected applications of securitisation theory and framing practices is advanced by Fred Vultee (2011). Vultee (2011) uses a content analysis to show how securitisation frames materialise and disappear through an examination of three US newspapers and their reporting on the ‘war on terror’. He manages to expose and capture the underlying processes involved in the creation and contestation of securitisation frames. A further important and highly influential journal article has been drafted by Scott D. Watson (2011), who offers an in-depth analysis of alignment and contestation between the Copenhagen School’s securitisation theory and framing analysis. Watson’s (2011) work exhibits the profound commonalities between the two

concepts and suggests *“that securitisation should be viewed as a sub-field of framing”* (p. 279). Finally, Stępką (2022) has written a recent publication on the securitisation of migration flows into the EU, which applies a jointed methodological model that links securitisation analysis and framing theory. Stępką (2022) reports on the radicalisation of fear-driven narratives and inspects securitisation language with the organisational guidance of a security master frame and multiple security logics.

After questioning the clarity of theoretical framing concepts in 1993 (Entman, 1993), Entman later illustrates that (American) media publications are a location of frame production and reproduction (Entman, 2004). The media frames issues in a specific manner, which activates certain interpretations of news items, while leading to the exclusion of others. According to Entman (2004), framing is defined as *“selecting and highlighting some facets of events or issues and making connections among them so as to promote a particular interpretation, evaluation, and/or solution”* (p. 5). Correspondingly, Benford and Snow (2000) comment on the construction of frames and assert that framing actors:

“negotiate a shared understanding of some problematic condition or situation they define as in need of change, make attributions regarding who or what is to blame, articulate an alternative set of arrangements, and urge others to act in concert to affect change” (p. 615)

This perception of frames leads to a differentiation between three frame types. ‘Diagnostic’ frames explain and describe a specific situation and ascribe blame or responsibility. ‘Prognostic’ frames offer potential solutions to the problematic circumstances. ‘Motivational’ frames prescribe actions to alter the situation (Mortensgaard, 2020). Commenting on policy framing via news items, Van Hulst and Yanow (2014) describe it as a *“process in and through which policy-relevant actors*

inter-subjectively construct the meanings of the policy-relevant situations with which they are involved, whether directly or as onlookers and stakeholders” (p. 97). In this process, concerns are translated into issues that can be solved by highlighting particular dimensions of the problem, disregarding other aspects, and interjoining the identified features into a logical construct (Aukes, Lulofs and Bressers, 2018). Similarly, Entman (2004) argues that frames usually trigger two or more of the following effects: *“1. Defining effects or conditions as problematic; 2. Identifying causes; 3. Conveying a moral judgement; 4. Endorsing remedies or improvements”* (p. 5). While each of these four functions is undoubtedly important, Entman (2004) proclaims that the two most crucial aspects of a framing activity are *“problem definition, which often virtually predetermines the rest of the frame, and remedy, because it directly promotes support (or opposition) to public policy”* (p. 6). This study draws inspiration from Entman’s (2004) clarification and centres its analytical framework on these two factors. Applied to energy security discourses, for instance, a news article could hold the following frame:

1. **Problematic effect or condition:** a lack of indigenous energy resources has led to an energy import dependence, which triggers energy supply insecurities.
2. **Endorsing remedies and improvements:** the energy system should be evolved by integrating indigenous energy resources, which limits energy import dependence and improves energy supply security.

A frame depends on at least two of the dimensions listed above, while the frame creation process relies on schema, cultural resonance, and magnitude. The concept of cultural resonance is linked with *“noticeable, understandable, memorable and emotionally charged”* phrases, discourses or visuals (Entman, 2004, p. 6). However, the concept of magnitude is concerned with the repetition and prominence of discourses

or phrases. Importantly, the analysis of cultural resonance and magnitude reveals an audience's "*cultural repertoire*" (Hansen, 2011, p. 59).

4.3.4. Data collection: Security intensifications, and 'problem definition' and 'remedy' factors.

This study's joint operationalisation of framing and securitisation analysis used to assess the security intensification of news media discourses relies on the news corpus produced and utilised in Inquiry 2. Thus, the analysis of security intensifications also relies on the study of 887 news media articles sourced from 18 different news outlets in the case study countries that are identified as high-quality texts directly linked with energy security and nuclear energy. Overall, the process of identifying appropriate news articles finds 466 energy security-related articles and 396 nuclear energy-related articles. The sampled news media discourses in Egypt produce 206 suitable news articles, with 106 energy security-related news articles and 100 nuclear energy-related news media articles. Also, the sampled news media discourses in Jordan produce 354 appropriate news articles, which is divided into 185 energy security-related and 169 nuclear energy-related news articles. Finally, the sampled news media discourses in Türkiye produce 327 suitable news articles that are made up of 200 energy security-related and 127 nuclear energy-related news articles.

Overall, this study investigates whether and to which extent the security intensity in discourses on energy security and nuclear energy development is raised. However, the Copenhagen School's narrow security understanding of energy and its binary security conceptualisation undermine its applicability to energy in the non-West. Specifically, this study dismisses Buzan, Waever and de Wilde's (1998) dichotomous distinction between politicisation and securitisation and instead assumes a continuous spectrum of security intensity that is captured by additional, intermediate security logics. Precisely, this study differentiates between discrete security intensification categories that can populate the security master frame, a concept that has been described above.

The most intensified security reference is 'securitisation', which occurs *"when a securitising actor uses a rhetoric of existential threat and thereby takes an issue out of what [...] is normal politics"* (Buzan, Waever and de Wilde, 1998, p. 24). The second most intense level of security discourses captured in this study are instances of 'security jargon' that happen *"when a politician or policy maker talks about energy security but does not do (nor even intend to do) anything about it"* (Jewell and Brutschin, 2019, p. 19). Precisely, an existential threat declaration is uttered without prescribing resultant, extra-ordinary measures; hence, security *"is not invoked as an ontological claim about the existential threat to the referent object, but rather name-dropped"* (Heinrich and Szulecki, 2018, p. 47).

An insight that has emerged during this study is that security intensifications are rarely straight-forward and often don't align with pre-determined categories. Specifically, in this study there are many instances where an existential threat declaration is not followed by the prescription of extraordinary measures and does, thus, fail to meet the threshold of a securitisation move. Instead, the counter-measure is often less intensified than an extra-ordinary response and is here defined as a pre-cautionary counter-measure, which is the response category of a riskification. Likewise, there are also instances, albeit less frequent, where a risk declaration, which is *"understood as conditions of possibility for harm"* (Heinrich and Szulecki, 2018, p. 46), is followed by the prescription of an extra-ordinary counter-measure. Both of these unorthodox security intensification categories are classed as less intensified than a complete securitisation move but exceed the security intensification level of a riskification.

The fifth most intense level of security references observed in the data is represented by 'riskifications', which do *"not necessarily trigger emergency measures, friend-enemy thinking and militarisation against existential threats"* (Corry, 2011, p. 238) and

instead declare risks to a referent object, which is followed by pre-cautionary counter-measures that are expected to introduce programmes for lasting change that reduce the vulnerability to risks. Finally, the lowest level of security intensification captured by this study is a new categorisation that has, thus far, and to the author's best knowledge not been defined before. Precisely, during the data acquisition phase, a relatively small number of risk announcements are detected that are not coupled to a subsequent pre-cautionary counter-measure. Hence, just like an instance of 'security jargon', these risk declarations miss the remedy prescription and are consequently named 'risk jargon'. While the quantity of 'risk jargon' utterances (n=31) in both the energy security and nuclear energy-related discourses is comparatively insignificant, the presence of 'risk jargon' is noteworthy.

Each news article of the news corpus is searched for the presence of one or multiple of the six security intensification categories outlined above. As this study conducts a combined analysis of framing and securitisation techniques, the analysis of security intensifications differentiates between the 'problem definition' and 'remedy' framing effect categories. Precisely, as outlined above, the 'problem definition' framing effect defines the problem defined in the discourse, while the 'remedy' framing effect holds the proposed solution to the problem definition. Importantly, the 'problem definition' holds the same narratives as the threat declaration in a securitisation move or the risk declaration in an instance of riskification. Specifically, both concepts (i.e., 'problem definition' and threat/risk declaration) define the problem/threat/risk declaration in a discourse. Therefore, this study searches the sampled news media discourses for threat or risk declarations and assigns the resultant discourses to the 'problem definition' category. Similarly, the 'remedy' frame effect aligns perfectly with the suggested counter-measure in an instance of securitisation or riskification. Precisely, both the 'remedy' frame effect and the proposed extra-ordinary or precautionary counter-measure offer solutions to the problem defined in the threat/risk declaration

or the 'problem definition'. Consequently, this study searches the sampled news media discourses for actual or proposed extra-ordinary or precautionary counter-measures and assigns the extracted discourses to the 'remedy' category. Importantly, this strategy of combining framing and securitisation methodologies has been pioneered by Mortensgaard (2020).

It is important to recognise that this study purposefully opts against defining its inquiry as a 'securitisation' analysis, but instead deliberately verbalises it as a 'security intensification' analysis. This means, firstly, that 'securitisation' is albeit one possible security intensification level. However, secondly, this decision also insinuates that 'riskification' and other security intensification categories are comparably revealing security references that indicate a clear deviation from normal argumentation and indicate a heightened level of security intensification. Thus, it is crucial to accept that 'riskification', for instance, might not have the exceptional allure of 'securitisation' but nonetheless signifies a high level of security intensification.

4.3.5. Data collection: Inductive master frames.

Overall, the search strategy outlined above produces a total of 611 discrete instances of security intensification across the sampled news media discourses in the three case study countries. Crucially, each security intensification consists of one 'problem definition' factor that holds the existential threat or risk declaration and one accompanying 'remedy' factor that contains the extra-ordinary or precautionary counter-measure. Obviously, in the case of 'security jargon' and 'risk jargon', the existential threat or risk declaration is not followed by an accompanying 'remedy' frame effect. Precisely, the sampled news media discourses in Egypt, Jordan, and Türkiye produce 48, 117, and 134 discrete energy security-related security intensifications, respectively. Moreover, 63, 129, and 120 security intensifications are identified in the sampled news media discourses on nuclear energy in Egypt, Jordan, and Türkiye, respectively.

Importantly, this study utilises frames to capture and systematise the range of security intensifications identified in the sampled news media discourses. The organisational aid of framing analysis permits a systematic and structured process that evaluates and categorises the thematic profile of security intensifications. Precisely, the 'problem definition' and 'remedy' frame effects of individual security intensifications, which have been identified using the security intensification categorisation outlined above, are assigned to master frame categories that most accurately capture the intended argument or claim of the 'problem definition' and 'remedy' frame effects. The identification of security master frame categories and the identification of security intensification categories is aided through the organisational utility of MAXQDA, a software programme devised for computer-assisted qualitative analysis. Using this tool, the author systematically identifies and subsequently groups security frames until a limited number of master frames remains, this process of gradual frame compression

is called 'axial codification' (Corbin and Strauss, 2008). This study determines 25 discrete master frame categories that hold energy security and nuclear energy-related security intensifications and have all materialised organically during the coding process and are, therefore, generated purely inductively. Importantly, the master frame categories are distributed across the 'problem definition' and 'remedy' categories. This study also recognises that frames are not necessarily complete but may be fragmented, while multiple frames may populate one news article and compete for dominance (Steensland, 2008; Campana, 2013).

Overall, this study identifies five energy security-linked security intensification master frames associated with the 'problem definition' (Table 4.). The first master frame is titled 'Climate Change' and contains security references that define climate change as a key energy security factor. Next, the 'Energy Insecurity' master frame contains direct security references to the problematic consequences of energy insecurity threats. The third master frame category laments the negative effects of 'Regional Instability' on energy security levels. The fourth master frame category is coined 'Water Scarcity' and defines the lack of substantial water reserves a significant problem that undermines the national energy security. The final energy security-linked security intensification master frame category is labelled 'Geopolitical Threat' and argues that energy security can be negatively affected by geopolitical threats, such as the Ukraine war or the deployment of an 'energy weapon' (Klare, 2009, 2015).

The 'remedy' frame effect category also contains five discrete energy security-related security intensification master frame categories. The first 'remedy' master frame is titled 'Green Energy Transition' and captures security discourses that identify a green energy transition as an effective strategy to mitigate energy insecurity risks. The second 'remedy' master frame is named 'Energy Supply Security', which holds security references that perceive energy supply security as the principal solution to energy

Table 4. Security Intensification Frames – Energy Security.

| | Frame Effects | Frames | Description | Themes |
|-------------------------------|-----------------------------|--------------------------------|---|---|
| Problem Definition | Climate Change | | 'Climate change effects threaten the national energy security' | Greenhouse gas emissions |
| | | Energy Insecurity | 'The country experiences energy insecurities' | Hydrocarbon dependency; energy insecurity; energy price fluctuations; energy demand growth; grid stability; electricity system instability; energy subsidies; energy efficiency; electricity costs; energy import dependence; energy supply disruption; lack of hydrocarbon resources; hydrocarbon dependence; lack of energy supply diversity; lack of investment |
| | Regional Instability | | 'Regional instability threatens the national energy security' | Refugee crisis |
| | Water Scarcity | | 'Energy security is linked to the issue of water scarcity' | N/A |
| | Geopolitical Threat | | 'A geopolitical threat affects the country's energy security' | Ukraine war; energy weapon |
| | Remedy | Green Energy Transition | | 'Energy security requires a green energy transition' |
| Energy Supply Security | | | 'Energy supply security is the solution for energy security' | Energy investment; develop nuclear energy capacities; energy independence; exploration and exploitation of indigenous resources; subsidy removal; improve energy infrastructure; increase reliability of energy system; build pipeline connections; build electricity interconnectors; attract international assistance; energy storage; increase energy supply diversity; oil refinery |
| Market Liberalisation | | | 'Open up the energy market to achieve energy security' | Private-sector investment |
| Co-operation | | | 'Co-operation is needed to achieve energy security' | N/A |
| Energy Hub | | | 'Energy security is promoted by the national role as an energy hub' | N/A |

insecurity problems. Thirdly, the 'Market Liberalisation' master frame understands the liberalisation of the energy sector as the preferred remedy option. Next, the 'Co-operation' master frame contains security references that proclaim that energy security relies on co-operative strategies. Finally, the last energy security-related remedy master frame is coined 'Energy Hub' and contends that energy security is promoted by the national role as an energy trading hub.

The nuclear energy-related 'problem definition' and 'remedy' master frame categories are slightly more expansive (Table 5.). The problem definition master frame category, for example, contains six discrete master frame categories. The first category is named 'Energy Insecurity' and contains security discourses that identify energy insecurity as a significant threat. The next problem definition master frame 'Water Scarcity' identifies the shortage of water reserves as considerable risks. The third master frame category is labelled 'Climate Change' and holds security discourses that perceive climate change as a considerable threat to the national well-being. Fourthly, the master frame 'Nuclear Energy Costs' identifies the high costs associated with nuclear energy development as key security threats. The fifth problem definition master frame category 'Nuclear Energy Threat' emphasises the dangers posed by nuclear energy, such as nuclear accidents or terrorist attacks on nuclear facilities. The final problem definition category is coined 'Nuclear Fuel' and stresses the dangers linked to nuclear fuel, such as spent fuel storage or nuclear fuel import dependency.

There are nine discrete nuclear energy-related remedy master frame categories. The first master frame category is named 'Nuclear Energy Development' and proposes nuclear energy development as the solution to the problem definition. Next, the second master frame category is titled 'Green Energy Transition', which covers security discourses that prescribe a sustainable energy system transformation to lower risks associated with a problem definition. Thirdly, the master frame 'Long-term Cost

Table 5. Security Intensification Frames – Nuclear Energy.

| Frame Effects | | Themes |
|-------------------------------------|---|---|
| Problem Definition | Description | |
| Energy Insecurity | 'Energy insecurity is a substantial threat' | Energy supply disruption; energy import dependence; lack of energy supply diversity |
| Water Scarcity | 'Water scarcity signifies a considerable risk' | Lack of rainfall; low water reserves; no drinking water |
| Climate Change | 'Climate change is undermining the national well-being' | Air pollution; high average temperatures; receding shorelines |
| Nuclear Energy Cost | 'Nuclear energy costs are a critical issue' | High upfront capital expenditure |
| Nuclear Energy Threat | 'Nuclear energy poses significant threats' | Nuclear accident; nuclear safety, terrorist attack on nuclear facility |
| Nuclear Fuel | 'Nuclear fuels represent enormous risk factors' | Nuclear fuel import dependence; spent fuel storage |
| Nuclear Energy Development | 'Nuclear energy development is the solution' | N/A |
| Green Energy Transition | 'Risks can be averted through a sustainable energy system transformation' | Low-carbon energy types; develop nuclear energy due to its green credentials |
| Long-term Cost Effectiveness | 'Nuclear energy is economically viable in the long-term' | Long life-span of nuclear facilities |
| Nuclear Regulation | 'Nuclear safety concerns can be mitigated through effective nuclear regulation' | National nuclear authorities |
| Nuclear Project Quality | 'Concerns about nuclear safety can be alleviated by ensuring nuclear project quality' | Highest safety standards; newest reactor design |
| Co-operation | 'Uncertainties about nuclear energy can be eliminated by seeking close co-operation' | Inter-state nuclear co-operation |
| Avoid Nuclear Energy | 'Nuclear energy adoption should not be pursued' | N/A |
| Non-proliferation | 'Worries about nuclear energy can be eased by adhering to non-proliferation principles' | N/A |
| SMRs | 'SMRs are a viable technology option' | N/A |

Effectiveness' contends that nuclear energy becomes economically viable in the long-term, aided by the long life-span of nuclear facilities. The fourth master frame category is labelled 'Nuclear Regulation' and entails security discourses that argue that nuclear safety concerns can be removed by implementing effective nuclear regulation. The 'Nuclear Project Quality' master frame asserts that worries about nuclear safety can be alleviated through stringent adherence to the highest level of nuclear project quality. The next master frame category is coined 'Co-operation' and covers security discourses that claim that uncertainties about nuclear power proliferation can be mitigated through co-operation initiatives. The 'Avoid Nuclear Energy' master frame category covers security references that suggest the termination of nuclear energy programmes to counteract the problem definition. The next remedy master frame is titled 'Non-proliferation', which covers security discourses that suggest that nuclear energy concerns can be eased by stringently adhering to non-proliferation principles. Finally, the last remedy master frame category is named 'SMRs', which holds security references that perceive SMR technologies as viable options to decrease the problem definition. Inquiry (3) utilises the security intensification data to respond to the third research question:

R.Q. 3. *To what extent are news frames securitised in media discourses on energy security and nuclear energy proliferation in oil-poor countries in the MENA?*

After all articles on energy security and nuclear energy are coded for a specific case study country, a random sample of coding for each case study is re-evaluated by the author to test the coding quality. If the coding quality is deemed subpar an additional round of coding is initiated. The coding process involves the input of variables and codes for each text. The variables used in the analysis process reveal basic background information about the texts. The codes, however, are based on the theoretical models of securitisation and framing analysis. Potential sub-groups of the

codes were input hierarchically as sub-codes. The coding process was guided by a coding thesaurus that is presented in Fig. 1.

| Variables |
|--|
| a. Source |
| b. Date |
| Codes |
| 1. Problem definition <ul style="list-style-type: none"> a. Threat b. Risk |
| 2. Remedy <ul style="list-style-type: none"> a. Actual or proposed (extra-ordinary) counter-measure b. Precautionary measure |

Fig.1. Overview of coding thesaurus.

Importantly, elite and news media discourses are mutually constitutive as changes in one discourse category leads to changes in the other discourse category (Page and Shapiro, 1983; Graham, 1989; Bartels, 1991). Thus, elite and news media discourses, and indirectly also public opinions, are dynamically interlinked and a combined inquiry of both discourse types can produce an understanding of the dominant national discourses on energy security and nuclear energy in the case study countries.

Cohesion between individual discourse channels indicates a national understanding that is shared by the elites, the public, and the news media, which raises the perceived significance of the opinion at hand as individual discourse channels have coalesced into a combined national perception. Precisely, the shared opinion indicates an issue of considerable perceived importance as awareness of, and agreement with the opinion, as well as the security status assigned to the opinion are all aligned and suggest a joint national position. This intra-discourse congruence is important as it indicates official energy policy-making choices that are supported by the news media, and subsequently also by the public. To policy-makers and the political elites, the

alignment in opinion of several discourse channels signals acceptance of their opinion and associated policies and may inform future policy choices, such as a potential continuation of policies that align with shared opinions.

Conversely, a situation where elite views and news media perceptions are not aligned, indicates divergent opinions that fail to form a shared national position. Instead, misaligned viewpoints, which indicate a lack of coherence between elite, public, and news media views, undermine the perceived status of the opinion at hand as it fails to be uniformly supported. Precisely, the divergence in opinion indicates that the perceived security status and the perceived importance of the issue at hand differs between discourse channels; an issue or opinion might, thus, be perceived to be of greater importance by the elites than by the news media or vice versa. In sum, the lack of congruence between discourse channels lowers the overall significance of the issue or opinion as they do not coalesce into a shared, national position. Such misalignment in opinion can reveal issues of potential conflict between the elites and the public, which may incentivise the ruling regimes to reconsider public policies to align themselves with popular and public opinions.

Consequently, this study argues that an opinion shared by the elites and the news media is a more comprehensive and accurate reflection of the national perception and has therefore more explanatory merit than a misaligned opinion that differs between the elites and the news media.

4.4. Case selection – Justification for the case study choice.

4.4.1. Case study selection based on the case study countries' geographic location in the MENA.

The case studies must align with several shared characteristics that are dictated by the research aims and must be fulfilled to effectively respond to the research questions. Precisely, case study selection is informed by four variables contained within the research questions: oil-poor, MENA, energy security, nuclear energy development. Moreover, the case study selection has also been informed by their situation in the regional context and their relevance to the application of securitisation analysis.

One factor that connects the case study countries is their geographic location within the Middle East and North Africa (MENA) region. However, most definitions of the MENA exclude Türkiye, which is partly due to Türkiye's central position in the region, with the country sitting at an intersection at which many of the regional and sub-regional systems overlap. This distinct position in the regional context is also noted by 'Regional Security Complex Theory' (RSCT) that, in its original theorisation, classifies Türkiye as an insulator state that sits between major regional security complexes (RSC) (Buzan and Waever, 2003). Of particular interest to this study is Türkiye's association with the Middle Eastern RSC, as the country directly borders the Levant and Gulf subcomplexes, which together with the Maghreb subcomplex coalesce to form the Middle Eastern RSC. In its original theorisation, RSCT asserts that while Türkiye actively participates in all neighbouring RSCs it is not conclusively embedded in any one RSC (Buzan and Waever, 2003).

After the Arab Spring in 2011, Türkiye tried to aggressively expand its influence in the Middle East by backing regional factions of the Muslim Brotherhood, supporting

insurrectionist groups during the Arab Spring, publicly criticising the domestic policies of Arab Gulf states, and deepening its military interventions in Iraq and Syria (Aydintasbas, 2022). Subsequently, at the beginning of 2021, Türkiye had become increasingly isolated and began a determined rapprochement campaign of diplomatic de-escalation, establishing official dialogue with former regional foes, including Israel, Egypt, the UAE, and Saudi Arabia (Aydintasbas, 2022). This demonstrates the country's unusually active and involved role in the surrounding RSCs. This is uncommon as insulators are normally passive entities that try to avoid security interdependencies with its neighbouring RSCs. However, *"Turkey does not officially accept that it is an insulator state"* (Buzan and Waever, 2003, p. 394) and behaves like a regional power *"by playing an increasingly active role from its insulator position"* (p. 394).

Türkiye's location at the margin of the Middle Eastern RSC also means that both entities are exposed to similar security dynamics as some insecurity issues of the RSC seep into the insulator state. For instance, after the temporary fragmentation of the GCC in 2017, Türkiye sided with Qatar as both countries share common security goals in the Middle East and align in important regional politics positions, such as their joint support of Hamas and the Muslim Brotherhood (The Economist, 2021). Additionally, besides the shared history of Ottoman rule, Türkiye and its bordering MENA countries are also connected through about 30 million Kurds that populate large areas in Iran, Iraq, Syria, and Türkiye (Taspinar and Tol, 2014). Another insecurity factor that originates in the MENA but has directly affected Türkiye is the region's endemic political instability that has caused the displacement of millions of people that seek refuge in neighbouring countries, including Türkiye (Lynch and Brand, 2017). An additional critical security threat is the globalisation of Islamic terrorism that has spread to Western countries and Türkiye but has its origins in the Middle East (Ganor and Azani, 2019).

Importantly, besides security threats infiltrating Türkiye from the MENA, both entities share a lot of additional similarities. For instance, the MENA as well as Türkiye are exposed to significant climate change threats (Barak and Cohen Yanarocak, 2022). Additionally, besides Israel and South Sudan, all countries in the MENA as well as Türkiye are Muslim-majority countries that must balance religious authority and state power, while regulating the influence of Islamist parties and inhibiting the growth of extremist groups (Rubin, 2014). The MENA and Türkiye are also distinguished by a lack of free elections, as even Türkiye's 'democratic' presidential elections in 2023 were denounced for lacking freedom (Aydintasbas and Pita, 2023). In Egypt and Jordan, the current heads of state are unelected, while press freedom is obstructed considerably and political dissent is suppressed aggressively in all three case study countries (Human Rights Watch, 2020; Reporters Without Borders, 2021b, 2021a). Many countries in the MENA region as well as Türkiye are also classed as anocracies, a regime type category that is notorious for low levels of political stability and government effectiveness (Vreeland, 2008).

The active involvement of Türkiye in the Middle Eastern RSC as well as the exposure to numerous shared experiences validate this study's belief that Egypt, Jordan, and Türkiye form part of a shared regional system.

4.4.2. Case study selection based on the case study countries' oil (and natural gas) scarcity.

While the categorisation of Jordan and Türkiye as hydrocarbon-deficient, net energy-importers is easily justifiable by consulting basic energy security metrics, the case of Egypt is less clear-cut. Historically, Egypt has been a net energy-exporter and has, for instance, supplied over 80% of the gas used for electricity generation in Jordan via the Arab Gas Pipeline in the early 2010's (Hydrocarbon Technology, 2023). However, at the commencement of this study in October 2016, Egypt had become a net natural gas importer as its proven domestic deposits were depleting and indigenous exploitation rates were unable to keep pace with rapidly growing natural gas demand. In fact, between 2015 and 2018, Egypt had a significant natural gas trade deficit and imported a peak quantity of 326,915 TJ (Terajoule) in 2016, which accounted for 18.8% of Egypt's total natural gas supply (IEA, 2024c). Furthermore, oil made up 46.7% of Egypt's total energy supply in 2016 and comprised 255,142 TJ of crude oil and 687,595 TJ of oil product imports that together represented 25.7% of Egypt's total energy supply (IEA, 2024b, 2024d). In sum, total energy imports reached 1,322,915 TJ in 2016, which signified a share of 36% of Egypt's total energy supply (IEA, 2024e). To put this into context, in 2016, Egypt's total energy imports exceeded the total final consumption of France's industrial sector, which stood at 1,229,829 TJ (IEA, 2024f).

Thus, at the start of this project, the condition of selecting case study countries that experienced energy insecurities due to insufficient indigenous hydrocarbon resources had been satisfied as all three case study countries were dependent on energy imports for a significant share of their total energy supply. Importantly, while the scale of Egypt's energy import dependence peaked in 2016, the country has almost continuously had an energy trade deficit since 2013, apart from a single, extremely small positive energy trade balance in 2019 (IEA, 2024b). Therefore, while net energy

imports only accounted for 4.8% of Egypt's total energy supply in 2021, the country has technically remained a net energy importer (IEA, 2024b). Overall, the country's steeply rising energy demand has fundamentally altered the historically export-dominated supply-demand balance and contributed to a total growth in energy imports by 266% between 2000 and 2021 (IEA, 2024b).

Importantly, to determine the extent of energy security risks arising from energy import dependencies the financial cost of energy imports is an important indicator. In 2016, energy imports accounted for 15.32% of Egypt's total imports, requiring a capital investment of almost US\$11 billion, which signified a 3.2% share of the country's GDP (current US\$) of the same year (World Bank, 2023; IEA, 2024b; WITS, 2024b). This signifies a considerable financial liability and indicates effectively the scale of Egypt's energy import dependence. Interestingly, Türkiye, a country with only negligible natural resource endowment and notoriously high energy import costs, invested 3.1% of its GDP (current US\$) in energy imports in 2016 (World Bank, 2023; IEA, 2024i; WITS, 2024d). This demonstrates that Egypt's energy import costs in 2016 signified a relative financial liability that matches the cost burden experienced by recognised energy-importers in the region. Furthermore, China, the world's largest oil-consumer, which imported 67.5% of its domestic oil demand and 32.5% of its domestic natural gas demand in 2016, invested only 1.4% of GDP (current US\$) in energy imports in 2016 (World Bank, 2023; IEA, 2024a; WITS, 2024a). Interestingly, even Germany, a country without any meaningful indigenous oil and natural gas resources that has historically had to endure hefty energy import costs allocated only 2.3% of its GDP (current US\$) for energy imports in 2016 (World Bank, 2023; IEA, 2024g; WITS, 2024c). Hence, Egypt's energy import expenses exceeded, in some instances, the relative energy import costs experienced by some of the world's most significant energy importers.

Importantly, in 2015, Egypt's fortunes seemingly shifted, and Cairo was able to reverse the downward trend in domestic natural gas production as deep-sea drilling operations within Egypt's EEZ discovered the enormous Zohr natural gas field, which remains the largest natural gas field ever discovered in the Mediterranean Sea (Offshore Technologies, 2018). Importantly, despite being discovered in 2015, Zohr only started production in 2017 and reached maximum output capacity in 2019 (Stevenson, 2024). Yet even the resource riches gained through the Zohr field discovery proved insufficient to rapidly suppress Egypt's energy import costs. In fact, the economic burden increased until 2018, reaching 4.7% and 5.4% of GDP (current US\$) in 2017 and 2018, respectively (World Bank, 2023; IEA, 2024b; WITS, 2024b). This shows clearly that the financial repercussions of Egypt's energy import dependence lingered and caused a sustained financial strain, spanning multiple years.

In sum, while Egypt has exported some of its natural gas since the Zohr field discovery, the widely held perception of Egypt as a major, regional natural gas exporter is misrepresenting its status as a net-energy importer that is dependent on substantial quantities of fossil fuel imports since 2013. Moreover, the enduring belief that Egypt, akin to a petrostate, is blessed with transformational and excessive capital gains from its natural gas exports is distorting the realities of its struggling economy that is plagued by severe fiscal deficits (Moneim, 2023). Such misguided assumptions of extreme resource wealth may be informed by antiquated images of its historical role in the regional natural gas trade. This study has decided to try and side-step the risk that readers, potentially holding an outdated view of Egypt's natural gas endowment, question the legitimacy of the case study selection based on resource scarcity. Consequently, this study has opted to deliberately distinguish the case study countries by their proven oil import dependencies, which avoids the ambiguities surrounding Egypt's natural gas wealth.

4.4.3. Case study selection based on the case study countries' energy security.

The case study selection has also been informed by the energy security situation in the three case study countries. This study identifies three shared energy insecurity factors that are particularly influential and directly shape national energy policies in the case study countries. The first energy security dimension is the lack of indigenous hydrocarbon resources. As the preceding sub-chapter has shown, Egypt has been exposed to significant energy insecurities due to insufficient domestic fossil fuel resources. The energy import dependence is even more severe in Jordan and Türkiye that have imported over 92% and 73% of its total energy supply in 2021, respectively (IEA, 2024i, 2024h).

The second significant energy security risk factor in the context of this study is the existential threat of climbing carbon emissions and extreme, unchecked global warming that underlies the global energy transition. The unparalleled scale and disruptive nature of the required energy transition places on the case study countries a considerable cost burden and significantly increases energy insecurity, at least in the short to medium term. Specifically, existing hydrocarbon-based energy system infrastructure becomes stranded assets, while the integration of significant renewable energy capacity can cause grid reliability issues (IEA, 2022). Moreover, a successful transition requires substantial private investments and energy market conditions must be modified to financially incentivise investors (El-Katiri, 2014). In the context of the case study countries, regulatory modifications and legislative amendments are necessary to expedite bureaucratic processes (Brand, 2016). This high demand for systemic modernisation raises uncertainty and increases energy security risks (IEA, 2020).

The third energy insecurity aspect is the increasingly realist international system in which energy has again been instrumentalised as a source of geopolitical power. Global energy security concerns are deepened, for example, as Russia's marginalisation and strategic re-orientation to the East deepens the East-West divide and conjures up memories of the Cold War's anarchic polarisation and the tumultuous energy security situation of the 1970's (Yergin, 2006). Specifically, Russia's attack on the Ukraine has resulted in a reciprocal programme of soft power attacks between the West and Russia that have culminated in the termination of Russian pipeline gas supplies to the EU. This forced European leaders to sanction extensive subsidy programmes to shield consumers from rapidly rising energy prices, which placed a hefty financial burden on European countries (Colgan, Gard-Murray and Hinthorn, 2023). Simultaneously, looming questions about the impact of Western sanctions on Russia's ability and willingness to supply oil to international markets deepened fears of supply shocks and triggered a significant increase in oil prices (von Rij, 2024). The resultant rise in energy costs disproportionately affected oil importers that had to cope with an increase in transportation and production costs. Importantly, future decarbonised energy systems are likely to showcase similar asymmetries in the balance of power as renewable energy industries as well as rare earth mineral deposits are highly concentrated (IRENA, 2024).

The collective influence of the three risk factors creates a dynamic energy security profile in the case study countries. Yet, importantly, while this study recognises the joint influence of all three risk factors, the primary research objectives centre on resource scarcity, which subsequently remains the most important energy security risk factor in the context of this study.

4.4.4. Case study selection based on the case study countries' pursuit of nuclear energy capacities.

The case study countries have also been selected as they all had functioning, advanced and active national nuclear energy programmes during the analytical timeframe of this study that stretches from 2009 to 2023.

Importantly, this study's analytical timeframe is defined by considerable project developments in the case study countries' nuclear energy programmes. Egypt, for example, definitively decided on the El-Dabaa site in late 2013 and signed project development agreements with Rosatom Overseas in 2016 (WNA, 2023a). Additionally, Egypt signed the financing agreement with Russia in 2016 that outlined its loan conditions before Egypt's Nuclear Power Plants Authority was awarded a site approval licence for the El-Dabaa site in 2019 (IAEA, 2022a). Construction of reactor unit 1 eventually commenced at El-Dabaa in July 2022, before units 2, 3, and 4 followed suit in November 2022, May 2023, and January 2024, respectively (WNA, 2024). Similarly, the Jordanian authorities announced its decision to procure two AES-92 reactor units from Atomstroyexport in 2013, before signing a project development contract with Rosatom Overseas in 2014 (WNA, 2022). Then, the Jordanian authorities signed an inter-governmental pre-investment agreement with Russia in 2015, which preceded the announcement of a feasibility study in 2017 (WNA, 2022). Türkiye also conducted significant project activities between 2010 and 2023 that entailed, for instance, an inter-governmental agreement between Türkiye and Russia that authorised Rosatom to construct the Akkuyu nuclear power plant in 2010 (IAEA, 2022b). Next, in 2011, the project company Akkuyu Nuclear JSC was registered, which subsequently oversaw the confirmation of Rosatom Overseas as majority owner (WNA, 2023b). In 2017, TAEK granted a construction license for excavations to commence at the Akkuyu site, which

preceded the begin of construction at reactor unit 1, 2, 3, and 4 in 2017, 2019, 2020, and 2021, respectively (WNA, 2023b).

This study's analytical timeframe captures the nuclear energy programmes at a critical period during which (oftentimes) long-standing plans about nuclear energy projects were implemented; inter-governmental loan agreements, engineering and construction contracts were signed; and nuclear plant personal received training before the excavation and construction phases commenced. This has resulted in heightened levels of official commentary on the national energy programmes, which contributes to more news media coverage and leads to more diverse and plentiful national discourses on nuclear energy. This makes discourse-based methodologies, such as framing and securitisation analysis, particularly effective as they benefit from access to comparatively rich discourses.

4.4.5. Case study selection based on the relevance of the case study countries to the regional context of the study.

The MENA is distinguished by the uneven distribution of fossil fuel resources. Resultant, the case study countries that lack significant fossil fuel endowment are disadvantaged vis-à-vis their energy-rich regional neighbours that gain economic, political, geopolitical, and military influence from their energy trade revenues, which polarises the balance of power in the region. Most crucially, major regional energy-exporters are not only energy self-sufficient but are able to reap great financial rewards from the hydrocarbon trade that significantly enriches their economies. This provides these states with increased operational liberties.

For instance, in contrast to the case study countries, the Gulf countries can implement and sustain large-scale rentier systems that uphold civic compliance and undercut social uprisings, which is an especially useful socio-political tool in volatile political contexts such as the MENA (Beblawi, 1990). The geopolitical power provided by the export of substantial quantities of fossil fuels is sufficient to gain significant regional and global influence as energy trade dependencies can enforce compliance and deepen inter-state relationships, while simultaneously disincentivising adversarial behaviour (Klare, 2009). Saudi Arabia, for instance, has benefitted historically from its ability and willingness to (relatively) reliably export significant quantities of oil to the United States. In exchange, the United States has provided military protection to the Kingdom and turned a blind eye to some of Riyadh's perceived misdoings (Saab, 2023).

Oil-rich economies are also able to assign significant financial capital to hard power investments and strengthen their militaries through cutting-edge technology and equipment imports that can fortify the national air space or assert dominance in

contested waters (Essaid, 2023). Furthermore, for exporters of significant quantities, the hydrocarbon trade has been so lucrative that large-scale energy system change is realistically achievable in comparatively small timeframes as virtually infinite capital reserves are able procure know-how, technology, and manpower. The operational liberty afforded by the oil trade is exemplified imposingly by the UAE's 'Barakah' nuclear power plant, which was partly financed through a \$16.2 billion loan from the Department of Finance of Abu Dhabi and is expected to significantly contribute to decarbonise the national energy system (Hickey, Malkawi and Khalil, 2021). Newcomer countries usually depend on long-term loans from reactor vendor countries to stem the hefty up-front capital costs needed to construct nuclear power plants (IAEA, 2008). The UAE, however, has been able to autonomously finance the \$16.2 billion investment, which alleviates security concerns about external loan dependency and expedited the project process. Independent financing at such a scale would likely exceed the fiscal leeway of many Western economies and demonstrates the capacity for system change provided by oil wealth. Other examples include the Gulf states' significant investment into the tourism sector and Riyadh's recent attempts at economic diversification through 'sportswashing' (Michaelson, 2023; Shadab, 2023).

The case study countries, however, are financially pressed by the prospect of major energy system transformation and their pursuit of nuclear power is, at least on paper, impeded by their comparatively limited economic power. By selecting three energy-importers, this study recognises their comparatively perilous energy security situation, while also acknowledging that, in the context of the region, their geopolitical and economic agency is affected negatively by resource scarcity. This defines the case study countries' relevance in the regional context of this study.

4.4.6. Case study selection based on the relevance of the case study countries to the theoretical framework of the study.

One important aspect of the case study countries in relation to the theoretical framework of the study is that they are non-democracies in the non-West. Specifically, the Polity 5 regime type index classifies Egypt, Jordan, and Türkiye as anocracies with Polity 5 scores of -4, -3, and -4, respectively (OWID, 2024). This makes these countries 'weak anocracies', which denotes a low level of democratisation. This is relevant as some observers have questioned the applicability of securitisation theory to non-democratic contexts beyond the West. However, as the theory and methodology chapters have shown, much research supports the position that, if the researcher remains cognizant of contextual variation, securitisation theory is applicable to non-democratic contexts in the non-West (Wilkinson, 2007; Vuori, 2008; Bilgin, 2011; Kapur and Mabon, 2018; Mabon, 2018; Pratt and Rezk, 2019; Neo, 2020; Mabon, Nasirzadeh and Alrefai, 2021).

Hence, the relevance of the case study countries to the theoretical framework of this study arises from this study's contribution to the limited literature on securitisation analysis in the MENA. This study shows that while the operational setting may differ, securitisation processes form part of security creation even in non-democratic regimes in the non-West, and especially the MENA. Thus, this study strengthens the case of advocates that deem the Copenhagen School's securitisation methodology an effective and applicable methodology for security analyses in non-democratic contexts beyond the West.

4.5. Summary.

The preceding 'Methodology' chapter has presented three discrete research methodologies that together represent this study's research design and are linked with three discrete inquiries.

This chapter has justified the first inquiry's focus on elite discourses and explained the logic behind the decision to attain the official position on energy security and nuclear energy proliferation in the case study countries. The 'Methodology' chapter has also presented the data collection and data analysis strategies of the first inquiry and justified the explanatory merit of the methodological approach.

The 'Methodology' chapter has also presented the framing analysis approach of the second inquiry and emphasised the mutually constitutive association between news media discourses and public opinion. Next, the preceding chapter has outlined the data collection process, placing particular emphasis on explaining the inductive and deductive framing process.

The third section has illustrated the required amendments to securitisation theory that have been suggested in the theory chapter and permit an effective engagement with the research objectives. The 'Methodology' chapter has then presented how the security master frame and Entman's (2004) framing effects can elevate securitisation theory and additional security intensification categories. The preceding chapter has also outlined the data collection methodology that assigns security intensifications to inductive master frame categories. The chapter ends by highlighting the perceived importance of issues that are reflected in both elite and news media discourses.

Finally, the fourth section justifies the case study selection in the context of this study.

The next chapter is the 'Country Profiles' chapter that presents energy sector information for the three case study countries.

5. Country Profiles.

5.1. Introduction.

This study conducts an in-depth analysis of the three case studies' national energy sector properties and practices to establish country profiles that offer an abbreviated, albeit still sufficiently exhaustive account of national energy sector characteristics. The country profiles are expected to guide the analytical process laid out in the preceding methodology chapter. For each case study country, the national energy strategy, the national nuclear energy activities, the electricity sector, and the role in the international energy market are assessed.

5.2. Egypt.

Situated in the north-eastern corner of Africa, the Arab Republic of Egypt is located with the Red Sea to its east, while it borders the Eastern Mediterranean Sea at its northern border, and subsequently sits at the intersection between the Middle East, Africa, Asia, and Europe. Spanning across an area of over 1 million km², Egypt is the world's 30th-largest country that consists mainly of deserts with a limited number of scattered oases. Overall, 95% of the total population resides along the triangle-shaped Nile Delta and narrow Nile Valley, which signifies only about 5% of the total available land mass (National Geographic, 2023). In 2021, the country's population reached more than 109 million inhabitants, with those between the ages of 15 and 29 years making up 27% of the population (BMZ, 2022). These population figures make Egypt the most populous country in the MENA and the country sits at rank 14 of the most populous countries in the world, with more than half of its citizenry living in urban centres (OECD, 2023).

Egypt is classed as a lower-middle income country and economic activity is principally linked to the services industry, and the industrial and agricultural sectors, which contribute 55%, 33% and 12% respectively to the country's GDP (Trading Economics, 2023a). Overall, the country's escalating population growth is exerting considerable pressures on existing services and infrastructure. In 2021, 28% of Egypt's citizenry experienced poverty, while about 60% of the population in Upper Egypt lived below the national poverty limit (IRENA, 2018b). Additionally, the unemployment rate sat at 7.2% in late 2022, which signified an improvement to the mid-2016 figure of 12% (Egypt Today, 2023; Trading Economics, 2023a).

Starting in the early 1990's, the country's state-led economic system was gradually transformed into a liberalised and market-based economy that capitalised on foreign

investment, privatisation strategies, and links to international trade networks. The opening up of the national economic market resulted in a marked stabilisation of the exchange rate and a significant uptick in FDI, aided in part by the adoption of numerous structural recalibrations and legislative reforms that were aimed at corporate, sales and income taxes (IRENA, 2018d).

5.2.1. National energy strategy - Egypt.

Egypt is Africa's largest gas and oil consumer, and it produces over 588,000 barrels of oil daily and is the continent's fifth-largest oil producer (IRENA, 2018b). The endemic volatility of global oil markets and the continuous rise in domestic energy consumption limit the contribution of Egypt's fossil fuel exports to international markets. Forecasts anticipate a pervasive increase in electricity demand, which will put considerable and sustained pressure on the country's electricity generating capacity (IRENA, 2018a). Electricity demand is expected to soon become the highest in Africa and the government's response is centred on the progressive growth of renewable energy sources and nuclear power (IEA, 2019a). Precisely, the country is eager to raise the installed electricity capacity from its 2022 figures of 57 gigawatts (GW) through the integration of nuclear power, renewables, and coal (EIA, 2022b).

The government currently pursues multiple concurrent strategies to deal with the energy imbalance and the associated energy insecurities, including operation and maintenance schemes, an uptick in the import of additional natural gas, while also diversifying the electricity system by introducing efficiency measures and renewable energy technologies (IRENA, 2018b). Precisely, the Egyptian authorities are aware of the need for a sustainable energy mix that satisfies growing demand volumes, while also introducing an increasingly diverse and sustainable electricity sector. The country's '2035 Integrated Sustainable Energy Strategy' places great emphasise on renewable energy types (ITA, 2022a). Egypt projects to raise the share of electricity that is generated via renewables to 42% by 2035, with conventional energy sources providing 57.33%, photovoltaic 21.3%, wind 14%, concentrating solar power (CSP) 5.52%, and hydropower 1.98% by 2035 (ITA, 2022a).

Due to inadequate production volumes of oil products and crude oil, the volume of petroleum imports has been steadily rising, escalating from 90.44 million bbl in 2014 to 100 million bbl in 2022 (IRENA, 2018b; Egypt Today, 2022b). Moreover, the slowdown in natural gas production has forced Egypt to begin importing LNG since 2014 (BP, 2017a). The energy generation by renewable energy sources has been on a steady upwards trajectory climbing from a total annual production volume of 1.7 TWh in 2011 to 10.5 TWh in 2021, which indicates an annual growth rate of 19.6% (BP, 2022). Overall, however, renewable energy only represents 0.3% of total national energy generation. As of 2021, renewable energy represented 11% of total electricity generation with most of the generated power coming from hydro (45%), followed by solar (27%) and wind (26%) and finally bioenergy (1%) (IRENA, 2022a).

The country is heavily invested in the idea that it should become a regional and international energy hub. To this end, Egypt has invested significant capital to construct several energy interconnectors (ITA, 2022a). There is currently one energy interconnector with Jordan that has a capacity of 250 MW, which is scheduled to be increased to between 450 and 500 MW (The Jordan Times, 2021a). Additionally, there is a second less expansive interconnector link with Sudan with a capacity of 80 MW, which is also expected to increase and reach a capacity volume of 300 MW (EgyptToday, 2022). The country's third cross-national energy linkage is between Libya and Egypt and has currently a capacity of 200 MW, which is scheduled to be increased to 2,000 MW (Farag, 2022). The country is also in the construction phase of an interconnector link with Saudi Arabia that will have a capacity of 3,000 MW (IEA, 2022a). Furthermore, a Memorandum of Understanding (MOU) was signed in 2019 to build an energy interconnector with Greece and Cyprus that is currently scheduled to advance in two separate phases of 1,000 MW of capacity each, coming together to provide a total capacity of 2,000 MW (Egypt Independent, 2021a).

5.2.2. Nuclear energy - Egypt.

The International Atomic Energy Agency (IAEA) has identified four principal reasons for the pursuit of nuclear power capacities in Egypt. Firstly, constantly rising electricity and energy demand, resultant from industrialisation, urbanisation, and population growth, and the intention and desire to better the standard of living for the Egyptian people have propelled the nuclear power proliferation discourse in the country (IAEA, 2022a). Secondly, insufficient and inadequate proven, national primary energy resources in combination with the medium and long-term rise of electricity and energy demand, paired with the need for potable water resources sourced via desalination activities have prompted the pursuit of nuclear energy development in Egypt (IAEA, 2022a). Thirdly, nuclear energy is perceived as an economically competitive, viable, and convenient source of energy, which complements the present energy mix effectively, while also promoting technological development and act as a trigger for further economic and social progress (IAEA, 2022a). Fourthly, nuclear power signifies the most promising technology to decrease the long-term emission of greenhouse gases (IAEA, 2022a).

The El Dabaa site, approximately 170 km west of Alexandria, on the Mediterranean coast was selected to host the country's first nuclear power plant in 1983 (SIS, 2023). The geographic area is characterised by low seismic activity and performed well during a meteorological, marine, and groundwater analyses conducted by the 'Nuclear Power Plants Authority' (NPPA) (IAEA, 2022a). After a wide range of proposed nuclear technology providers, numerous intergovernmental cooperation agreements, and a period of organisational standstill after the 2011 uprisings, the Russian government, through its state-owned nuclear company Rosatom, signed an intergovernmental agreement to develop the El Dabaa plant in November 2015 (WNA, 2023a). The agreement stated that Russia builds and operates the plant's four

reactors, including fuel supply, training, used fuel management, and the design of the regulatory infrastructure (DW, 2022). The NPPA is the principal utility for the project management of the operation and construction of nuclear power plants, while the 'Egyptian Nuclear and Radiological Regulatory Authority' (ENRRA) is responsible for the control and regulation of security, safety, emergency and nuclear safeguards of all nuclear facilities (IAEA, 2022a).

The Russian government will finance about 85% of the total construction cost of the El Dabaa plant, while also lending Egypt US\$ 25 billion as part of a financing agreement reached between the Ministry of Finance of the Russian Federation and the Ministry of Finance of Egypt in May 2016 (IAEA, 2022a). The loan is repayable at an annual interest rate of 3% over a 22-year period (Reuters, 2016). The outstanding 15% of the total project costs will be financed by Egypt (Reuters, 2016). The interstate contract defined the reactors as four units of type V-529 with a net capacity of 1194 MW each, which is a warm-water variant of the V-491 reactors build at Leningrad II (IAEA, 2022a). The NPPA was given a site approval permit from the Egyptian Regulation and Radiological Authority (ENRRA) for the El Dabaa site in April 2019 (Egypt Independent, 2019).

During the 1980's, the Egyptian Electricity Holding Company (EEHC) in cooperation with the NPPA conducted a study on the interconnection between the country's first nuclear power plant and the country's power grid. The results of this study suggested that the planned expansions of the national grid over a period of 15 years were sufficient to permit the integration of four nuclear reactors of 1 GW each at El Dabaa without risking serious consequences (IAEA, 2019). Egypt follows the 'Integrated Sustainable Energy Strategy to 2035', which intends to accomplish a total installed capacity of 4800 MW of nuclear energy by 2035 (ITA, 2022a)

5.2.3. *Electricity - Egypt.*

In February 2015, the Egyptian authorities ratified Electricity Law No. 87 of 2015 that intends to raise transparency across the power sector and increase the involvement of the private sector in the generation and distribution of electricity (Fahmy and Hussein, 2020). One of the key policy-amendments of the law transformed the electricity sector from state-led oversight to regulatory control, which has the potential to encourage private-sector investment (Fahmy and Hussein, 2020). The '2015 Electricity Law' has stipulated an initial eight-year period for the development and implementation of these measures, which has recently been extended to 2025 (Fahmy and Hussein, 2020).

Egypt holds the capacity for substantial renewable energy generation given its high wind speeds and solar irradiation potential, especially along the Nile Valley and in the Gulf of Suez (Salah, Eltaweel and Abeykoon, 2022). The Egyptian authorities are eager to take advantage of the country's potential for renewables by implementing significant sustainable electricity projects that have been outlined in Egypt's '2035 Integrated Sustainable Energy Strategy' policy proposal (ITA, 2022a). The '2035 Integrated Sustainable Energy Strategy' emphasises how important it is to develop renewables and announces the country's aim of increasing the share of renewables in TPES to 42% by 2035 (ITA, 2022a).

In 2019, Egypt had 57 GW of total installed capacity and produced approximately 183 GWh (EIA, 2023). About 90% of total power generation capacity was covered by fossil-fuel-fired technologies, while hydropower and renewables delivered the remaining capacity volumes, each producing roughly 5% of total capacity (EIA, 2023). In 2019, the country did not use coal-fired power generation.

Moreover, Egypt has invested heavily into wind farm projects in the past two decades, which has resulted in the development of several wind farms that have a joint output of 1.2 GW, in addition to planned projects that are expected to introduce wind power technologies along the Nile Banks and in the Gulf of Suez that have been allotted about 4,900 square miles (ITA, 2022a).

The 'Eight Countries Electric Interconnection Project' interlinks Egypt's power network with the national electricity grids of Jordan, Syria, and Libya (IRENA, 2018b). Currently, this project is still on-going, but upon completion, will connect the other parties involved – Türkiye, Lebanon, Iraq, and Palestine (AFESD, 2023). The Egyptian authorities are also eager to expand additional cross-border transmission projects to interlink with other country's power grids to transform into an electricity trading hub. For example, Egypt and Jordan agreed to develop a 1 GW interconnection grid to facilitate a Egypt-Iraq power supply connection via Egypt's interconnector with Jordan (Energy & Utilities, 2021). Moreover, Egypt and Saudi Arabia are also intent on linking the two economies through a 3 GW power cable connection and initiated the project's construction phase at the end of 2021 (Power Technology, 2021). The first phase of the Egypt-Saudi Arabia power interconnector is scheduled for completion in 2024, while the interconnector is expected to run at full capacity by 2025 (Egypt Today, 2021a).

5.2.4. Egypt's role in international energy markets.

Following Algeria and Nigeria, Egypt is Africa's third-largest natural gas producer. Egypt also operates the Suez-Mediterranean (SUMED) pipeline and the Suez Canal, which signify vital transportation infrastructure in the regional and international energy markets. Precisely, both structures are significant routes and transit bottlenecks for LNG shipments and the crude oil transport, and they make Egypt a major participant and stakeholder in the global natural gas and crude oil trade (EIA, 2022a). Egypt's connection with international energy markets is linked, at least partly, to the geopolitical and economic significance of the SUMED pipeline and the Suez Canal. In the case of a hypothetical closure of both infrastructures, LNG and oil tankers would be forced to sail around the African continent, which increases the travel time to Europe or the US by approximately 8 to 15 days, while accruing extra shipping costs (EIA, 2017b).

The Sidi Kerir and Ain Sukhna terminals are strategically positioned crude oil storage facilities at either end of the SUMED pipeline (EIA, 2019). The Ain Sukhna storage facility is located on the Red Sea coast and can store about 10 million barrels of oil in 15 floating storage tanks, while the Sidi Kerir terminal is situated in the Mediterranean and has a storage capacity of 20 million barrels of crude oil across 27 storage tanks (EIA, 2019).

Egypt is also integrated in other natural gas pipeline networks. The Arab Gas Pipeline (AGP), for instance, begins in Arish, Egypt, and interlinks with Lebanon, Syria, Israel, and Jordan (Hydrocarbon Technology, 2023). However, attacks and sabotage by militant factions have at numerous times disrupted AGP's gas flows since it was constructed (McKernan, 2020). Currently, 234 Bcf flow through the AGP per annum

and supply Egyptian natural gas to Jordan at a volume of between 26 Bcf and 44 Bcf per annum (EIA, 2022b).

Overall, the export of Egyptian natural gas is facilitated through LNG sales, even though in 2018 the country started to export natural gas to Jordan through the AGP (Fouad, 2021). Historically, substantial natural gas reserves have made Egypt a net exporter, until the mid-2010s saw the country begin to import natural gas to satisfy expedited demand growth (EIA, 2022b). However, Egypt's natural gas exports have begun to rise again after 2016 due to successful gas exploration undertakings that resulted in a surplus of natural gas destined for export (EIA, 2018; Enterprise, 2020). In 2019, Egypt's natural gas imports were virtually absent, which stood in stark contrast to record high import volumes of 294 Bcf in 2016 (EIA, 2022b). Also, the country's exports reached 177 Bcf in 2019 (EIA, 2022a).

In 2020, Egypt exported a total volume of 64 Bcf of LNG (BP, 2022). Overall, most of the country's LNG exports were sent to Asia Pacific countries, such as Taiwan, China, and Pakistan (BP, 2022). Moreover, in 2020, the United Kingdom imported 10%, or 6 Bcf, of the country's total exports (BP, 2022).

5.3. Jordan.

The Hashemite Kingdom of Jordan is located at the centre of the Middle East and has a population exceeding 10.6 million people. The country is governed through a divided governance, consisting of 12 distinct governorates (Bertelsmann Stiftung, 2022). Over the last ten years, the country's economic system was challenged at multiple occasions, including the financial turmoil of the late 2000s, the closure of trade routes, energy supply disruptions after Egyptian gas supplies were interrupted in 2011, prolonged instability due to regional conflicts, and a migration inflow of over 1.4 million refugees (Bertelsmann Stiftung, 2022).

Economic growth in Jordan declined markedly, dropping from an average of 6.5% from 2000 to 2009 to a growth figure of 2.5% between 2010 to 2016, achieving only below 2% in Q3 of 2019 (Kamar and Selim, 2020). Moreover, unemployment figures have been steadily rising. In Q1 of 2020, the unemployment rate topped 19.3% in contrast to 12.5% in 2010 (World Bank, 2023b). Furthermore, the country's economy and its social services system are experiencing the heavy toll of exploding population growth, while the Covid-19 pandemic has further intensified Jordan's economic threats (World Bank, 2023b). To counter these challenges, Jordan must find and nurture new economic growth incentives, improve the country's unemployment rate, and better the quality of living for all classes.

The services sector has dependably generated the largest proportion of the GDP, contributing more than 60% for the last sixty years (World Bank, 2022). The manufacturing sector accounted for approximately 20% of the country's GDP (World Bank, 2022). Jordan's 'Economic Growth Plan 2018-22' places great emphasise on growing core economic and infrastructure sectors, including energy, water, transport, tourism, industry, agriculture, and micro, small, and medium-sized enterprises, and

development of the social sector through investments in the health care sector, education, and labour rate participation (World Bank, 2022).

The supply disruptions of Egyptian gas between 2011 and 2013 led to the employment of costly alternatives, such as diesel and heavy fuel oil, over a period of multiple years, which imposed a significant cost burden on the state-owned electricity buyer NEPCO, placing considerable strain on the economy (BBC, 2011; Gamba, 2015). This example illustrates the vulnerability of the country's economic system to interruptions in hydrocarbon supply and has reinforced the national resolve to speedily promote the growth of domestic energy resources.

Egypt's 'Master Strategy for the Energy Sector 2020-2030' publication has identified renewables as key energy technologies that are expected to contribute to the diversification of the energy system (MEMR, 2020c, 2020b). Supported by strong regulatory and policy activity, renewables accounted for over 13% of the generated electricity in 2019, which denotes a considerable growth momentum in a short span of time (IRENA, 2021a, 2022b). The quick drop in technology costs has increased the competitiveness of renewables, especially wind and solar PV, against conventional, fossil fuel-fired energy options (IRENA, 2021a).

5.3.1. National Energy Strategy - Jordan.

Jordan is heavily energy import dependent and imports 96% of its energy that is needed for power generation, which is currently fuelled by natural gas, crude oil, and alternative fossil fuels imported from the Gulf States (Aftandilian, 2020). In 2020, the average domestic expenditure on energy imports for electricity generation stood between 4% and 5%, while Jordan invested 8.5% of its GDP in energy imports per annum, which places great strain on the public budget (Reuters, 2020b).

The absolute necessity for the adoption of an alternative energy pathway was clearly noted in 2007 with the introduction of the Jordan 'National Energy Strategy Plan'. Its main objective is to limit and lower Jordan's dependence on fossil fuel imports from its regional neighbours by growing the capacity of alternative sources, including renewables, nuclear, and shale oil (MEMR, 2007). The document defined the initial goal of achieving a 7% share of renewables in electricity generation by 2015, and 10% by 2020 (MEMR, 2007). In 2020, the share sat at 11%, while an updated target value of 20% has been defined for 2025 (Ready, 2020).

The Jordan authorities have invested significant time in designing a legal framework to facilitate an increase in the share of renewable energy in the national electricity generation. In 2012, the 'Renewable Energy and Energy Efficiency Law' (REEEL) was introduced that aims to fabricate a helpful policy environment to channel international investment into the country's renewable energy sector (IEA, 2021b). For instance, a streamlined, direct proposal scheme was adopted that allows investors to immediately address the Ministry of Energy and Mineral Resources (MEMR) without the need for a competitive bidding process as long as the rates offered remain equal to or below the indicative prices defined by the MEMR (IEA, 2021b). This is a feed-in approach that has led to highly competitive price structures in Jordan (IEA, 2021b).

Furthermore, the REEEL also created the 'Jordan Renewable Energy and Energy Efficiency Fund' (JREEEF), which has been established to introduce private and public investment into the renewable energy sector (IEA, 2019d). Also, bylaw 79 for Climate Change, a 2019 amendment to REEEL, stated the requirement for energy stakeholders to report greenhouse gas emissions (IEA, 2019d).

The Ministry of Energy and Mineral Resources (MEMR) published the 'Master Strategy for the Energy Sector 2020-2030', which prescribes the integration of renewable energy technologies, a progressive drive to increase the diversity of the national energy system, a larger share of domestic energy resources in TPES, improved energy security, lowered energy import dependence, and reduced cost of the electricity supply (MEMR, 2020c, 2020b). The 'Master Strategy for the Energy Sector 2020-2030' aims to raise the share of renewable energy technologies in the electricity generation mix to 31% by 2030 (MEMR, 2020c).

The 'Renewable Readiness Assessment' publication, developed by the International Renewable Energy Agency (IRENA) in co-operation with MEMR defines promising opportunities and central challenges for Jordan as the country tries to diversify its energy supply, improve its energy security, and raise the ecological sustainability of its energy system (IRENA, 2021a). Jordan's most promising renewable energy potential lies with wind and solar power, with less abundant availability of hydropower, bioenergy, and geothermal.

5.3.2. Nuclear Energy - Jordan.

According to the Jordan Atomic Energy Commission (JAEC), the high energy import dependence and its associated risks coupled with little alternatives to renewables and nuclear energy have advanced the pursuit of nuclear energy proliferation. Jordan's national energy strategy prescribes an increasingly more sustainable energy mix by diversifying energy supplies and exploiting indigenous energy resources. The country's overdependence on natural gas and subsequent interruptions in supply have resulted in considerable financial losses. Therefore, to mitigate these security risks, the country has outlined their national strategy for civilian nuclear energy development, which endeavours to diversify the power generation mix, minimise the exposure to energy price and supply risks, generate cheap electricity for de-salination activities, install a competitive energy technology, lower the bill for imported hydrocarbons, take advantage of national uranium resources, boost public-private partnerships, grow indigenous industry capacity linked to the energy sector, and lower the greenhouse gas (GHG) emissions from electricity production (JAEC, 2023).

The Jordanian government has decided to progress along two divergent tracks. Firstly, the country pursues a strategy of constructing a Pressurised Water Reactor (PWR) with approximately 1000 MWe Net Output at Qasr Amra (JAEC, 2023). The second track involves the consideration of adopting Small Modular Reactor (SMR) technologies (JAEC, 2023).

Initially, the Jordanian authorities wanted to construct the country's first nuclear power plant at Al Amra, which is situated about 70 km from Amman in the northern Al Mafraq province. However, after concerns about tectonic activity in Al Amra, Amman decided to re-locate the plant site to Qasr Amra, which is located in Al-Azraq province approximately 70 km south-east of Amman (WNA, 2022c). In late 2013, JAEC identified

Atomstroyexport (ASE) as the most fitting reactor provider and chose the AES-92 (VVER-100) reactor design. While ASE provided the reactors, Rosatom Overseas was expected to function as an advisory entity and operate the nuclear power plant in co-operation with JAEC (IAEA, 2013b). The expectation was that 49.9% of the US\$ 10 billion project costs would be financed by Rusatom Overseas, while the Jordan Nuclear Power Company (JNPC) would be required to finance the controlling 50.1% share (Al-Khalidi, 2015).

In late 2014, the Jordanian authorities agreed to begin developing a project strategy with Rosatom Overseas, a process that was expected to culminate in a construction agreement by 2016 (WNA, 2022c). An intergovernmental cooperation agreement was signed between Russia and Jordan in early 2015, which defined early project obligations, including the formation of a project company (WNA, 2022c). Following, both governments signed an official pre-construction agreement. Next, in mid-2016, Rosatom announced the implementation of a feasibility assessment, which was due by 2017 (WNN, 2016). However, the Jordanian authorities declared in mid-2018 that they had pulled-out of the agreement as it was perceived as too cost intensive due to Rosatom's demand to acquire capital via commercial loan agreements (Rosatom, 2018). The projected nuclear energy installations would have covered approximately 50% of Jordan's power demand, while also producing excess capacity for the export to Iraq and Syria (WNA, 2022c).

JAEC Chairman Khaled Toukan spoke at an IAEA gathering in later 2018 and declared that Jordan had adopted a dual approach to nuclear energy, focussing on both a conventionally-sized 1 GWe nuclear power plant and on SMRs (JAEC, 2018b). However, he emphasised that the SMR option *"seems to be more appropriate in bridging the gap in the Jordanian electricity generation mix"* (JAEC, 2018b, pp. 3–4).

5.3.3. Electricity - Jordan.

By late 2018, the country's total installed electricity capacity stood at 5.2 GW, which signified a considerable increase from the 2014 value of 3.9 GW (IRENA, 2021a). The largest contribution was provided by combined cycle power plants that produced over 50% of the total installed electricity capacity. Overall, the share of renewables in total installed capacity has increased, growing from under 1% in 2014 to more than 20% in 2018 (IRENA, 2022b). Forecasts predict that renewables will account for 31% by 2030 (IRENA, 2021b). The expansion of the share of renewables is driven primarily by the integration of additional solar PV and wind installations that added more capacities (IRENA, 2021b). The peak load in summer 2018 stood at 3 GW, while the winter peak load was 3.2 GW. The peak load record was broken in early 2022 as extremely cold weather pushed peak load to 4.01 GW (The Jordan Times, 2022b).

The total generation capacity of Jordan's electricity sector has gradually increased over the last ten years, recording an increase from 15 TWh to 21 TWh between 2010 and 2018 (IRENA, 2021b). Interestingly, the fuel-mix has undergone substantial changes between 2010 and 2018 as the effects of intra-regional conflicts and supply disruptions have forced Amman to integrate alternative fuel sources. Jordan was historically heavily reliant on natural gas and until 2009 over 80% of the country's indigenous electricity generation was fuelled by natural gas (World Bank, 2015). After the supply of Egyptian gas to Jordan was disrupted in early 2011, the authorities decided to increasingly switch to diesel fuel and heavy fuel oil for power generation (Gamba, 2015). Resultant, by late 2014, over 90% of domestic electricity generation relied on heavy fuel oil and diesel, while natural gas accounted just over 7% (Gamba, 2015; World Bank, 2015). However, by 2018 Amman had increased its dependence on LNG imports and began importing LNG via the port of Al-Sheikh, which raised the importance of natural gas in the country's energy consumption to pre-2011 levels of

over 80% (IRENA, 2021a). In early 2020, the Jordanian authorities agreed a natural gas supply deal with Israel's Noble Energy that entailed the supply of natural gas from Israel's Leviathan gas field for over 15 years (Al-Khalidi, 2020).

The investment into and improvement of power generation installations signifies a central policy objective of the Jordanian authorities (IRENA, 2022b). Taking advantage of the financing potential of IPPs, the country has committed to several natural gas projects in coordination with the private sector. For instance, the private-sector entity ACWA Power has constructed the Zarqa combined-cycle power station, which has a capacity of 485 MW and utilises both natural gas and diesel oil as fuel (The Jordan Times, 2019a).

The significant over-dependence of the electricity generation sector on natural gas, which is primarily imported, has raised concerns about Jordan's ability to finance the rising energy demand volumes and achieve respectable levels of energy security (Weko et al., 2022). Acknowledging these concerns, the 'National Energy Strategy 2020-2030' has clearly formulated the policy objective of increasing the diversity of the energy mix composition. The policy document sets out a plan to increase the share of renewables in the electricity mix from 20% in 2020 (2,400 MW) to 31% in 2030 (3,200 MW) (MEMR, 2020b).

Supported by resolute policy-making, the importance of renewables in the national energy sector has increased quickly and especially wind and solar PV have become important electricity technologies (Abu-Rumman, Khdair and Khdair, 2020). Total power generated from renewables has increased manifold, growing from 125 GWh in 2015 to 2,188 GWh in 2018, which has been caused largely by the development of wind and solar projects (IRENA, 2021b).

The interconnection of Jordan's electricity grid with its regional neighbours is another central component of the country's diversification strategy. In 2018, power import volumes exceeded 188 GWh, which signifies an increase from 51 GWh in 2017 but indicates a significant decrease from the 2015 figure of 604 GWh (MEMR, 2019b). Promoting regional and pan-Arab electrical interconnections, NEPCO has become a signatory to MOUs with the Saudi National Electricity Transmission Company and the Gulf Electrical Interconnection Commission (The Jordan Times, 2017, 2022a).

5.3.4. Jordan's role in international energy markets.

Due to the country's lack of significant fossil fuel resources their function in international energy markets is limited primarily to an energy importer role, while they are also a transit country and operate as a small-volume electricity exporter through intra-regional power grids.

The country's crude oil reserves are virtually non-existent, while conventional oil reserves are negligible, with projections estimating a maximum volume of 1 million barrels (EIA, 2014). Resultant, Jordan imports almost all its oil needs, obtaining about 2.5 million barrels of crude petroleum per month from Saudi Arabia and approximately 15,000 subsidised barrels per day from Iraq (Abillama, 2020). In 2021, refined petroleum signified Jordan's fourth largest import commodity at a total value of US\$ 956 million (OEC, 2022). In the same year, refined petroleum was the country's second highest imported product after cars with a total value of US\$ 1.09 billion (OEC, 2022). Jordan imported refined petroleum predominantly from Saudi Arabia (US\$ 499 million), UAE (US\$ 247 million), India (US\$ 227 million), and Malaysia (US\$ 66.2 million) (OEC, 2022).

Jordan also imports about 30 tons of subsidised heavy fuel oil per month, for the use in the country's power plants (Fanack, 2018). Currently, crude petroleum imports from Iraq are transported by truck, but Jordan has begun debates about the possible construction of a crude petroleum pipeline connecting Iraqi oil fields with the Kingdom (Fanack, 2018). In 2013, the Jordanian authorities and Iraq signed an agreement to build a crude petroleum pipeline connecting Iraq's Basra oil fields with the Jordanian port at Aqaba (Saadi, 2021). As of now, however, this project has been suspended until the security situation in Iraq improves.

Jordan did not rely on significant natural gas resources until the Arish-Aqaba portion of the Arab Gas Pipeline was opened in 2003, which allowed Jordan to import natural gas from Egypt (Hydrocarbon Technology, 2023). Egypt supplies Jordan with approximately 6.8 million cubic metres of natural gas per day (MCM/d), which covers about 83% of demand of just above 3 billion cubic metres per year (BCM/yr) (Elgendy, 2022). These essential imports are primarily used to fuel gas-powered electricity generation plants, which produce over 80% of Jordan's electricity needs (Elgendy, 2022).

The Arab Gas pipeline is a natural gas transportation infrastructure that channels natural gas between Egypt, Israel, Jordan, Syria, and Lebanon. It is over 1,200 km long and was built at a cost of US\$ 1.2 billion (Hydrocarbon Technology, 2023). The usage of the pipeline has been intermittent since its installation due to a reduction in gas flows caused by sabotage to the feeder section of the pipeline through extremist groups in the Sinai (Reuters, 2011c). This was followed by a shortage of available natural gas resources in Egypt that halted the cross-border flows of Egyptian gas. However, the Jordanian section of the pipeline continued its operations to enable the domestic distribution of natural gas. Between 2015 and 2018, the pipeline through-flow was reversed to transport natural gas from Jordan and its LNG terminal in Aqaba to Egypt (Egypt Today, 2017). However, the revival of Egyptian gas production has permitted the export of natural gas to Jordan since 2018 (The Jordan Times, 2018b). In 2020, the Arab Gas pipeline began sending natural gas from Israel to Jordan, while the off-shore section connecting Israel with Egypt was reversed to supply Egypt with natural gas from Israel (Al-Khalidi, 2020).

5.4. Türkiye.

Türkiye is located at the intersection between Europe and Asia, and most of its territorial space belongs to Asia, while a comparatively small section is located at Europe's south-eastern border. Türkiye has a territorial area of 783,562 km² and a 2020 population of approximately 83 million; overall, Türkiye is ranked as the world's 37th largest country (CIA, 2023).

Türkiye is an influential and powerful regional actor and is defined by its strategically advantageous geographic position and rich cultural history. Türkiye is committed to pursuit EU membership and has since 2005 been a participant in accession dialogues. Yet, since 2016, the prospect of becoming a full EU member has not improved (Toygür, 2022).

After economic turmoil in 2001, the country's social and economic development has seen rapid growth. The World Bank, for example, has recognised Türkiye's growing per capita income and improved employment figures, and elevated the country's status to the upper-middle-income level (World Bank, 2023a). The country's per capita GDP increased by almost 50% between 2001 and 2018, reaching US\$ 13,235 and US\$ 24,811 respectively (European Commission, 2022). Moreover, in 2018, the country was ranked as the world's 19th largest economy with a nominal GDP of US\$ 902 billion (European Commission, 2022). However, in 2018, Türkiye experienced a significant debt and currency crunch as the Turkish lira's value dropped, leading to escalating borrowing costs, loan defaults, and high inflation rates (Kubilay, 2021). Subsequently, GDP growth per annum decreased from 7.5% in 2017 to 2.8% in 2018 (ITA, 2022d).

Türkiye's economy is currently in the process of transforming from an agriculture-based system to one centred-around the services and industry sectors. By 2019, 49%

of the total workforce was employed by the services sector, while 15% and 18% of total employment was held by agricultural and industrial positions, respectively (Gökay, 2021). Almost half of the total trade is with the EU, while intra-national trade with Germany represents the largest share of EU trade flows (Gökay, 2021). The largest import volumes are sourced from China and Russia, while considerable trade connections also exist with Middle Eastern states, especially with Iraq and Iran (Gökay, 2021).

While Türkiye is endowed with a rich assortment of natural resources, only a handful are present in substantial quantities. Importantly, Türkiye and Iran are the only regional powers that have considerable coal reserves (IEA, 2021c). Overall, Türkiye is heavily dependent on imported natural gas and oil but is intensifying the pursuit of energy relationships with wider variety of international partners, while also aiming to increasingly utilise domestic energy resources, such as coal, nuclear and renewables (IEA, 2021c). Türkiye is aware of its strategic geopolitical location and pursues its long-established ambition to transform into a commodity and energy trading centre that orchestrates energy trade flows that include Russia, Europe, The Middle East, and Central Asia (MFA, 2023).

5.4.1. National Energy Strategy - Türkiye.

Currently, the domineering focus of Turkish energy policy-making rests on energy security and market reform. Constant population and economic growth over the last twenty years have not only propelled significant energy demand growth, but also a related rise in energy import dependency (MFA, 2023). Resultant, the country aims to restructure its energy system to moderate and potentially suppress the growth in energy demand, while decreasing domestic energy prices and lessening the growth in hydrocarbon imports (MFA, 2023). Such reform initiatives have revolved around policies to expedite liberalisation, modernise the energy system, and increase the share of indigenously produced energy through foreign and private investments (IEA, 2021c).

Türkiye's energy system is marked by its dependence on fossil fuels that signify a large portion of its TPES. Precisely, 83% of TPES in 2019 was provided by fossil fuels, while fossil fuels also accounted for 73% of total final consumption (TFC) in 2018 (IEA, 2020c). The remaining energy share is covered by numerous renewable sources, which are dominated by the usage of hydro and geothermal in electricity generation. However, almost 100% of the natural gas and oil consumed is imported, while the domestic generation of renewables and coal accounts for approximately 50% of the total final consumption (TFC) (IEA, 2020c). The domestic production of energy accounted for 31% of TPES in 2019 (IEA, 2020d). Importantly, the renewable production of energy has increased by over 100% since 2019, which has seen a rapid expansion in wind, solar, hydro, and geothermal, while residential heating through traditional bioenergy has decreased (BP, 2020).

Acknowledging Türkiye's economic development and growth, Türkiye's Ministry of Energy and Natural Resources (MENR) publicised a policy document titled 'National

Energy and Mining Policy' in April 2017. The policy is centred on its main premise of lowering the country's dependence on energy imports and follows several key principles: "1) *improving energy supply security*; 2) *localisation, including increasing the use of domestic energy resources*; and 3) *improving predictability in energy markets*" (IEA, 2021c, p. 25). Additionally, the MENR's 'Strategic Plan for 2019-2023' prescribes energy sector policies that aim to improve energy supply security by developing domestic energy exploration and exploitation initiatives and increase the diversity of energy types (IEA, 2021c). As the role of domestically produced oil in TPES remains insignificant, the Turkish authorities prioritise domestic oil exploration activities. Similarly, the indigenous exploration of natural gas in Türkiye has traditionally been insignificant, reaching below 2% of demand (IEA, 2021a). Moreover, between 2017 and 2023, the 'National Energy Efficiency Action Plan' (NEEAP) expects to achieve a 14% drop in energy consumption by pursuing 55 distinct policies (IEA, 2022b). By 2023, the policy initiative is expected to save about 23.9 Mtoe and will be supported through an investment of US\$ 10.9 billion (IEA, 2022b). The Turkish authorities expect to save about US\$ 30.2 billion by 2023, while the saving effects are likely to remain until the late 2030s (IEA, 2022b).

To lessen the dependence on imported hydrocarbons, especially natural gas for power generation, Türkiye is introducing policies to develop the indigenous exploration and exploitation of its substantial coal reserves (IEA, 2021c). Especially lignite exploration and exploitation is expected to fuel domestic power generation (IEA, 2021c). Therefore, the government has expedited the identification of new coal deposits and the exploitation of existing coal fields to satisfy rising energy demand that has resulted from population growth and industrialisation (IEA, 2021c).

5.4.2. Nuclear Energy - Türkiye.

Nuclear energy proliferation is primarily expected to improve the security of energy supply by developing indigenous power generation capacities that lower Türkiye's significant dependence on fossil fuel imports, while also "*strengthening greenhouse gas emission mitigation efforts*" (IAEA, 2022b, para. 15).

Türkiye's first nuclear reactor is currently being built at Akkuyu, which is in Mersin province. The project has its foundation in a call for tenders that invited bids for Türkiye's first nuclear plant at Akkuyu in early 2008, which was organised by the Turkish Trade & Contract Corporation (TETAS) (WNA, 2020).

The Russian and Turkish governments agreed on a US\$ 20 billion build, own, and operate (BOO) construction contract that authorised Rosatom, Russia's state-owned nuclear company, to construct the Akkuyu power plants' four 1200 MWe reactors (WNA, 2020). Inter RAO UES and Atomstroyexport, which are subsidiaries of Rosatom, own the Turkish Akkuyu project company and committed to finance the Akkuyu nuclear power plant (WNA, 2020). The Turkish parliament sanctioned the Akkuyu project in mid-2010 before the Russian parliament approved the project construction in late-2010. In December 2011, the Akkuyu Nuclear JSC was formed, which functions as the project company of the Akkuyu nuclear power plant project and is fully owned by Russia (WNA, 2020).

In the project contracts it was dictated that a fixed portion of the power generated by the Akkuyu plant will be purchased by TETAS at a pre-determined price of 12.35 c/kWh over a period of 15 years (WNA, 2023b). Precisely, over a timeframe of 15 years per unit, TETAS will purchase 70% of the power generated by the first two units, and a further 30% of the power generated by the remaining two units (WNA, 2023b). The

remaining available power will be offloaded onto the open market by the project company. After 15 years, when it is projected that the plant has been financed, the Akkuyu Nuclear JSC is expected to reimburse the Turkish authorities with 20% of the plant's profits (WNA, 2023b). In early April 2018, a licence for the construction phase of the Akkuyu project was issued by TAEK, which expected construction to begin on 3 April 2018 (IAEA, 2022b). Construction on units 2, 3 and 4 began in April 2023, March 2021, and July 2022, respectively (WNA, 2023b). The general contractor for construction is Atomstroyexport, while between 35% and 40% of the construction workload is expected to be completed by Turkish construction firms (WNA, 2023b).

The country's second nuclear power plant project is currently in the preparatory phase and is expected to be constructed at Sinop, which is located at the Black Sea, with an accompanying nuclear research and technology hub that is expected to cost about € 1.7 billion. It was announced in December 2022 that Korea Electric Power Corporation (KEPCO) had been in dialogue with the Turkish government to construct four APR-1400 reactor units at Sinop (Enerdata, 2023). The estimated project costs stand at about US\$ 30.7 billion, and a feasibility study was scheduled for the beginning of 2023 (WNN, 2023a). The government further announced that Rosatom could become the main construction partner at Sinop (Hacaoglu, 2022). In March 2023, EUAS formed a nuclear-focussed subsidiary named TUNAS, which has been tasked with realising the project. TUNAS has subsequently announced that it plans to begin excavations at Sinop in 2023 (WNA, 2023b).

The country's third nuclear power plant is planned for construction at Igneada in Kırklareli province on the Black Sea coast, which is situated 12 km from the Bulgarian border (IAEA, 2022b). However, as of now, no concrete plans have been published.

5.4.3. Electricity - Türkiye.

Türkiye's two overarching strategic principles in relation to the country's power sector are to uphold sufficient generation capacities to satisfy exponential electricity demand growth, while also increasing the reliance on indigenous sources of electricity to lessen costs associated with energy imports (IEA, 2021c).

Total electricity generation in 2019 stood at 304.3 terawatt hours (TWh), which signifies an increase of almost 100% from 2000 figures (ITA, 2022c). While oil does not contribute significantly to the domestic generation of electricity and the reliance on natural gas has declined noticeably, the dependence on coal has intensified (ITA, 2022c). In fact, coal-powered generation hit 113.2 TWh in 2019, which represented an increase of 103% since 2009 (ITA, 2022c).

Importantly, renewable energy types represent a notable stake in the country's electricity mix, and their contribution is gradually rising (Alparslan, 2022). Hydropower, especially, has increased its production almost three-fold since 2000. In 2019, hydropower accounted for 29%, while wind, solar, geothermal, and bioenergy accounted for 7%, 3%, 3%, and 1% of total power generation, respectively (Alparslan, 2022). In mid-2020, electricity generated through hydropower accounted for 34% of total power generation and signified Türkiye's primary generation technology (IEA, 2021c).

While Türkiye is connected to several electricity grids from its neighbouring countries, electricity exports and imports are insignificant factors in the country's total electricity demand. Türkiye's electricity exports stood at 2.8 TWh in 2019, while the country's electricity imports reached 2.2 TWh (ITA, 2022c). Overall, the direction of trade flows has been fluctuating in the last two decades, as Türkiye has switched between

exporting and importing electricity. As Türkiye uses hydropower for the generation of almost 30% of its indigenous power, seasonal variation in hydrological conditions significantly affects the local generation potential (ITA, 2022c). The country's fluctuations in hydro-powered electricity generation affects intra-national electricity trade, though the more pressing issue affecting the trade of electricity are fluctuating electricity prices that undermine cross-border electricity trade (IEA, 2021c).

Türkiye intends to continue promoting the growth of ecologically sustainable energy technologies and drive the expansion of wind and solar capacities, which 10 GW of additional wind and solar capacity expected to be added between 2017 and 2027 (IEA, 2021c). According to projections, the Turkish authorities aim to integrate 76% and 61% of new generation capacity from renewables in 2023 and 2027, respectively (IEA, 2021c). The Turkish authorities offer renewable energy providers competitive feed-in tariffs under the organisational authority of the 'Renewable Energy Support Mechanism' (YEKDEM) (Enerdata, 2021).

5.4.4. Türkiye's role in international energy markets.

Traditionally, most imported oil has been imported from Saudi Arabia, Iran, and Iraq, which in 2018 have supplied approximately 75% of all oil imports (IEA, 2021c). Over the last ten years, the country has experienced a steep increase in oil imports that have largely been sourced from the Middle East, at the same time the share of Russian oil decreased between 2008 and 2018 (Trading Economics, 2023b). However, due to U.S. sanctions, oil imports from Iran declined significantly in 2019 and were stopped completely in May 2019 (Trading Economics, 2023b). This is reflected in the share of Iranian imports in total imports that declined from 34% in 2018 to 7% in 2019 (IEA, 2021c). The decrease in Iranian oil was substituted partly with rising import volumes of Russian oil that accounted for 212.1 kb/d, while Iraq supplied 191.9 kb/d (IEA, 2021c). Russia became Türkiye's key crude oil supplier in 2019, accounting for 33% of total crude oil imports, followed by Iraq with 30% and Kazakhstan with 10% (IEA, 2021c).

Türkiye's central geographical position in between the energy-rich states of Russia, Iraq, Iran, and the Caucasus, in combination with Türkiye's interlinks to Europe, has provided the country with ample opportunity to economically exploit these advantages (Schmid, 2022). In 2016, the Turkish Straits were used to ship about 3% of the world's oil supply, with about 86,000 ships sailing through it, which makes the Turkish Straits one of the most frequented shipping routes in the world (EIA, 2017a).

Türkiye has ample pipeline connections that funnel Iraqi and Caspian oil towards Europe, while also connecting ports on the Black Sea coast that ship Russian and Caspian oil through the Turkish Straits. For example, oil from the expansive Azeri-Chirag-Deepwater Gunashli field is channelled via the Baku-Tbilisi-Ceyhan (BTC) oil pipeline, while also connecting the Shah Deniz natural gas field in Azerbaijan to

Türkiye (BP, 2023). Constructed in mid-2006, the BTC pipeline signifies the region's most important transit infrastructure (BP, 2023).

Türkiye's largest natural gas supplier is Russia, which is reflected in several natural gas pipelines that interlink both countries. Since 1986, the Russia-Türkiye Natural Gas Pipeline supplied Russian gas to Russia supplies natural gas to Türkiye (Winrow, 2014). Furthermore, the Blue Stream pipeline that started operations in 2003 has a transport capacity of 16 bcm per annum and channels natural gas from Russia via the Black Sea to Türkiye, which is regulated through an agreement between Gazprom and BOTAS (Winrow, 2014).

The resource abundant Azerbaijani natural gas fields are connected to Italy and the EU via Türkiye through the Southern Gas Corridor, which signifies strategic infrastructure that diversifies Türkiye's energy supply sources and widens natural gas price options (BP, 2017b). Per year, the Southern Gas Corridor supplies 10 bcm of natural gas to Europe and 6 bcm of natural gas to Türkiye (BP, 2017b). Türkiye has invested heavily into the corridor; TPAO, for instance, owns 19% of Azerbaijan's Shah Deniz field and the Southern Gas Corridor, while BOTAS owns 30% of TANAP, a pipeline that connects Türkiye to Greece and the EU, and forms part of the Southern Gas Corridor (BP, 2017b).

5.5. Summary.

The 'Country Profiles' chapter has introduced the three case study countries and presented their national energy, nuclear energy, and electricity system strategies, while also presenting the countries' role in the international energy markets.

The preceding chapter has shown that Egypt's energy system is marked by high and rising energy demand volumes that are expected to be covered by a green energy transition and dependence on indigenous natural gas resources. The preceding chapter has also shown that Egypt is in the process of constructing its first nuclear power plant. The nuclear power project is accompanied by a drive to privatise the electricity sector and export domestic electricity via interconnectors. The chapter also highlighted Egypt's influential function in the international energy system as it exports natural gas as LNG and through the SUMED pipeline.

The 'Country Profiles' chapter also presented Jordan's national energy strategy that is predominantly focussed on a green energy transition. Furthermore, the preceding chapter has also highlighted that the country's nuclear energy project has shifted its focus away from average-sized 1 GW plants towards SMRs. The electricity system is heavily affected by the national energy strategy and the energy system transition relies almost exclusively on green energy technologies. The chapter has also shown that Jordan is almost exclusively involved in the international energy system as an energy importer but aspires to become an electricity exporter by selling its domestic green electricity via interconnectors.

The preceding chapter has further highlighted that Türkiye aims to diversify its hydrocarbon-import dependent energy system by growing its domestic coal consumption, relying on indigenous natural gas discoveries, and growing the

renewable energy sector. Türkiye is also in the process of constructing its first nuclear power plant, which is expected to contribute towards satisfying rising electricity demand and lower the need to import fossil fuels to power electricity generation. Finally, the 'Country Profiles' chapter has emphasised the country's central position in inter-regional pipeline networks.

The next chapter is the 'Data Analysis' chapter, which outlines the responses to the research questions and presents the empirical data.

6. Data Analysis.

6.1. Introduction.

To begin, this chapter presents the elite perception of energy security and nuclear energy development in the three case study countries. Secondly, this chapter assesses the distribution of frame attributions across two distinct frame levels and across several frame categories, for both energy security and nuclear energy-related discourses. Thirdly, this chapter identifies security intensifications and their distribution across 'problem' and 'remedy' frame categories. Importantly, the 'Data Analysis' chapter presents this study's primary response to the research questions. Importantly, the empirical data is also utilised to illustrate notable trends in the data in the succeeding 'Discussion' chapter.

6.2. Inquiry (1) - What is the elite perception of energy security and nuclear energy proliferation in oil-poor countries in the MENA?

6.2.1. Egypt: Elite perception of energy security.

In 2015, Egypt's Minister of Electricity & Renewable Energy, Dr. Mohamed Shaker El-Markabi spoke at the 'Egypt Economic Development Conference' and presented a talk titled Addressing Egypt's Electricity Vision (El-Markabi, 2015). In his speech he presented Egypt's national energy security strategy as a three-pronged policy approach that combines initiatives to boost energy supply, diversify energy supply, and improve energy efficiency (El-Markabi, 2015). The country pursues two policy measures to grow the energy supply; namely, expand the power generation and transmission capacity, and secure new LNG import contracts (El-Markabi, 2015). Additionally, to diversify the energy supply, Egypt implements two policy measures; namely, diversify the energy mix through the development of coal-fired, nuclear, and renewable power generation, and expand the regional energy trade by developing a 3 GW interconnector with Saudi Arabia (El-Markabi, 2015). Furthermore, Egypt relies on two policy measures to boost the country's energy efficiency; namely, improve supply-side efficiency by converting open cycle gas plants to combined cycle plants, and lower T&D losses from 12% to 8% (El-Markabi, 2015). El-Markabi's speech clearly indicates a national energy strategy that is expected to mitigate electricity supply shortages that have heavily affected the country in the preceding year (Kingsley, 2014). Here, Egypt has not yet publicised its intent to pursue a green energy transition.

However, the Egyptian 'Ministry of Planning, Monitoring and Administrative Reform' (MPMAR), published the policy document *Sustainable Development Strategy: Egypt's Vision 2030* in 2016, which signifies a long-term, integrated political, economic, social, and environmental outlook that was developed in close alignment with the UN's

'Sustainable Development Goals' (SDGs) (MPMAR, 2016b). In the document, energy is presented as the second core pillar of the future-orientated policy vision and listed as an economic factor. Hence, energy is perceived as a fundamental component of the national, economic well-being and functionality. Precisely, the MPMAR notes that:

"[i]n order to achieve sustainable development, the energy sector has to take into account national and global environmental considerations and standards, besides reaching the 7th goal of SDGs, "affordable and clean energy"." (MPMAR, 2016a, p. 93).

Energy is, thus, expected to be utilised in an environmentally responsible manner, while still contributing significantly to the economic performance of Egypt. This policy-intention is reflected in Egypt's 'Strategic Objectives for Energy to 2030', which defines energy security as *"[p]roviding the required energy while maintaining the aspired growth rates"* (MPMAR, 2016a, p. 94). Again, emphasise is placed on the environmental sustainability of the energy supply as energy security is expected *"to fulfil the needs of the productive and household sectors in a sustainable manner"* (MPMAR, 2016a, p. 94).

The exploitation of renewable, indigenous energy resources, as well as the need for improved energy efficiency practices, are advocated heavily through a joint-publication of the 'International Renewable Energy Agency' (IRENA) and Egypt's 'New and Renewable Energy Authority' (NREA) titled *Renewable Energy Outlook: Egypt* (IRENA, 2018b). The core policy-initiative presented in the document is the country's 'Integrated Sustainable Energy Strategy (ISES) to 2035', which prescribes the assertive diversification of the energy supply, both in regard to energy type and supplier country (IRENA, 2018c). The document claims that the expedited and aggressive growth of renewable energy technologies could result in a scenario in which

renewable energy accounts for 22% of the country's total primary energy supply (TPES) by 2030 (IRENA, 2018c). However, the achievement of this objective relies significantly on wide-reaching amendments to Egypt's sustainable energy strategy.

The country's desire to realise a green economy and energy system is also reflected in the Guide to Environmental Sustainability Standards: The Strategic Framework for Green Recovery published by the 'Ministry of Planning and Economic Development' (MPED) in 2021 (MPED, 2021). The document defines sustainable development criteria and tries to entice private sector investment into green energy technologies (UNCSTD, 2022). Egypt's strive towards a greener economic system that increasingly relies on renewable energy technologies has been manifested in Prime Minister Decree No. 983 of 2022, which stipulates that economic incentives should be extended to *"[g]reen economy projects preserving the environment in such a way as would sustain natural resources"* (GAIFZ, 2022, p. 2).

The practical realisation of these goals is accomplished through several policy initiatives. The 'Ministry of Electricity and Renewable Energy' (MERE) presents concrete policy actions that drive Egypt's energy transition (MERE, 2022). The MERE document references the considerable electricity supply deficit in Egypt until about 2014 that resulted in widespread power outages as a major incentive for the remodelling of the national energy strategy (Kingsley, 2014). The country has now reversed the trend and produces a surplus of electricity, which has reinforced calls for increased electricity exports and the transformation into a regional energy hub (Embassy of Egypt, 2023). MERE lists upgrades to its national transmission grid as the first vital component of its energy transition strategy, which is needed to cope with the increased volume of electricity resulting from added generation capacity (MERE, 2022).

The second core premise of the energy transition strategy is a system-wide transition to renewable energy, as indicated in the 'Integrated Sustainable Energy Strategy (ISES) to 2030'. ISES aims to generate 42% of the total installed capacity from renewable energy by 2035, and accomplish an 18% improvement in energy efficiency (MERE, 2022). The mechanisms installed to drive renewable energy development revolve around six distinct activities. Specifically, the overarching requirement remains private sector investment that is incentivised through electricity auctions, feed-in-tariff incentives, an energy performance contracting and financing scheme overseen by NREA, and build-own-operate (BOO) initiatives (IRENA, 2013; MERE, 2022). Additionally, according to NREA, renewable energy adoption is also driven through engineering, procurement, and construction (EPC) tenders and net metering schemes (NREA, 2019, 2020, 2021). A core policy activity to boost private sector investment in renewable energy generation has been the implementation of the Renewable Energy Law (Decree No 203/2014), adopted in 2014 (IEA, 2016a). The Law implements numerous development strategies for the private development of green energy projects that includes an 'independent power production via third party access' scheme (IEA, 2016a). This scheme permits independent power producers (IPP) to sell power directly through bilateral electricity purchase contracts to authorised consumers. The Egyptian Electricity Transmission Company (EETC) is required to accept such contracts and allocate electricity grid capacity (IEA, 2016a).

Egypt is also eager to grow their influence in the regional and international electricity trade through the development of intra-national power interconnectors, its electricity surplus, and its considerable renewable energy potential, especially in relation to wind and solar (MERE, 2021). In addition to the country's operational interconnectors with Jordan (450 MW), Sudan (300 MW), and Libya (150 MW), the country wants to develop interconnections with Saudi Arabia (3000 MW) and Europe (3000 MW) (MERE, 2022).

In sum, Egypt's principal energy security strategy entails the implementation of a green energy transition that advocates the aggressive growth of renewables and nuclear energy. The country is also eager to improve its energy independence through assertive energy diversification policies that are linked especially to the development of low-carbon options, and the exploration and exploitation of natural gas resources. Private sector investment into the renewable energy sector is supported through policy incentives. Additionally, the country's energy security approach rests also on the introduction of far-reaching energy efficiency strategies. The country has also voiced its desire to become a cross-regional electricity trading hub, in addition to its new role as LNG exporter.

6.2.2. Egypt: Elite perception of nuclear energy proliferation.

In 2008, Egypt's 'Supreme Council of Energy' adopted the 'New National Renewable Energy Strategy', which announced the country's commitment to develop nuclear energy capacities (IEA, 2016b). Next, Egypt presented, as part of its *Second National Communication under the UN Convention on Climate Change*, an updated strategy document in 2010 that clearly communicated its desire to construct a 1000 MWe reactor by 2017, with an additional four reactors being built at El-Dabaa by 2027 (UNFCCC, 2010). In 2016, the Egyptian 'Ministry of Planning, Monitoring and Administrative Reform' (MPMAR) published the policy document *Sustainable Development Strategy: Egypt's Vision 2030*, which defines the country's long-term energy security approach (MPMAR, 2016b). In this document, nuclear energy proliferation is listed as a core energy programme to 2030, which plays a central function in optimising the country's fuel mix for electricity generation. Precisely, the optimal fuel mix composition is projected to contain a 9% share of nuclear-powered electricity generation by 2030 (MPMAR, 2016b). This goal has been slightly corrected downwards in two more recent publications. Firstly, the 'International Renewable Energy Agency' (IRENA) and Egypt's 'New and Renewable Energy Authority' (NREA) released a policy document titled *Renewable Energy Outlook: Egypt* that envisages a 3.3% share of nuclear energy in the installed capacity mix by 2035, this is in line with the 'Integrated Sustainable Energy Strategy (ISES) to 2035' (IRENA, 2018b). Secondly, the 'New & Renewable Energy Authority' (NREA) released its *Annual Report 2021* that projected a 3% share of nuclear-fuelled power generation by 2035 (NREA, 2021).

Crucially, El-Sisi's aspiration to achieve nuclear power integration must be understood in the context of the President's perception of economic development as primarily a function of mega infrastructure projects (Mandour, 2019; Taha, 2020). Examples of these include the development of a new administrative capital near Cairo; the

expansion of the Suez Canal; the construction of a new extensive Egyptian Museum; and several proposed 'new' cities (Sims and Mitchell, 2015; Keeton and Provoost, 2019). Hence, importantly, El-Sisi perceives the El-Dabaa NPP as one of his techno-nationalist, mega projects (Taha, 2020).

The reasons for the country's desire to develop indigenous nuclear power capacities are manifold. For example, in the *Egypt: Vision 2030* document, the Egyptian authorities explain that they pursue nuclear power adoption to "*reduce dependence on [fossil fuel] resources and turn to more clean energies such as nuclear and renewable energies*" (MPMAR, 2016a, p. 106). Hence, nuclear-fuelled power generation signifies a core component of the country's green energy transition, as described in the 'Integrated Sustainable Energy Strategy (ISES) to 2030' (IRENA, 2018b).

Another indication of the country's motivation for its nuclear power programme is provided by the 'State Information Service' (SIS) in its El Dabaa Nuclear Energy Plant Project online publication from February 2023 (SIS, 2023). The official text presents several discrete reasons for the country's nuclear energy aspirations. Firstly, the nuclear power project is realised through close financial cooperation with the Russian government that is contracted to construct the nuclear power plant (NPP) at El-Dabaa. The SIS notes that the inter-governmental agreement is indicative of the strength of inter-state relations with Russia (SIS, 2023). The SIS also claims that "*[t]his project will bring Egypt to the list of owners of nuclear energy for peaceful purposes, thus helping it to achieve quantum leaps in many fields*" (SIS, 2023, para. 16). This statement reveals two more distinct motivational drivers; namely, a prestige dimension and a perception that concomitant nuclear-bound benefits, such as nuclear medicine capacities or nuclear energy-related human resource development, are key policy goals.

Regarding the prestige motivation, during the ceremony marking his inauguration in 2014, President El-Sisi formulated the perceived importance of the El-Dabaa NPP by arguing that the project is of equal importance to the Egyptian state as the Suez Canal (SIS, 2014). Given the highly advantageous function of the Suez Canal in the country's geopolitical and economic operations, the comparison implies that the El-Dabaa project is of high strategic importance (Soffer, 2023). Correspondingly, the 'Nuclear Power Plants Authority' (NPPA) claims that realisation of the El-Dabba NPP will lead to "[i]nternational recognition of the country's achievements" (NPPA, 2023, para. 14).

Another indication of the perceived prestige of the country's nuclear power programme is revealed in an article by Egypt's 'State Information Service' titled 'Abdel Nasser's dream Sisi's achievement' that presents the El-Dabaa project as the culmination of a "*long-awaited dream for more than half a century*" (SIS, 2015, para. 1). The high perceived prestige of the El-Dabaa project is also reflected in the words of Dr. Amgad Alwakeel, head of the NPPA, who declared that "*the nuclear dream will come true. Egyptians are capable of achieving miracles. Those who achieved the dream of winning the glorious October war [...] and establishing the Suez Canal in one year [...] are no strangers to the nuclear dream*" (Abdelrahman, 2017, para. 1). This statement equates the El-Dabaa NPP project with other moments commemorated and celebrated in the country's national discourse, including the 1973 October War.

A further motivational factor concerns the export of the electricity surplus generated by the El-Dabaa plant. In addition to natural gas, electricity signifies the second strategic energy commodity marked for export. This export option has materialised as Egypt expanded its electricity generation capacity to 59 GW, while peak domestic demand stands at only 32 GW (EIA, 2022b). The enormous spare capacity has been accomplished through far-reaching supply-side energy efficiency programmes and

energy subsidy reform, which permits Egypt to rapidly develop its primarily gas-powered electricity generation for export (Farag, 2016; Eibl, 2017). Nuclear-fuelled power generation will contribute to the excess capacity and offer an additional electricity in-flow source. Egypt's electricity export scheme is heavily dependent on electricity interconnectors that permit intra-national and cross-regional electricity trade. The range of potential importers is indicative of the country's dominant geographical location and includes its regional neighbours Jordan, Sudan, and Libya via existing interconnectors (Energy & Utilities, 2021; EgyptToday, 2022; Farag, 2022); Greece through a planned interconnection (Tugwell, 2022); Cyprus via the Euro-African interconnector that is currently being built (EAI, 2023), and Saudi Arabia through an exchange interconnection, currently under construction (Egypt Today, 2021a; IEA, 2022a).

The final motivational factor defined by SIS is the nuclear programme's potential *"in reducing utilisation of fossil fuels which causes air-pollution emissions"* (SIS, 2023, para. 16). Similarly, the NPPA lists nuclear power's green credentials as a core benefit of the El-Dabaa project, which signifies *"[a] clean energy source with practically zero CO₂ fingerprint, playing a prominent role in countering global warming"* (NPPA, 2023, para. 10). Egypt's intention to lower its carbon footprint is also observable in the Egypt National Climate Change Strategy 2050 published by the 'Ministry of Environment' in 2022 (MOE, 2022). Nuclear-powered electricity generation contributes to Objective 1.a. of the strategy, which advises to commit to an *"[e]nergy transition by increasing the share of all renewable and alternative energy sources in the energy mix"* (MOE, 2022, p. 13).

In sum, Egypt pursues nuclear energy integration to improve its energy independence and lessen its dependence on fossil fuels, while accomplishing electricity self-sufficiency. The national nuclear energy programme is also perceived as a vital

element of the country's green energy transition, in the context of which nuclear power is understood as an additional low-carbon energy option. Another key motivational factor is the perceived national prestige associated with the realisation of nuclear energy capacities. Furthermore, the nuclear energy programme is expected to provide high levels of localisation that support efforts to nationalise nuclear technologies. Finally, Egypt is also eager to advance its objective of becoming a regional energy hub, by exporting excess (nuclear-powered) electricity capacity to its regional neighbours.

6.2.3. Jordan: Elite perception of energy security.

The 'Ministry of Planning and International Cooperation' (MPIC) published its *Energy Situation in Jordan* report in 2013, which describes the country's energy sector challenges and opportunities (MPIC, 2013). The country is negatively affected by the absence of meaningful indigenous natural gas and oil reserves, a high reliance on fossil fuels in power generation, a high energy import dependence and rapidly growing energy demand (IRENA, 2021a). In 2013, the country was trying to recover from the persistent sabotage of the Arab Gas Pipeline that stopped natural gas flows from Egypt and forced the country's power plants to "switch to heavy fuel oil and diesel for electricity generation, which are about four times more costly than natural gas. This move cost the country approximately 3.5 million JD a day" (MPIC, 2013, p. 4). At the time, the country's energy strategy was guided by two policy documents, the Updated Energy Master Strategy of 2007-2020, and the Executive Development Plan 2011-2013 by the 'Ministry of Energy and Mineral Resources' (MEMR) (MEMR, 2007; MPIC, 2011). The trauma resulting from the natural gas supply disruptions is clearly discernible from MPIC's energy security definition that seeks to "lower its exposure to external shocks in terms of supply" (MPIC, 2013, p. 8). Thus, energy security is defined as the ability to withstand external supply disruptions.

The 'Updated Energy Master Strategy of 2007-2020' recommends policy actions to 2020 that include short, medium, and long-term solutions, including the construction of a LNG terminal at Aqaba; increasing Jordan's strategic oil storage capacity; introducing energy efficiency programmes; and continuing the implementation of Jordan's energy strategy (MEMR, 2007). Similarly, the 'Executive Development Plan 2011-2013' references the formative function of the Renewable Energy and Energy Efficiency Law (Law No. 13) of 2012 that is expected to empower the authorities to reach the National Energy Efficiency Strategy targets (IEA, 2021b). Introduced in 2007,

the Energy Efficiency Strategy endeavours to generate 7% of Jordan's total primary energy supply (TPES) from renewables by 2015 and 10% by 2020 (IEA, 2021b). In 2019, the share of renewables in TPES reached 11% and a new target was subsequently defined of 20% by 2025 (Power Technology, 2019). The Renewable Energy and Energy Efficiency Law has also directed the formation of the 'Renewable Energy & Energy Efficiency Fund' (REEEF) that is expected to funnel private and public investment into the renewable energy sector (MPIC, 2013).

Another important policy document on the national energy strategy is the *Jordan Energy Strategy (2020-2030)* report published by MEMR in 2020 (MEMR, 2020b). The national energy strategy was developed in cooperation with the European Renewable Energy and Energy Efficiency Program (REEE II-TA). The report claims that the national energy strategy relies on "*sustainable energy aiming at [...] achieving energy security by diversifying energy sources and forms imported, developing and utilising traditional and renewable local energy sources*" (MEMR, 2020b, p. 5). Here, the progressive orientation towards an increasingly more sustainable energy system configuration is clearly discernible, this signifies a marked shift in energy policy behaviour as a renewable energy transition becomes the primary energy policy objective. This strategic shift is also clearly observable in the *Executive Action Plan of Jordan Energy Strategy 2020-2030* publication, which lists planned policy procedures that document an increasingly sustainable energy policy practice (MEMR, 2020c). For instance, the report advises to "*[i]ncrease the contribution of renewable energy projects to cover the Kingdom's electricity demand required*" (MEMR, 2020c, p. 2). Another indication of the country's exceedingly sustainable energy sector configuration is reflected in the *Economic Modernisation Vision* document published by the Jordanian government in 2022 (JordanVision, 2022). The document sets out a long-term economic modernisation strategy that relies heavily on sustainability as a principal policy directive, while "*[e]xpanding on renewable energy, including new*

sources of energy (such as hydrogen) and continuously promoting improved energy efficiency” (JordanVision, 2022, p. 30).

The *Jordan Energy Strategy (2020-2030)* also pursues a wide-reaching market liberalisation policy, attempting to promote private sector investments and cross-regional connectivity projects, while also improving energy efficiency practices across the industrial, household, government and services sectors (MEMR, 2020b). The uptake of exceedingly efficient energy usage practices was supported by the approval of the National Energy Efficiency Action Plan (NEEAP)-(2018-2020) in 2017 (MEMR, 2017b). The plan aims to coordinate private and public investment into the renewable energy sector, while lessening energy efficiency by 20% until 2020 (MEMR, 2017b).

The Jordan Energy Strategy (2020-2030) also highlights the influential and beneficial function of the ‘Jordan Oil Terminals Company’ (JOTC), which was founded in 2015 to oversee the oil storage and logistics operations in the country (JOTC, 2023). The strategic importance of oil storage capacities is reflected in the Executive Action Plan of Jordan Energy Strategy 2020-2030 plan, which advises to “[i]ncrease storage capacities of oil products to meet the international standards and improve the domestic logistics services” (MEMR, 2020c, p. 27). Much strategic importance is also assigned to the proposed oil pipeline project between Aqaba and Al Zarqa, which could considerably improve the logistics behind the transport of oil across the Kingdom that is currently fulfilled exclusively through road-bound oil-truck delivery (MOE, 2017).

Another core policy field described in the *Jordan Energy Strategy (2020-2030)* report revolves around oil and gas exploration activities, and oil shale exploration and exploitation. Again, the policy focus is reflected in the *Executive Action Plan of Jordan Energy Strategy 2020-2030* document, which instructs to “[a]ttract global companies

to invest in oil exploration in open areas" (MEMR, 2020b, p. 21) and advises to "[a]ttract international companies to invest in traditional and non-traditional gas exploration in open areas" (MEMR, 2020b, p. 31). The development of indigenous shale gas reserves represents another central policy objective of the Jordanian government that has secured concession agreements with four companies to develop oil shale mining projects, while also designating twenty-one parcels of land for shale oil development through private-sector investments (MEMR, 2020b).

The newest policy document on the national energy strategy is the MEMR's *Annual Report 2021* that clearly defines the country's energy security challenges and opportunities (MEMR, 2021). An important emerging objective is the national aspiration to transform into a regional energy hub. This is a relatively recent addition to the strategy goals that has been included in MEMR's annual reports from 2019 but is missing from earlier versions (MEMR, 2015, 2016, 2017a, 2018, 2019a, 2020a, 2021). The perceived significance is clearly discernible from a statement by Dr. Saleh Al-Kharabsheh, Jordan's Minister of Energy and Mineral Resources, who emphasises the importance of committing to electrical interconnector projects *"in order to make Jordan a regional centre for energy exchange, which is considered one of the most important strategic goals within the energy sector's strategy"* (MEMR, 2021, p. 9). To this end, the country has committed to multiple concurrent interconnector initiatives that are expected to improve the established grid connections with Egypt and Palestine, and install new interconnectors with Saudi Arabi, Iraq and the Gulf states (MEMR, 2021).

Jordan has adopted an expansive energy security approach that aims to achieve energy independence by lowering the import dependence on hydrocarbons, diversify its energy sources, and grow indigenous energy options, especially oil shale and renewables. The country is also advancing energy sector policies to initiate a green

energy transition that favours the development of renewable energy technologies. To this end, the country is implementing market liberalisation policies to promote private sector investments. Another core component of the country's energy security strategy is the implementation of far-reaching energy efficiency measures. Furthermore, Jordan is also committed to increase the utilisation of natural gas across its economy; a policy initiative that is sustained through natural gas imports and domestic natural gas exploration activities. The exploration and exploitation of oil shale reserves is another core energy policy aim. Finally, Jordan is intent on transforming into a regional energy hub and export excess electricity capacity across the region.

6.2.4. Jordan: Elite perception of nuclear energy proliferation.

In 2007, King Abdullah II declared that Jordan had been contemplating the pursuit of nuclear energy for about three years and referenced the high price of oil, as well as the abundance of indigenous uranium resources as key motivating factors driving nuclear power adoption (Spiegel, 2007). In the same year, King Abdullah II addressed the newly established 'Supreme Committee for Nuclear Energy Strategy' and underscored the need for alternative electricity sources to desalinate water and generate power to mitigate the cost intensity of energy imports. He labelled the high costs of Jordan's hydrocarbon import dependency as "*one of the most important challenges Jordan faces requiring radical solutions in the long term*" (Malik, 2007, para. 3). King Abdullah II also declared Jordan's ambitious aspirations to become "*a model for peaceful use of nuclear energy*" in an effort to diversify the Kingdom's energy sources, particularly associated with power generation (King Abdullah II, 2007, para. 4).

An early step towards a Jordanian nuclear power programme was the formation of Jordan's 'Supreme Committee for Nuclear Energy Strategy' in 2007 (EMRC, 2017). Following, also in 2007, the 'Commission for Regulating Radiation and Nuclear Activity' was formed, which replaced the 'Jordanian Nuclear Energy Commission' that was established in 2001 (MEMR, 2015). Next, the Kingdom's intention to accomplish nuclear energy proliferation is reflected in the 2007 amendments to the *Updated Master Strategy of Energy Sector in Jordan for the period (2007-2020)*, which, for the first time, integrated nuclear energy as a discrete energy source into the projected energy-mix composition (MEMR, 2007). This was followed by the formation of the 'Jordan Atomic Energy Commission' (JAEC) in 2008, which was initiated through Law No. 42 for 2007 (EMRC, 2019). In the same year, Law No. 43 for 2007 regulated the establishment of the 'Jordan Nuclear Regulatory Commission' (JNRC) (EMRC, 2019).

In 2010, the JAEC published a presentation titled Jordan's Nuclear Energy Programme that presented an overview and status of the national nuclear energy programme, while emphasising the potential advantageous effect of successful nuclear power development (JAEC, 2010). Here, the favourable geographic position, in combination with extensive uranium reserves and a large number of trainable human resources is presented as an *"[o]ppportunity to transform Jordan into a net exporter of electricity by implementing a nuclear programme using national Uranium assets"* (JAEC, 2010, p. 7). This strategic orientation is echoed in the Sustainable Energy Mix and Policy Framework for Jordan report, published in a collaborative effort by the 'Friedrich-Ebert-Stiftung' and Jordan's 'Royal Scientific Society' in 2011. The report names *"[r]evenue and grid stability opportunities through exports"* as one of the core benefits of a civil nuclear energy programme in Jordan (RSS, 2011, p. 47).

The Sustainable Energy Mix and Policy Framework for Jordan report provides an extensive list of additional motivating factors that drive the pursuit of nuclear energy integration in the country. A further motivating factor is linked to the *"[p]rovision of electricity at a reasonable price"* (RSS, 2011, p. 47). Nuclear-fuelled power generation in Jordan could lead to significant current account and fiscal savings. Specifically, total savings could reach US\$ 300 million per annum as the *"cost per kilowatt of electricity generated by a nuclear plant could be as low as half of current NEPCO unit costs"* (Gamba, 2015, p. 15).

Another motivating factor is *"[i]ncreased energy independence"*, which is a principal 'security of supply' issue (RSS, 2011, p. 47). The intention to pursue nuclear energy integration to improve Jordan's national energy supply security is also clearly noted in the Considerations of NES in Jordan presentation, published by the JAEC in 2012 (JAEC, 2012). An alternative, corresponding statement can be found on the JAEC

homepage, which lists the main drivers for the Jordanian civilian, nuclear energy programme and includes the objective to “[m]inimize energy supply [...] risk exposure” through nuclear energy proliferation (JAEC, 2023, para. 3).

In 2011, WorleyParsons in cooperation with the ‘Jordan Atomic Energy Commission’ (JAEC) published the *White Paper on Nuclear Energy in Jordan* report. The publication lists Jordan’s key challenges that would benefit from a national nuclear energy programme. The report references, firstly, water scarcity as “[t]he Kingdom is internationally recognised as one of the five most water-deprived countries in the world” (JAEC, 2011, p. 14). The second nuclear energy demand motivation is listed as the requirement to assist major infrastructure projects in the country by providing a secure and stable electricity supply (JAEC, 2011). The Considerations of NES in Jordan presentation by the JAEC identifies expressly the Red Sea – Dead Sea Canal project as a large-scale project that could benefit from large volumes of nuclear-powered electricity (JAEC, 2012).

The *White Paper on Nuclear Energy in Jordan* report reveals the elite perception of nuclear energy’s potential, beneficial effect on the country and begins by citing the ‘reduction in volatility of power generation costs’ and ‘strategic energy independence’ as examples of the positive effect achieved through nuclear power development (JAEC, 2011). Specifically, the *White Paper on Nuclear Energy in Jordan* states that “nuclear power is the ideal way to achieve independence and at the same time serve as a natural hedge against the cyclical nature of oil prices and the new normal of higher oil prices” (JAEC, 2011, p. 23). This is echoed in statements on the JAEC homepage and in the Sustainable Energy Mix and Policy Framework for Jordan report, which reference the objective to “[m]inimise [...] energy price risk exposure” and “[i]ncrease energy independence”, respectively (RSS, 2011, p. 47; JAEC, 2023, para. 3).

The *White Paper on Nuclear Energy in Jordan* report names two more positive functions of a hypothetical nuclear power installation in Jordan. Firstly, the report highlights the beneficial function of inexpensive nuclear-powered electricity in water desalination activities as *“[a] nuclear power plant is ideally suited to provide electricity for water desalination, given its low operating cost and suitability for baseload operation”* (JAEC, 2011, p. 24). The country is experiencing severe water scarcity and is considering to employ small-modular reactors (SMRs) at Aqaba for seawater desalination activities (JAEC, 2018a). Secondly, the report emphasises the environmental sustainability of nuclear-fuelled power generation, especially in contrast to fossil-fuel-fired electricity production. The report explains that *“Jordan’s objective is sustainable, environmentally friendly long-term economic growth. And nuclear power will help achieve this by providing a reliable energy source with very low CO₂ and other greenhouse gas (GHG) emissions”* (JAEC, 2011, p. 24). This is again reflected in statements on the JAEC homepage and in the Sustainable Energy Mix and Policy Framework for Jordan report, which emphasise the green credentials of nuclear-powered electricity generation that limits carbon-dioxide emissions from power generation (RSS, 2011; JAEC, 2023).

Importantly, the objective to develop nuclear energy capacities has been revised as the country has re-orientated their energy sector strategy away from large-scale nuclear energy implementation. Precisely, while the MEMR’s Annual Reports between 2009 and 2017 have clearly stated the intention to *“[t]ransfer, localize, develop, sustain and improve the uses of the technology of nuclear energy”* (MEMR, 2017a, p. 3), more recent MEMR Annual Reports have removed the development of nuclear energy capacities as a strategic objective (MEMR, 2015, 2016, 2017a, 2018, 2019a, 2020a, 2021). This is also reflected in comments by the Chairman of the JAEC, Khaled Toukan, who claimed that *“the proposed project to build a nuclear power plant relying on*

Small Modular Reactors (SMRs) seems to be the more appropriate in bridging the gap in the Jordanian electricity generation mix” (JAEC, 2018b, pp. 3–4).

In sum, the elite perceptions of nuclear power in Jordan are manifold and begin with the desire to take advantage of Jordan’s domestic uranium resources. The next motivational factors revolve around the intention to utilise nuclear-fuelled electricity to cover the escalating domestic electricity demand, take advantage of the cost-effectiveness of nuclear-powered electricity, and export the excess electricity capacity. Jordan is also eager to use nuclear energy to increase its energy independence by lowering its high energy import dependence, which makes the country susceptible to price instabilities. Nuclear energy is further expected to power water desalination activities, assist major infrastructure projects, and lead to employment opportunities through localisation. Finally, Jordan is also attracted by nuclear energy’s green credentials as a low-carbon energy option.

6.2.5. Türkiye: *Elite perception of energy security.*

In 2015, the 'Ministry of Energy and Natural Resources' (MENR) published the *Strategic Plan 2015-2019* that presents the country's energy supply security strategy, placing particular emphasis on a strong and reliable energy infrastructure, optimal resource diversity, and effective demand management (MENR, 2015). The MENR's *Strategy Plan 2019-2023*, however, places greater attention on the introduction of more immersive and comprehensive energy efficiency practices across the energy sector's supply and demand-side activities (IEA, 2019e).

In 2016, the 'Ministry of Development' (MOD) published the *Report on Türkiye's Initial Steps Towards the Implementation of the 2030 Agenda for Sustainable Development* document, which presents the country's sustainable development objectives in close coordination with the UN's Sustainable Development Goals (SDGs) (MOD, 2016). The report is closely aligned with an earlier publication, the MOD's *Tenth Development Plan (2014-2018)*, which assesses Türkiye's economic development challenges and opportunities, and proposes economic and social, sustainable policy initiatives (MOD, 2014). The goals of the Tenth Development Plan (2014-2018) are presented in the 2016 report that lists the desire to "[e]nsure access to affordable, reliable, sustainable and modern energy for all" as a central development objective (MOD, 2016, p. 19). The report continues to announce the policy intention to construct a competitive energy system that largely relies on indigenous and renewable energy sources. This is echoed by the 'Ministry of Foreign Affairs' that announces the policy objective "[t]o increase the share of domestic and renewable energy in electricity production" (MFA, 2023, para. 7).

Firstly, this objective reflects the country's high energy import dependency, as "Türkiye has prioritised security of supply as one of the central pillars of its energy

strategy”, which “includes efforts to boost domestic oil and gas exploration and production” (IEA, 2021c, p. 3). Secondly, the policy objective also indicates the desire to expand the role of renewables in the national energy-mix, which is primarily driven by the intention to diversify the country’s electricity generation and lessen the reliance on fossil fuel-powered electricity generation (ITA, 2022c). Importantly, the country has made great strides in diversifying its energy-mix over the last ten years, especially “renewable energy has staged impressive growth, with renewable electricity generation tripling in the past decade” (IEA, 2021c, p. 11). The country’s intensified adoption of renewable energy solutions is already clearly expressed in the National Energy Action Plan for Türkiye, published by the ‘Ministry of Energy and Natural Resources’ in 2014. In accordance with the Climate Change Action Plan 2011-2013 and the Energy Efficiency Strategy Paper 2012-2023, the National Energy Action Plan for Türkiye report formulates the expected influential function of green energy technologies in Türkiye as “the maximum level of domestic, renewable resources in the production of electricity has been targeted within the framework of the national energy policy” (MENR, 2014, p. 10). Additionally, the MENR’s Strategic Plan 2015-2019 instructs to increase the share of renewable energy in the primary energy supply and electricity generation (MENR, 2015). Another policy directive is issued by the Eleventh Development Plan (2019-2023), published by the ‘Presidency of Strategy and Budget’ (PSB) in 2019, which defines the supply-side target of raising the share of renewables in power generation from 32.5% to 38.8% by 2023 (PSB, 2019).

As mentioned above, the country’s security of supply-centred energy security strategy is also eager to diversify supply routes and energy resource types in the fossil-fuel supply (MFA, 2023). This policy objective reveals two discrete aims: namely, the diversification of the country’s hydrocarbon trade routes and the exploration and exploitation of indigenous coal reserves, in addition to the expansion of renewables and development of nuclear power. Regarding the first aim, the country has the

ambitious goal of transforming into a regional energy trading hub, which has resulted in the development of, and participation in multiple concurrent, cross-regional oil and natural gas pipeline projects (MFA, 2023). The 'Ministry of Foreign Affairs' published on its website an article titled 'Türkiye's International Energy Strategy' that presents the core principles of the country's national energy sector strategy (MFA, 2023). The article emphasises the important function of international relations in the context of managing Türkiye's energy security situation and defines the national objective "to become a regional trade centre in energy" (MFA, 2023, para. 4). Turkish 'Foreign Minister' Mevlut Çavusoglu confirmed the country's desired status as a pivot for the international energy trade and stated that "Türkiye has the capacity already to be an energy hub for natural gas headed to Europe" (Aydoğan and Barakat, 2022, para. 1), while also declaring the objective to "become an energy hub for determining gas prices" (Aydoğan and Barakat, 2022, para. 2). To this end, the formation of a natural gas spot market has been an important policy activity to aid Türkiye's aim of becoming an international gas trading hub (IEA, 2021d).

Importantly, the on-going expansion of fossil fuel pipeline connections with regional hydrocarbon suppliers does not only further the policy objective of becoming an energy trading hub but does simultaneously improve the diversification of energy supply routes, which increases energy security. The *National Energy and Mining Policy*, published by the MENR in 2017, focusses predominantly on lowering the country's reliance on imported energy resources (IEA, 2021c). As part of the 'energy supply security' objective, the country believes that "[d]iversifying import sources and routes is the cornerstone of Türkiye's gas security policy" (IEA, 2021c, p. 26). To this end, Türkiye is planning to increase the capacity of the TurkStream and TANAP natural gas pipelines, and invest in LNG and underground natural gas storage facilities (IEA, 2021c). Another strategic re-orientation is linked with the country's diversification of energy trading partners; Russia was the dominant gas supplier in the early 2000s,

before Türkiye began importing natural gas from Iran in 2001 and from Azerbaijan in 2007 (IEA, 2021d).

The second aim concerns the intention to boost energy independence by exploiting and using domestic coal resources, renewable and nuclear power for electricity generation, which will lower particularly the dependence on imported natural gas (IEA, 2019e). Türkiye has sizeable coal reserves; lignite especially signifies an area of policy attention and is perceived as a promising additional fuel type (IEA, 2021c). To grow the role of coal in the energy sector the Turkish authorities have introduced policies to discover new coal deposits and intensify the exploration and exploitation of available coal fields by promoting the privatisation of the coal-mining sector (IEA, 2021c). This policy objective is clearly discernible in the MENR's *Strategic Plan 2015-2019*, which declares that the “[t]ransformation of existing domestic coal resources into electricity generation investments and exploration of new resources shall be provided”, while also advising that “[e]lectricity generation from domestic coal shall be increased to 60 billion kWh by the end of the plan period” (MENR, 2015, pp. 36–37).

Türkiye is also eager to bolster its energy security through energy efficiency practices (MFA, 2023). To this end, the *National Energy Efficiency Action Plan (NEEAP) (2017-2023)*, published by the MENR in 2018 has been formulated in close coordination with the EU's Energy Efficiency Directive 2012/27/EU (MENR, 2018). The NEEAP aims to lower the country's primary energy consumption by 14% by 2023 and recommends 55 policy actions across 6 categories: energy, industry and technology, buildings and services, transport, and cross-cutting areas (MENR, 2018). It is expected to result in cumulative savings of 23.9 Mtoe by 2023, which will be supported through a US\$ 10.9 billion investment (MENR, 2018). The cumulative savings are forecast to reach US\$ 30.2 billion by 2033 (MENR, 2018). Moreover, the country has formed the National Energy

Efficiency Financing Mechanism to offer additional financial incentives and support to implement energy efficiency investments (Turkish Presidency, 2021b).

In sum, Türkiye has adopted a diverse and varied energy security strategy that places particular emphasis on energy supply security that is expected to be improved through the diversification of hydrocarbon sources and trade routes; the growth of domestic oil, coal, and natural gas exploration activities; and the development of indigenous renewable and nuclear energy options. The country is also intent on introducing far-reaching energy efficiency measures. Another key policy aim is the development of an increasingly liberalised energy market environment that is expected to attract private sector investment. Finally, the country has recently adopted progressively more sustainable energy sector practices that include the gradual integration of new renewable capacity and the commitment to a green energy transition.

6.2.6. Türkiye: *Elite perception of nuclear energy proliferation.*

The construction of a nuclear power plant under the directive of a civil nuclear energy programme is a key policy objective, intended to diversify the electricity generation mix, reduce the hydrocarbon import dependency, and provide a carbon-neutral source of electricity (Yüksel, 2010). An effective example of the perceived importance of a national nuclear energy programme to Türkiye's energy security is offered by Mustafa Öztürk, an AKP representative in parliament, who stated that *"to prevent darkness, nuclear power plants are urgent"* (Jewell and Ates, 2015, p. 277). Specifically, according to the *Türkiye National Energy Plan*, published by the 'Ministry of Energy and Natural Resources' (MENR) in 2022, nuclear energy is expected to increase its share in primary energy consumption from 2.3% in 2025 to 4.1% in 2030 and 5.9% in 2035 (MENR, 2022). Likewise, the MENR's *National Energy and Mining Policy* aims to *"[c]ontribute to the generation of electricity by using nuclear technology"* and to *"increase the share of NPPs in electricity generation by at least 10 percent according to the forecasts for 2023"* (Republic of Türkiye, 2023, p. 88). Correspondingly, the share of nuclear-fuelled power production in total electricity generation is forecast to grow from 4.9% in 2025 to 8.2% in 2030 and 11.1% in 2035 (MENR, 2022). In terms of installed power capacity, Türkiye expects to reach 7.2 GW by 2035 (MENR, 2022).

The *Strategic Energy Plan 2015-2019*, published by the MENR in 2016, sets out central policy objectives and clearly states that *"[n]uclear energy shall be included into electricity generation portfolio"* (MENR, 2015, p. 38) and advises that *"[d]omestic uranium and thorium resources shall be explored and developed so as to be used as fuel in nuclear power plants"* (MENR, 2015, p. 41). Correspondingly, the Tenth Development Plan intends to implement nuclear power technologies to produce a competitive energy system that takes advantage of indigenous energy solutions (Republic of Türkiye, 2023). The exploitation of domestic uranium resources is a policy

objective that is principally linked to autonomy in the electricity supply, which is primarily achieved by avoiding dependence on hydrocarbon imports utilised to generate electricity. According to the MENR, Türkiye has a total amount of 12,614 tonnes of proven uranium and thorium reserves scattered across 5 individual resource beds (MENR, 2023b). This number is significant as a 1 GW NPP requires 30 tonnes of uranium per year, while over 3 million tonnes of coal are needed to generate 1 GW of electricity (WNA, 2022b). Importantly, however, it is important to acknowledge that nuclear fuel costs signify a minor proportion of total generating costs, while uranium is an abundantly available commodity (WNA, 2023c). Hence, the added energy security benefits acquired through domestic uranium exploitation are limited.

In 2018, Dr. Sibel Gezer, who is the 'Nuclear Energy Project Implementation' officer at the MENR, stated that *"Türkiye has high energy imports and fossil fuel dependency which makes it vulnerable to external fluctuations in global markets"* (Gezer, 2018, p. 153). Importantly, in 2022, President Erdogan stated that *"[i]n the period ahead, we will put at our nation's service [...] the first unit of Akkuyu Nuclear Power Plant, working until foreign dependency in energy ends through new [...] investment"* (Turkish Presidency, 2022, para. 8). President Erdogan further proclaimed: *"We endeavour to end Türkiye's foreign dependency in energy"* (Turkish Presidency, 2023, para. 5). Additionally, President Erdogan also stated that *"[o]ur sole purpose is to maximise the contributions our discoveries and investments make to our country's energy independence. Because, just like defence industry, energy independence is, too, an indispensable must for the true freedom of a country and nation"* (Turkish Presidency, 2023, para. 11).

The desire to improve Türkiye's energy independence by lowering the country's energy import dependency is also reflected in a statement by the 'Ministry of Foreign Affairs' that declared the intention *"[t]o ensure the diversification of routes and*

resources in the supply of oil and natural gas, taking into account the increasing demand and import dependency" (MFA, 2023, para. 5). This conviction is mirrored in a statement by President Erdogan who commented on the Akkuyu NPP project in 2021 and explained that *"[t]he primary strategic aspect of this project is that it will help Türkiye diversify its energy resources"* (Turkish Presidency, 2021a, para. 5). Nuclear energy will contribute to power generation, which is currently fuelled primarily by coal (34.6%), natural gas (22.2%), and hydropower (20.6%) (MENR, 2023a). Importantly, Türkiye imports 93% of its oil demand, while 99% of its total natural gas demand and 58% of its total coal demand are covered through imports (IEA, 2021d, 2021c). Thus, nuclear energy is expected to lower the country's dependence on imported coal and natural gas resources to generate electricity.

Moreover, as fuel has arrived at the Akkuyu NPP in late April 2023, the President of the 'Nuclear Industry Association of Türkiye' (NIATR), Alikaan Çiftçi, announces that the construction of the Akkuyu NPP has resulted in a high level of economic vitality as the project, *"which has become one of the largest employment centres in the region during the construction process, has set an example of successful localisation with its supply chain of more than 400 Turkish companies"* (WNN, 2023c, para. 7). The intention to domestically develop a national nuclear workforce is exemplified by the decision to realise the Akkuyu plant through a build-own-operate (BOO) model, which is expected to transfer nuclear energy knowledge to the local workforce (WNA, 2023b). Concomitantly, Türkiye has publicised the desire to construct the country's third NPP autonomously, facilitated through indigenous nuclear power know-how acquired through active participation in preceding NPP projects (Jewell and Ates, 2015). Correspondingly, Nacati Yamac, head of the MENR's 'Nuclear Energy Project and Implementing Department' explains that the BOO model *"may help in ascending the steep learning curve that a newcomer country faces when implementing its first nuclear power project"* (Ferrari, 2014, para. 6).

Another central driver of Türkiye's nuclear power programme is the perceived environmental sustainability of nuclear-powered electricity generation. Specifically, the 'Ministry of Foreign Affairs' explains that *"Türkiye aims to add nuclear power into its energy mix in order to decrease negative environmental effects of energy production, to meet its energy demand increase as well as to reduce its energy import dependency"* (MFA, 2023, para. 24). Additionally, the President of the NIATR, Alikaan Çiftçi, explains that *"[n]uclear provides clean, stable, reliable, and cost-effective electricity. As a carbon-free baseload energy source, nuclear energy serves an important role for the decarbonisation of the economy and achieving supply stability in Turkey"* (WNN, 2023c, para. 3).

Another factor driving nuclear power adoption in Türkiye is the issue of national prestige. President Erdogan, for instance, spoke at the ceremony inaugurating the Akkuyu NPP and noted that project completion means that Türkiye *"joins the league of countries with nuclear power plants"* (WNN, 2023b, para. 6). While, Turkish energy minister Fatih Dönmez emphasised the large scale of the four-unit Akkuyu NPP, announcing that it constitutes the single biggest investment in Turkish history (WNN, 2023b). Moreover, generally, the Turkish authorities refer to nuclear energy as a 'national energy', whereby elevating the perceived status from a simple energy technology to an object of national importance (Jewell and Ates, 2015). Furthermore, several Turkish commentators have directly linked the attainment of nuclear power capacities with national prestige (Akçay, 2009), which is an important factor for Türkiye and its determination to secure 'regional energy leadership' (Richert, 2015).

In sum, Türkiye wants to integrate nuclear power technologies to mitigate its hydrocarbon import dependency, which increases the country's susceptibility to energy price instability. Türkiye is also eager to diversify its energy system, particularly

regarding its electricity generation mix, and tap into the positive effects of localisation, such as employment opportunities. Nuclear-powered electricity generation is also attractive to Türkiye due to its low carbon emissions and its perception as a sustainable energy option. The country is also motivated by the prospect of exploiting its domestic uranium resources, which improves their energy independence. Finally, the pursuit of nuclear energy capacities is further driven by a strong national prestige factor that signifies a core motivational impetus.

6.3. Inquiry (2) – To what extent do energy security and nuclear energy news media frames differ between oil-poor countries in the MENA?

6.3.1. Inductive Frame Distribution – Energy Security and Nuclear Energy.

The analysis of the distribution of news media frames across the four inductive energy security master frame categories, which signifies this study's deductive analysis, shows considerable variability between the case study countries (Fig. 2.). Across all three case study countries the 'Market Liberalisation' master frame category has received the least amount of frame attributions ($n=204$), which represents 9%, 11%, and 3% of the total frame attributions for Egypt, Jordan, and Türkiye, respectively. On the opposite end of the spectrum lies the 'Energy Supply Security' master frame category that has produced the most frame attributions across the three case study countries ($n=1,023$), accounting for 32%, 47%, and 36% of the total frame attributions for Egypt, Jordan, and Türkiye, respectively.

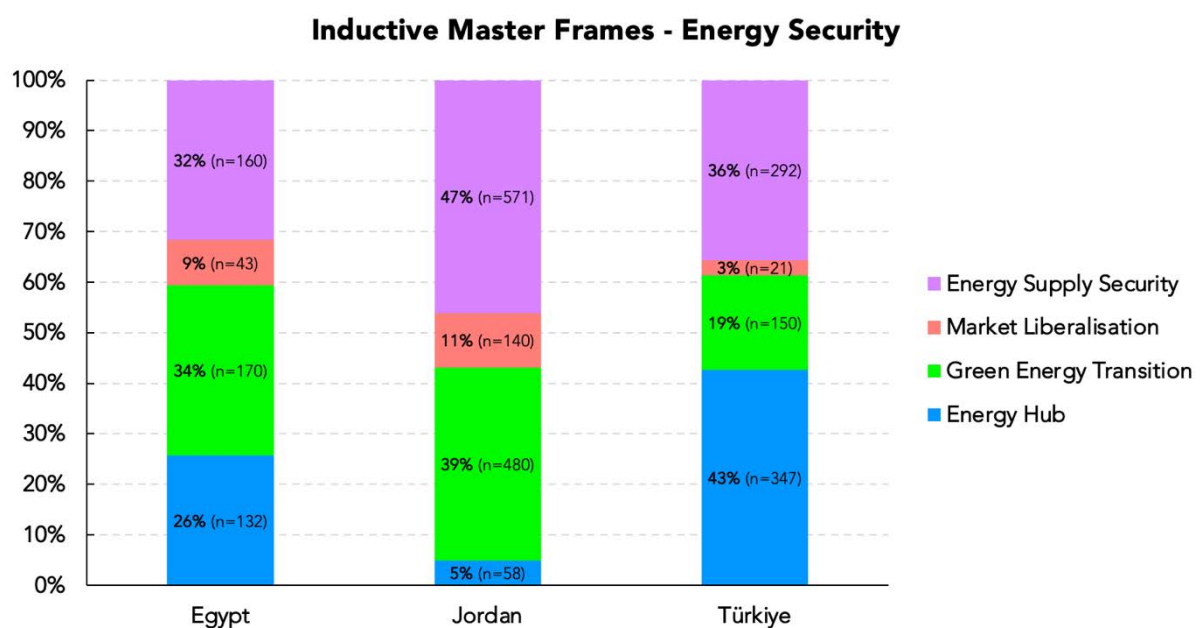


Fig. 2. Distribution of inductive master frame categories – Energy Security.

The analysis of the distribution of news media frames across the four inductive nuclear energy master frame categories also indicates substantial variability between the case study countries (Fig. 3.). Across the news corpus of all three case study countries, the 'Environmental Sustainability' master frame category has produced the least amount of frame attributions (n=103), which denotes 5%, 12%, and 17% of the total frame attributions for Jordan, Türkiye, and Egypt, respectively. The master frame category with the most frame attributions is the 'Energy Security' master frame (n=440) that accounts for 28%, 44%, and 59% of the total frame attributions for Egypt, Türkiye, and Jordan, respectively.

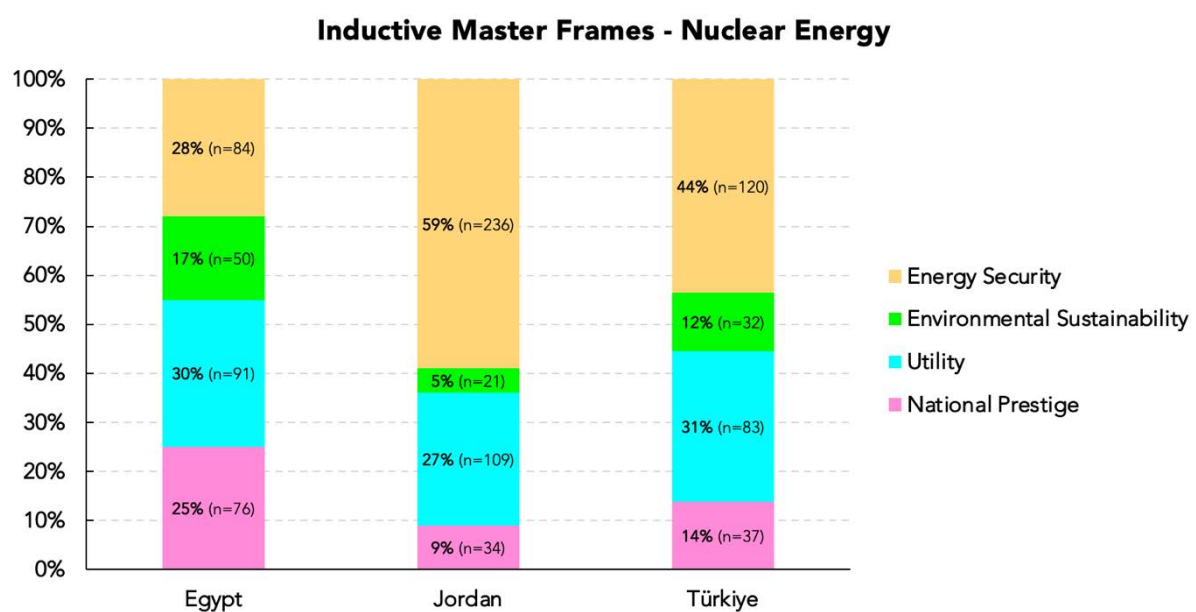


Fig. 3. Distribution of inductive master frame categories – Nuclear Energy.

6.3.2. *Deductive framing analysis of sub-frames – Energy Security.*

An effective tool to gauge trends in the inductive sub-frame system is the analysis of the distribution of sub-frames across all available sub-frame categories, which represents the deductive framing analysis. It is particularly effective to consider the relative, country-specific sub-frame distribution by reviewing the proportional share of individual sub-frames (Fig. 4.). Observing the data, several notable trends are clearly discernible.

Egypt has a comparatively balanced distribution of frame attributions across the four inductive master frame categories, and in the sampled news media discourses, energy security is primarily presented as a function of energy policies linked with a sustainable energy system transformation, the introduction of traditional energy supply security-based policies, and the operation as an energy hub. The reference to a green energy transition signifies an energy policy objective that has also emerged as Egypt's preferred energy transition model in the 'Country Profile' and elite perceptions data. The significant proportional value of discourses linked with the green energy transition master frame and sub-frames distinguishes the sampled news media discourses on energy security in Egypt. Thus, a green energy transition is presented as the central energy strategy that is expected to improve energy security challenges by developing renewable energy resources. Reference to Cairo's energy policy of transforming the energy system by integrating renewables is presented below:

"In line with overall national economic policy under Vision 2030, Egypt is in the process of comprehensively reforming the energy sector [...], with a view towards increasing energy security by improving efficiency, improving the overall economic model, and substantially increasing the share of renewables in the energy mix." (Daily News Egypt, 2018c, para. 10)

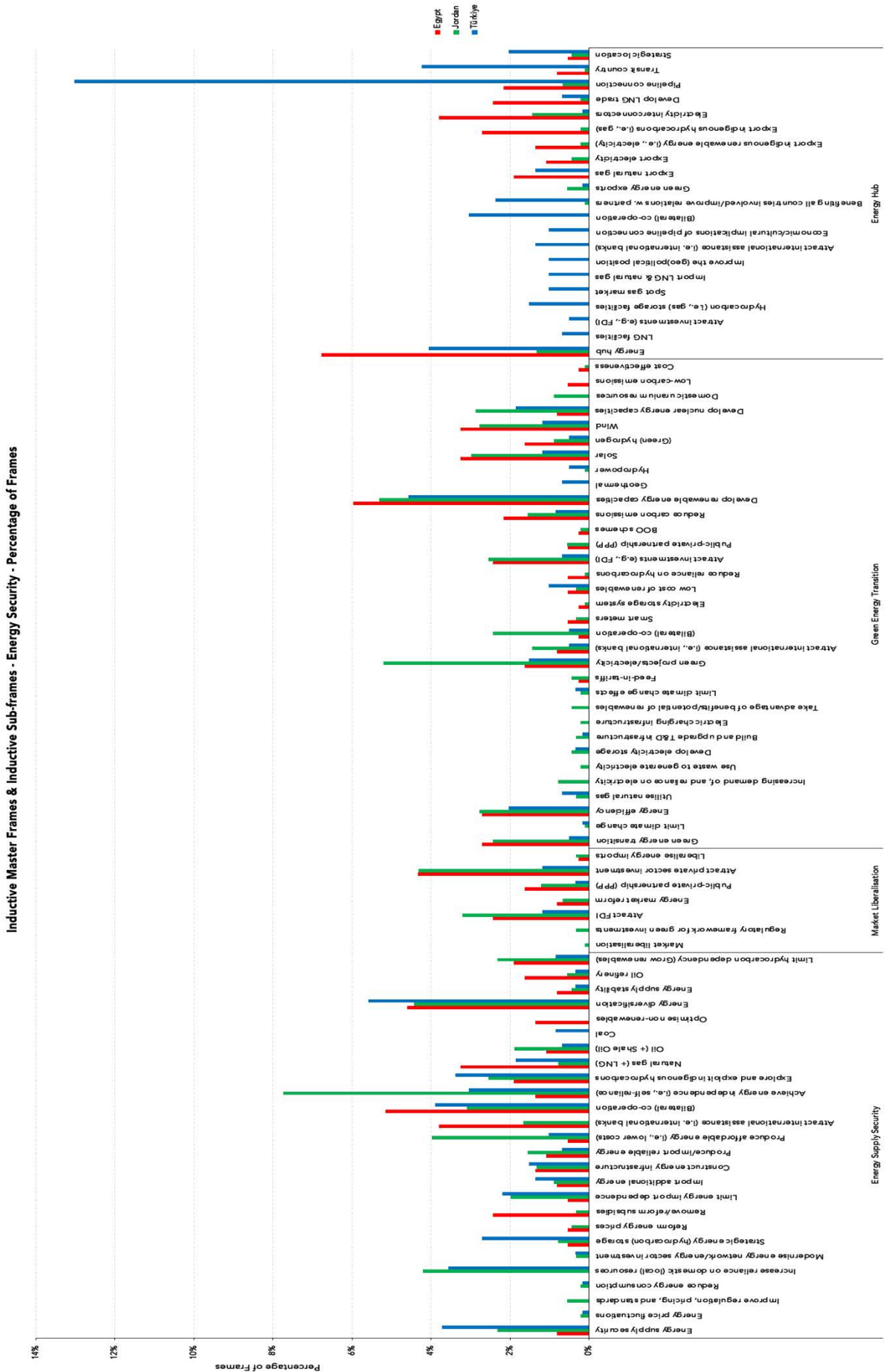


Fig. 4. Frame distribution – Energy Security – Percentage of frames.

Another effective investigative tool is the analysis of the proportional distribution of sub-frame attributions in master frame categories (Fig. 5.). This analytical strategy eases the identification of master frame-specific trends in the data. What becomes immediately apparent is the large share of 'attract private sector investment' references in the sampled news media discourses, which account for 42.4%, 43.8%, and 45.7% of all frame attributions in the 'Market Liberalisation' master frame for Jordan, Türkiye, and Egypt, respectively. The noticeable association between investments and energy security in the sampled news media discourses in Egypt is reflected in the following statement published in Egypt Today:

"[...] continuous investments in modernising the energy network infrastructure, in addition to expanding public infrastructure to facilitate the production and transmission of renewable energy, will contribute to reducing energy distribution losses and strengthening energy security in Egypt" (Egypt Today, 2021c, para. 5)

Jordan, however, has a comparatively less balanced distribution of frame attributions across the sampled news media discourses as energy security is primarily presented as a function of traditional energy supply security-based policies and the pursuit of a green energy transition. Jordan's traditional security of supply-based energy security understanding is also attainable from the 'Country Profile' and elite perceptions data. Overall, Jordan's severe hydrocarbon import dependence and its susceptibility to energy import disruptions are exemplified by the policy focus on energy independence. The following text excerpt illustrates the country's desire to achieve energy security by diversifying its energy supply and developing indigenous resources:

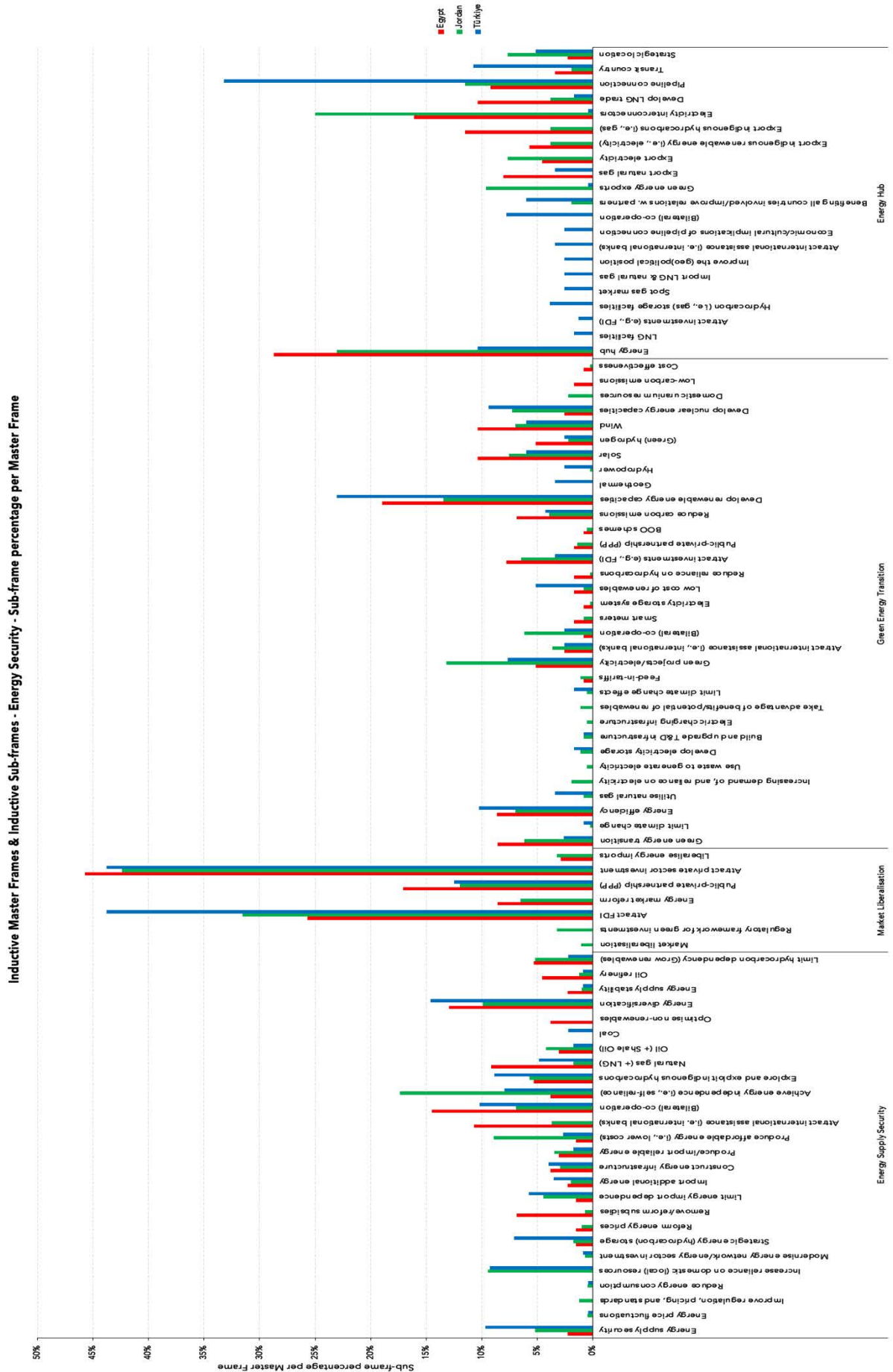


Fig. 5. Frame distribution – Energy Security – Sub-frame percentage per master frame.

“During the upcoming two weeks, the ministry will announce the energy sector’s strategy for 2020-2030, along with an executive strategy that focusses on achieving energy security, diversification of energy sources, cutting costs and enhancing reliance on local resources.” (The Jordan Times, 2020, para. 6)

Moreover, the sampled news media discourses in Jordan indicate a comparatively extensive volume of references to the ‘energy independence’ sub-frame. Precisely, reference to energy independence represents 7.7% of all frame attributions in Jordan, which signifies the single largest share across Jordan’s frame attributions. This means that in the sampled news media discourses in Jordan, energy independence is presented as the primary energy security factor. It is beneficial to consider two additional ‘Energy Supply Security’ sub-frames that correspond with the ‘energy independence’ sub-frame; namely, the ‘increase reliance on domestic (local) resources’ and the ‘produce affordable energy’ sub-frames that represent 4.2% and 4.0% of all frame attributions in Jordan, respectively. This sub-frame grouping indicates a comparatively high volume of references to energy supply security and together represents 15.9% of all frame attributions in the sampled news media discourses in Jordan. The Jordan Times, for example, reports:

“According to industry observers, the ongoing unreliability of Egyptian gas supplies has escalated energy independence from a policy matter to an issue of national security for the Kingdom, which imports 98 per cent of its energy needs at a cost of nearly one-fifth of the gross domestic product.” (The Jordan Times, 2012c, para. 2)

The distribution of frame attributions across the master frame categories in Türkiye indicates that in the sampled news media discourses, energy security is largely perceived as an effect of the operation as an energy trading hub and the adoption of

traditional energy supply security-based policies. Precisely, 39.3% of all frame attributions across the sampled news media discourses in Türkiye are situated in the 'Energy Hub' master frame category. The 'pipeline connection' sub-frame is the most common frame attribution in Türkiye, accounting for 13% of all frame attributions in the sampled news media discourses. This implies that in the sampled news media discourses, pipeline connections are presented as the primary energy security factor. An article by Türkiye's state-owned news agency, Anadolu Agency, for instance, announces:

"Trans Anatolian Natural Gas Pipeline (TANAP) will ensure Turkey's energy security and will transform Türkiye into an energy hub in the region" (Anadolu Agency, 2014d, para. 1)

The second and third most frame attribution volumes in the 'Energy Hub' master frame are linked to the 'transit country' and 'energy hub' sub-frames that account for 4.2% and 4.1% of all frame attributions in the sampled news media discourses, respectively. An effective example of these 'Energy Hub' sub-frames is offered by the following statement from Mustafa Akinci, former president of the Turkish Republic of Northern Cyprus:

"Its geographical location has made Turkey an ideal energy centre that bridges the rich resources of the east to the western regions" (Anadolu Agency, 2018b, para. 8)

Interestingly, all three case study countries are invested in the idea to operate as an energy (and electricity) trading hub. However, Türkiye's energy political and economic identity in the region is distinctly defined by its geographic location between energy-rich countries to its north and east and energy-poor, importing states to its West

(Anadolu Agency, 2014d, 2020a; Reuters, 2022). Thus, comparatively, the identification with, and adoption of an energy security strategy that taps into the energy supply potential linked to its function as an energy hub is most profound in Türkiye. Türkiye's advantageous geopolitical position between regional centres is reflected in the following text passage:

"Roberts said that Türkiye is 'brilliantly placed' in terms of both energy and geography to become a gas hub, owing to its location on pipeline transit routes and strategic importance for the Southern Gas Corridor project." (Anadolu Agency, 2022b, para. 26)

6.3.3. *Deductive framing analysis of sub-frames – Nuclear Energy.*

Again, it is useful to analyse the proportional distribution of sub-frame attributions across all sampled news media discourses, which signifies the deductive analysis (Fig. 6.). In the sampled news media discourses in Egypt the nuclear energy motivation is primarily presented as a combination of energy security, utility, and national prestige-based drivers, while environmental sustainability signifies a slightly less prominent motivational factor. Comparatively, the distribution of frame attributions across the master frame categories is most balanced in Egypt. Interestingly, however, the sampled news media discourses on nuclear energy in Egypt produced substantial references to the high safety standards of the planned nuclear energy installations, an interesting factor that is analysed in more depth in the 'Discussion' chapter. A text example of the second and third most prominent sub-frame categories that link nuclear energy with a decrease in carbon emissions and energy supply diversity benefits is presented below:

"Shaker said that the Dabaa plant will not produce any gas emissions, pollutants, or greenhouse gasses [...] He stressed that the nuclear power plant project will play a vital role in diversifying Egypt's energy sources." (Daily News Egypt, 2018b, para. 14)

Another clearly discernible trend in the sub-frame data is the comparatively high proportional concentration of 'National Prestige' sub-frames in the sampled news media discourses in Egypt. Precisely, 24% of all frame attributions in the sampled news media discourses Egypt are linked with 'National Prestige' sub-frames, which signifies the highest relative proportion of frame attributions in the 'National Prestige' master frame out of all three case study countries. This means that national prestige signifies a comparatively substantial motivational driver of nuclear energy development in the

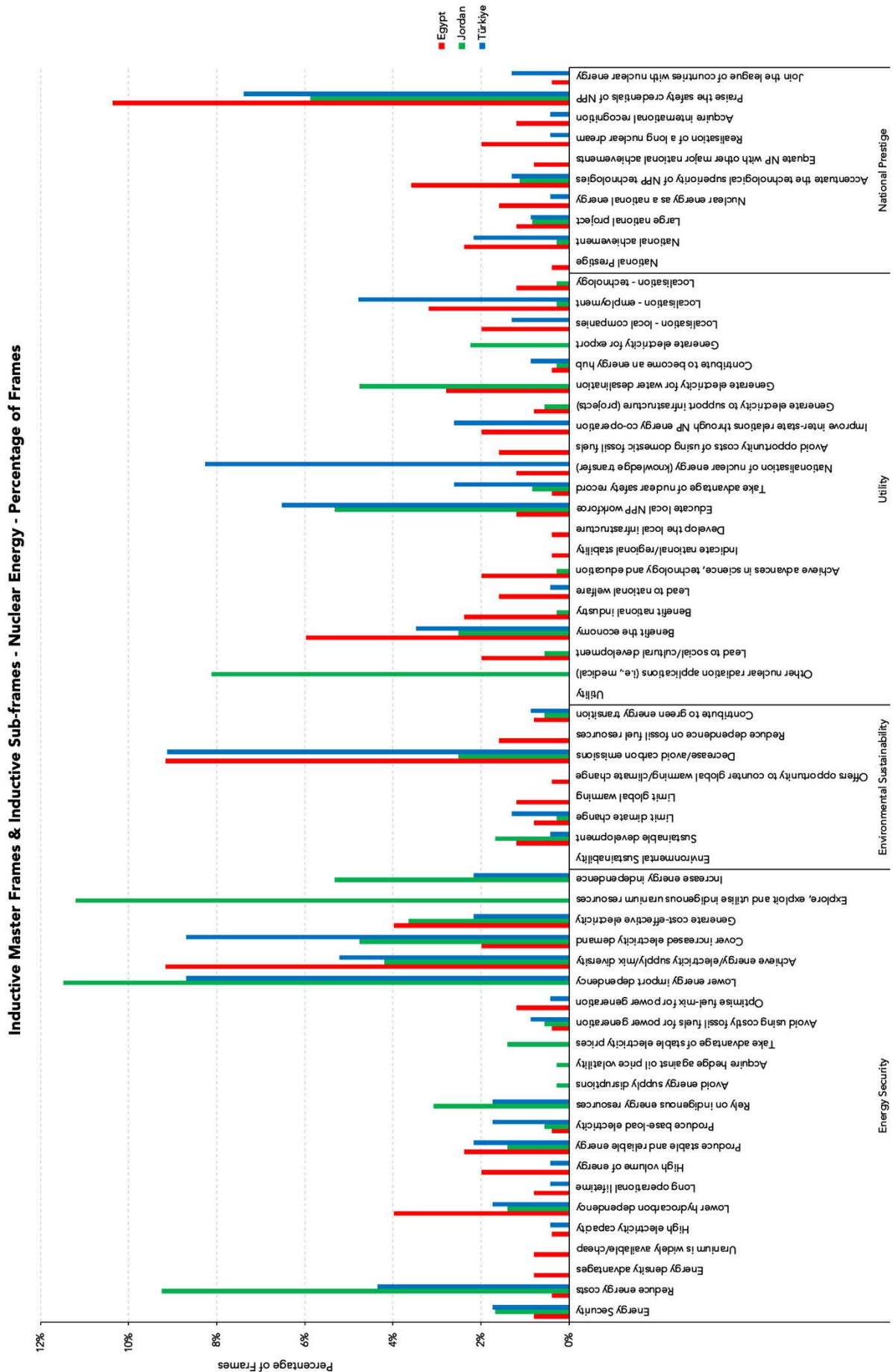


Fig. 6. Frame distribution – Nuclear Energy – Percentage of frames.

sampled news media discourses in Egypt. The highest proportional value of 'National Prestige' sub-frames are produced by the 'praise the safety credentials of nuclear power plants (NPP)', 'accentuate the technological superiority of NPP technologies', and 'national achievement' sub-frames that account for 10.4%, 3.6%, and 2.4% of all frame attributions in the sampled news media discourses in Egypt, respectively. The allocation of the 'praise the safety credentials of NPP' sub-frame into the 'National Prestige' master frame is a contentious topic as the sub-frame could have feasibly been included into the 'Energy Security' master frame or understood as a deliberate incentive to bolster public acceptance levels. However, the discussions in the sampled news media discourses surrounding the 'praise the safety credentials of NPP' sub-frame were usually defined by a sense of pride, using boisterous adjectives to emphasise the comparative supremacy of the nuclear technology option. The following example will emphasise this argument:

"The nuclear reactors that will be implemented have all the combinations of nuclear safety systems and have an unprecedented level of protection against internal events and external factors." (Daily News Egypt, 2018a, para. 46)

Another insightful text passage is extracted from Egypt Today:

"[...] the four reactors at the El-Dabaa nuclear plant will be of the type of VVER 1200 reactors of the 3^d generation, which are equipped with the latest safety systems, explaining that additional safety standards have been added so that it has an unprecedented ability to resist huge accidents, and it can respond to the collision of a 400-ton aircraft." (Egypt Today, 2022c, para. 11)

The frame distribution in Jordan is significantly more skewed as in the sampled news media discourses in Egypt, the motivation to develop nuclear energy is primarily

presented as the desire to tap into its energy security advantages and take advantage of the added, supplementary nuclear energy benefits. Overall, thus, in the sampled news media discourses on nuclear energy in Jordan, the country's principal nuclear energy motivation are the technology's energy security benefits. Specifically, the 'lower energy import dependency', 'explore, exploit, and utilise indigenous uranium resources', and 'reduce energy costs' sub-frames represent the three highest frame attribution volumes in Jordan, accounting for 11.5%, 11.2%, and 9.2% of all frame attributions in the sampled news media discourses, respectively. Thus, 31.9% of all frame attributions in the sampled news media discourse in Jordan are linked with 'Energy Security' sub-frames that describe the motivation for nuclear energy development. This focus on energy security, and especially traditional security of supply-based factors, aligns with Jordan's elite energy security perception that favours a security of supply-based understanding. A decrease in energy import dependence and energy costs signify the Kingdom's primary nuclear energy drivers, which are summarised in the following text excerpt quoting Khaled Toukan, the Chairman of the Jordan Atomic Energy Commission (JAEC):

"Nuclear energy has become one of Jordan's strategic options to meet its needs of electricity in the future in light of limited energy resources and volatile fuel prices" (Petra, 2010, para. 1)

Another useful text passage was published by The Jordan Times:

"Energy officials have identified nuclear energy as key to weaning the Kingdom off energy imports, which costs the Kingdom over 23 per cent of its gross domestic product." (The Jordan Times, 2011, para. 2)

Finally, in Türkiye, the frame distribution indicates that in the sampled news media discourses, the motivation to develop nuclear energy is primarily presented as the intention to take advantage of its energy security benefits and tap into its added, supplementary benefits. Türkiye's desire to nationalise its nuclear energy programme and eventually independently construct a nuclear power plant is a key motivating factor of Türkiye's nuclear energy programme, which explains the large proportional size of the 'Utility' master frame category. Ankara's desire to lower carbon emissions, while satisfying increasing energy demand represent the two most expansive sub-frame categories and the two primary nuclear energy motivations presented in the sampled news media discourses on nuclear energy in Türkiye. The following text passage illustrates both sub-frame categories in a statement by Turkish Energy Minister Fatih Donmez:

"Energy Minister Fatih Donmez confirmed at the ground-breaking ceremony that nuclear power is an important option in meeting increasing energy demand in the country after the pandemic and for global emissions reduction."

(Anadolu Agency, 2022c, para. 4)

Considering the sub-frame percentage per master frame produces insights into the sub-frame distribution within master frames (Fig. 7.). It is clearly observable in the data that there is a significant proportional concentration in the 'Environmental Sustainability' master frame, which is dominated by the high proportion of frame attributions to the 'decrease/avoid carbon emissions' sub-frame. Precisely, the 'decrease/avoid carbon emissions' sub-frame accounts for 50%, 60.5%, and 77.8% of all sampled news media discourses linked to the 'Environmental Sustainability' master frame in Jordan, Türkiye, and Egypt, respectively. This means that in frame attributions linked to the 'Environmental Sustainability' master frame in all three case study countries, the decrease or avoidance of carbon emissions is the most dominant

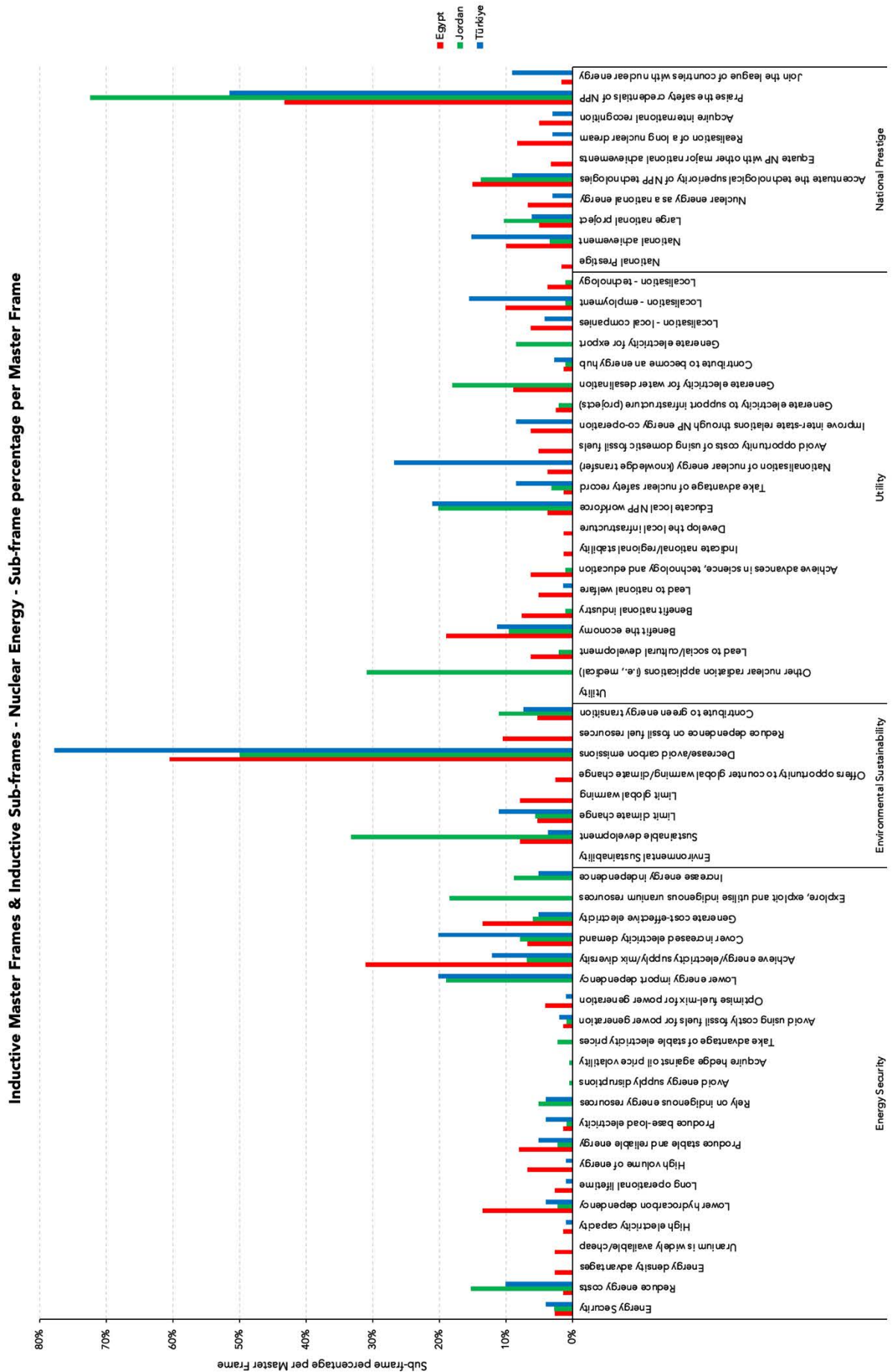


Fig. 7. Frame distribution – Nuclear Energy – Sub-frame percentage per master frame.

motivating factor for nuclear energy development. This distinctive master frame-specific proportional distribution is also observable in the proportional distribution of sub-frame attributions across all sampled news media discourses in Egypt and Türkiye. Precisely, the 'decrease/avoid carbon emissions' sub-frame accounts for 2.5%, 9.1%, and 9.2% of all frame attributions in the sampled news media discourses in Jordan, Türkiye, and Egypt, respectively. Additionally, this means that the 'decrease/avoid carbon emissions' sub-frame signifies the single highest frame attribution percentage across all sampled news media discourses in Türkiye, and the joined second highest across all sampled news media discourses in Egypt. Resultant, this implies that in the sampled news media discourses in Türkiye and Egypt, the decrease or avoidance of carbon emissions is a comparatively significant motivating factor for nuclear power proliferation. The following examples illustrate the prominence of the 'decrease/avoid carbon emissions' sub-frame in the sampled news media discourses in Türkiye and Egypt. Mostafa Madbouly, Egypt's Prime Minister, for instance, announces:

"[...] the use of nuclear energy to generate electricity is one of the cornerstones of sustainable development, as it is one of the clean energy sources that are free of carbon emissions that cause climate change." (Egypt Independent, 2021b, para. 7)

Similarly, Fatih Birol, the International Energy Agency's (IEA) Executive Director, comments on Türkiye's pursuit of nuclear:

"Nuclear energy is one of the rare-zero-carbon emission energy form[s] and it is an indispensable option for Türkiye" (Anadolu Agency, 2015b, para. 2)

Finally, in an interview of female employees of the Akkuyu NPP a worker is referenced:

“She said nuclear power is a cleaner and more viable form of energy compared with traditional sources” (Anadolu Agency, 2020b, para. 14)

6.4. Inquiry (3) – To what extent are news frames securitised in media discourses on energy security and nuclear energy proliferation in oil-poor countries in the MENA?

6.4.1. Security Intensifications – Energy Security and Nuclear Energy.

Overall, the sampled news media discourses in Egypt failed to produce instances of 'securitisation' and 'security jargon', while holding only a neglectable number of 'risk + (extra-ordinary) counter-measure' utterances (n=1) (Fig. 8.). The sampled news media discourses in Jordan have produced the highest overall amount of 'securitisation' (n=16), '(existential) threat + pre-cautionary counter-measure' (n=25), and 'risk + (extra-ordinary) counter-measure' (n=9) utterances. Finally, Türkiye has recorded the highest amount of 'riskification' utterances (n=89).

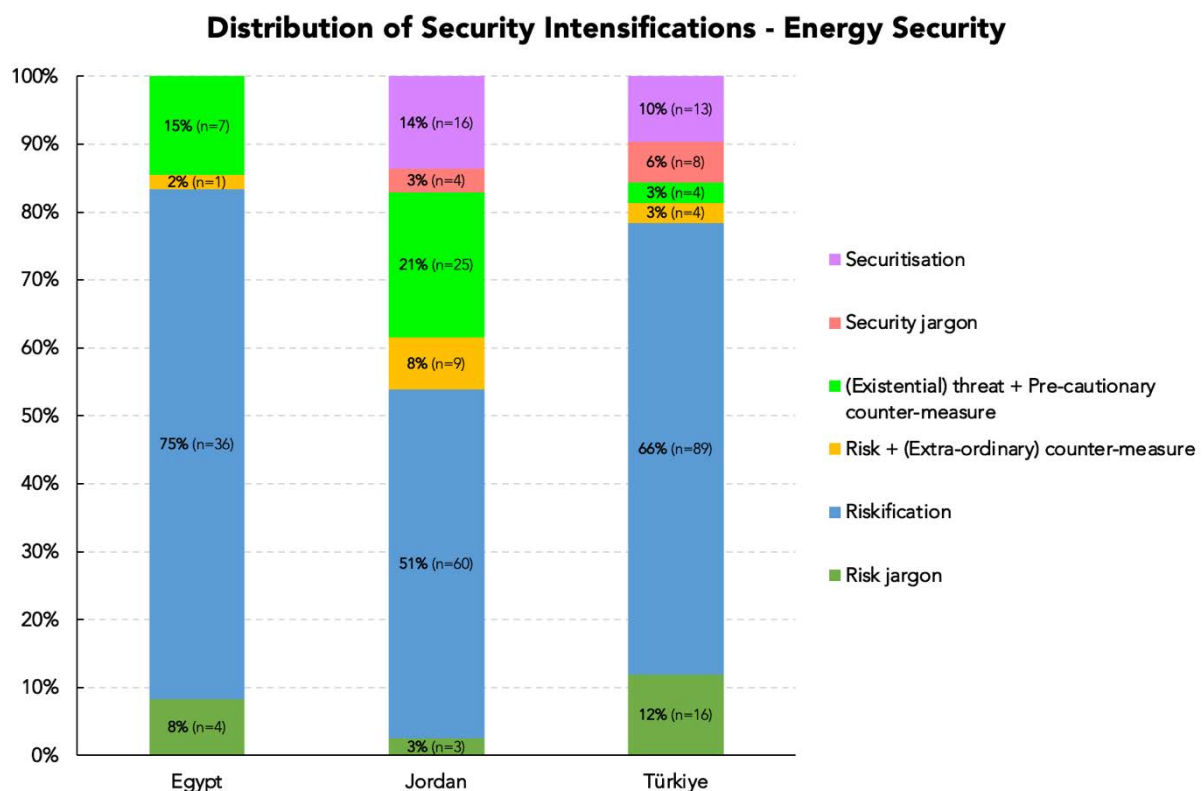


Fig. 8. Distribution of security intensifications – Energy Security.

Importantly, Jordan and Türkiye also generated instances of all security intensification categories classified in this study and produced a considerably more varied range of security intensifications than Egypt. What is notable is the dominance of ‘riskification’ utterances that signify the largest share of security intensifications in the sampled news media discourses in Jordan, Egypt, and Türkiye, accounting for 51%, 66%, and 75% of all security intensifications, respectively.

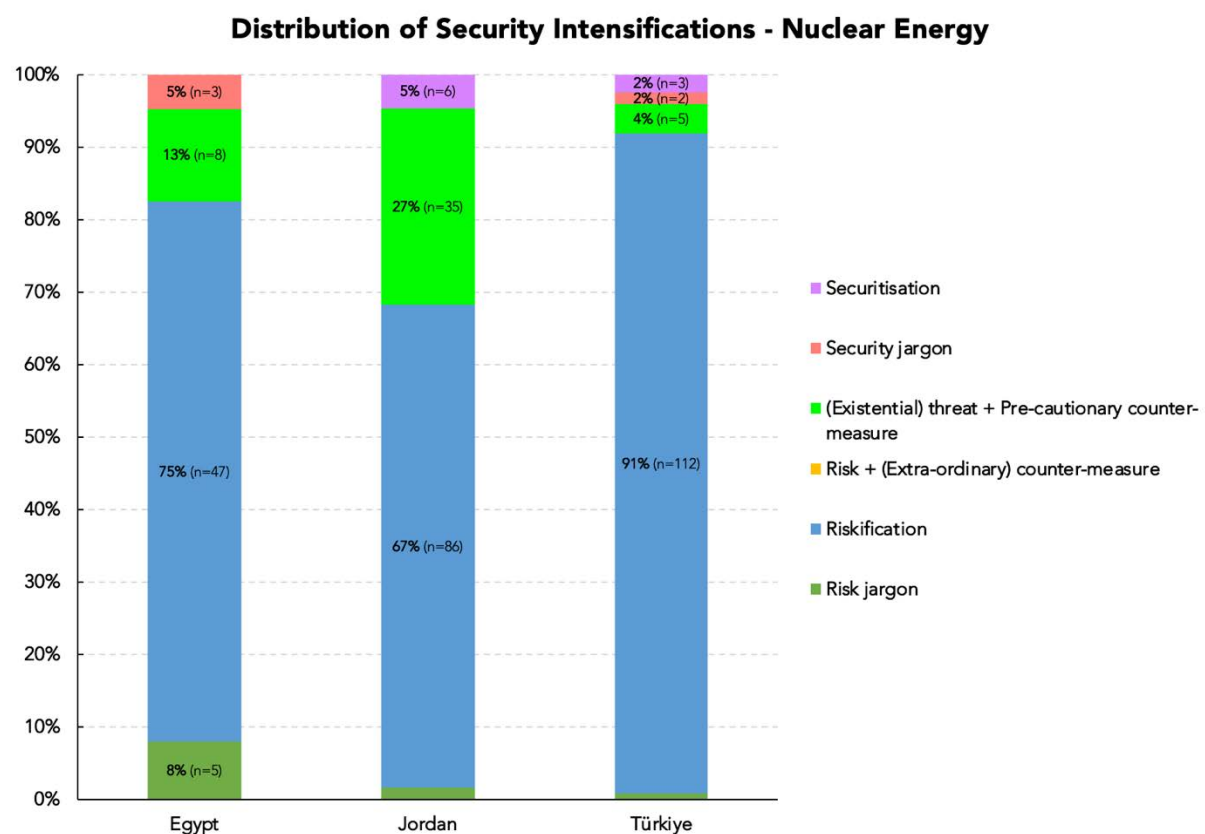


Fig. 9. Distribution of security intensifications – Nuclear Energy.

Similarly, as was the case in the sampled discourses on energy security, the sampled news media discourses on nuclear energy in Egypt produced no instances of ‘securitisation’ (Fig. 9.). In the sampled discourses in Jordan, however, there were instances of ‘securitisation’ (n=6) and a comparatively extensive quantity of ‘(existential) threat + pre-cautionary countermeasure’ utterances (n=35). Finally, the sampled news media discourses in Türkiye are dominated heavily by the ‘riskification’

category, which accounts for 91% of all security intensifications identified in the sampled news media discourses in Türkiye.

Overall, only a limited number of 'securitisation' (n=9) and 'security jargon' (n=5) utterances are detected across all sampled news media discourses in the case study countries. The ('existential) threat + pre-cautionary counter-measure' category, however, accounts for the second largest share of security intensifications in the sampled news media discourses, representing 4%, 13%, and 27% of all security intensifications for Türkiye, Egypt, and Jordan, respectively. Again, as was the case in the analysis of the energy security-related security discourses, the 'riskification' utterances represented most security intensifications in the sampled news media discourses, accounting for 67%, 75%, and 91% of all security intensifications in Jordan, Egypt, and Türkiye, respectively. Noteworthy is also the absence of any 'risk + (extraordinary) counter-measure' utterances across the sampled news media discourses in all case study countries.

6.4.2. 'Problem' and 'Remedy' frame combinations – Energy Security.

The distribution of security intensification master frames between the 'problem definition' and 'remedy' frame effects produces distinct frame combinations that reflect the context of the dialogue between both frame effect categories. Precisely, the resultant data indicates the relative presence of specific master frames in the 'problem definition' and 'remedy' master frame categories, and the presence of distinct master frame combinations that link the problem definition with an accompanying remedy suggestion. The data also reveals the relative distribution of the master frames and the master frame combinations across the available security intensification categories.

The difficulty of analysing the 'problem' and 'remedy' master frame combinations is heightened as the data is complex, diverse, and expansive. This study utilises the visual aid of Sankey diagrams to ease the accessibility of the data. Sankey diagrams are especially appropriate for the representation of flows between data sets, as is the case in the relationship between the 'problem' and 'remedy' master frame categories. The option to integrate multiple connected indicator categories elevates the usefulness of Sankey diagrams in this study as the connection with security intensification categories, as well as individual case study countries produces additional visual flow data.

The Sankey diagram unifying the energy security data of all three case study countries captures overall trends in the data (Fig. 10.). What becomes immediately apparent is that the 'problem' master frame category is dominated by the 'Energy Insecurity' master frame, which accounts for 80.2% off all frame attributions. This implies that in the sampled energy security-related news media discourses across all three case study countries, energy insecurity is the most dominant 'problem' reference by a significant

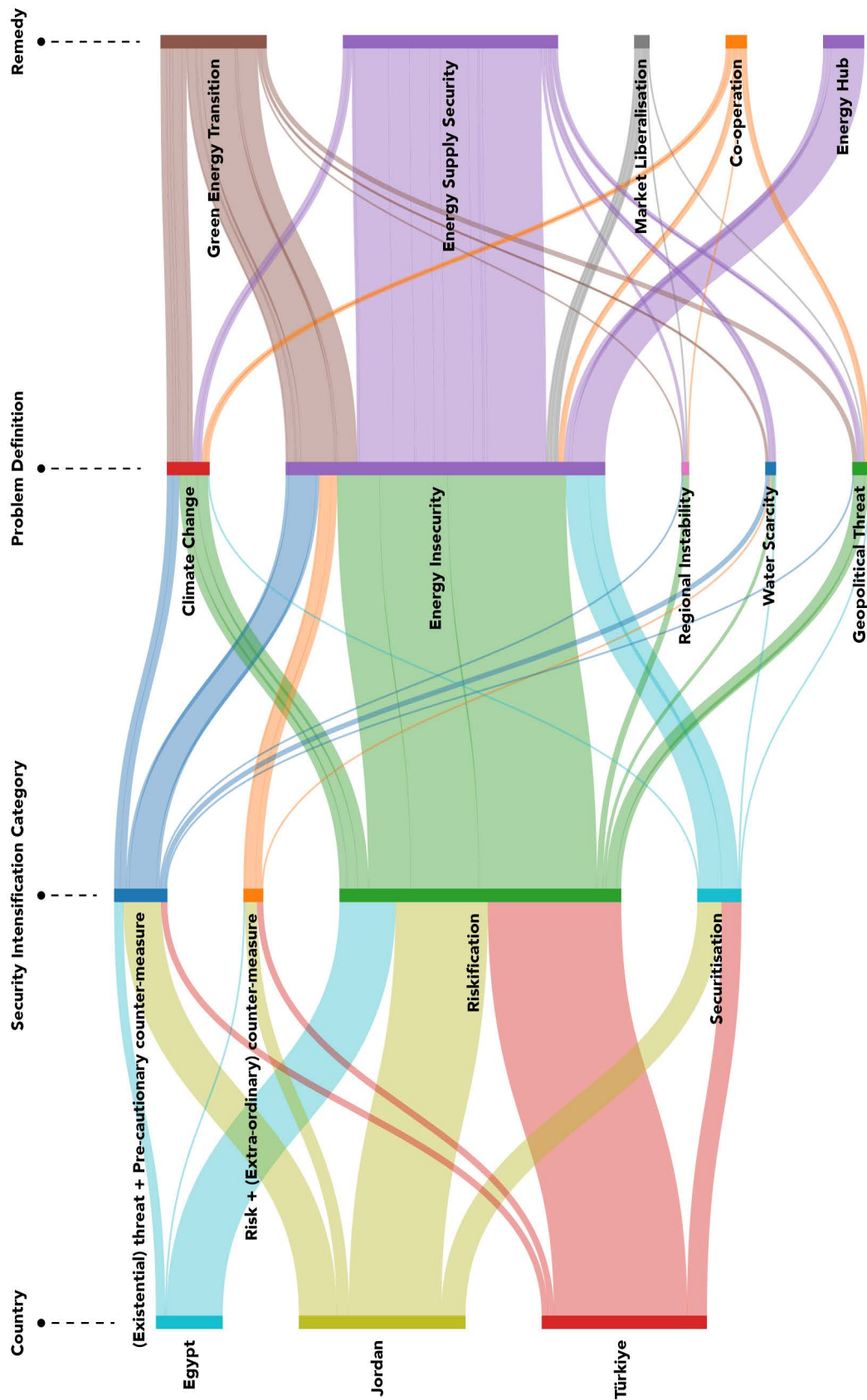


Fig. 10. Sankey Diagram – Energy Security – Combined case study data.

margin. Thus, in the sampled news media discourses, energy security is largely presented as an issue linked with traditional energy supply security threats, such as energy price fluctuations, energy demand growth, or lack of energy supply diversity. The second largest number of 'problem' frame attributions is the 'Climate Change' master frame that holds 28 security references, which represent 10.6% of all frame attributions in the sampled energy security-related security discourses for all three case study countries.

The 'remedy' master frame category is slightly more diverse as both 'Green Energy Transition' (n=70) and 'Energy Supply Security' (n=142) are comparatively expansive master frame categories that account for 26.6% and 53.9% of all frame attributions, respectively. The 'Green Energy Transition' 'remedy' master frame category also shows a strong link with the 'Energy Insecurity' 'problem' master frame category that accounts for 48 out of 70 frame attributions, which represents a share of 68.5% and, thus, indicates a strong 'problem' – 'remedy' connection. The diagram also suggests a strong connection between the 'Energy Insecurity' and 'Energy Supply Security' master frame categories, with 128 out of 142 frame attributions in the 'Energy Supply Security' master frame category originating in the 'Energy Supply Security' master frame category, which signifies a 'problem' – 'remedy' connection strength of 88%. Noteworthy are also the comparatively insignificant 'problem' master frame categories of 'Regional Instability' (n=5), 'Water Scarcity' (n=7), and 'Geopolitical Threat' (n=12), which together account for only 9.1% of all frame attributions. Likewise, the 'remedy' master frame categories 'Market Liberalisation' (n=10), 'Co-operation' (n=14), and 'Energy Hub' (n=27) are relatively insignificant and account for only 19.3% of all frame attributions.

By disaggregating the diagram data and producing country-specific Sankey diagrams it becomes possible to compare the distribution of 'problem' and 'remedy' frame

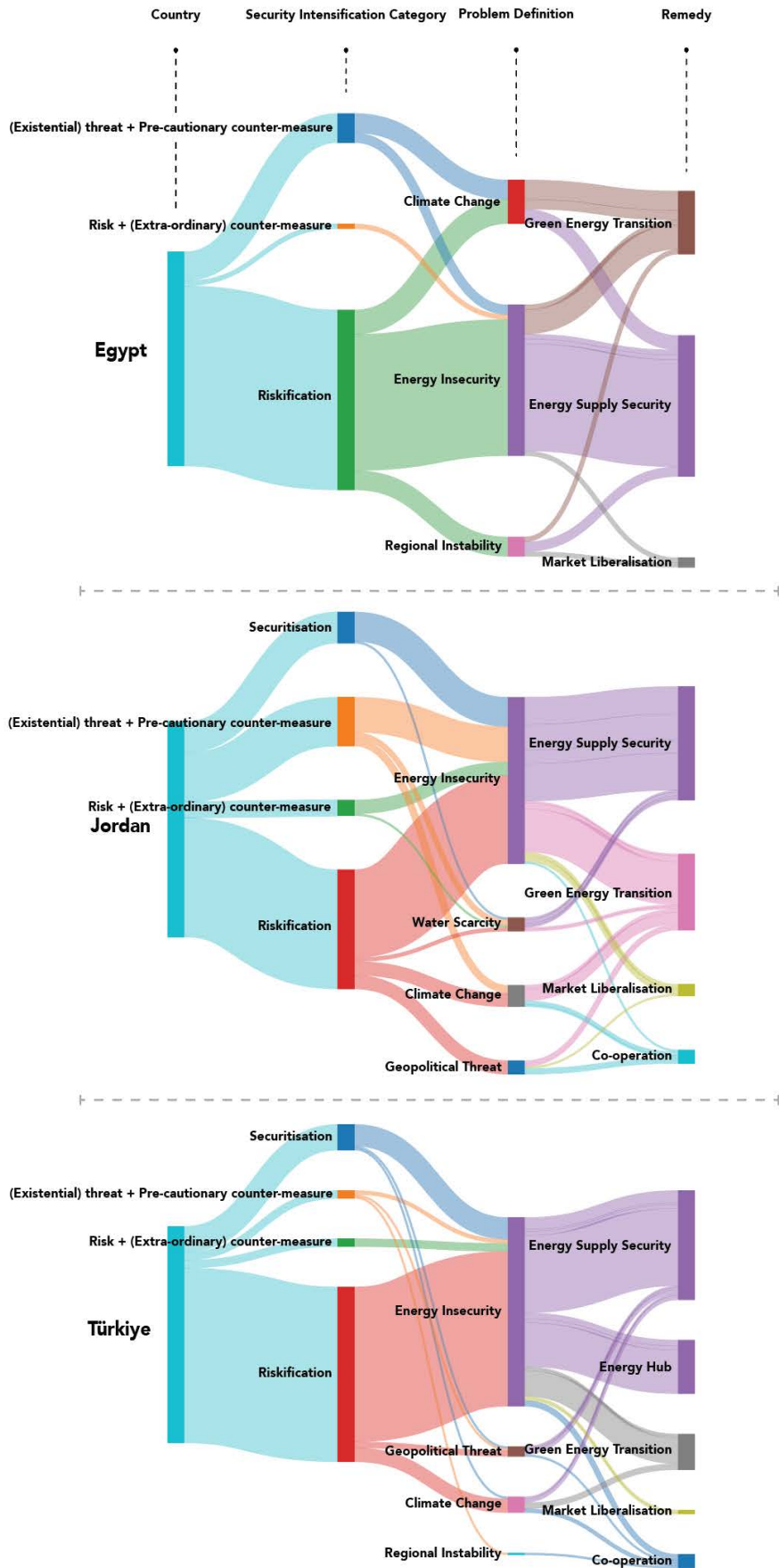


Fig. 11. Sankey Diagram – Energy Security – Individual case study data.

attributions, the strength of master frame combinations, and the distribution of security intensification categories between case study countries (Fig. 11.).

Considering the master frame distributions in the sampled news media discourses in Egypt, it is clearly discernible that the 'problem' and 'remedy' master frame profile is comparatively simple, with only a limited number of distinct master frame categories (Fig. 11., Table 6.). The 'Climate Change' master frame category (n=9) accounts for 20.4% of all frame attributions sourced from the sampled news media discourses in Egypt. Interestingly, the strongest 'problem' – 'remedy' connection exists between the 'Climate Change' and 'Green Energy Transition' master frames, accounting for 46.1% of all frame attributions in the 'Green Energy Transition' 'remedy' category. Overall, the energy security-related 'problem' and 'remedy' master frame distribution in Egypt reveals nine overall instances of the 'Climate Change' master frame and four frame combinations between 'Climate Change' and 'Green Energy Transition' in the '(existential) threat + (pre-cautionary) counter-measure' security intensification category. An example of this dialogue is presented below, including an existential problem definition and a pre-cautionary remedy suggestion:

Problem: *"The report presents details of how the MENA region is warming nearly twice as fast as the global average and is particularly vulnerable to the effects and impact of climate change – including extreme water scarcity."* (Daily News Egypt, 2022, para. 2)

Remedy: *"It is absolutely vital that we transition away from fossil fuels and move towards energy independence. There is no reason why we should follow the same path that was chosen by the Global North over the past 300 years, which has led to the climate disaster we now face."* (Daily News Egypt, 2022, para. 10)

Table 6. Security Intensifications - 'Problem' and 'Remedy' frame combinations – Energy Security - Egypt.

| Security Intensification Category | 'Problem Definition' Frame | 'Remedy' Frame | Quantity of Frame Combination | Percentage of Frame Combination |
|---|-----------------------------------|-------------------------|--------------------------------------|--|
| Securitisation | N/A | N/A | 0 | 0.0% |
| Security Jargon | N/A | N/A | 0 | N/A |
| (Existential) threat + (Pre-cautionary) counter-measure | Climate Change | Green Energy Transition | 4 | 9.1% |
| | Energy Insecurity | Green Energy Transition | 1 | 2.3% |
| | Energy Insecurity | Energy Supply Security | 1 | 2.3% |
| Risk + (Extra-ordinary) counter-measure | Energy Insecurity | Energy Supply Security | 1 | 2.3% |
| Riskification | Energy Insecurity | Energy Supply Security | 22 | 43.2% |
| | Energy Insecurity | Green Energy Transition | 5 | 11.4% |
| | Climate Change | Energy Supply Security | 3 | 6.8% |
| | Climate Change | Green Energy Transition | 2 | 4.5% |
| | Regional Instability | Energy Supply Security | 2 | 4.5% |
| | Regional Instability | Market Liberalisation | 1 | 2.3% |
| | Regional Instability | Green Energy Transition | 1 | 2.3% |
| | Energy Insecurity | Market Liberalisation | 1 | 2.3% |
| Risk Jargon | Energy Insecurity | N/A | 2 | N/A |
| | Geopolitical Threat | N/A | 1 | N/A |
| | Regional Instability | N/A | 1 | N/A |

This reflects the country's awareness of its high susceptibility to adverse climate effects that has been outlined in the 'Country Profiles' chapter. The high security profile of climate change concerns, as well as the high level of perceived utility of a green energy transition, also mirror the elite perceptions and energy security frames data. Thus, in this instance, elite views, public discourses, and (to some extent) public opinions align.

However, as mentioned above, the largest flow linkage exists between the 'riskification' security intensification category, the 'Energy Insecurity' 'problem' category, and the 'Energy Supply Security' 'remedy' category. Precisely, 24 out of 29 frame attributions in the 'Energy Supply Security' 'remedy' category are provided by the 'Energy Insecurity' 'problem' category, which signifies 82.7% of all frame attributions in the 'Energy Supply Security' master frame category. This suggests that

in the sampled energy security-related news media discourses in Egypt, a large proportion of the 'problem' - 'remedy' frame combinations interjoins 'Energy Insecurity' with 'Energy Supply Security'. Consequently, energy supply insecurity is presented as the key energy security threat, while traditional energy supply security counter-measures are presented as the most dominant 'remedy' option. The 'Energy Insecurity' and 'Energy Supply Security' master frame combination is especially prominent in the 'riskification' security intensification category with 22 instances. An example of the 'problem' - 'remedy' exchange is below:

Problem: *"The challenge of oil and gas demand is only amplified by the fact most of Egyptian oil and gas wells are either at maturity or beginning to decline in yield."* (Daily News Egypt, 2016, para. 4)

Remedy: *"To address the increase in demand and the paucity of maturing wells, the ministry launched new exploration and discovery initiatives."* (Daily News Egypt, 2016, para. 9)

The analysis of the Sankey diagram for Jordan, however, reveals a slightly more multifarious 'problem' and 'remedy' master frame distribution (Fig. 11., Table 7.). Precisely, the 'Energy Insecurity' master frame category (n=85) retains its domineering position, while the additional master frame categories 'Water Scarcity' (n=7), 'Geopolitical Threat' (n=7), and 'Climate Change' (n=11) signify less significant, albeit still important, 'problem' master frame categories. In comparison to the distribution of 'remedy' master frames in Egypt, the sampled news media discourses in Jordan produced a less monopolistic master frame distribution that is less dominated by the expansive 'Energy Supply Security' category. In fact, the 'Green Energy Transition', 'Market Liberalisation', and 'Co-operation' 'remedy' master frame categories account for 47.2% of all frame attributions in the 'remedy' frame category. Also, the energy

Table 7. Security Intensifications - 'Problem' and 'Remedy' frame combinations – Energy Security - Jordan.

| Security Intensification Category | 'Problem Definition' Frame | 'Remedy' Frame | Quantity of Frame Combination | Percentage of Frame Combination |
|---|-----------------------------------|-------------------------|--------------------------------------|--|
| Securitisation | Energy Insecurity | Energy Supply Security | 14 | 12.8% |
| | Energy Insecurity | Green Energy Transition | 1 | 0.9% |
| | Water Scarcity | Energy Supply Security | 1 | 0.9% |
| Security Jargon | Regional Instability | N/A | 2 | N/A |
| | Energy Insecurity | N/A | 1 | N/A |
| | Water Scarcity | N/A | 1 | N/A |
| (Existential) threat + (Pre-cautionary) counter-measure | Energy Insecurity | Energy Supply Security | 13 | 11.9% |
| | Energy Insecurity | Green Energy Transition | 3 | 2.8% |
| | Energy Insecurity | Market Liberalisation | 2 | 1.8% |
| | Water Scarcity | Energy Supply Security | 2 | 1.8% |
| | Climate Change | Co-operation | 2 | 1.8% |
| | Climate Change | Green Energy Transition | 2 | 1.8% |
| | Water Scarcity | Green Energy Transition | 1 | 0.9% |
| Risk + (Extra-ordinary) counter-measure | Energy Insecurity | Energy Supply Security | 7 | 6.4% |
| | Water Scarcity | Energy Supply Security | 1 | 0.9% |
| Riskification | Energy Insecurity | Green Energy Transition | 22 | 20.2% |
| | Energy Insecurity | Energy Supply Security | 19 | 17.4% |
| | Climate Change | Green Energy Transition | 6 | 5.5% |
| | Energy Insecurity | Market Liberalisation | 3 | 2.8% |
| | Geopolitical Threat | Co-operation | 3 | 2.8% |
| | Geopolitical Threat | Green Energy Transition | 3 | 2.8% |
| | Energy Insecurity | Co-operation | 1 | 0.9% |
| | Water Scarcity | Green Energy Transition | 1 | 0.9% |
| | Water Scarcity | Energy Supply Security | 1 | 0.9% |
| | Climate Change | Co-operation | 1 | 0.9% |
| | Geopolitical Threat | Market Liberalisation | 1 | 0.9% |
| Risk Jargon | Energy Insecurity | N/A | 1 | N/A |
| | Regional Instability | N/A | 1 | N/A |
| | Climate Change | N/A | 1 | N/A |

security-related master frame distributions across the 'problem' and 'remedy' categories in Jordan have produced 'securitisation' utterances. Precisely, the sampled news media discourses in Jordan hold fifteen 'Energy Insecurity' and 'Energy Supply Security' frame attributions each, while also producing fourteen 'Energy Insecurity'

and 'Energy Supply Security' master frame combinations, which account for 12.8% of all frame combinations in Jordan. The following excerpts from security discourses revolving around energy supply disruptions in the natural gas supply from Egypt exemplify this 'problem' – 'remedy' dialogue:

Problem: *"The talks come amidst ongoing concerns over the reliability of Egyptian gas supplies, the Kingdom's primary energy source, which have yet to resume since a Sinai blast earlier this month that marked the 13th act of sabotage on the Arab Gas Pipeline in a little over a year. Ongoing cuts in Egyptian gas supplies cost Jordan JD1 billion in 2011 – a figure energy officials expect to reach JG1.7 billion this year – placing stress on a near record JD1.02 billion budget deficit that economists warn may tip the Kingdom into a financial crisis"* (The Jordan Times, 2012b, para. 2)

Remedy: *"The deal calls for the establishment of a 500-kilometre gas pipeline stretching from Iraq's gas fields to the Kingdom's northern desert region, with a projected five-year construction period, according to the Ministry of Energy and Mineral Resources."* (The Jordan Times, 2012b, para. 2)

Here, the existential threat classification arises from the financial pressures linked to the energy supply disruptions, while the extra-ordinary counter-measure suggests the construction of extensive pipeline infrastructure, which exceeds normal operational logic.

Another immediately observable trend in the sampled news media discourses in Jordan is the high quantity of 'Energy Insecurity' and 'Green Energy Transition' master frame combinations (n=22) in the 'riskification' security intensification category, which accounts for 20.2% of all frame combinations. The following text passages from the

sampled news media discourses in Jordan reveal the 'problem' – 'remedy' dialogue between the 'Energy Insecurity' and 'Green Energy Transition' master frames in the 'riskification' security intensification category:

Problem: *"As energy demand in Jordan continues to rise, there is an urgent need to ensure new sources of power"* (Petra, 2018, para. 5)

Remedy: *"[...] Xenel continues to demonstrate its commitment to Jordan by developing, along with its partners AMEA, the Abour Wind Farm, which will add to the country's renewable capacity, help enhance energy security, and help make electricity cheaper for consumers"* (Petra, 2018, para. 6)

In the Sankey diagram for the master frame distribution in Türkiye the 'Energy Insecurity' 'problem' master frame category is extremely dominant, accounting for 87.1% of all 'problem' master frame categories in the sampled news media discourses (Fig. 11., Table 8.). The 'remedy' master frame category, however, is the most diverse out of all three case study countries with five discrete master frame categories. Moreover, the 'Energy Supply Security' 'remedy' master frame category has the lowest proportional quantity out of all three case study countries as the 'Energy Hub', 'Green Energy Transition', 'Market Liberalisation', and 'Co-operation' master frame categories account for 49.5% of all frame attributions in the 'remedy' master frame category. In the sampled news media discourses in Türkiye the 'remedy' master frame category is also defined by the addition of the 'Energy Hub' master frame category, which accounts for 27 'remedy' frame attributions (Table 12). Importantly, the 'Energy Security' and 'Energy Hub' master frame combination accounts for 22.5% of all master frame combinations in Türkiye across both the 'securitisation' and 'riskification' security intensification categories. A good example of the 'securitisation' of the 'Energy Security' and 'Energy Hub' master frame combination is listed below:

Table 8. Security Intensifications - 'Problem' and 'Remedy' frame combinations – Energy Security - Türkiye.

| Security Intensification Category | 'Problem Definition' Frame | 'Remedy' Frame | Quantity of Frame Combination | Percentage of Frame Combination |
|---|-----------------------------------|-------------------------|--------------------------------------|--|
| Securitisation | Energy Insecurity | Energy Supply Security | 6 | 5.4% |
| | Energy Insecurity | Energy Hub | 3 | 2.7% |
| | Energy Insecurity | Green Energy Transition | 1 | 0.9% |
| | Energy Insecurity | Market Liberalisation | 1 | 0.9% |
| | Geopolitical Threat | Energy Supply Security | 1 | 0.9% |
| | Climate Change | Energy Supply Security | 1 | 0.9% |
| Security Jargon | Energy Insecurity | N/A | 6 | N/A |
| | Climate Change | N/A | 2 | N/A |
| (Existential) threat + (Pre-cautionary) counter-measure | Energy Insecurity | Energy Supply Security | 1 | 0.9% |
| | Energy Insecurity | Green Energy Transition | 1 | 0.9% |
| | Geopolitical Threat | Energy Supply Security | 1 | 0.9% |
| | Regional Instability | Co-operation | 1 | 0.9% |
| Risk + (Extra-ordinary) counter-measure | Energy Insecurity | Energy Supply Security | 2 | 1.8% |
| | Energy Insecurity | Energy Hub | 2 | 1.8% |
| Riskification | Energy Insecurity | Energy Supply Security | 39 | 35.1% |
| | Energy Insecurity | Energy Hub | 22 | 19.8% |
| | Energy Insecurity | Green Energy Transition | 13 | 11.7% |
| | Energy Insecurity | Co-operation | 3 | 2.7% |
| | Climate Change | Green Energy Transition | 3 | 2.7% |
| | Climate Change | Co-operation | 2 | 1.8% |
| | Climate Change | Energy Supply Security | 2 | 1.8% |
| | Geopolitical Threat | Energy Supply Security | 2 | 1.8% |
| | Geopolitical Threat | Co-operation | 1 | 0.9% |
| | Energy Insecurity | Market Liberalisation | 1 | 0.9% |
| Risk Jargon | Energy Insecurity | N/A | 9 | N/A |
| | Geopolitical Threat | N/A | 5 | N/A |
| | Regional Instability | N/A | 2 | N/A |

Problem: *“The West Line, one of the routes coming from Russia, reaches Turkey by passing through Ukraine and Bulgaria. Political and economic tensions between Russia and Ukraine sometimes lead to an interruption of natural gas transmission from the West Line to Turkey. This situation poses a great risk for the Turkish economy.”* (Anadolu Agency, 2020a, para. 7)

Remedy: *“Transmitting the annual 14 billion cubic meters of gas from the West Line to Turkey over the first line of TurkStream, without changing terms and conditions of the existing agreements, means reducing this risk. Thus, gas will be directly transmitted from Russia to Turkey without the need for intermediate countries, and the problem of being exposed to potential interruptions caused by third parties will be eliminated. As a result, Turkey's energy security has increased with this project.”* (Anadolu Agency, 2020a, para. 8)

Another clear trend in the sampled news media discourses in Türkiye is the high quantity (n=39) and proportional concentration (35.1%) of the ‘Energy Insecurity’ and ‘Energy Supply Security’ master frame combination in the ‘riskification’ security intensification category. An example exemplifying the associated ‘problem’ – ‘remedy’ dialogue is presented below:

Problem: *“By 2023, Turkey aims to reduce dependence on natural gas imports, which costs around \$60 billion every year.”* (Anadolu Agency, 2014a, para. 15)

Remedy: *“Domestic coal will replace some of this and the Energy Ministry expects coal to supplant \$14 billion worth of gas imports.”* (Anadolu Agency, 2014a, para. 15)

Furthermore, the ‘Energy Hub’ ‘remedy’ category is only present in the sampled news media discourses on energy security in Türkiye, even though all three case study countries have voiced their desire to function as an energy trading centre. This discrepancy in perceived security importance highlights the significance of the energy hub model to Türkiye, which according to the frequency of security intensifications in the sampled news media discourses on energy security is higher than in Egypt and

Jordan. Importantly, the comparative prominence of the 'Energy Hub' 'remedy' category echoes the data from the elite perceptions and energy security frames that established the centrality of Türkiye's geographic position and its envisioned operation as an energy hub in Ankara's energy security understanding.

In sum, while there was some case country-specific variability in the presented energy security risks and strategies, the most dominant 'problem definitions' in the sampled news media discourses on energy security in all three case study countries were traditional energy security risks. Similarly, the most dominant 'remedy' category in the sampled news media discourses on energy security in the three case study countries was the 'Energy Supply Security' category, which comprises traditional supply-focussed energy security strategies. The comparative importance of security of supply-based energy security perceptions is a trend that is mirrored in the elite views and the energy security frames data. Importantly, an intense focus on security of supply-based energy security strategies is a characteristic feature of resource-deficient economy's energy security conceptualisations (Scheepers *et al.*, 2006, 2007; Koike, Mogi and Albedaiwi, 2008; Schubert and Turnovsky, 2011; von Hippel *et al.*, 2011; Chuang and Ma, 2013; Li, Shi and Yao, 2016; Yao, Shi and Andrews-Speed, 2018). Also, it is important to note that alternative conceptualisations are available; thus, for instance, states may perceive their energy security as primarily a function of market-centric policy-making. A market-centric energy security understanding places much emphasis on energy affordability and defines energy insecurity as *"a shortage in energy supply, either a relative shortage, i.e. a mismatch in supply and demand inducing price increases, or a partial or complete disruption of energy supplies"* (Scheepers *et al.*, 2006, p. 13).

Moreover, the fact that security of supply-based energy security conceptualisations dominate the security intensifications in the sampled news media discourses on

energy security in the three case study countries reflects the context-dependent nature of energy security perceptions (Chester, 2010; A. Cherp and Jewell, 2011c, 2011a; Cherp and Jewell, 2011; Winzer, 2012; Johansson, 2013; Månsson, Johansson and Nilsson, 2014). Precisely, the energy security situation in the case study countries is defined by national energy resource scarcity that compels the case study countries to import energy from abroad, which imposes on them (security of supply-based) insecurities linked to their energy import dependence, such as energy price fluctuations, energy supply disruptions, or a lack of energy supply diversity. The insecurities resulting from their energy import dependence directly shape their energy security perceptions and advance security of supply-based energy insecurity factors as the dominant drivers of energy security policy. Crucially, the effect of resource-deficiency (or oil scarcity) on energy system vulnerabilities is significant (Yergin, 2006; Sovacool, Valentine, et al., 2012; Knox-Hayes et al., 2013), and exerts a disproportionate effect on energy security, while outweighing other insecurity stimuli (Li, Shi and Yao, 2016). The formative effect of resource-scarcity and the context-dependent nature of energy security conceptualisations is noted by von Hippel et al. (2011) who associate “*differences in energy security thinking between countries*” (p. 6721) with “the degree to which a country is energy resource-rich or energy resource-poor” (p. 6721).

Thus, in sum, the dominance of security of supply-based security intensifications highlights the high security status assigned to the security of supply, especially in comparison to alternative options, such as a green energy transition, market liberalisation, or the operation as an energy trading hub. It also reflects the case study countries’ idiosyncratic energy security situation that is defined by its energy import dependence, which aligns with the available literature on energy security in developing and resource-poor countries (Do and Sharma, 2011; Chuang and Ma, 2013; Faure, Stanković and Jakšić, 2016; European Commission, 2018; Zhu et al., 2020).

6.4.3. 'Problem' and 'Remedy' frame combinations – Nuclear Energy.

The distribution of master frame attributions is highly skewed with a significant dominance of the 'riskification' security intensification category, which accounts for 247 out of a total of 305 frame attributions in the sampled news media discourses in all three case studies (Fig. 12.). This represents a share of 80.9% of all frame attributions. The 'problem' master frame category is dominated by the 'Energy Insecurity' master frame category, which accounts for 209 out of a total of 305 frame attributions or 68.5% of all frame attributions. The second largest 'problem' master frame category is the 'Climate Change' category, which holds 42 frame attributions, which accounts for 13.7% of all frame attributions in the sampled news media discourses across all three countries. The 'remedy' master frame category, however, is even more strongly skewed towards one specific category – the 'Nuclear Energy Development' master frame category. Here, the 'Nuclear Energy Development' dominates the distribution of master frame categories with 258 out of a total of 305 frame attributions, which represents a share of 84.5% of all frame attributions in the 'remedy' master frame category. The remaining 'remedy' master frame categories are comparatively insignificant, with the 'Green Energy Transition', 'Nuclear Project Quality', and 'Avoid Nuclear Energy' master frame categories accounting for 3.2%, 3.2%, and 2.6%, respectively.

The sampled news media discourses in Egypt have produced the most balanced distribution of 'problem' master frame categories out of the three case studies (Fig. 13., Table 9.). Overall, however, the distribution of 'problem' and 'remedy' master frame categories in the sampled nuclear energy-related news media discourses in Egypt indicates a strong presence of the 'Energy Security' 'problem' master frame category, accounting for 28 frame attributions and 50% of all frames in the 'problem' master frame category. The 'remedy' master frame category, however, is heavily

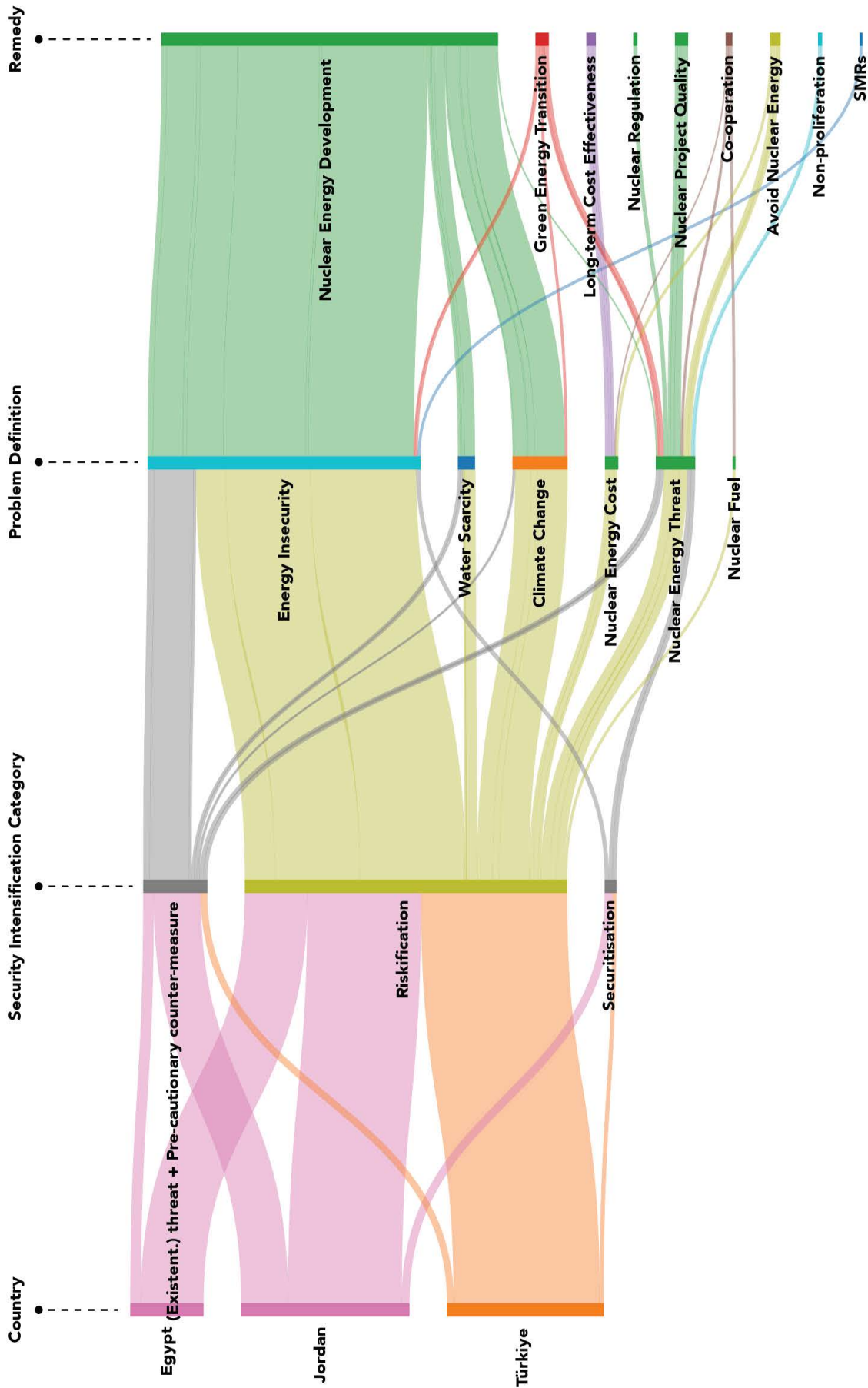


Fig. 12. Sankey Diagram – Nuclear Energy – Combined case study data.

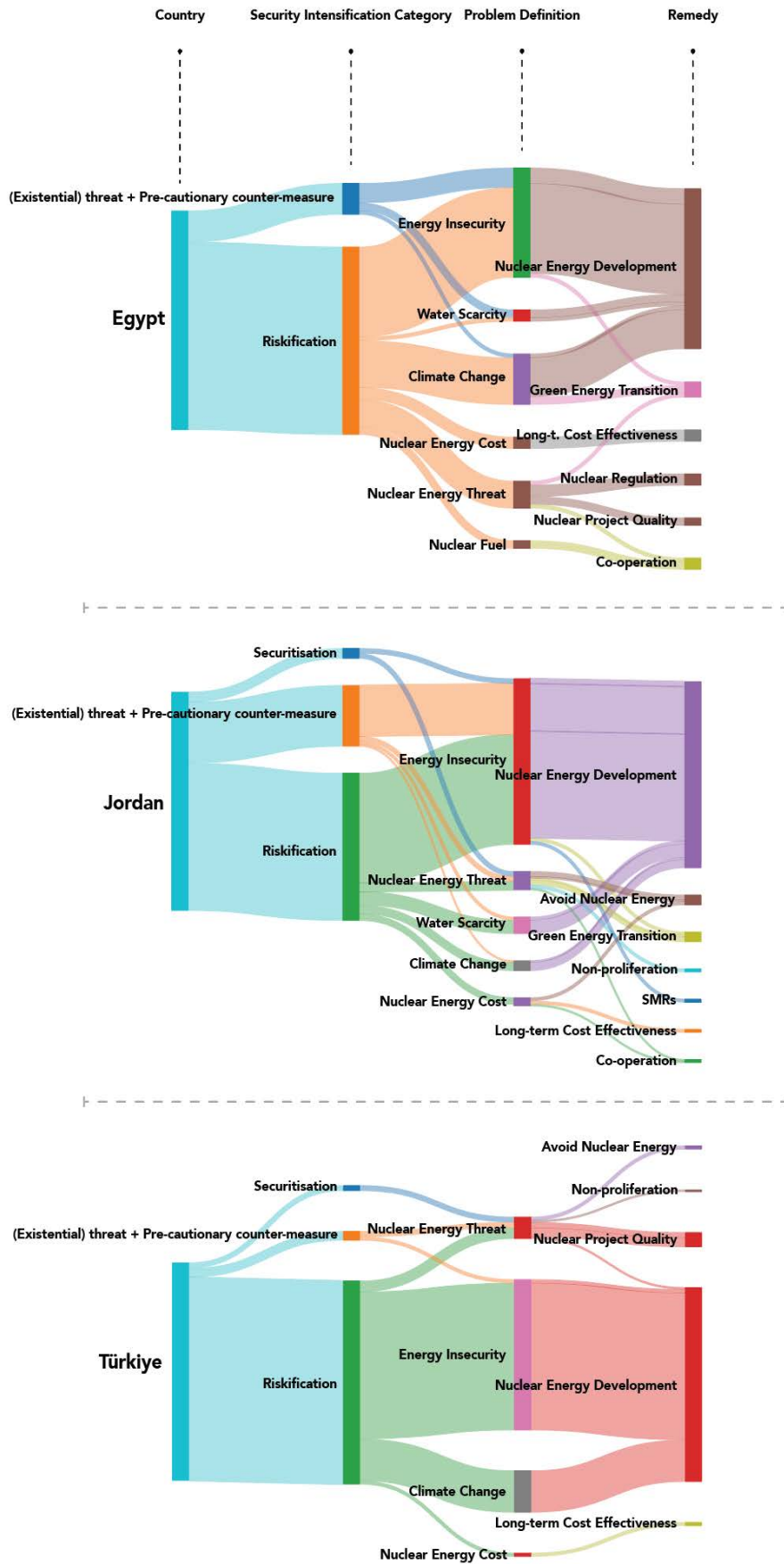


Fig. 13. Sankey Diagram – Nuclear Energy – Individual case study data.

Table 9. Security Intensifications - 'Problem' and 'Remedy' frame combinations – Nuclear Energy - Egypt.

| Security Intensification Category | 'Problem Definition' Frame | 'Remedy' Frame | Quantity of Frame Combination | Percentage of Frame Combination |
|---|-----------------------------------|------------------------------|--------------------------------------|--|
| Securitisation | N/A | N/A | N/A | N/A |
| Security Jargon | Nuclear Energy Threat | N/A | 3 | N/A |
| (Existential) threat + (Pre-cautionary) counter-measure | Energy Insecurity | Nuclear Energy Development | 4 | 7.1% |
| | Water Scarcity | Nuclear Energy Development | 2 | 3.6% |
| | Climate Change | Nuclear Energy Development | 1 | 1.8% |
| | Energy Insecurity | Green Energy Transition | 1 | 1.8% |
| Risk + (Extra-ordinary) counter-measure | N/A | N/A | N/A | N/A |
| Riskification | Energy Insecurity | Nuclear Energy Development | 23 | 41.1% |
| | Climate Change | Nuclear Energy Development | 10 | 17.9% |
| | Nuclear Energy Cost | Long-term Cost Effectiveness | 3 | 5.4% |
| | Nuclear Energy Threat | Nuclear Regulation | 3 | 5.4% |
| | Nuclear Energy Threat | Nuclear Project Quality | 2 | 3.6% |
| | Nuclear Fuel | Co-operation | 2 | 3.6% |
| | Climate Change | Green Energy Transition | 2 | 3.6% |
| | Nuclear Energy Threat | Green Energy Transition | 1 | 1.8% |
| | Nuclear Energy Threat | Co-operation | 1 | 1.8% |
| | Water Scarcity | Nuclear Energy Development | 1 | 1.8% |
| Risk Jargon | Nuclear Energy Threat | N/A | 3 | N/A |
| | Water Scarcity | N/A | 1 | N/A |
| | Nuclear Energy Cost | N/A | 1 | N/A |

skewed towards the 'Nuclear Energy Development' frame, accounting for 73.2% of all frame attributions in the 'remedy' master frame category. The remaining 'remedy' master frames are considerably less significant as the 'Green Energy Transition', 'Long-term Cost Effectiveness', and 'Nuclear Regulation' account for 7.1%, 5.4%, and 5.4%, respectively. The strongest 'problem' – 'remedy' pairing is the 'Energy Insecurity' and 'Nuclear Energy Development' frame combination, which accounts for 27 frame combinations or 48.2% of all frame combinations. An effective example exhibiting the 'Energy Insecurity' and 'Nuclear Energy Development' frame combination in the '(existential) threat + (pre-cautionary) counter-measure' security intensification category is presented below:

Problem: *"Today, power plants are unable to supply sufficient energy to meet Egyptian consumers energy demand, he argues, highlighting the constant blackouts Cairo experienced during the height of summer in August. Next year, the situation will be much worse because the government is failing to curb electricity consumption, even in spite of its increasing cost, adding that in 10 years, Egyptians will suffer."* (Daily News Egypt, 2010, para. 7)

Remedy: *"Thus, he warns, without nuclear energy there will be huge crisis in the future."* (Daily News Egypt, 2010, para. 9)

Another feature of the frame attributions in the 'problem' – 'remedy' master frame combinations in Egypt is the comparatively strong 'Climate Change' and 'Nuclear Energy Development' connection. Precisely, the 'Climate Change' and 'Nuclear Energy Development' master frame combinations accounts for 11 frame combinations, which represents 19.7% of all frame combinations in the sampled news media discourses in Egypt. The following text passage presents an example of the 'problem' – 'remedy' interaction in the 'riskification' security intensification category:

Problem: *"[...] the volume of global carbon dioxide emissions reached nearly 32 billion tons annually and it continues to grow. The source went on explaining that it is expected that the amount of CO₂ emitted will exceed the threshold of 34 billion tons per year by 2030."* (Egypt Today, 2022a, para. 2)

Remedy: *"The source added that the intensive development of nuclear energy is one of the main means to combat global warming."* (Egypt Today, 2022a, para. 2)

The significant presence of the 'Climate Change' 'problem definition' category indicates the growing awareness of environmental sustainability in Egypt that has been exhibited in the 'Country Profiles' and elite perception data. Also, while the main motivation for the 'Green Energy Transition' in Egypt is driven by security of supply-based motivations, the desire to improve the ecological sustainability of the energy system is also driven by environmental awareness (IEA, 2023).

The security intensifications in the sampled news media discourses in Jordan are dominated significantly by the 'riskification' security intensification category, which accounts for 87 out of a total of 129 frame attributions (Fig. 13., Table 10.). This represents 67.4% of all security intensifications in the sample news media discourses. Additionally, the 'problem' master category in the sampled news media discourses in Jordan is much more strongly dominated by the 'Energy Insecurity' master frame category than in Egypt. Precisely, 75.9% of all frame attributions in the 'problem' master frame category are produced by the 'Energy Insecurity' category. This means that the 'Nuclear Energy Threat', 'Water Scarcity', 'Climate Change', and 'Nuclear Energy Cost' master frame categories are comparatively insignificant and account for only 8.5%, 7.7%, 4.6%, and 3.8% of all master frame attributions in the 'remedy' master frame category, respectively. The 'remedy' master frame category in the sampled news media discourses in Jordan is even more skewed towards one master category as the 'Nuclear Energy development' category accounts for 85.3% of all master frame attributions in the 'remedy' category. The 'problem' and 'remedy' frame combinations in the sampled news media discourses in Jordan are dominated strongly by the 'Energy Insecurity' and 'Nuclear Energy Development' master frames, which account for 94 frame combinations or 72.3% of all frame combinations. This is a significant dominance that defines energy security as a strong perceived motivational factor for nuclear energy development in Jordan. Unlike in Egypt, the sampled news media discourses in Jordan have produced 'securitisation' utterances, providing three

Table 10. Security Intensifications - 'Problem' and 'Remedy' frame combinations – Nuclear Energy - Jordan.

| Security Intensification Category | 'Problem Definition' Frame | 'Remedy' Frame | Quantity of Frame Combination | Percentage of Frame Combination |
|---|-----------------------------------|------------------------------|--------------------------------------|--|
| Securitisation | Energy Insecurity | Nuclear Energy Development | 3 | 2.3% |
| | Nuclear Energy Threat | Avoid Nuclear Energy | 3 | 2.3% |
| Security Jargon | N/A | N/A | N/A | N/A |
| (Existential) threat + (Pre-cautionary) counter-measure | Energy Insecurity | Nuclear Energy Development | 28 | 21.5% |
| | Energy Insecurity | Green Energy Transition | 2 | 1.5% |
| | Nuclear Energy Threat | Non-proliferation | 2 | 1.5% |
| | Water Scarcity | Nuclear Energy Development | 2 | 1.5% |
| | Nuclear Energy Threat | Green Energy Transition | 1 | 0.8% |
| | Climate Change | Nuclear Energy Development | 1 | 0.8% |
| Risk + (Extra-ordinary) counter-measure | N/A | N/A | N/A | N/A |
| Riskification | Energy Insecurity | Nuclear Energy Development | 63 | 48.5% |
| | Water Scarcity | Nuclear Energy Development | 8 | 6.2% |
| | Climate Change | Nuclear Energy Development | 5 | 3.8% |
| | Nuclear Energy Threat | Green Energy Transition | 3 | 2.3% |
| | Energy Insecurity | SMRs | 2 | 1.5% |
| | Nuclear Energy Cost | Avoid Nuclear Energy | 2 | 1.5% |
| | Nuclear Energy Cost | Long-term Cost Effectiveness | 1 | 0.8% |
| | Nuclear Energy Cost | Co-operation | 1 | 0.8% |
| | Nuclear Energy Threat | Co-operation | 1 | 0.8% |
| | Nuclear Energy Threat | Avoid Nuclear Energy | 1 | 0.8% |
| Risk Jargon | Nuclear Energy Threat | N/A | 1 | N/A |
| | Nuclear Energy Cost | N/A | 1 | N/A |

'Energy Insecurity' and 'Nuclear Energy Development' master frame combinations. The following excerpt revolves around the 'problem' of soaring energy costs and the 'remedy' proposal of nuclear power development in the 'securitisation' security intensification category:

Problem: *"If Jordan remains fully dependent on oil exports and its derivatives, a moment will come when its oil bill will outstrip the capacity of its budget to pay it off [...]."* (Petra, 2013, para. 2)

Remedy: *“The oil bill had soared to JD4 billion this year, he said, hugely straining a budget of about JD10 billion, a situation that made it incumbent to look for nuclear energy and diversify energy sources.”* (Petra, 2013, para. 3)

A notable trend in the data is the presence of the ‘Water Scarcity’ ‘problem’ master frame category. Overall, there are 10 ‘Water Scarcity’ frame attributions in the sampled news media discourses in Jordan and 10 ‘Water Scarcity’ – ‘Nuclear Energy Development’ frame combinations, which account for 7.7% of all frame combinations in the sampled news media discourses in Jordan. The text extract below presents an example of the ‘Water Scarcity’ and ‘Nuclear Energy Development’ frame combination in the ‘riskification’ security intensification category:

Problem: *“[...] demand for both energy and water is rising due to economic and population growth, and consumption patterns.”* (Petra, 2020, para. 12)

Remedy: *“He said that nuclear power reactors can be considered as a long-term alternative for power generation and water desalination”* (Petra, 2020, para. 13)

The distribution of the ‘problem’ and ‘remedy’ frame attributions across the master frame categories and the security intensification categories in Türkiye is highly focussed and misses the relative variety of the sampled news media discourses in Egypt and Jordan (Fig. 13., Table 11.). Precisely, 93.4% off all frame combinations in the sampled news media discourses in Türkiye are situated in the ‘riskification’ security intensification category. Moreover, the ‘Energy Insecurity’ ‘problem’ master frame category accounts for 69.2% of all master frame attributions in the ‘problem’ master frame category. Interestingly, the ‘remedy’ master frame category is even more skewed and is in fact the most skewed ‘remedy’ category of all three case study

Table 11. Security Intensifications - 'Problem' and 'Remedy' frame combinations – Nuclear Energy - Türkiye.

| Security Intensification Category | 'Problem Definition' Frame | 'Remedy' Frame | Quantity of Frame Combination | Percentage of Frame Combination |
|---|----------------------------|------------------------------|-------------------------------|---------------------------------|
| Securitisation | Nuclear Energy Threat | Avoid Nuclear Energy | 2 | 1.7% |
| | Nuclear Energy Threat | Non-proliferation | 1 | 0.8% |
| Security Jargon | Nuclear Energy Threat | N/A | 2 | N/A |
| (Existential) threat + (Pre-cautionary) counter-measure | Nuclear Energy Threat | Nuclear Project Quality | 3 | 2.5% |
| | Energy Insecurity | Nuclear Energy Development | 2 | 1.7% |
| Risk + (Extra-ordinary) counter-measure | N/A | N/A | N/A | N/A |
| Riskification | Energy Insecurity | Nuclear Energy Development | 81 | 67.5% |
| | Climate Change | Nuclear Energy Development | 23 | 19.2% |
| | Nuclear Energy Threat | Nuclear Project Quality | 5 | 4.2% |
| | Nuclear Energy Cost | Long-term Cost Effectiveness | 2 | 1.7% |
| | Nuclear Energy Threat | Nuclear Energy Development | 1 | 0.8% |
| Risk Jargon | Nuclear Energy Threat | N/A | 1 | N/A |

countries, with 89.2% of all frame attributions linked to the 'Nuclear Energy Development' master frame category. Furthermore, the 'Energy Insecurity' and 'Nuclear Energy Development' frame combination accounts for 69.2% of all frame combinations across all security intensification categories. The following text passage presents an example of the 'problem' – 'remedy' exchange between the 'Energy Insecurity' and 'Nuclear Energy Development' master frames in the 'riskification' security intensification category:

Problem: *"Turkey currently relies heavily on foreign natural gas for its electricity production." (Anadolu Agency, 2015a, para. 7)*

Remedy: *"Efforts will be made to increase the use of Turkey's domestic resources with each [nuclear] plant's construction. Once all the plants are operational, Türkiye's foreign energy demand is expected to significantly decrease." (Anadolu Agency, 2015a, para. 7)*

Interestingly, the second largest share of 'riskification' utterances is produced by the 'Climate Change' and 'Nuclear Energy Development' master frame combination, which accounts for 19.2% of all frame combinations. Importantly, the 'Climate Change' and 'Nuclear Energy Development' master frame combination is the only other frame combination of significant size next to the domineering 'Energy Insecurity' and 'Nuclear Energy Development' frame combination, both frame combinations combined account for 69.2% of all frame combinations in the sampled news media discourses in Türkiye. The following text excerpt outlines the potentially influential function of nuclear power proliferation in supporting climate change policies:

Problem: *"National governments and global leaders are pushing for carbon neutral economies by 2050, principally by reducing greenhouse gas (GHG) emissions and fossil fuel consumption."* (Intellinews - Türkiye This Week, 2021, para. 2)

Remedy: *"The European Parliament believes that nuclear energy can play a role in meeting climate objectives because it does not emit greenhouse gases and can also ensure a significant share of electricity production in Europe"* (Intellinews - Türkiye This Week, 2021, para. 33)

Thus, in sum, despite the country-specific presence of alternative 'problem definition' and 'remedy' categories, the sampled discourses on nuclear energy in all three case study countries are dominated significantly by the 'Energy Insecurity' and 'Nuclear Energy Development' frame combination. This implies that in the sampled news media discourses on nuclear energy in the three case study countries, energy insecurity is presented as an extremely dominant motivating factor of nuclear energy development. The dominance of the energy insecurity 'problem' category indicates the high security significance assigned to energy security in the case study countries'

news media discourses on nuclear energy in comparison to other available motivating factors of nuclear energy development. This also reflects the existential importance associated with security of supply in the case study countries, which is an idiosyncratic energy security feature of resource-deficient countries (Scheepers *et al.*, 2006, 2007; Koike, Mogi and Albedaiwi, 2008; Schubert and Turnovsky, 2011; von Hippel *et al.*, 2011; Chuang and Ma, 2013; Li, Shi and Yao, 2016; Yao, Shi and Andrews-Speed, 2018).

Another noteworthy aspect of the nuclear energy discourses in the sampled news media articles is the almost absolute dominance of the pro-nuclear position. In fact, the sampled news media discourses on nuclear energy in Jordan and Türkiye contained some security intensifications that opposed the national nuclear energy programmes, which was represented by the 'Avoid Nuclear Energy' 'remedy' security intensification category. Overall, however, discourses that voiced an adversarial position towards nuclear energy development are neglectable. The dominance of pro-nuclear discourses is unusual as the available literature has established that news coverage of nuclear energy is predominantly negative and positive attributes of nuclear power are rarely discussed (Friedman, 2011; Perko, Turcanu and Carlé, 2012; Kristiansen, 2017a, 2017b; Bauer *et al.*, 2019; Devitt *et al.*, 2019; Mercado-Sáez, Marco-Crespo and Álvarez-Villa, 2019). This is discussed in more detail in a dedicated sub-chapter in the succeeding 'Discussion' chapter.

Finally, in the sampled news media discourses on nuclear energy in all three case study countries, nuclear energy risks are assigned the samples' highest security intensification categories. This classifies them as the issue with the highest security status, which means that nuclear energy risks are presented as the most intensified security risks and existential security threats in the sampled news media discourses on nuclear energy in the three case study countries. Hence, comparatively, nuclear

energy risks are assigned an even higher security status than energy security in the sampled news media discourses on nuclear energy in the three case study countries.

The comparative dominance of the 'Nuclear Energy Threat' frame in the 'securitisation' and 'security jargon' security intensification categories, which signify the two highest levels of security intensification, aligns with the available literature on the framing of nuclear energy discourses that demonstrates the dominance of frames that emphasise nuclear energy risks (Gamson and Modigliani, 1989; Vossen, 2020).

6.5. Summary.

The preceding 'Data Analysis' chapter has discovered some country-specific variability in the elite perceptions of energy security and nuclear energy between the case study countries. However, the overriding energy security conceptualisation in the case study countries' elite views is security of supply-based. Similarly, the elites understand energy security as the primary nuclear energy motivation in the case study countries.

The chapter has also shown that the energy security and nuclear energy frames are distributed unevenly across the available master and sub-frame categories. Precisely, the energy security and nuclear energy frames indicate country-specific variance, which suggests a case-dependent distribution of frame attributions across the available frame categories.

The 'Data Analysis' chapter has also revealed that the security intensification of energy security is primarily focussed on security of supply-based factors, while the nuclear energy motivation is driven predominantly by energy security concerns.

The next chapter is the 'Discussion' chapter that utilises the data produced in the 'Data Analysis' chapter to engage with interesting and noteworthy themes that have emerged during the analysis process.

7. Discussion.

7.1. Energy security in oil-poor countries in the MENA – A traditional energy supply security-based understanding.

The literature review has revealed a profound context-dependency in energy insecurity challenges that makes energy security definitions highly subject specific. Consequently, to clearly differentiate amongst meanings, and effectively and rationally analyse energy policy and energy policy variations, a high level of conceptual clarity is required (Cherp, 2012; Cherp and Jewell, 2013, 2014).

One approach to achieving conceptual clarity in energy security studies has been inspired by Baldwin's (1997) assertion that *"economic security, environmental security, identity security, social security, and military security are different forms of security, not fundamentally different concepts"* (p. 23). Logically, energy security is also 'just' another security type and conceptualisations of energy security may be informed by concepts and understandings of security in general (von Hippel et al., 2011; Cherp and Jewell, 2014; Leung et al., 2014). Similar to Baldwin (1997), Tanaka (1997, cited in von Hippel et al., 2011) proposes a comparably systematised approach to security conceptualisation and defines three questions: What to protect? What risks to be protected from? How to protect (or prevent)?. This study uses Tanaka's (1997, cited in von Hippel et al., 2011) security questions to define the energy security challenge and nuclear energy motivation in the context of this study.

7.1.1. What to protect? – The national electricity sector and the protective function of nuclear energy.

In the context of nuclear energy proliferation in energy-deficient (or oil-poor) countries, adopter states often seek energy security benefits through indigenous, autonomous power generation (Sovacool and Valentine, 2010; Valentine and Sovacool, 2010; Valentine, Sovacool and Matsuura, 2011; El-Anis, 2012; Jewell and Ates, 2015). Thus, in alignment with the available literature, this study argues that nuclear energy policies in oil-poor countries primarily seek to protect the national electricity sector (Jewell, 2011b; Jewell and Ates, 2015).

The intention to protect the electricity sector is also reflected in the elite perceptions on nuclear energy data that clearly indicate the desire to use nuclear energy to achieve electricity self-sufficiency in Egypt, satisfy growing electricity demand in Jordan, and diversify its electricity generation mix in Türkiye. Furthermore, the domineering proportional volume of the 'Energy Security' master frame category in the sampled news media discourses on nuclear energy across all three case study countries, indicates the presence of discourses that present the safeguarding of the national electricity sector as central motivating factors for nuclear energy development. For instance, the 'achieve energy/electricity supply/mix diversity' sub-frame accounts for 9.2%, 4.2%, and 5.2% of all frame attributions in the sampled news media discourses on nuclear energy, for Egypt, Jordan, and Türkiye, respectively. Similarly, the sub-frame category 'cover increased electricity demand' represents 2.0%, 4.8%, and 8.7% of all frame attributions in the sampled news media discourses on nuclear energy, for Egypt, Jordan, and Türkiye, respectively. Finally, in the sampled news media discourses on nuclear energy, the 'generate cost-effective electricity' sub-frame represents 4.0%, 3.6%, and 2.2% of all frame attributions for Egypt, Jordan, and Türkiye, respectively.

The existential function of electricity in modern societies makes the electricity system a 'vital energy system'; a terminology that emphasises its critical role in the stability and functioning of society and the state (Yergin, 1991). A 'vital energy system' is also defined through its system aspect, which implies that its constituent parts are connected stronger to each other than to outside elements and can replace each other in the case of disruption (Cherp et al., 2012). In this study, 'the vital energy system' is delimited along sectoral and geographic boundaries; precisely, the inquiry focusses on the electricity sector in national energy systems.

7.1.2. What risks to be protected from? – The dominance of security of supply-based risks.

The idiosyncratic energy security risks of oil-poor economies in the MENA are clearly observable in the elite perceptions on energy security data. Precisely, the energy security policies in Egypt, for instance, focus, among other things, on achieving energy independence by diversifying its energy supply and investing significant capital towards exploring and exploiting its indigenous natural gas resources. Jordan is also heavily invested in the pursuit of energy independence, placing particular emphasis on lowering its dependence on hydrocarbon imports by diversifying its energy mix and developing indigenous energy resources, such as oil shale and renewables. Türkiye, however, is predominantly concerned with preserving its energy supply security by diversifying its energy supply mix and hydrocarbon trade routes, while boosting its domestic electricity generation capacities by developing renewable and nuclear energy options.

The influential role of security of supply-linked energy security understandings are also clearly attainable from the distribution of frame attributions across the four deductive master frame categories in the sampled news media discourses on energy security. Precisely, the 'Energy Supply Security' master frame category represents 32%, 47%, and 36% of all frame attributions in the sampled news media discourses on energy security, for Egypt, Jordan, and Türkiye, respectively. This represents an average proportional size of about 38%, which makes 'Energy Supply Security' the largest average master frame category.

More precise information on the prominence of energy supply security-based energy security policy aims is available in the data on sub-frame distributions in the sampled news media discourses on energy security in all three case study countries. The sub-

frame 'energy diversification', for example, accounts for 4.6%, 4.4%, and 5.6% of all frame attributions in the sampled news media discourses on energy security for Egypt, Jordan, and Türkiye, respectively. The diversification of the energy supply is a common policy choice that signifies a typical security of supply strategy (Stirling, 2008; Kruyt et al., 2009). The implementation of 'energy diversification' strategies is discussed in the following text passage from Türkiye's Anadolu Agency:

"Turkey consumes an annual average of 50 billion cubic meters of natural gas and procures 99% of this amount from abroad. Not depending on one resource, it puts forward strategies prioritising diversifying source countries with new pipelines such as TANAP as well as routes." (Anadolu Agency, 2020a)

Importantly, the author decided intentionally to present the aggregated distribution of security intensifications across the 'problem definition' and 'remedy' categories to convey the dominance of the 'Energy (In)security' 'problem definition' categories in the sampled news media discourses on both energy security and nuclear energy. Precisely, the analysis clearly indicates that in the sampled news media discourses on energy security and nuclear energy, a large majority of security intensifications identified traditional security of supply-based energy security risks as the most dominant problems underlying 'remedy' initiatives associated with energy security policy-making and the development of nuclear energy. However, by aggregating the 'Energy Insecurity' 'problem definition' category as well as other 'problem definition' and 'remedy' security intensification categories, the specific meaning of the security intensifications disappears. In other words, while the significant dominance of the 'Energy Security' categories was revealed, the explanatory utility of the 'problem definition' and 'remedy' categories was lost. To mitigate this limitation, this study has conducted a dis-aggregated security intensification analysis that presents dis-aggregated 'problem definition' and 'remedy' security intensifications.

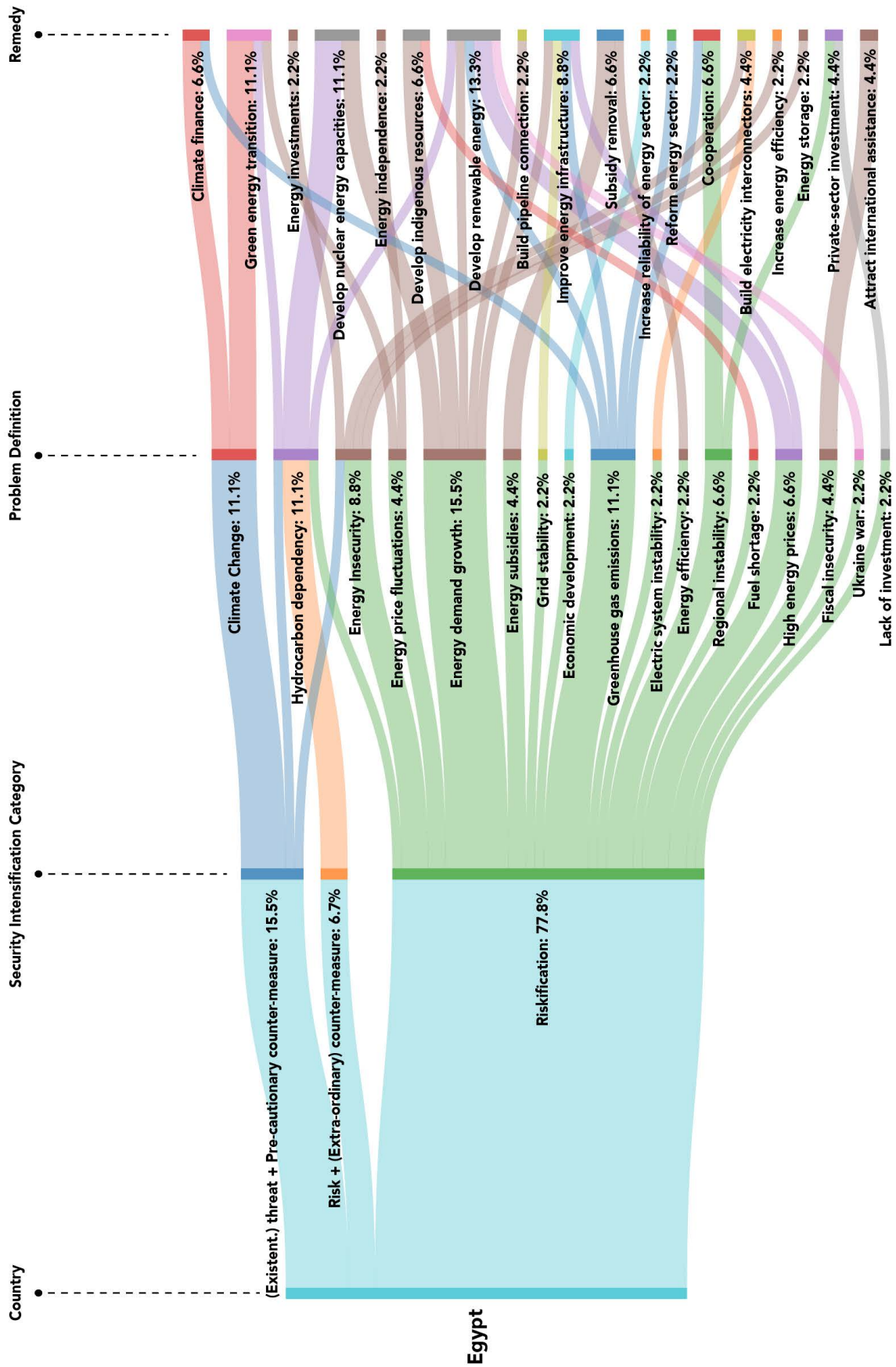


Fig. 14. Sankey Diagram – Egypt – Energy Security – Disaggregated.

To begin, the dis-aggregated security intensification analysis in Egypt reveals that 15.5% of all security intensifications in the sampled news media discourses on energy security identify 'energy demand growth' as the most dominant 'problem definition' category (Fig. 14.). Moreover, the second largest 'problem definition' category in the sampled news media discourses in Egypt is the 'hydrocarbon dependency' category, which accounts for 11.1% of all security intensifications. Next, the 'energy insecurity' and 'high energy prices' 'problem definition' categories represent 8.8% and 6.6% of all security intensifications in the sampled news media discourses in Egypt.

Interestingly, in Jordan, the 'problem definition' security intensification category is dominated by the 'energy import dependence' category that represents 30.4% of all security intensifications in the sampled news media discourses on energy security in Jordan (Fig. 15.). Thus, in the security intensification data in the sampled news media discourses in Jordan, energy import dependence is presented as the most prevalent energy security threat. The second, third, and fourth-largest 'problem definition' security intensification categories are the 'high energy costs', 'energy supply disruption', and 'energy demand growth' 'problem definition' categories, which account for 13.3%, 9.8%, and 8.9% of all security intensifications in the sampled news media discourses in Jordan, respectively. The presence of these 'problem definition' security intensification categories indicates the prevailing dominance of security of supply-based energy security risks in the sampled news media discourses in Jordan. The following text excerpt presents an instance of 'securitisation' that intensifies the security status of energy import dependence in Jordan through an existential threat declaration:

"Officials say the deal aims to help achieve energy independence in Jordan, which imports around 97 per cent of its energy needs at a cost of over one-fifth of the gross domestic product, and bring stability to a sector that has been

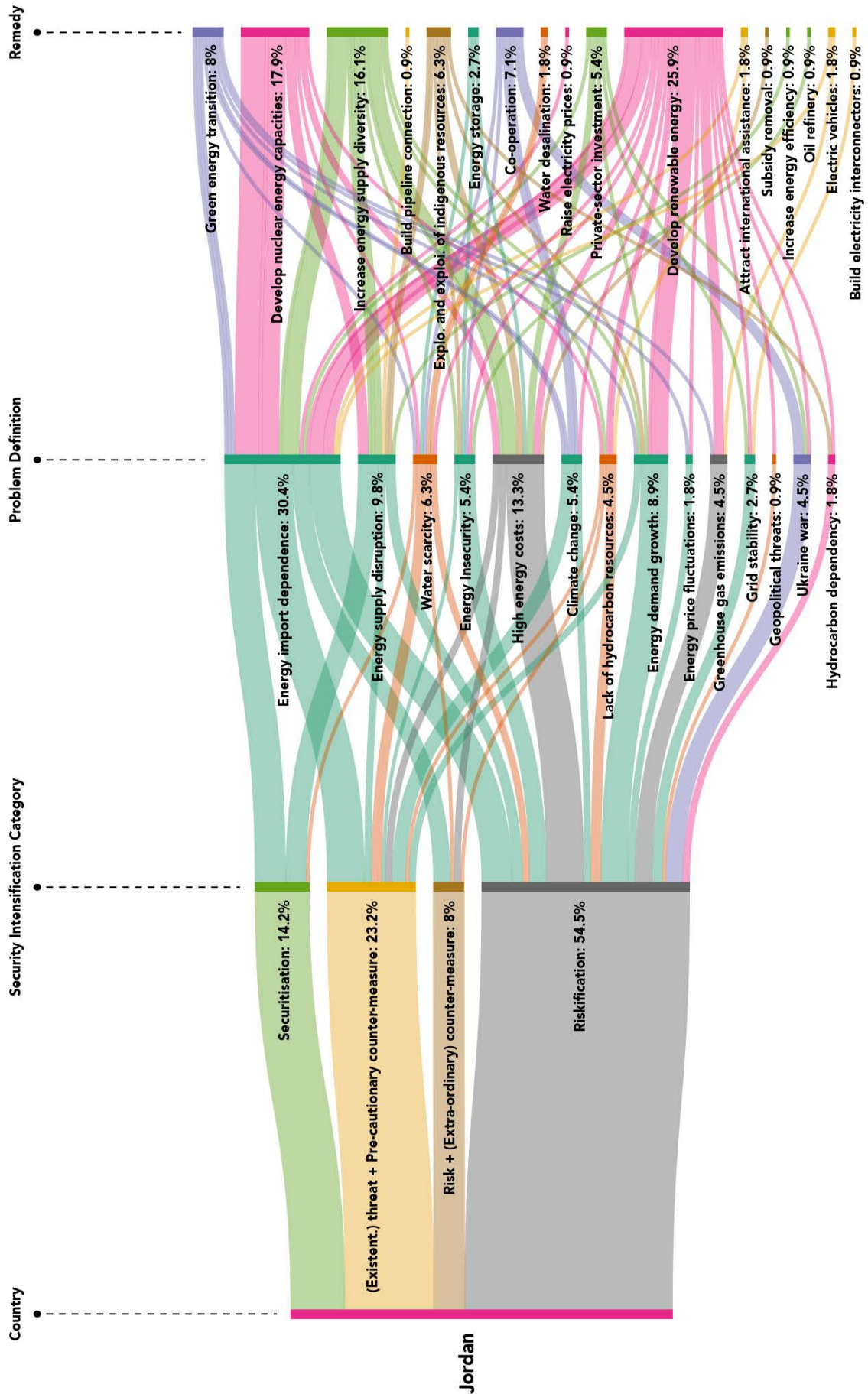


Fig. 15. Sankey Diagram – Jordan – Energy Security – Disaggregated.

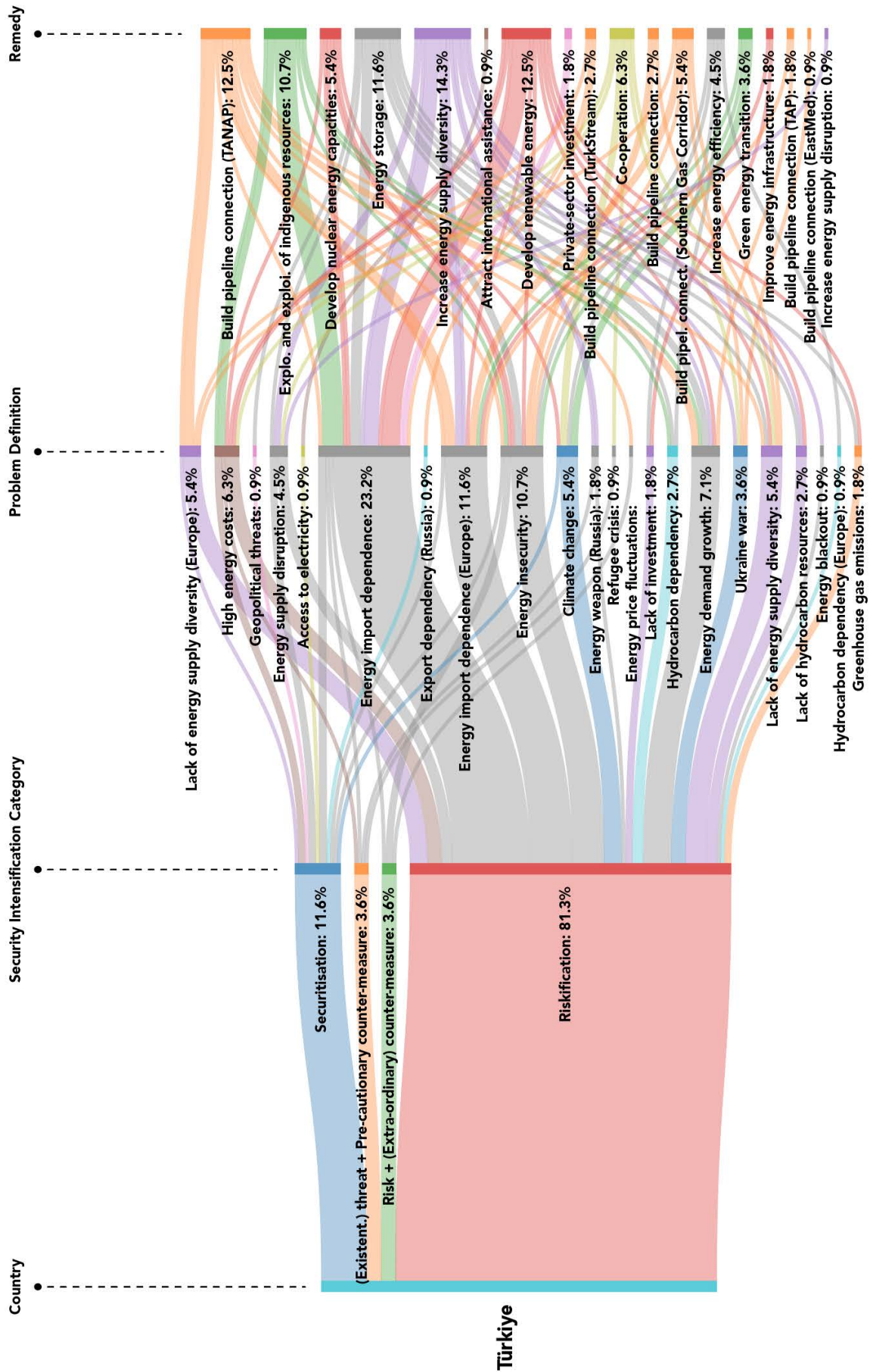


Fig. 16. Sankey Diagram – Türkiye – Energy Security – Disaggregated.

impacted by ongoing disruptions in Egyptian gas supplies and fluctuations in international oil prices.” (The Jordan Times, 2013, para. 12)

The distribution of security intensifications in the sampled news media discourses in Türkiye also identifies the ‘energy import dependence’ ‘problem definition’ category as the most expansive security intensification category, which accounts for 23.2% of all security intensifications in the sampled news media discourses on energy security (Fig. 16.). The third and fourth-largest ‘problem definition’ categories in the sampled news media discourses on energy security in Türkiye are the ‘energy insecurity’ and ‘energy demand growth’ categories that represent 10.7% and 7.1% of all security intensifications in Türkiye.

This study has also produced a dis-aggregated security intensification analysis of the sampled news media discourses on nuclear energy, which more precisely defines the ‘problem definition’ that informs, among other things, the pursuit of nuclear power proliferation. In the sampled discourses on nuclear energy in Egypt, for example, the ‘electricity demand growth’, ‘hydrocarbon dependency’, and ‘insufficient energy’ ‘problem definition’ categories represent the third, fourth, and fifth-largest security intensification categories, which account for 13.2%, 9.4%, and 9.4% of all security intensifications (Fig. 17.). The prevalence of security of supply-based ‘problem definition’ factors is even more profound in the sampled news media discourses in Jordan, where the ‘energy import dependence’ category accounts for 32.2% of all security intensifications in the ‘problem definition’ category (Fig. 18.). The second and fourth-largest ‘problem definition’ categories are the ‘high energy costs’ and ‘electricity demand growth’ categories that account for 17.3% and 7.1% of all security intensifications in the sampled news media discourses in Jordan. Similarly, security intensifications in Türkiye are also predominantly concentrated in ‘problem definition’ categories associated with security of supply-based energy security risks (Fig. 19.).

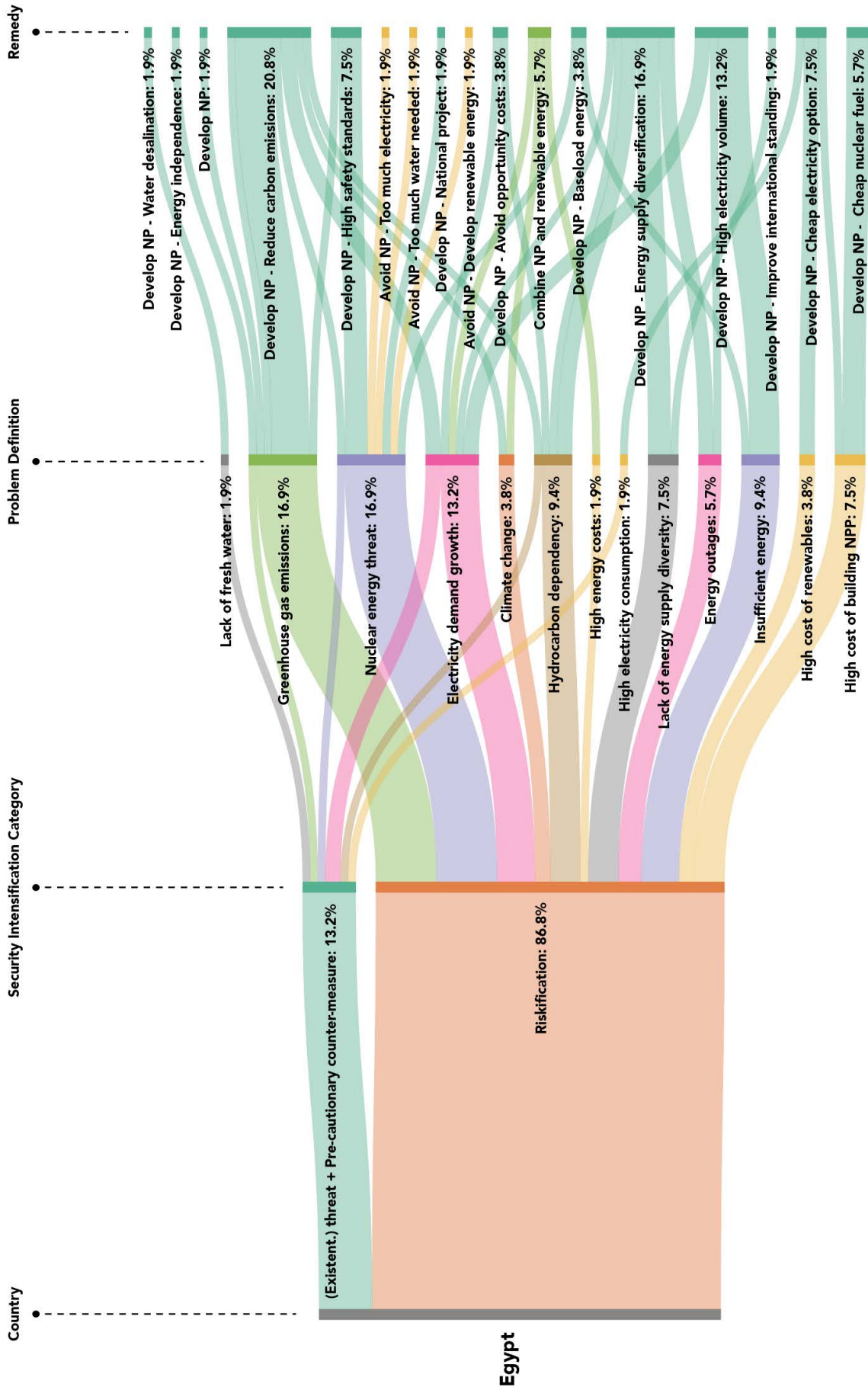


Fig. 17. Sankey Diagram – Egypt – Nuclear Energy – Disaggregated.

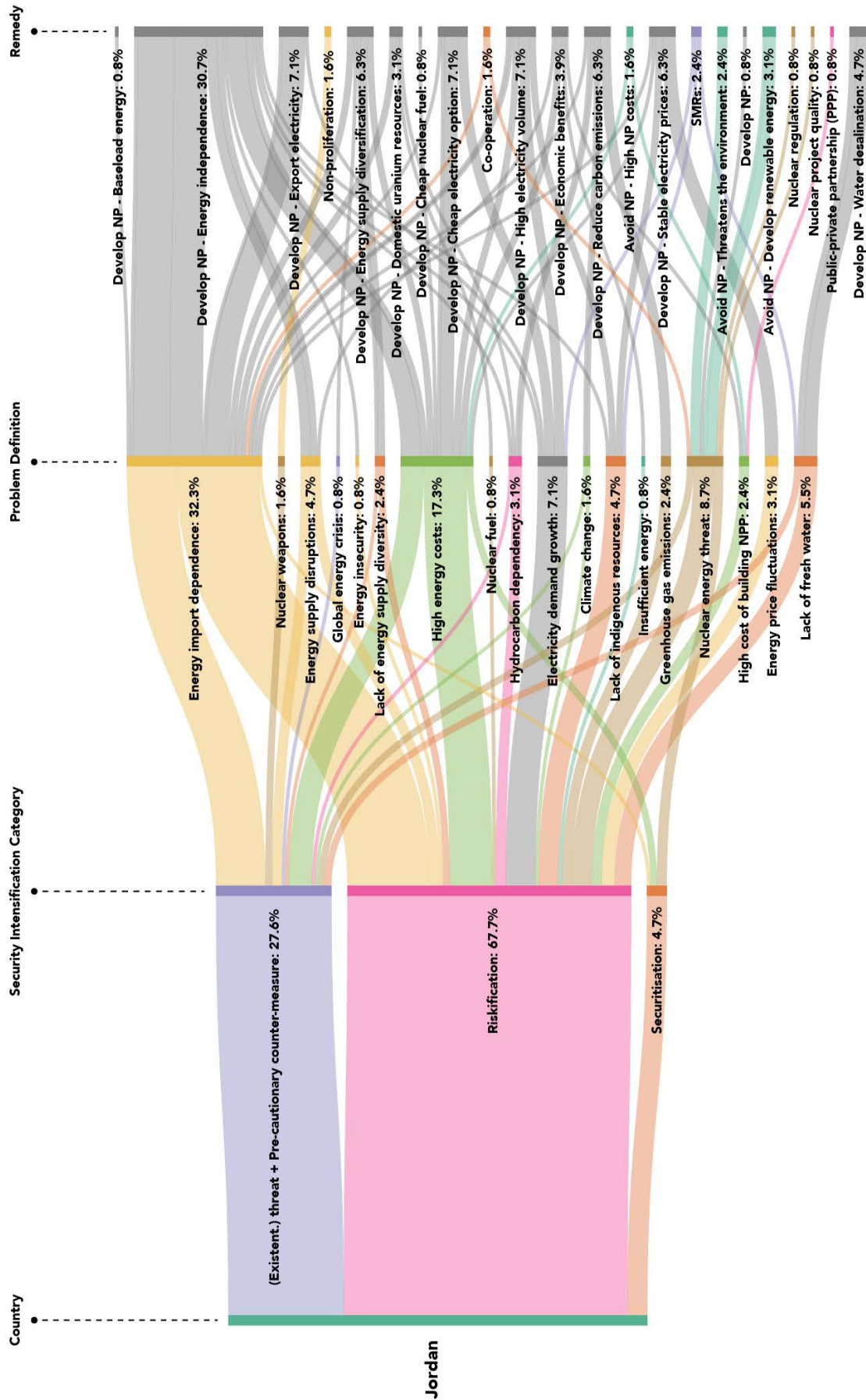


Fig. 18. Sankey Diagram – Jordan – Nuclear Energy – Disaggregated.

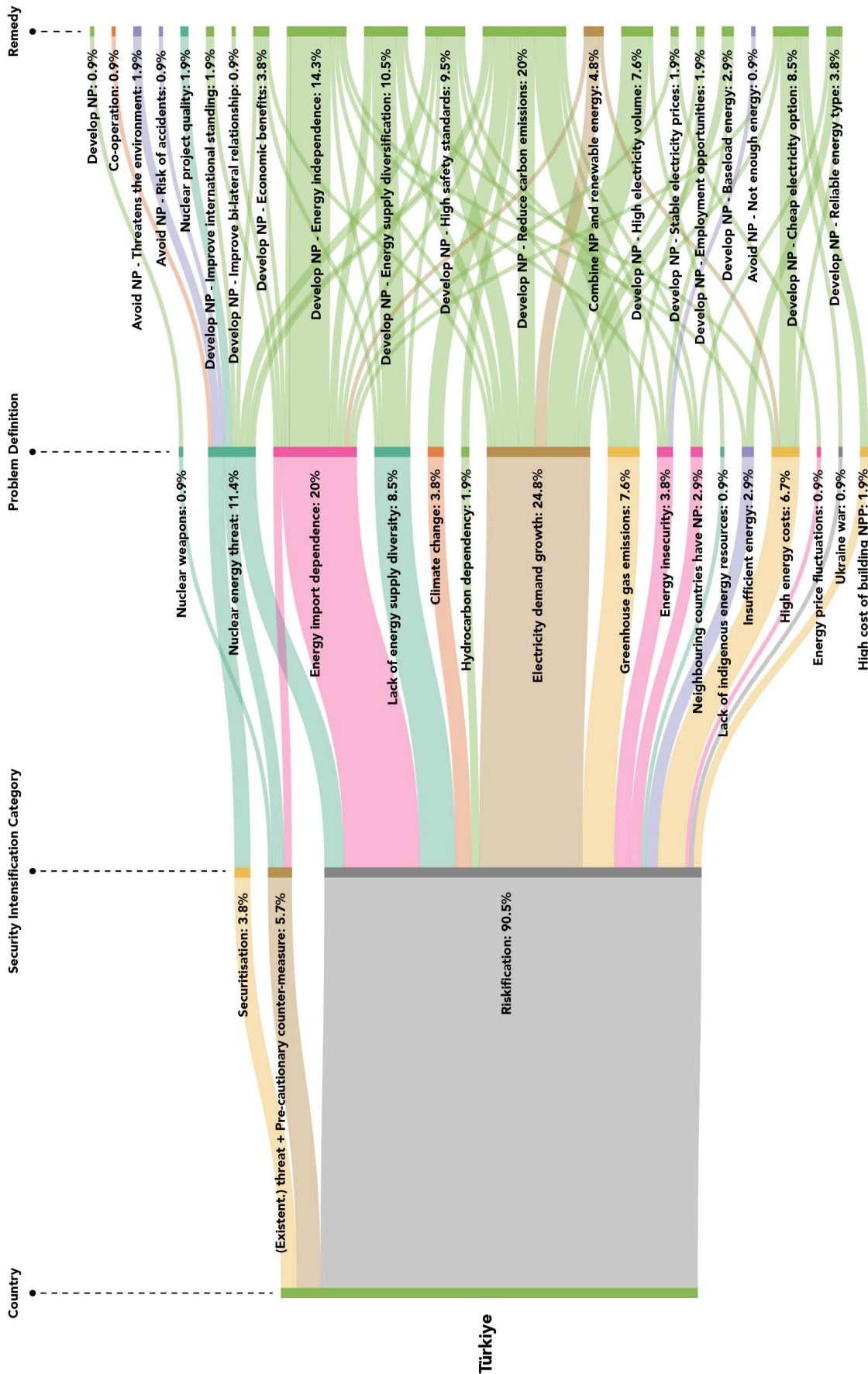


Fig. 19. Sankey Diagram – Türkiye – Nuclear Energy – Disaggregated.

Specifically, the 'electricity demand growth', 'energy import dependence', and 'lack of energy supply diversity' 'problem definition' security intensification categories account for 24.8%, 20%, and 8.5% of all security intensifications in the sampled news media discourses on nuclear energy in Türkiye.

In sum, the disaggregated security intensification analysis reaffirms the observable trend in the sampled news media discourses on energy security and nuclear energy to understand and present energy security primarily as a function of traditional security of supply-based factors. Precisely, the intensity of security references is raised primarily (and almost exclusively in some instances) in discourses on traditional security of supply-based energy security risks. Overall, then, in the case study countries and according to the data presented above, the severe overdependence on fossil fuels, in conjunction with a lack of indigenous fossil-fuel-resources, results in a significant energy import dependence that indicates a high exposure to risks.

7.1.3. How to protect (or prevent)? – Nuclear energy as a safeguard option for the national electricity system.

In the MENA, the pursuit of nuclear energy development is often understood as a direct response to energy security risks (Jewell, 2011b, 2011a). Precisely, the case study countries aim to exchange dependence on imported hydrocarbons with (improved) independence through indigenous power generation. In other words, the response to the 'how to protect' question is often nuclear energy development.

The data on elite perceptions of energy security, for instance, reveals that nuclear energy development is often expected to improve the energy security situation in the case study countries. In Egypt, for example, the policy document Sustainable Development Strategy: Egypt's Vision 2030 explains that the integration of nuclear-powered electricity generation is expected to diversify the electricity-generation mix and produce high volumes of baseload electricity to satisfy growing demand. Similarly, in Jordan and according to the Sustainable Energy Mix and Policy Framework for Jordan report, nuclear energy is expected to raise the level of energy independence, increase the supply-mix diversity, and lower overall energy import dependence. Furthermore, according to the Strategic Energy Plan 2015-2019, nuclear energy development in Türkiye is driven partly by the desire to lessen the susceptibility to security of supply-based energy insecurities, such as energy supply disruptions, energy demand growth, and energy price fluctuations.

Another source of useful data on the role of nuclear power in energy security strategies is provided by the aggregated and disaggregated data on security intensifications in the sampled news media discourses on energy security and nuclear energy in the case study countries. In the aggregated security intensification data across all three case study countries, the 'Nuclear Energy Development' 'remedy'

category is extremely dominant, accounting for 84.6% of all security intensifications in the sampled news media discourses on nuclear energy. Importantly, as demonstrated above, in the sampled news media discourses on nuclear energy across all three case study countries, 'Energy Insecurity' is presented as the most dominant 'problem definition' category, which accounts for 68.3% of all security intensifications. Consequently, in over 84% of all instances of security intensification in the sampled news media discourses on nuclear energy, nuclear energy development is presented as the most appropriate 'remedy' against (primarily) energy insecurity. This is a noteworthy trend that signals the presence of a strong association between energy insecurity and nuclear power proliferation in the sampled news media discourses on nuclear energy across all three case study countries.

The perceived value of nuclear power technologies in energy security strategies is also reflected in the dis-aggregated data on security intensifications in the sampled news media discourses on energy security. To begin, in Egypt, the 'develop nuclear energy capacities' 'remedy' security intensifications category accounts for 11.2% of all security intensifications in the sampled news media discourses on energy security. Crucially, the association between energy security and nuclear power development is even more profound when considering that all instances of the 'develop nuclear energy capacities' 'remedy' security intensification category are connected to either the 'hydrocarbon dependency' or 'energy demand growth' 'problem' definition' categories. Precisely, 60% of the security intensifications in the 'hydrocarbon dependency' 'problem definition' category and 28.6% of all frame attributions in the 'energy demand growth' 'problem definition' are connected to the 'develop nuclear energy capacities' 'remedy' security intensification category. Furthermore, in the sampled news media discourses on energy security in Egypt, the 'hydrocarbon dependency' 'problem definition' category and the 'develop nuclear energy capacities' 'remedy' security intensification category account for 60% and 40% of the

security intensifications in the 'develop nuclear energy capacities' 'remedy' category, respectively. Thus, in the sampled news media discourses on energy security in Egypt, nuclear energy development is presented exclusively as a remedy to security of supply-based energy security problems.

The 'remedy' function of nuclear energy development is even more significant in the sampled news media discourses on energy security in Jordan. Precisely, with 17.9%, the 'develop nuclear energy capacities' 'remedy' security intensification category represents the second-largest 'remedy' category in the sampled news media discourses on energy security in Jordan. Here, the 'develop nuclear energy capacities' 'remedy' security intensification category is connected most extensively to the 'energy import dependence', 'energy supply disruption, and 'high energy costs' 'problem definition' categories. Specifically, 38.2% of all security intensifications in the 'energy import dependence' 'problem definition' category, 27.2% of all security intensifications in the 'energy supply disruption' 'problem definition' category, and 14.3% of all security intensifications in the 'high energy costs' 'problem definition' category are connected to the 'develop nuclear energy capacities' 'remedy' security intensification category. This suggests that in the sampled news media discourses on energy security in Jordan, security of supply-based energy security risks are presented as the most dominant motivating factors for nuclear energy development. Moreover, overall, 95% of the 'develop nuclear energy capacities' security intensification 'remedy' category is connected to security of supply-based 'problem definition' categories. This implies that in the sampled news media discourses on energy security in Jordan, nuclear energy development is presented as an effective response to security of supply-based energy security threats.

In the sampled news media discourses on energy security in Türkiye, the 'develop nuclear energy capacities' category accounts for 5.4% of all security intensifications in

the 'remedy' category. While this signifies a considerably smaller proportional value than in Egypt or Jordan, it still implies that nuclear power is presented as a potential remedy for energy security challenges. Overall, 83.3% of the 'develop nuclear energy capacities' 'remedy' security intensification category is connected to security of supply-based energy security 'problem definition' categories, with the 'high energy costs', 'energy insecurity', and 'energy import dependence' 'problem definition' categories accounting for 16.7%, 33.3%, and 33.3% of all security intensifications, respectively. This implies, again, that the connection between nuclear energy development and security of supply-based energy security risks is presented as significant. Also, nuclear energy development is presented as an effective solution and response to security of supply-based energy security challenges.

The direct and significant association between energy security and nuclear energy development is also observable in the dis-aggregated 'remedy' security intensification category data in the sampled news media discourses on nuclear energy. Precisely, the data reveals that in the sampled news media discourses on nuclear energy in all three case study countries, security of supply-based energy security threats are the main motivational factors driving nuclear energy development. Hence, nuclear energy development is presented as the key energy policy initiative to protect the vital energy system (i.e., electricity system) from security of supply-based energy security risks.

In the dis-aggregated 'remedy' security intensification data in the sampled news media discourses on nuclear energy in Egypt, for instance, security of supply-based energy security threats are presented as significant motivational factors for the 'develop NP' 'remedy' prescription. Precisely, the 'remedy' strategy to improve energy supply diversification through nuclear power development, for instance, accounts for 16.9% of all security intensifications in the sampled news media

discourses on nuclear energy in Egypt (Fig. 17.). The association between nuclear energy development and security of supply-based energy security risks is even more profound in the 'remedy' category in the sampled news media discourses in nuclear energy in Jordan. Specifically, 'energy independence', 'energy supply diversification', and 'stable electricity prices' are presented as key motivational factors driving nuclear energy development and account for 30.7%, 6.3%, and 6.3% of all security intensifications in the sampled news media discourses on nuclear energy in Jordan (Fig. 18.). The high proportional value of the 'energy independence' category is of particular importance. This implies that nuclear energy development is presented as a central energy policy strategy to improve energy independence. An equally determinative situation can be observed in the 'remedy' security intensification category in the sampled news media discourses in Türkiye (Fig. 19.). Precisely, 'energy independence', 'energy supply diversification', and 'high electricity volume' are presented as significant motivating factors driving nuclear energy development and account for 14.3%, 10.5%, and 7.6% of all security intensifications in the 'remedy' security intensification category. Thus, nuclear energy development is presented as a primary policy option to mitigate security of supply-based energy security risks.

7.1.4. Conclusion – Security of supply-based energy security understandings as the principal motivating factors for nuclear energy development in Egypt, Jordan, and Türkiye.

The preceding sub-chapter has revealed several trends across data produced by four research methodologies. Precisely, the 'Country Profiles' data, the data on elite perceptions of energy security and nuclear energy, the data on energy security and nuclear energy frames, as well as the data on energy security and nuclear energy security intensifications have shown that the elite understandings, the public discourses, and the security intensifications of public discourses align, at least partly, in several notable issues.

Firstly, the analysis of the available data has shown that in the case study countries, the pursuit of nuclear energy development is primarily expected to safeguard the national electricity system. Interestingly, the importance of electricity to the case study countries mirrors wider trends in developing economies and is consistent with the case study countries' exponential population growth and urbanisation movements, as well as expedited electrification and digitalisation drives outlined in the 'Country Profiles' chapter (Kuik, Lima and Gupta, 2011; IEA, 2019c). Unsurprisingly, thus, the energy security discourse has increasingly shifted its focus to electricity security, as electricity accounts for a higher share of total energy consumption (IEA, 2019). The vulnerability of the electricity system is a topic of concern for the case study countries that have all experienced electricity blackouts in the past (Kingsley, 2014; BBC, 2015; The Jordan Times, 2021b).

Secondly, according to the data on elite perceptions of energy security and nuclear energy, traditional security of supply-based energy security threats are the main energy security risks experienced by the case study countries. Moreover, the public

discourses in the sampled news media articles did also indicate the presence of energy security frames that favoured a security of supply-based conceptualisation. Furthermore, and perhaps most revealing, the security intensifications in the sampled news media discourses on energy security and nuclear energy clearly identified security of supply-based energy security challenges as the dominant energy security risks and nuclear energy development drivers. Thus, elite energy security and nuclear energy discourses (that represent public policy-making) and the dominant news media discourses on energy security and nuclear energy align. This suggests that the dominant discourses in the official and public domain are identical, which indicates congruence between the dominant national discourses on energy security and nuclear energy in the case study countries. This illustrates the pervasiveness of the security of supply-based energy security conceptualisation that extends beyond official, elite discourses and has coalesced with the news media discourses, which indirectly reflect public opinions. The alignment between elite and news media discourses also indicates a unified, national position on energy security, which raises the perceived importance of security of supply. This also marks security of supply as the most influential energy security factor in the country as the opinions of the elites and the news media align and agree that energy security in the case study countries is primarily a factor of security of supply. Importantly, it also reflects the mutually constitutive interplay between public policy (and the official, elite position) and the news media.

It is perhaps helpful to define security of supply-based energy security at this point. To understand the energy security situation in the case study countries it is beneficial to draw from the literature on energy security in developing countries. Energy insecurities in developing countries are primarily associated with the exponential growth of energy demand and an overreliance on energy imports (Chuang and Ma, 2013). Notably, these two energy security factors are observable in all three case study countries. Specifically, the lack of significant oil resources (and natural gas in the case

of Jordan and Türkiye), coupled with exponentially rising energy demand, force the case study countries to import hydrocarbons, which imposes on them energy insecurities linked with the energy import dependence, such as energy supply disruptions, energy price fluctuations, and a lack of energy supply diversity. Additional examples of security of supply-based energy security 'problems' attained from the security intensification data in the sampled news media discourses on energy security in Jordan include 'energy import dependency', 'energy supply disruptions', 'high energy costs', 'lack of hydrocarbon resources', 'energy demand growth', 'energy price fluctuations', and 'hydrocarbon dependency', which together account for 70.5% of all frame attributions. Similarly, security of supply-based 'remedy' security intensifications in the sampled news media discourses on energy security in Jordan include 'green energy transition', 'develop nuclear energy capacities', 'increase energy supply diversity', 'explore and exploit indigenous resources', 'energy storage', and 'develop renewable energy', which represents 76.9% of all frame attributions. Importantly, especially the dis-aggregated security intensification data has revealed the centrality and diversity of security-of supply-based energy security problems and remedies.

Overall, security of supply-based energy security policies are exclusively focussed on providing sufficient energy at an affordable price. This implies, however, that alternative energy security factors, such as acceptability or environmental stewardship (Benjamin K Sovacool and Brown, 2010; Chester, 2010), are perceived to be of less importance. Security of supply-based energy conceptualisations are, therefore, one-dimensional and comparatively narrow and are conceptually removed from multidimensional energy security understandings that include numerous additional energy security factors (Benjamin K Sovacool and Brown, 2010; Chester, 2010; Vivoda, 2010; Sovacool and Mukherjee, 2011; von Hippel *et al.*, 2011; Azzuni and Breyer, 2018). Also, alternative energy security conceptualisations are available; for instance, states may adopt a market-based or economic energy security concept that hedges against

price volatility or refines market efficiency (McCarthy, Ogden and Sperling, 2007; Jun, Kim and Chang, 2009; Jansen and Seebregts, 2010; Chalvatzis and Ioannidis, 2017b). Importantly, while some aspects of security of supply-based energy security policies are present in virtually any countries' energy security strategy, the sole focus on security of supply is unusual. For example, even the European Union, a resource-poor, highly import dependent group of countries, has three core energy security goals: efficiency, security of energy supply and sustainability (European Commission, 2000, 2001, 2016, 2017, 2018; Scheepers et al., 2006, 2007; Faure, Stanković and Jakšić, 2016).

The dominance of security of supply-based energy security factors in the case study countries also aligns with the available literature on energy security in resource-deficient countries (Scheepers et al., 2006, 2007; Koike, Mogi and Albedaiwi, 2008; Schubert and Turnovsky, 2011; von Hippel et al., 2011; Chuang and Ma, 2013; Li, Shi and Yao, 2016; Yao, Shi and Andrews-Speed, 2018). For instance, this study's research outcomes clearly mirror the results of research conducted by Yao, Shi and Andrews-Speed (2018), who show that *"security of supply is the top measure for resource-deficient economies to improve their energy security"* (Yao, Shi and Andrews-Speed, 2018, para. 394). The security of supply-based energy security strategies in the case study countries are also exemplary of comparable security of supply-based energy policy initiatives in other oil-poor economies, such as the EU (Scheepers et al., 2006), Japan (Koike, Mogi and Albedaiwi, 2008), Taiwan (Chuang and Ma, 2013), or Vietnam (Do and Sharma, 2011). The 'Country Profiles' and the elite perceptions of energy security data have also shown that the energy policies in the case study countries are directly shaped by the countries' lack of significant resource endowment. Therefore, the research conducted in this study, exemplifies the formative function of resource-deficiency in shaping national energy policies and the subsequent prominence of security of supply-based energy policies in resource-deficient economies.

This study's analysis also confirms the applicability and appropriateness of Winzer's (2012) energy security definition in the context of this study. Precisely, this study hypothesised in the literature review that Winzer's (2012) energy security definition is the most effective theorisation of the energy security challenge in energy-deficient or oil-poor countries. The main reason for this assumption is the prominence of the security of supply-based energy insecurity factor in Winzer's (2012) theorisation and its conceptual alignment with the dominance of security of supply-based energy insecurity risks in resource-deficient economies. Winzer (2012) proposes to narrow down the concept of energy security to 'energy supply security' and understands energy security as *"the continuity of energy supplies relative to demand"* (p. 36). Hence, the domineering presence of security of supply-based energy security conceptualisations in the case study countries, and the direct influence of resource-deficiency on national energy security policy-making in the case study countries, confirm the appropriateness of Winzer's (2012) energy security definition in the context of this study.

The domineering role of security of supply-focussed energy security policies and perceptions in the case study countries also demonstrate the presence of a 'national energy security' understanding that identifies resource availability as the most pressing policy concern (von Hippel et al., 2011). Specifically, in the case study countries, the lack of indigenous resource endowment elevates the issue of resource availability to a matter of national importance, which is reflected in the prominence of security intensifications linked with security of supply-based energy security factors. Importantly, this also means that energy security is understood as a realist concept that accentuates security of supply as the most pressing 'national energy security' requirement (Yergin, 1991). Here, the experience of the case study countries aligns with the 'access-based' energy security perspective, outlined in the theory chapter,

which has its roots in structural realism and accentuates the existential function of resource accessibility (Klare, 2009).

The third insight demonstrated in this sub-chapter is the portrayal and understanding of nuclear energy development as a key energy security policy. Firstly, the desire to integrate nuclear energy capacities in the case study countries is motivated primarily by security of supply-focused energy security challenges. In the aggregated security intensification data, for instance, the strong connection between security of supply-based energy insecurity and the policy prescription to develop nuclear energy capacities is immediately apparent. Specifically, nuclear energy development is perceived as an antidote to security of supply-based energy security risks, such as energy supply disruptions, energy import dependence, a lack of energy-mix diversity, or energy price fluctuations. Secondly, nuclear energy is not only perceived as a viable technology option to try and mitigate energy security risks but is at times portrayed as the most effective policy strategy. Precisely, security intensifications in the sampled news media discourses on energy security in all three case study countries, for example, identify nuclear energy as a potential and achievable, alternative energy choice. Security intensifications in the sampled news media discourses on nuclear energy, however, display a strong inclination to portray nuclear energy as the most effective technology option to alleviate resource-deficiency-linked energy security threats.

It is important to note that it is unusual that nuclear energy development is almost exclusively driven by energy security concerns. Generally, nuclear energy development is expected to be motivated by several concurrent issues. Davis (2022), for example, demonstrates that nuclear energy development in newcomer countries is exclusively motivated by a combination of individual drivers that include climate change, energy security, foreign relationships, electricity exports, international

influence, and national prestige. Similarly, Jewell and Ates (2015) name several motivating factors of nuclear energy development, such as nuclear weapons, energy security (especially import dependence and electricity diversity), electricity demand growth to support economic growth, climate concerns, desires to export indigenous nuclear technology, and national prestige. Particularly relevant to this study, Jewell (2011a) analyses the motivations for nuclear energy development in five North African countries (Algeria, Egypt, Libya, Morocco, and Tunisia) and identifies energy demand, energy security, and energy for desalination as the core motivating factors. Consequently, this study's research results diverge from the available literature and don't align with the prevailing consensus on the drivers of nuclear energy development in newcomer countries. Instead, the singular motivating factor of energy security is highly unusual and exemplifies the high security relevance assigned to energy security in the case study countries. Overall, this suggests that in the case study countries a viable response to the question 'how to protect the vital energy system' is nuclear energy development.

7.2. Nuclear energy in Egypt, Jordan, and Türkiye – The dominance of the pro-nuclear position in the sampled news media discourses on nuclear energy.

Another important issue uncovered during the analysis of the news media discourses on nuclear energy is the strong pro-nuclear orientation present in all three case study countries. Precisely, especially in the aggregated security intensification data obtained from the sampled news media discourses on nuclear energy, the high proportional volume of news articles supporting nuclear energy development is noteworthy and significant. The pro-nuclear 'nuclear energy development' 'remedy' category is distinguished by its overwhelming dominance, as it accounts for 84.5% of all security intensifications in the sampled news media discourses on nuclear energy across all three case study countries. Conversely, news media discourses that disapprove of national nuclear energy ambitions are comparatively insignificant. In fact, they are practically absent as the anti-nuclear 'avoid nuclear energy' 'remedy' category represents a mere 2.6% of all security intensifications in the sampled news media discourses on nuclear energy in the case study countries.

Importantly, earlier available research does not reflect the significant dominance of pro-nuclear discourses indicated in this study's findings. Gamson and Modigliani (1989), for instance, analysed the discourse on nuclear energy across four distinct U.S. news medium groups and found a strong presence of anti-nuclear sentiment. They established the proportional dominance of the anti-nuclear, 'runaway' master frame, which covers discourses that claim that "*officials in charge of nuclear energy may think they have it under control but they really do not*" (Gamson and Modigliani, 1989, p. 24). Their study also found the presence of an additional type of anti-nuclear discourse that was allocated to the 'public accountability' master frame category, which asserts that "*[t]he nuclear industry has used its political and economic power to undermine*

the serious exploration of energy alternatives. Public officials, who are supposed to monitor the activities of the industry, are all too often captives of it. They function more to protect the industry than to protect the public.” (Gamson and Modigliani, 1989, p. 16).

Vossen (2020) decided to re-use many of Gamson and Modigliani's (1989) original master frames to test their persistent relevance to the study of discourses on nuclear energy and to use them to evaluate articles in the Dutch print media from 2018. Her study revealed that the media coverage was dominated significantly by the 'runaway' and 'public accountability' master frames (Vossen, 2020). This finding corresponds closely with previous study results by Nisbet (2006) who discovered that the anti-nuclear 'runaway' and 'public accountability' master frame combination evolved into the dominant discursive theme in the United States after the Three Mile Island nuclear accident in 1979 and was further intensified in the period following the Chernobyl disaster in 1986. Overall, the studies by both Nisbet (2006) and Vossen (2020) align with other findings that indicate that the media focusses almost exclusively on the disadvantages of nuclear energy (see Perko, Turcanu and Carlé, 2012; Kristiansen, 2017a, 2017b; Bauer et al., 2019). This equally reflects available research that finds *“that the media pay little attention to the benefits of nuclear energy”* (Vossen, 2020, p. 17) (see Friedman, 2011; Kristiansen, 2017a; Devitt et al., 2019; Mercado-Sáez, Marco-Crespo and Álvarez-Villa, 2019).

Thus, the findings in the available literature deviate markedly from this study's research results and are, in fact, located at opposing ends of the spectrum. Precisely, this study's results indicate that the sampled news media discourses in all three case study countries pay considerably more attention to the advantages of nuclear power development than to its disadvantages, which stands in direct opposition to the dominance of anti-nuclear media coverage established in the available literature. The

comparatively domineering presence of the pro-nuclear position in the sampled news articles in all three case study countries, and the insistent reference to the advantages of nuclear energy is particularly easy to observe in the dis-aggregated 'remedy' security intensification data in the sampled news media discourses on nuclear energy. Here, the policy prescription to develop nuclear energy is paired up with discrete advantageous factors resulting from nuclear power proliferation. In Jordan, for instance, 30.5% of all security intensifications in the sampled news media discourses on nuclear energy identify energy independence as a core benefit of nuclear energy development. Similarly, in Egypt, the reduction of carbon emissions and the diversification of the energy supply are presented as key advantages of nuclear energy development and account for 20.8% and 16.9% of all security intensifications in the sampled news media discourses on nuclear energy, respectively. Finally, in the sampled news media discourses on nuclear energy in Türkiye, the reduction in carbon emissions, energy independence, and energy supply diversification are listed as principal advantages of nuclear energy development and represent 20%, 14.3%, and 10.5% of all security intensifications, respectively.

The discrepancy in perception raises questions about the reasons for such dis-alignment. One potential explanation is the ownership structure of the sampled news media outlets and their editorial alignment with official positions on nuclear energy development. Precisely, the consideration arises whether discourses in state-owned news media outlets mirror exclusively the official, government stance on nuclear power proliferation that favours pro-nuclear media coverage and aims to suppress anti-nuclear commentary. The absolutely necessary undertaking of controlling and influencing the public acceptance of nuclear energy to limit the effectiveness of oppositional voices has been demonstrated in numerous publications (Kim, Kim and Kim, 2013, 2014; Roh, 2017; Wu, 2017). More importantly, though, the IAEA, which is heavily involved in the nuclear energy programmes of all three case study countries,

places great emphasise on the integration of pro-active public acceptance campaigns (IAEA, 2007c, 2007a, 2015b).

Additionally, the regimes in all three case study countries have proven in the past to appreciate and utilise the manipulative potential of state-driven propaganda narratives disseminated through state-controlled news media channels (Reporters Without Borders, 2023c, 2023a, 2023b). Especially the El-Sisi regime in Egypt continues to pro-actively steer the public narrative on policy issues by exerting editorial control in state-owned news media outlets (Reporters Without Borders, 2017, 2021e, 2021b). Thus, all three case study countries are aware of the need to install a robust strategy to effectively monitor and raise public acceptance levels, while all three case study countries have also shown a propensity for regime-led media control. Furthermore, a considerable portion of the sampled news media discourses on nuclear energy is sourced from state-owned or state-controlled news media outlets that have shown in the past to adopt an overtly regime-friendly editorial policy. For example, the Jordanian government appoints the editor of the state-owned Petra news agency, the Egyptian government controls Daily News Egypt and owns Egypt Today, while Anadolu Agency operates as a de-facto propaganda machine for the Turkish authorities (Irak, 2015, 2016; Reporters Without Borders, 2021e, 2023b, 2023c).

Another potential reason for the domineering position of pro-nuclear narratives in the sampled news media discourses is the dominance of a predominantly pro-nuclear popular opinion in all three case study countries. This possibility arises as news frames are socially constructed and are, thus, shaped directly by the dominant public narratives embedded in the public discourses of a country (Van Gorp, 2007; Vliegthart and van Zoonen, 2011). Hence a journalist's adoption or rejection of frames is directly affected by societal and cultural factors that define a country's public acceptance level. For instance, the prospect of a new nuclear power plant may invoke

the association of national prestige and socio-economic development, which may be cultural and social factors deeply implanted in the collective memory.

Another alternative explanation for the domineering reference of pro-nuclear ideologies and perceptions in the sampled news media discourses on nuclear energy in the case study countries could be related to an unbalanced sourcing behaviour that favours elite news sources. The role of these 'external suppliers' in affecting the content of, and opinion expressed in news coverage has been studied extensively (Sigal, 1973). Gans, for instance, concludes that the expansive informational needs and the demanding time constraints of the news business result in a journalist-source relationship that is dominated by sources (Gans, 1979). This position is echoed in subsequent research that demonstrates that sources frequently shape news stories, and associated discourses and news frames, to a larger degree than journalists (Sigal, 1986; Shoemaker and Reese, 1991; Berkowitz and Beach, 1993; Reese, Grant and Danielian, 1994). A persistent insight produced by this research is that journalists clearly prefer referencing sources that hold influential positions in formal institutions or that represent powerful parts of society (Voakes et al., 1996). Precisely, a consistent theme in the results of these studies is that while journalists at times reference a varied, non-elite group of sources, *"a small group of government sources dominate most political reporting"* (Wallsten, 2015, p. 26).

Thus, in sum, the inclination to portray nuclear energy development as a positive undertaking that has largely advantageous effects breaks with the prevailing behaviour demonstrated in the available literature. Hence, the depiction of nuclear energy as a beneficial energy technology option is unusual and indicates nonstandard reporting in the sampled news media discourses. This study has purposefully advanced three possible reasons for the unusual stance in news reporting on nuclear energy and does not favour any explanation.

7.3. Energy independence: Jordan's strive towards energy self-reliance.

In Jordan, as the 'Country Profiles' data has shown, energy represents a highly existential commodity that is intricately connected with its economic well-being. The governmental intention to pro-actively engage with the country's energy insecurities and define and commit to an alternative energy pathway was reflected in the Jordan 'National Energy Strategy Plan' of 2007 (MEMR, 2007). Here, the Jordanian authorities clearly expressed their desire to regulate and incrementally decrease their dependence on fossil fuel imports, while substituting parts of their domestic electricity generation with alternative, indigenous energy sources, such as renewables, nuclear, and shale oil (MEMR, 2007). However, the intended energy policy changes failed to effectively protect Jordan from the detrimental economic and energy security repercussions of the repeated supply disruptions of Egyptian natural gas due to terrorist-driven sabotage of the Arab Gas Pipeline in the North Sinai region of Egypt (CNN, 2011; Reuters, 2011a). The terrorist attacks on the pipeline infrastructure were persistent and 15 individual acts of sabotage were recorded between early 2011 and mid-2012 (Al Jazeera, 2012). In early 2012, 'The Jordan Times' commented on the on-going acts of sabotage and emphasised the need for energy independence by stating:

"An attack on the Arab Gas Pipeline last week that marked the 13th act of sabotage on the Kingdom's main energy source in little over a year has highlighted the pressing issue of Jordan's energy independence, which according to observers is rapidly escalating from a policy matter to a political crisis." (The Jordan Times, 2012a, para. 2)

Importantly, the impact of the energy supply disruptions of natural gas from Egypt must be considered in the context of Jordan's high public debt in the late 2000s and early 2010s. Precisely, while privatisations in the late 2000s allowed Jordan to reduce the public debt temporarily, Jordan's debt-to-GDP ratio increased exponentially in the early 2010s. In August 2011, for example, the country's total national debt stood at \$16.9 billion, which represented about 57% of its GDP (Reuters, 2011b). However, the national debt continued to rise and increased by \$3.2 billion in 2015, which raised the Jordan's debt-to-GDP ratio to 90%, whereby doubling its absolute debt in under five years (The Jordan Times, 2016a).

Overall, the most important factor in the post-2011 debt escalation is electricity and the sovereign debt accumulated by Jordan's National Electric Power Company (NEPCO) (Sowell, 2016). Specifically, until 2011, Jordan relied on natural gas imports from Egypt that were imported at consistently low prices. However, after the persistent sabotage of the Arab Gas Pipeline outlined above, Egypt failed to repair the pipeline infrastructure in a timely manner, which resulted in a decline in natural gas flows that lowered the contribution of Egyptian natural gas to Jordan's power supply from 87% in 2009 to 14% in 2012 (EIA, 2014). The temporary supply cuts forced Jordan to *"switch to heavy fuel oil and diesel for electricity generation, which are about four times more costly than natural gas. Which cost the country approximately 3.5 million JD a day."* (MPIC, 2013, p. 4). This caused a build-up in debt accrued by NEPCO, which reached \$1.36 billion in 2013, representing over 10% of the budget (Sowell, 2016). The severity of the debt crisis motivated the Jordanian government to implement an electricity austerity measure in 2015, which resulted in much popular opposition and far-reaching protests (Atamanov, Jellema and Serajuddin, 2015). The perceived significance of the situation is effectively conveyed in the following text excerpt that presents an instance of 'securitisation':

“According to industry observers, the ongoing unreliability of Egyptian gas supplies has escalated energy independence from a policy matter to an issue of national security for the Kingdom. Which imports 98 per cent of its energy needs at a cost of nearly one-fifth of the gross domestic product.” (The Jordan Times, 2012c, para. 2)

Hence, the energy supply disruptions had a significant effect on the economic sector that was burdened by NEPCO’s escalating debt, which was driven by its financial losses and growing deficit. The forced substitution of natural gas with diesel and heavy fuels raised Jordan’s energy bill substantially, which *“illustrates the vulnerability of the Jordanian economy to disruptions in fossil fuel supplies and has strengthened the resolve to advance domestic energy resources at a brisk pace”* (IRENA, 2021a, p. 16). The collective trauma associated with the energy supply disruptions is clearly observable in the energy security definition by the ‘Ministry of Planning and International Cooperation’ (MPIC) that endeavours to *“lower its exposure to external shocks in terms of supply”* (MPIC, 2013, p. 8). Thus, energy security is defined exclusively as a function of energy supply stability. Moreover, the devastating impact of the energy supply disruptions has seemingly had an impact on the country’s energy policy-makers as the national energy security policies are defined by its determined objective of improving, and eventually accomplishing energy independence.

This is reflected in the elite perception of energy security data in Jordan, which clearly lists the country’s policy aim of lowering its hydrocarbon import dependence by diversifying its energy mix for electricity generation through the growth of indigenous generation capacity (MEMR, 2015). The elite energy security conceptualisation in Jordan is effectively summed up by a quote from Hala Zawati, Jordan’s Minister of Energy and Mineral Resources, who announces that the national energy strategy *“promotes a high independence scenario as the most compatible with achieving*

broader strategic objectives. These include diversifying our energy sources, boosting the use of domestic energy resources, increasing energy efficiency and reducing energy costs throughout the national economy, and continuing to develop the Jordanian energy system.” (IRENA, 2021c, p. 4).

This study argues that the pursuit of energy independence is directly influenced by the energy supply disruptions in 2011 and the associated financial burdens, and the government’s energy security strategies are devised in direct response to the energy supply disruptions. Thus, the energy security strategies are expected to increase energy self-reliance to alleviate the risks of further energy supply disruptions. This is reflected in the results of a recent study on energy security in Jordan, which showed that “[u]pon closer observation, it emerges that the Jordanian government – since the interruption of Egyptian gas supplies in 2011 – strongly prioritised energy security over any concerns with sustainability and sovereign control over the energy sector” (Schuetze and Hussein, 2023, bk. 7).

The desire to avoid a repeat of the detrimental effects of energy supply disruptions is also clearly observable in the data on energy security frames. Precisely, the ‘achieve energy independence’ sub-frame is the sub-frame category with the highest number of frame attributions in the sampled news media discourses on energy security in Jordan and accounts for 7.7% of all frame attributions. Thus, in the sampled news media discourses on energy security in Jordan, energy independence is presented as the most significant energy security factor. Interestingly, the ‘achieve energy independence’ sub-frame category in Jordan is considerably more expansive than in Egypt and Türkiye where it accounts for 1.4% and 3.0% of all frame attributions in the sampled news media discourses on energy security, respectively.

The dominance of cost concerns, reservations about the prevailing energy import dependence, and apprehensions about energy supply disruptions are also clearly observable in the dis-aggregated security intensification data. Precisely, in the sampled news media discourses on energy security in Jordan, the 'energy import dependence', 'high energy costs' and 'energy supply disruption' 'problem definition' categories signify the three most expansive security intensification categories and account for 30.4%, 13.3%, and 9.8% of all frame attributions, respectively. The security intensification of these issues suggests that they are presented as the most significant energy security threats in the sampled news media discourses on energy security in Jordan. Crucially, 56.3% and 37.5% of all instances of 'securitisation' in the sampled news media discourses on energy security in Jordan are linked with the 'energy import dependence' and 'energy supply disruption' 'problem definition' security intensification categories, respectively. This implies that these two security intensification categories are presented as existential energy security risks that pose a threat to the national security.

The dis-aggregated data on security intensifications in the sampled news media discourses on nuclear energy in Jordan contain further interesting examples of the dominance of energy independence-linked energy security conceptualisations. Precisely, in the 'problem definition' data in Jordan, the 'energy import dependence' and 'high energy costs' security intensification categories signify the most prominent insecurity issues in the sampled news media discourses on nuclear energy and account for 32.2% and 17.3% of all security intensifications, respectively. This indicates the high security status assigned to energy import dependence and energy costs, which are both central energy insecurity themes associated with the effects of energy supply disruptions. Interestingly, 42.3% of all security intensifications in the '(existential) threat + pre-cautionary counter-measure' category are linked with the 'energy import dependence' 'problem definition' category. This represents the largest share in the

'(existential) threat + pre-cautionary counter-measure' category and suggests that energy import dependence is presented as the most significant existential threat in the sampled news media discourses on nuclear energy in Jordan.

In the security intensification data in the sampled news media discourses on nuclear energy in Jordan, the most expansive 'remedy' category prescribes the development of nuclear energy to improve the country's energy independence. Specifically, the 'develop NP – energy independence' 'remedy' security intensification category is the largest 'remedy' category by a significant margin and accounts for 30.7% of all security intensifications in the sampled news media discourses on nuclear energy in Jordan. This implies that in the sampled news media discourses on nuclear energy in Jordan, energy independence is presented as the most significant motivational factor for nuclear energy development. Moreover, 55% of all security intensifications in the 'energy import dependence' 'problem definition' category are connected to the 'develop NP – energy independence' 'remedy' category. This suggests that in the sampled news media discourses on nuclear energy in Jordan, the development of nuclear energy and the associated improvements in energy independence are presented as the most significant energy policy measures to mitigate energy import dependence.

In sum, the results of this study's expansive and diverse data sources are mutually complementary, while also sharing considerable overlap in specific issues. One of these issues of congruence is the predominant energy security conceptualisation in Jordan. This study asserts that in the Kingdom, energy security is primarily understood as a function of energy independence and that the energy supply disruptions of 2011 and 2012 have had a profound and formative effect on the elite energy policy making process. Interestingly, empirical evidence from all four research methodologies aligns in this matter and identifies energy independence and associated energy security

objectives as the primary energy security conceptualisations in the country. The high level of congruence elevates the perceived significance of energy independence in Jordan as elite and news media discourses align and agree that energy independence is the most important energy security objective, which forms a unified, national position on energy security. Importantly, as outlined above, the economic repercussions of the energy supply disruptions were immense and have elevated the cost dimension of energy to a matter of high importance. Energy security does, thus, represent an issue of existential importance, which is demonstrated by the wide range of security intensifications linked with energy security in the news discourses.

7.4. Nuclear energy in the MENA – Co-operation and nuclear energy programmes in non-western, oil-poor countries.

Historically, the national pursuit of nuclear energy development was dominated by so-called frontrunner countries that developed indigenous nuclear energy technologies. Even in instances where adopter countries imported the initial technology from existing nuclear energy countries, the nuclear energy programmes were swiftly nationalised and began to operate relative autonomously (Smith and Rose, 1989; Mez and Piening, 2002; Choi et al., 2009). However, the techno-national understanding of nuclear energy development may be less appropriate in contemporary and future scenarios, as the largest growth in nuclear energy adoption is forecast in emerging and developing economies that have historically depended on technology transfer from frontrunner countries (Poneman, 1982; WNA, 2022a). Jewell (2011b) analysed the capacity and motivation of about 50 countries to develop nuclear energy and concluded that only a very limited number of newcomer countries are expected to do so without significant levels of international support.

History has shown that a lack of international support can derail the pursuit of nuclear energy adoption, as was the case in Türkiye, where disputes between vendor states and the Turkish authorities undermined and eventually discontinued two attempts to develop nuclear energy (Jewell and Ates, 2015). Thus, overall, nuclear energy development in non-western, developing and emerging countries is heavily dependent on international technological co-operation to realise nuclear energy integration (Jewell, 2011b, 2011a; Jewell, Vetier and Garcia-Cabrera, 2019). This is reflected in the case study countries that are all invested heavily in international co-operation relationships to develop nuclear energy capacities (WNA, 2022c, 2023b, 2023a). Unsurprisingly, the high level of international co-operation activities is also reflected in this study's empirical data.

Importantly, this study's framing and security intensification analyses used MAXQDA, a qualitative data analysis software. One of the features of MAXQDA is the ability to detect code (or frame) co-occurrence, *"which is essential for uncovering nuances of frames and the presence of mixed framing techniques"* (Laimbigler, 2021, p. 129). Generally, code co-occurrence reveals which frames occur together with which other frames, alternatively code co-occurrence illustrates which frames are discussed alongside each other. The code co-occurrence data can expose underlying, thematic overlap that indicates the intersection of individual frame attributions, which together indicate the presence of mixed framing techniques (Laimbigler, 2021; Santos, Monteiro and Mata, 2021). The MAXQDA software permits the modification and individualisation of the code co-occurrence feature. In the context of this inquiry, this study decided to modify the code co-occurrence feature to exclusively source data on the proximity of frames in the same document within two paragraphs. This sourcing instruction produces data that indicates parallel discourses that overlap or appear alongside each other. This study has coded 'co-operation' frames as an additional sub-frame category listed in the 'unspecified frames' master category. The 'unspecified frames' master category holds frame attributions and sub-frame categories that are not directly related to the motivations for nuclear energy development but occur regularly and frequently in the data.

In the sampled news media discourses on nuclear energy in Egypt, for example, the 'co-operation' sub-frame category occurs alongside the 'achieve energy/electricity supply/mix diversity' and 'benefit the economy' sub-frames. Precisely, MAXQDA identifies 8 instances in which the 'co-operation' sub-frame category occurs in the proximity of the 'achieve energy/electricity supply/mix diversity' and the 'benefit the economy' sub-frames, which signifies the largest code co-occurrence grouping in the sampled news media discourses on nuclear energy in Egypt. Hence, this implies that

in the sampled news media discourses on nuclear energy in Egypt, co-operation linked to nuclear energy development is often presented in the context of the motivation for, or the advantages associated with nuclear energy development. Specifically, the code co-occurrence data shows that co-operation narratives are often expressed in proximity to discourses that illustrate the positive effects of nuclear energy development on the economy and on energy supply-mix diversity. This raises the possibility that co-operation is presented as a mechanism to achieve the positive effects of nuclear energy development. By manually coding for this relationship, the mixed framing practice supports this assumption. For instance, in one news article, the 'achieve energy/electricity supply/mix diversity' sub-frame attribution is presented at the beginning of the article and is linked to the following text excerpt:

"He explained that the nuclear power plant is one of the ministry's main objectives to diversify energy sources and promote peaceful use of nuclear energy." (Daily News Egypt, 2017a, para. 2)

This is followed by the preceding text passage associated with the 'benefit the economy' sub-frame:

"He added that the project provides a number of social, economic, and cultural advantages [...]" (Daily News Egypt, 2017a, para. 5)

Finally, the 'co-operation' sub-frame is presented as the mechanism by which nuclear energy development can be realised, which in turn generates the positive economic and energy supply diversity effects:

“Egypt signed an agreement with Russia to establish a nuclear power plant in Dabaa with a capacity of 4,800 MW for \$30 bn.” (Daily News Egypt, 2017a, para. 6)

Thus, in this example, economic benefits and energy supply diversity advantages are presented as direct effects of nuclear energy co-operation. This causal association between co-operation and both economic benefits and energy supply mix diversity is observable in all 8 code co-occurrence groupings, respectively.

An even more profound code co-occurrence grouping is identified by MAXQDA in the sampled news media discourses on nuclear energy in Jordan. Precisely, there are 16 coded segments that indicate a code co-occurrence of the ‘co-operation’ sub-frame and the ‘lower energy import dependency’ sub-frame. Similarly, MAXQDA detected 18 instances of code co-occurrence of the ‘co-operation’ sub-frame and the ‘explore, exploit, and utilise indigenous uranium resources’ sub-frame. While frame co-occurrence does merely uncover the proximity of frames, manual coding the co-occurrence grouping can reveal the relationship between frames. Again, as was the case in Egypt, in the sampled news media discourses on nuclear energy in Jordan, the ‘co-operation’ sub-frame is presented frequently as a policy choice that can drive beneficial effects of nuclear energy development. For example, the following text excerpt presents an instance of the ‘lower energy import dependency’ sub-frame:

“He pointed out that American officials have shown ‘understanding’ towards the Kingdom’s need to develop nuclear energy for peaceful purposes to end its reliance on energy imports.” (The Jordan Times, 2010a, para. 5)

This is followed by reference to the 'co-operation' sub-frame, which is presented as a necessary policy incentive to achieve nuclear energy development and reap the associated benefits, such as a decrease in energy import dependency:

"Toukan pointed out that Jordan signed its first memorandum of understanding in the nuclear field with the US back in September 2007. [...] A nuclear cooperation agreement is a prerequisite for the transfer and sale of nuclear technology and nuclear fuel as well as cooperation at different levels."
(The Jordan Times, 2010a, para. 7)

Overall, the example above is representative of the relations between the two frames in the remaining code co-occurrence groupings. Precisely, co-operation is always presented as a necessary initiative that permits nuclear energy development, which will then lead to a fall in energy import dependence.

The association between co-operation and the exploration and exploitation of Jordan's indigenous uranium reserves is equally revealing. Precisely, there are several instances in which co-operation is presented as a policy choice that is needed to explore and exploit Jordan's domestic uranium resources. For instance, the following text passage illustrates an example of the 'co-operation' sub-frame:

"The JAEC chairman underscored the importance of cooperating with Italy in all areas related to nuclear power [...]." (The Jordan Times, 2010b, para. 5)

Next, the 'explore, exploit, and utilise indigenous uranium resources' sub-frame is presented, which reveals the dependence on co-operation initiatives in the exploitation of domestic uranium reserves:

“Discussions during the meetings also covered the Jordanian-Italian Uranium Mining Company’s efforts to explore uranium in several areas in the Kingdom, mainly the central region.” (The Jordan Times, 2010b, para. 7)

The association between co-operation activity as the enabler of indigenous uranium development is attainable from 6 out of the 18 code co-occurrence pairings. In the remaining 12 code co-occurrence pairings, the causal relationship is not implied and both frames are not interlinked argumentatively.

The ‘co-operation’ sub-frame is also associated with the ‘lower energy import dependency’ and ‘nationalisation of nuclear energy’ sub-frames in the sampled news media discourses on nuclear energy in Türkiye, which have produced 7 and 8 code co-occurrence groupings, respectively. In the sampled news media discourses on nuclear energy in Türkiye, co-operation is presented as a necessary undertaking to realise nuclear energy development and lower the country’s energy import dependence. The following text passage highlights an instance of inter-state co-operation in the field of nuclear energy:

“Turkish Grand Assembly, the parliament, has passed into law Tuesday an intergovernmental agreement to build a nuclear power plant in the Turkish province of Sinop with Japan.” (Anadolu Agency, 2015a, para. 2)

Next, a positive effect of co-operating in the development of nuclear energy is outlined in the following text excerpt that highlights the improvements in energy import dependency associated with nuclear energy development:

“Once all of the plants are operational, Turkey’s foreign energy demand is expected to significantly decrease.” (Anadolu Agency, 2015a, para. 7)

Overall, all 7 instances of code-co-occurrence linking the 'co-operation' and 'lower energy import dependency' sub-frames indicate this relationship. Thus, co-operation is always presented as a prerequisite to achieve and improve energy import dependence.

The 'nationalisation of nuclear energy (knowledge transfer)' sub-frame is linked to 28 total frame attributions across 22 documents. Importantly, 25 out of the 28 total frame attributions are in the sampled news media discourses on nuclear energy in Türkiye. Hence, comparatively, in the sampled news media discourses on nuclear energy in Türkiye, the 'nationalisation of nuclear energy (knowledge transfer)' is presented as a significant issue. One of the reasons for this comparatively expansive sub-frame category is Ankara's desire to *"not only have nuclear plants but also to have nuclear technology to build our own plant"* (Anadolu Agency, 2014b, para. 15). Thus, Türkiye is eager to gain nuclear technology expertise to eventually construct and operate a nuclear power plant independently. The link between co-operation and the transfer of knowledge is easily attainable from the sampled news media discourses. For example, the following text passage illustrates a knowledge transfer initiative that aids Türkiye's strive towards nationalising nuclear energy, while equally indicating the joint, co-operative effort between Türkiye and Russia:

"Kiryenko also underlined the importance of having skilled personnel employed in the plant. He said that Turkish students, who are currently studying in Russia with Russian nuclear energy specialists, will work together in the plant once it becomes operational." (Anadolu Agency, 2015c, para. 7)

Another example of the co-operative effort underlying knowledge transfer activities between Türkiye and Russia is presented below:

“Three Turkish women who have been studying at Moscow’s National Nuclear Research University are preparing to become pioneers at Turkey’s first nuclear power plant [...] [they] were awarded scholarships under a joint project between Russia’s state nuclear cooperation Rosatom and Turkey’s Ministry of Energy and Natural Resources to start working at the Akkuyu Nuclear Power Plant in the southern port city of Mersin.” (Anadolu Agency, 2020b, para. 1)

Overall, 5 out of 8 total code co-occurrence groupings emphasise the co-operative undertakings involved in knowledge transfer between Türkiye and other parties. The remaining 3 code co-occurrence pairings do not establish a direct link between co-operation and knowledge transfer activities.

The examples presented above clearly demonstrate the importance of co-operation in overseeing and successfully implementing a national nuclear energy project. This validates and aligns with the available literature that identifies co-operation as an indispensable factor in successful nuclear energy projects (Jewell, 2011b; Brutschin and Jewell, 2018; Jewell, Vetier and Garcia-Cabrera, 2019).

Furthermore, as outlined in the theory chapter, the presence of co-operation practices, and inter-state knowledge and technology exchange, signal the inapplicability of the individualist agenda advanced by the structural realist’s geopolitical approach to energy in international relations theory (Klare, 2009; Dannreuther, 2013). Instead, the propensity for co-operation in the development of nuclear energy capacities raises the applicability of the ‘global energy governance approach’, which leans on ideas from the neoliberal institutionalist agenda in IR theory and claims that energy is best understood as a cooperative international field (Goldthau and Witte, 2009b). In the context of energy co-operation, collective action

can come in various forms but may entail knowledge and information sharing, and technology transfer (Wilson, 2017). Hence, the presence of co-operation undertakings validates the assumption of interdependency and absolute gains advanced by the neoliberal approach to energy in international relations theory.

Importantly, the presence of extensive co-operation relationships in the case study countries' nuclear energy programmes and in the sampled news media discourses on nuclear energy, stands in contrast to the prevailing 'access-based', structural realist view of energy security in the case study countries. Conversely, the presence of significant international co-operation partnerships, not least the BOO and BOOT agreements with Rosatom as the external contractor, in the case study countries' nuclear energy programmes, corresponds with the principles of the 'global energy governance approach' (Goldthau and Witte, 2009b). One possible explanation for the applicability of both conceptualisations to the policy behaviour of the case study countries is that both approaches understand energy politics as an inherently international undertaking that is directly shaped by the understanding of energy interdependency. Precisely, the main question is whether energy interdependencies are perceived as securitised, zero-sum relations or, alternatively, as non-securitised, positive co-operation. This study's analysis of the elite views and the securitisation of public discourses on energy security in the case study countries has demonstrated that energy security discourses are highly securitised and energy interdependencies are perceived as significant energy security risk factors. However, in the context of the case studies' nuclear energy programmes, energy interdependency is perceived as a positive, pressingly necessary component of nuclear energy development (Jewell, 2011b), which is exemplified by the presence of extensive international co-operation. Thus, this study suggest that the question about the divergence between the case study countries' energy security and nuclear energy behaviour is essentially aligned

with the 'neo-neo' dispute between structural realists and neoliberal institutionalists (Baldwin, 1993).

7.5. State-controlled media in the case study countries: Biased press or independent reporting?

The preservation of media freedom is a defining principle of democratic societies, while the accessibility of independent information empowers citizens to hold the ruling elites accountable. However, a wide variety of studies have demonstrated that regimes may control mass media to obstruct the publication of anti-regime material (Dahl, 1989; Poe and Tate, 1994; Linz and Stepan, 1996). Such regimes are right to fear a free press, as statistical models have indicated a significant causal relationship between media independence and dissent, which is driven by the dissemination of information (Whitten-Woodring and James, 2012; Kim, Whitten-Woodring and James, 2014; Groshek and Christensen, 2016; Stein, 2016). Overall, state ownership of news media outlets is mostly perceived as a negative issue and common concerns revolve around the possibility for regime-led indoctrination through highly selective media reporting. The 'propaganda model', for example, assumes that *"[i]n countries where the levers of power are in the hands of a state bureaucracy, the monopolistic control over the media, often supplemented by official censorship, makes it clear that the media serve the ends of a dominant elite"* (Herman and Chomsky, 2008, p. 61).

The government-owned/controlled media model can be a vital and highly-effective opinion-making tool in all regime types (Boas and Hidalgo, 2011; Enikolopov, Petrova and Zhuravskaya, 2011; Di Tella, Galiani and Schargrodsky, 2012; Stanley, 2015). Precisely, while it is most potent in autocratic contexts, some of its characteristic practices have been adopted by regimes in anocracies and weak democracies (Walker and Orttung, 2014, pp. 81–82). For instance, regimes try to monopolise access to information by oppressing independent media entities and controlling the political agenda through state-owned/controlled media outlets that promulgate regime-friendly narratives (Djankov *et al.*, 2003; Soules, 2015b, 2015c). In such a scenario, elite

attitudes are prioritised and gradually supplant non-conformist, alternative views (King, Pan and Roberts, 2013, 2014; Rozenas and Stukal, 2018).

This study's case study countries are all defined by repressive media laws and legislative frameworks, significant media (self-)censorship and discriminatory practices to marginalise regime media critics (Human Rights Watch, 2020a, 2020b; Freedom House, 2021; Reporters Without Borders, 2021c, 2021f, 2021d). Illustratively, out of 180 countries, Jordan, Türkiye and Egypt, rank (129), (153) and (166) respectively in the 2021 World Press Freedom Index (Reporters Without Borders, 2021a).

This study aims to assess the association between media state ownership and the presence of regime friendly reporting. Precisely, in the context of this study, the sampled news media discourses in the three case study countries produced several noteworthy anomalies that raised the suspicion of media bias. However, this study identified one primary issue of concern that is: pro-Turkish reporting on the geopolitical situation in the Eastern Mediterranean in the sampled news media discourses on energy security in Türkiye.

The practice of capturing the relative level of media bias in news reporting is dominated by exceedingly expansive content analyses that often rely on machine-driven techniques to assess news discourses (Wilner, 2018). Still, another section of the academic scholarship endeavours to quantify media bias, and contemporary research is increasingly sophisticated in its utilisation of artificial intelligence and complex algorithms (Larcinese, Puglisi and Snyder, 2007; Groeling, 2008; Gentzkow and Shapiro, 2010). This study, however, utilises a qualitative and quantitative content analysis to ascertain the presence and level of unbalanced, one-sided reporting in the sampled news media discourses. The use of content analysis in capturing biased, partisan news coverage is a common and tested methodological approach (Pan and

| Country | News outlet | Number of articles | | Ownership model |
|---------------|--------------------------------|--------------------|----------------|------------------|
| | | Energy Security | Nuclear Energy | |
| Egypt | Arab Finance | 3 | N/A | Unconfirmed |
| | CNEgypt | 3 | 2 | Unconfirmed |
| | Daily News Egypt | 60 | 56 | State-controlled |
| | Egypt Independent | 12 | 23 | Private |
| | Egypt Today | 21 | 16 | State-owned |
| | Gulf Oil & Gas | 4 | N/A | Unconfirmed |
| | Mid-East Info | 2 | 2 | Unconfirmed |
| | Middle East Business News | N/A | 1 | Unconfirmed |
| Jordan | Jordan News Agency (PETRA) | 42 | 36 | State-owned |
| | The Jordan Times | 143 | 133 | State-owned |
| Turkey | Anadolu Agency | 160 | 77 | State-owned |
| | Intellinews – Turkey This Week | 14 | 10 | Private |
| | Intellinews – Turkey Today | 5 | N/A | Private |
| | Journal of Turkish Weekly | N/A | 9 | Private |
| | Mideast Mirror | N/A | 10 | Unconfirmed |
| | Today's Zaman (Turkey) | 21 | N/A | Private |
| | TRT World | N/A | 1 | State-owned |

Kosicki, 1993; D'Alessio and Allen, 2000; Vaismoradi, Turunen and Bondas, 2013; Czymara and Klingeren, 2022). This study uses a content analysis to appraise the 'event selection', 'source selection', and 'commission and omission' of information in the sampled news media discourses. All three analytical tools have been used extensively

to assess the presence or absence of balanced news reporting (McCarthy, McPhail and Smith, 1996; Groseclose and Milyo, 2005; Gentzkow and Shapiro, 2006; Papacharissi and de Fatima Oliveira, 2008). The ownership model of the sampled news outlets is presented in in Table 12.

7.5.1. Media bias in the news coverage of the geopolitical situation in the Eastern Mediterranean in the sampled news media discourses on energy security in Türkiye.

In the last decade the intra-regional power struggles in the Eastern Mediterranean have intensified markedly as the Middle East and the Eastern Mediterranean (MEEM) have become increasingly interconnected (Tziarras, 2018). In the context of this study, the issue of most importance is the discovery of significant natural gas resources in the Eastern Mediterranean (Tziarras, 2019; Ellinas, 2022). The considerable expanse of the natural gas discoveries has incentivised the strategic, geopolitical, and geo-economic re-orientation of involved state actors to benefit from access to these resources (Proedrou, 2012; Gürel, Mullen and Tzimitras, 2013; Adamides and Christou, 2015; Tziarras, 2016; Ellinas, 2022). To effectively co-ordinate the exploitation of the natural gas resources and limit intra-regional frictions, the governments of Egypt, Greece, the Republic of Cyprus (RoC), Israel, Jordan, Italy, and the Palestinian Authorities formed the 'Eastern Mediterranean Gas Forum' (EMGF) in 2019 (Ahram Online, 2019). Notable is the absence of Türkiye, Lebanon, and Syria, which are not parties to the forum but are given the option to join if their objectives align with the EMGF (Stergiou, 2019).

Generally, many regional countries have formally declared their EEZ's through official national statements or bilateral agreements (Mitnick, 2020; Reuters, 2020a; Andreou, 2021). The precise delineation of the EEZ between Greece and the RoC, however, has been subject of persistent political quarrels between Greece and Türkiye (Dalay, 2021). Importantly, the on-going dispute between Türkiye and the RoC signifies an issue of particular significance to resource development in the Eastern Mediterranean (Ellinas, 2022). Precisely, the issue revolves around Ankara's position that the RoC is not entitled to an EEZ and the associated access to its offshore natural gas deposits, which is contested by Greece and the RoC. The specific evaluation needed to solve this issue

is whether the EEZs of Greece and the RoC have a shared boundary (Ellinas, 2022). Overall, the RoC's natural gas exploration activities have been impeded by Türkiye's intervention, which has inhibited the prospect of further gas development in the RoC's EEZ (Weise, 2018). Many observers link settlement of these issues with the resolution of the Greek-Turkish dispute over Cyprus (Dalay, 2021).

During the process of ascribing energy security frames in the sampled news media discourses on energy security, several 'unspecified frames' were detected that did not directly correspond with the energy security perception in the case study countries. These frames were nonetheless deemed to be of significance as they indicated re-occurring themes that emerged from the energy security discourses. One of these 'unspecified frames' is the 'Eastern Mediterranean' sub-frame category that has produced 37 frame attributions from 14 individual articles in the sampled news media corpus on energy security in Türkiye, with 12 articles coming from the state-owned 'Anadolu Agency' and 2 articles being published by the privately-owned 'Intellinews – Türkiye this Week' publication. This study analyses exclusively the news coverage associated with the news media discourses involving the 'Eastern Mediterranean' sub-frame in the state-owned news outlet Anadolu Agency to ascertain the level of media bias in reporting.

Overall, the analysis of texts associated with the 'Eastern Mediterranean' sub-frame has produced 16 instances of 'event selection' (Table 13.). Precisely, in the sampled news media discourses on energy security in Türkiye, the 'event selection' in the texts associated with the 'Eastern Mediterranean' sub-frame is exclusively focussed on Türkiye's operations in the Eastern Mediterranean. For example, the news coverage entails several articles on the activities of Turkish deep-sea drilling ships in the Eastern Mediterranean, while also accentuating the comparative superiority of Turkish-led initiatives to develop pipeline infrastructure in the region. Another group of articles

Table 13. Analysis of media bias in the sampled news discourses from Anadolu Agency linked with the 'Eastern Mediterranean' sub-frame.

| News outlet | Analytical tool | Data | Number of cases |
|----------------|------------------|--|-----------------|
| Anadolu Agency | Event selection | Co-operation in the development of pipeline infrastructure; Turkish drill ship begins journey to Eastern Mediterranean; Cost-effectiveness of Turkish-Israeli pipeline in comparison to RoC LNG terminal; Official state visit to Libya to sign agreement on hydrocarbon development in the Eastern Mediterranean; MoU on the demarcation of Turkey's and Libya's EEZs; Speech about the negative effects of the RoC's energy policy-making; The change of administration in Israel and the prospect of energy cooperation; Formation of Eastern Mediterranean Gas Forum (EMGF); Natural gas discoveries in the Black Sea; Opposition to drilling operations by RoC; Turkish drill ship begins voyage to the Eastern Mediterranean; Signing a MoU with Libya; Turkey-TRNC pipeline is better than the Greek Cypriot EastMed pipeline; RoC and European Union are not recognising international law; East-Med project is not cost-effective; EastMed is too expensive | 16 |
| | Source selection | Turkish Energy and Natural Resources Minister Fath Donmez; European Parliament report; Turkish Foreign Minister Mevlut Cavusoglu; Interim Prime Minister of Libya Abdul Hamid Dbeibeh; President of the Turkish Republic of Northern Cyprus (TRNC) Mustafa Akinci; President of Turkey's Energy Strategy & Political Research Center (TESPAM) Oguzhan Akcyer; Turkish Energy and Natural Resources Minister Fath Donmez; Turkish Energy and Natural Resources Minister Fath Donmez; Energy and energy geopolitics specialist at Bolu Abant Izzet Baysal University Ilhan Sagsen; TRNC Minister of Economy and Energy Hasan Tacoy; TRNC Minister of Economy and Energy Hasan Tacoy; A member of the Presidential Security and Foreign Policy Committee Cagri Erhan | 12 |
| | Commission | Turkish operations in the Eastern Mediterranean; RoC's decision to drill for natural gas in disputed waters; MoU with Libya on the EEZ demarcations; Accentuate benefits of MoU for Libya; Emphasising the benefit of connecting the Eastern Mediterranean gas to Europe via Turkey; Highlighting the disadvantages of a Greece-led energy project and suggesting a Turkish-led project instead; Criticising an energy infrastructure project that Turkey is not involved in; Shifting blame to the RoC for the lack of energy cooperation; Risks associated with forming the EMGF without Turkey; Criticising unilateral drilling of RoC in Eastern Mediterranean; Condemning drilling operations by RoC; Asserting Turkey's rights to drill in the EEZ of the TRNC; Bi-lateral agreement between Turkey and Libya on maritime boundaries; Shifting blame over the protracted situation in Cyprus on the RoC; RoC is undermining the rights of the TRNC; It was a mistake to exclude Turkey from the Eastern Mediterranean Energy Forum; Reference to expert opinion on the financial burden associated with the EastMed pipeline | 17 |
| | Omission | Geopolitical controversy associated with deep-sea drilling in the Eastern Mediterranean; RoC's argumentation for commencing drilling operations; International opposition to the bi-lateral EEZ agreement with Libya; Greece and Egyptian opposition to the MoU between Turkey and Libya; Opposing voices on the Turkish-led energy project; Voices in favour of the EastMed pipeline project; RoC representatives in favour of independent drilling operations; Alternative views of RoC advocates; Opposing views on Turkey's rights to drill in the Eastern Mediterranean; International opposition to the MoU with Libya and the demarcation of maritime boundaries; Commentary that presents the position of the RoC; Turkey's assertive foreign policy behaviour in the Eastern Mediterranean; Alternative view on the EastMed pipeline project | 13 |

focuses on the controversial bi-lateral agreement between Türkiye and Libya, which unilaterally demarcated contested maritime borders in the Eastern Mediterranean. Furthermore, several other articles focussed on, and directly attacked the RoC's drilling operations in its EEZ and shifted the blame for the standstill in dispute resolution on the RoC. Overall, the 'event selection' of the sampled news media discourses linked with the 'Eastern Mediterranean' sub-frame in Türkiye exposes Türkiye's assertive and intransigent foreign policy behaviour in matters involving access to the natural gas resources in the Eastern Mediterranean, especially in the context of the RoC's drilling operations.

The 'source selection' data reveals an overwhelming focus on pro-Türkiye sources. Specifically, the 'source selection' in the sampled news media discourses linked with the 'Eastern Mediterranean' sub-frame in Türkiye is defined by its almost exclusive reference to elite, Turkish government sources or sources that represent a position that supports the Turkish case. For instance, the news discourses quote Turkish Energy and Natural Resources Minister Fatih Donmez, Turkish Foreign Minister Mevlut Cavusoglu, and the President of the Turkish Republic of Northern Cyprus (TRNC) Mustafa Akinci. The news coverage also presents commentary by experts that convey a state-friendly perception of the geopolitical situation in the Eastern Mediterranean, such as energy and energy geopolitics specialist Ilhan Sagsen, and Cagri Erhan, a member of the Presidential Security and Foreign Policy Committee. Even sources that are not directly associated with the Turkish government represent a position that favours the Turkish claims in the region, such as Interim Prime Minister of Libya Abdul Hamid Dbeibeh or text passages extracted from a European Parliament report.

The 'commission' of information signifies another analytical device that reveals the dominant narratives present in the sampled news media discourses. Overall, the news coverage focuses exclusively on information that presents Türkiye's operations in the

Eastern Mediterranean. Importantly, the sampled news media discourses emphasise strongly the validity of Türkiye's foreign policy behaviour in the Eastern Mediterranean, while simultaneously undermining the legitimacy and credibility of rival projects, multi-lateral agreements, and countries. Several articles, for instance, express covert criticism of the RoC's deep-sea drilling activities in its EEZ and shift blame of the persistent bi-lateral dispute over Cyprus on the RoC:

"As long as some of the states do not give up their determination to drill for gas before settling their regional disputes, conflict and war will remain possibilities." (Anadolu Agency, 2018a, para. 8)

Another article asserts Türkiye's opposition to the RoC's drilling activities and criticises the RoC's 'unilateral' development of hydrocarbons off Cyprus:

"Turkey will not allow any unilateral hydrocarbon drilling or exploration in the Eastern Mediterranean Sea, Turkey's Energy Minister confirmed on Thursday." (Anadolu Agency, 2018d, para. 1)

Another group of news articles on the autonomous demarcation of maritime boundaries by Türkiye and Libya portrays Greece and the RoC as aggressors in the dispute over access to hydrocarbon deposits surrounding Cyprus:

"Greece, which is already raising tensions against Türkiye in the Aegean and Eastern Mediterranean [...]." (Anadolu Agency, 2022a, para. 19)

Articles also criticise the reluctance of the RoC to cooperate in the exploitation of natural gas resources with Türkiye and the TRNC and shift blame for the protracted situation on the RoC and Greece:

“At this point, despite efforts and calls by Turkey and the Turkish Republic of Northern Cyprus (TRNC) to collaborate on various platforms, the Greek Cypriot administration insists on deadlock under the influence of especially the European Union and Greece, ignoring the TRNC and the rights of Turkish Cypriots and continuing to make moves on behalf of the island.” (Anadolu Agency, 2019, para. 2)

In the same article, the RoC and Greece are also identified as the responsible parties that continue to undermine inter-state co-operation between Türkiye and Greece on energy matters in the Eastern Mediterranean:

“The greatest obstacles to cooperation in the region is that Greece and the Greek Cypriot administration follow the same approach to limiting sovereign areas in the region.” (Anadolu Agency, 2019, para. 10)

A further group of articles undermines the credibility of multi-lateral projects in the region that are either opposing proposals submitted by Türkiye or have progressed without Türkiye’s involvement. For example, the following text excerpt criticises the EastMed pipeline project that is proposed by Greece, Cyprus, and Israel and has been backed by the European Union:

“He explained that the East Med project is not competent enough technically, legally, security-wise, or economically, as all of the related gas resources need to be transported via pipeline because the gas is from dry fields, which cannot be converted to LNG.” (Anadolu Agency, 2021, para. 7)

An additional article emphasises the comparative superiority of an alternative Turkish-led, regional pipeline that rivals the EastMed project:

“However, the main problem with the project is foremost that it is costly and that the gas that would cover these costs have not yet actually been found. In this sense, the 80-km gas pipeline project currently under consideration between Turkey and the TRNC would be a much safer and cheaper route choice.” (Anadolu Agency, 2019, para. 9)

The same article stresses the potentially cooperative stimulus achieved by the suggested pipeline project, while criticising Türkiye’s absence from the Eastern Mediterranean Energy Forum:

“Such alternatives will be able to contribute towards solving the mistake of excluding Turkey and the TRNC from meetings like the Eastern Mediterranean Energy Forum that concern the entire basin and should be decided on together, [...]” (Anadolu Agency, 2019, para. 11)

A further article questions the credibility and financial viability of the planned Israel, Cyprus, and Greece subsea power cable that is expected to interlink the country’s national power grids:

“The president also highlighted the expense and hardship of implementing a subsea power cable project in the Mediterranean Sea between Israel, Greek Cyprus, Crete and Greece, suggesting an alternative route which is shorter and cheaper.” (Anadolu Agency, 2016, para. 6)

The 'omission' analysis signifies this study's final analytical tool that notes important issues that have been omitted from coverage, but which could have increased the balance in reporting. Overall, the collected data indicates a lack of balance and impartiality in reporting as all issues are exclusively presented from the Turkish standpoint. Precisely, alternative, potentially oppositional positions are excluded from the news media discourses, while the prevailing narratives are exclusively in support of Ankara's foreign policy-making. For example, the news coverage does not present the international opposition to Türkiye's EEZ agreement with Libya, which is spearheaded by Greece and Egypt (Cohen, 2020). The sampled news media discourses also fail to objectively portray alternative views on projects opposed by Türkiye, such as the EastMed pipeline. For instance, once realised, the EastMed pipeline project is expected to increase energy security for Europe, while also offering economic benefits to Israel, the RoC, and Greece (Wendt and Petropoulos, 2023). The sourced news media discourses also fail to produce a balanced portrayal of the Cyprus dispute between Greece and Türkiye. Precisely, the news coverage fails to mention the RoC's position on the TRNC and its opposition to Türkiye's occupation of Cyprus, which is deemed illegal by Greece, the RoC, and the European Parliament (MFARoC, 2023).

While the available literature has demonstrated on several occasions that the news reporting by Anadolu Agency is significantly aligned with elite views and may at times be classed as partial (Kaya and Çakmur, 2010; Irak, 2015, 2016; Kirac, 2019; Reporters Without Borders, 2023c), this study is unable to draw such conclusions. Unfortunately, it is impossible to make such inferences as the sample is too small and reporting in other articles may be more balanced. Moreover, the ability to generalise is limited by this study's qualitative methodological approach that misses the explanatory certainty of statistical analysis. However, this study can assert that in the sampled news media discourses on energy security in Türkiye, the news coverage in articles linked with the

'Eastern Mediterranean' sub-frame focusses exclusively on Türkiye's operations in the Eastern Mediterranean, while placing particular attention on Türkiye's assertive intra-regional foreign policy conduct. The sampled news media discourses also reference almost exclusively members of the Turkish government, while all sources represent a position that favours Türkiye's foreign-policy ambitions. Next, the 'commission' data indicates selective and subjective news coverage that bolsters Türkiye's position in the region, while undermining the credibility and legitimacy of oppositional parties, projects, and organisations. The 'omission' data paints an equally one-sided picture as alternative views that deviate from the Turkish position are excluded. Thus, in sum, the news coverage in the sampled news media discourses presents the geopolitical situation in the Eastern Mediterranean, especially regarding the competition over access to the region's natural fossil fuel resources, in an unbalanced manner that favours pro-Türkiye narratives and Turkish elite views. The complete absence of adversarial positions that disagree with Türkiye's understanding of and conduct in the regional dispute heightens the suspicion of unbalanced reporting. Hence, overall, this study concludes that the news coverage linked with the 'Eastern Mediterranean' sub-frame category in the sampled news media discourses on energy security in Türkiye is partial and biased.

7.6. Nuclear energy in the MENA - International scrutiny, nuclear safety, and the need for public acceptance.

Nuclear safety is an issue of considerable importance to the international nuclear energy community as nuclear accidents can have catastrophic effects. The international concerns about nuclear safety are particularly profound in the context of newcomer states, especially in non-western, developing countries, that may not have the institutional capacity to guarantee nuclear safety (Shull, 2008). Precisely, in developing countries, the pursuit of nuclear energy development is often perceived sceptical as *"[n]o country is able to buy two critical components: a ready-made safety culture and a robust independent regulator"* (Alger and Findlay, 2010, p. 76).

The same scepticism is also extended to nuclear energy programmes in the MENA as observers question the robustness of the existing safety regime (Goren and Saab, 2017). An effective example of the fallibility of regional nuclear energy projects is the initial decision by the Jordanian authorities to locate the country's first nuclear power plant in Aqaba. A decision that resulted in fierce criticism by the Israeli authorities that lamented the vulnerability of the location to seismic activity, which eventually encouraged the re-location of the nuclear power plant project to Azraq (Tanner, 2011).

Overall, parts of the available literature question the institutional capacity of newcomer states in the MENA and are especially uncertain about their ability to achieve a satisfactory level of nuclear safety (Asculai, 2012; Dudley, 2020; Nusbaum, 2020; Lisowski, 2021; Sabga, 2021; NTI, 2023). This study establishes the institutional capacity and political stability of the case study countries to understand their capacities to install a robust and dependable nuclear safety regime. Precisely, this study utilises the World Bank's 'Government Effectiveness Index' (GEI) to ascertain the case study's institutional capacity (World Bank, 2023c). The GEI examines the level of

confidence that government policies are fairly and effectively designed, enforced, and implemented over time. Since the GEI has only been introduced in 1996, this study benchmarks current GEI data from the case study countries against GEI data from Emerging NP countries at the time of the start of construction of their first NP plant that exceeds 100 MWe and against GEI data from Established NP countries from 1996.

Moreover, this study also measures the political stability of the case study countries to ascertain their ability to uphold long-term sovereign authority and ensure constant executive oversight of the country's nuclear safety protocols and systems. This study assumes that less politically stable countries are more likely to have less authoritative control over its nuclear safety regime, whereas more politically stable countries are expected to be more likely to have more authoritative control over its nuclear safety regime (Jewell, 2011a, 2011b). The reason for this assumption is that *"[e]ven just the escalation of a political dispute or the persistence of low-intensity conflicts can make it generally more difficult and complex to maintain nuclear safety, if intrastate safety mechanism come under strain or even fail as a result"* (Ustohalova and Englert, 2017, p. 7). This study measures political stability by utilising the World Bank's 'Political Stability Index' (PSI). The PSI measures the perception that a government will be violently overthrown and is available from 1996 for over 212 territories and countries (World Bank, 2023c). Since the PSI has also only been introduced in 1996, this study benchmarks current PSI data from the case study countries against PSI data from Emerging NP countries at the time of the start of construction of their first NP plant that exceeds 100 MWe and against PSI data from Established NP countries from 1996.

Egypt is awarded the lowest GEI score of 35.58, while Jordan and Türkiye have a markedly higher score of 59.62 and 49.52, respectively (Fig. 20., Table 14.). Also, both Türkiye and Egypt record comparatively low PSI values, which indicates a comparatively high level of political instability. Precisely, while Jordan scores 36.79,

Türkiye and Egypt only achieve 12.26 and 14.62, respectively. The joint distribution across the 'Government Effectiveness' and 'Political Stability' indicators reveals a comparatively poor performance of Egypt and Türkiye across both indicator categories. Precisely, both countries lie in proximity of the benchmark threshold established by Bangladesh for both indicator categories. Jordan performs comparatively better and occupies a middle ground between Egypt and Türkiye and the high performing 'Established NP' countries at the upper percentile of both indicator categories.

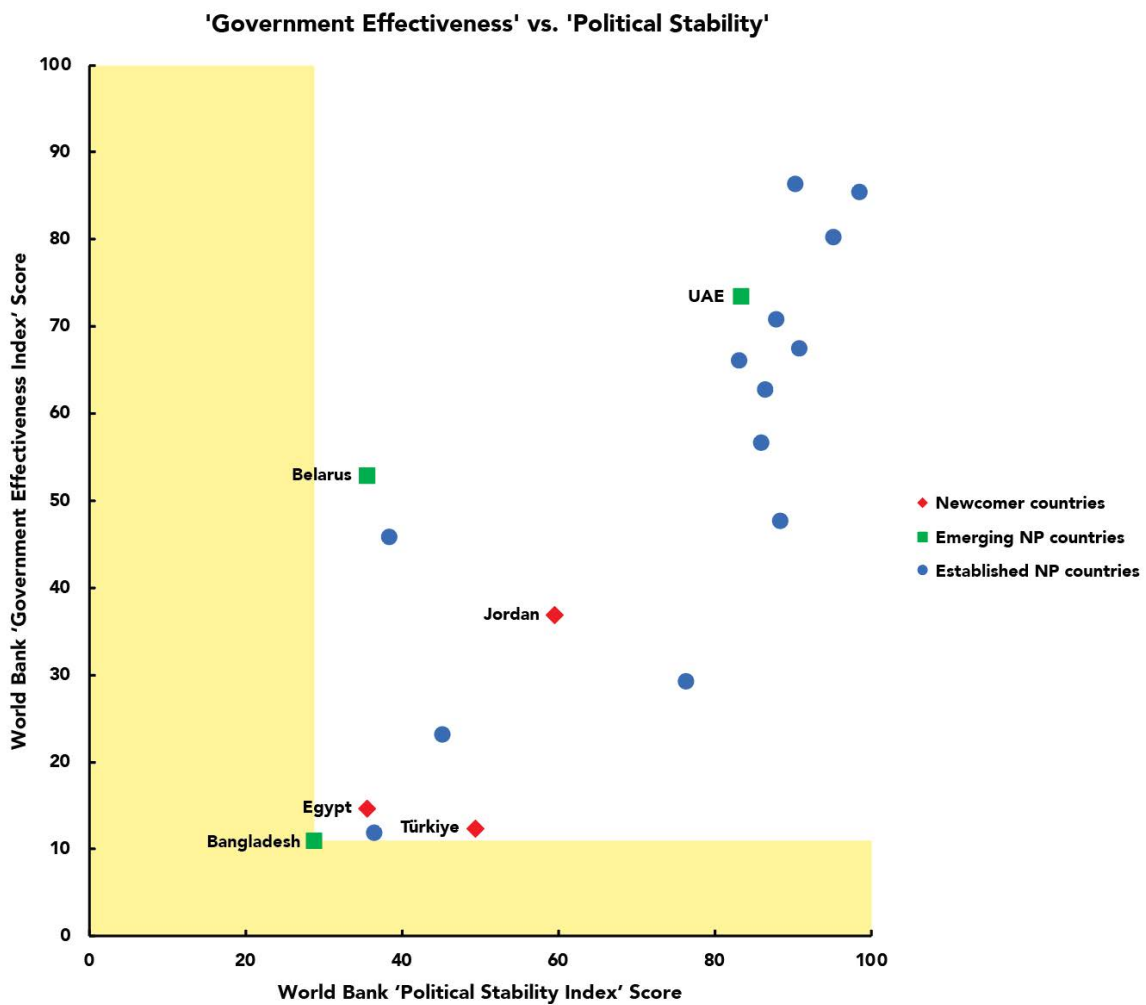


Fig. 20. Government effectiveness and political stability of Egypt, Jordan, and Türkiye.

Overall, the comparatively low GEI and PSI scores suggest that the case study countries have a comparatively low capacity to uphold a stringent and reliable nuclear safety regime. After all, "a country must have a sufficient institutional capacity and

Table 14. Institutional capacity and political stability – Quantitative indicators.

| Capacity requirement | Indicator Type | Indicator | Established NP countries | | | | | | | | | | | | | | | | | | |
|--|------------------------|--|--------------------------|--------|---------|------------|---------|-----------------------|-----------|---------|--------|-------|---------|--------|----------------------|-------|-------------|-----------------------|---------|-------|-------|
| | | | Newcomer countries | | | | | Emerging NP countries | | | | | | | | | | | | | |
| Mobilise international support and cooperation | Institutional capacity | World Bank Government Effectiveness Index ¹ | Egypt | Jordan | Türkiye | Bangladesh | Belarus | UAE | Argentina | Belgium | Canada | China | Finland | France | Germany (W. Germany) | Japan | South Korea | Russia (Soviet Union) | Ukraine | UK | USA |
| | Political stability | World Bank Political Stability Index ¹ | 14.62 | 36.79 | 12.26 | 10.95 | 52.86 | 73.46 | 45.75 | 66.04 | 80.19 | 29.25 | 85.38 | 56.60 | 70.75 | 86.32 | 67.45 | 23.11 | 11.79 | 62.74 | 47.64 |

Source: ¹World Bank

political stability to safely manage the nuclear power programme” (Jewell, 2011b, p. 1042). Resultant, it can be concluded that in the context of institutional capacity and political stability, the case studies’ underwhelming performance does little to quell doubts by observers that question the ability of newcome states in the MENA to implement and maintain international nuclear safety standards (Asculai, 2012; Malin, 2017; Ustohalova and Englert, 2017; NTI, 2023).

The desire to influence and steer the public narrative on nuclear energy is reflected in this study’s data on nuclear energy frames. Precisely, in the sampled news media discourses on nuclear energy in all three case study countries, the ‘praise the safety credentials of NPP’ sub-frame, situated in the ‘National Prestige’ master frame category, was assigned to frame attributions that emphasised the high safety standards and features of the respective national nuclear energy programme. As mentioned in the ‘Data Analysis’ chapter, the ‘praise the safety credentials of NPP’ sub-frame could have reasonably been included in several other master frame categories. It could have also been made an independent ‘unspecified frame’ category that is assigned to discourses that revolve around the issues of public acceptance or public awareness. However, the discussions in the sampled news media discourses surrounding the ‘praise the safety credentials of NPP’ sub-frame were usually defined by a sense of pride, using boisterous adjectives to emphasise the comparative supremacy of the nuclear technology option. Thus, this inquiry into the use of the ‘praise the safety credentials of NPP’ sub-frame offers an alternative reading that does not invalidate its initial classification as a national prestige factor but instead highlights its potential additional functions of appeasing international observers and raising public acceptance.

In the sampled news media discourses on nuclear energy in Egypt, for instance, 38 frame attributions were assigned to the ‘praise the safety credentials of NPP’ sub-

frame category. This signifies 10.4% of all frame attributions, which represents the largest proportional value of all sub-frames in the sampled news media discourses on nuclear energy in Egypt. Interestingly, in the sampled news media discourses on nuclear energy in Egypt, every reference to the high safety standards of the country's nuclear energy project was uttered by an expert affiliated with, or in support of the Egyptian government. For instance, the following text excerpt quotes Dr Amjad El-Wakeel, Chairman of the Nuclear Power Plants Authority (NPPA):

"He added that one of the most important features of the El-Dabaa nuclear plant is the Russian company Rosatom's reliance on the highest safety standards used in in this type of reactor, in addition to that it is considered the highest safety and newest in the world." (Egypt Today, 2021b, para. 5)

Another example is presented in the following text passage that quotes Yassin Ibrahim, former head of the NPPA:

"The error and risk coefficient is non-existent and the ratio is 'zero' because if something goes wrong, the station shuts off automatically to avoid any radiation leaks. He added that the 'container' of the reactor endured the collision of a 400-tonne aircraft loaded with fuel, flying at a speed of 150 metres / second, and a tsunami up to 14 metres." (Daily News Egypt, 2019, para. 8)

Interestingly, the reference to a hypothetical aircraft collision is a recurrent theme that is repeated by various elites in several re-iterations. For instance, the following text excerpt references Egyptian President Abdel Al-Sisi:

"He added that there are real guarantees during implementation and operation with regards to the environment and safety, according to

international standards, where it could withstand a plane crash of 400 tonnes at a speed of 150 meters per second.” (Daily News Egypt, 2017b, para. 7)

Overall, there are 7 direct references to the risk of airplane collisions and the nuclear facilities' ability to maintain its structural integrity and withstand the impact. The specific reference to airplane impacts mirrors concerns about terrorist attacks on nuclear energy installations, and especially the prospect of a repeat scenario of the 9/11 attacks. Unsurprisingly, the fear of extremist-led attacks on nuclear energy infrastructure is even more profound in the context of the Middle East, which has witnessed the rise and on-going operation of numerous extremist movements (Ganor and Azani, 2019). The very specific concern about airplane collisions with nuclear power plants emerged after 9/11 and has led to various academic studies, as well as discussions in popular media, such as newspapers (Eibl, 2003; Edwards, 2011; Spiegel, 2011; Qu et al., 2020; Rawsan and Maiti, 2021).

The high frequency of the 'praise the safety credentials of NPP' sub-frame is also observable in the sampled news media discourses on nuclear energy in Jordan. Specifically, the sampled news media discourses on nuclear energy in Jordan produced 23 frame attributions that were linked with the 'praise the safety credentials of NPP' sub-frame, which represents 5.9% of all frame attributions in Jordan. As was the case in Egypt, all discourses that stress the safety profile of the nuclear energy programme and planned nuclear energy infrastructure are direct references of elite actors. For instance, the following text passage quotes King Abdullah II:

“Let me say at the outset that for a small country like ours, safety at every level must be and will be the number one priority.” (Petra, 2012, para. 41)

Another newspaper discourse references Khaled Toukan, Chairman of the Jordan Atomic Energy Commission (JAEC):

“Toukan stressed that JAEC has pursued the promotion of nuclear energy in Jordan, with strict adherence to nuclear safety and security and an advanced selection of safe nuclear reactors.” (The Jordan Times, 2018a, para. 12)

The ‘praise the safety credentials of NPP’ sub-frame is also present in the sampled news media discourses on nuclear energy in Türkiye. Precisely, there are 21 frame attributions associated with the ‘praise the safety credentials of NPP’ sub-frame category, which represents 7.4% of all frame attributions in the sampled news media discourses on nuclear energy in Türkiye. This signifies the fifth largest proportional value of all frame attributions in the sampled news media discourses on nuclear energy in Türkiye. Again, all discourses that emphasise the high safety standards of Türkiye’s planned nuclear energy infrastructure are direct references of experts or elite sources associated or directly involved with the Turkish nuclear energy programme. For example, the following text segment quotes Yuri Galanchuk, CEO of the Akkuyu Nuclear Company, which is the project company of Türkiye’s first nuclear power plant:

“This plant is ideally protected from any theoretical mistakes, from malfunctions, even from human errors. It will be at the highest level of protection against tsunami and earthquakes, technical accidents. Also, automatically protected from human errors.” (Anadolu Agency, 2018c, para. 7)

Another text excerpt emphasises the positive effect of the Fukushima disaster on nuclear safety and quotes Sergey Kiryenko, CEO of Rosatom, Russia’s state-owned reactor vendor that constructs Türkiye’s first nuclear power plant:

“We have drawn valuable lessons from Fukushima, and preparing our security measures accordingly. We must be ready against the strongest natural disasters, and on the possibility of them happening concurrently.” (Anadolu Agency, 2014c, para. 17)

Thus, overall, the ‘praise the safety credentials of NPP’ sub-frame signifies a comparatively expansive sub-frame category in all case study countries. Additionally, the fact that all utterances of discourses linked with the ‘praise the safety credentials of NPP’ sub-frame are references by elite actors that are directly associated with, or closely connected to the national governments or the national nuclear energy programmes is noteworthy.

One possible explanation for the dominant role of elite sources in discourses linked with the ‘praise the safety credentials of NPP’ sub-frame is that elites that speak on matters associated with the national nuclear energy programme deliberately emphasise the high nuclear safety standards of the planned nuclear energy installations. This practice seems logical as extensive research has demonstrated that media coverage can positively affect the public acceptance of nuclear energy (Friedman, Gorney and Egolf, 1987; Gamson and Modigliani, 1989; Koerner, 2014; Wang et al., 2020; Hacquin et al., 2022). Hence, the persistent iteration of the nuclear safety attributes of planned nuclear energy infrastructure could be perceived as a purposeful tactic to fend off international criticism and suppress domestic opposition. This scenario is also supported by the knowledge that all three case study countries have integrated public awareness policies into their nuclear energy programmes (IAEA, 2016c, 2022a, 2022b). Furthermore, public relations activity by governments is a common opinion-making approach that seeks to accentuate the positive attributes of nuclear energy, while disregarding potentially negative factors (Diesendorf, 2007; Kleiner, 2008). Governments employ public relations tactics to garner support for their

policies. Precisely, government communication “aims to be persuasive and tries to influence the knowledge, attitude and/or behaviour of citizens” and must be classed as “a form of ideology production” (Gelders and Ihlen, 2010, p. 60). Available research has also shown that government public relations activities are on-going operations that run parallel to policy choices, such as nuclear energy, throughout their lifespan, and may involve the argumentation in support of policy choices in media appearances or newspaper interviews (Van Ruler and Dejan, 2005; Gelders, Bouckaert and van Ruler, 2007). Hence, in sum, the exclusive dependence on elite sources in references praising the nuclear safety attributes of nuclear energy projects may be explained by a deliberate communication strategy that seeks to pro-actively accentuate the project’s high nuclear safety credentials.

Additionally, earlier work in the ‘Discussion’ chapter has highlighted the common practice of journalists and news outlets to preferably rely on elite sources, which is another possible explanation for the domineering presence of elite voices in references linked to the ‘praise the safety credentials of NPP’ sub-frame category. Moreover, as the earlier inquiry into the media bias in the reporting on the Eastern Mediterranean in Türkiye has shown, the source selection is one of several indicators that can signal whether reporting is balanced and impartial. The fact that all instances of the ‘praise the safety credentials of NPP’ sub-frame category were uttered by elite sources raises the possibility that the reporting favours the government’s position on nuclear energy.

7.7. Summary.

The 'Discussion' chapter has demonstrated that energy security thinking in the case study countries is dominated by security of supply-based factors, while nuclear energy development is primarily motivated by energy security concerns.

The preceding chapter has further illustrated that the sampled news media discourses are dominated by a pro-nuclear stance and offered three possible explanations for this orientation.

The next section in the 'Discussion' chapter demonstrated that Jordan's energy security understanding is predominantly focussed on energy independence and argued that the desire to become energy self-sufficient is linked to energy supply disruptions in the early 2010's.

Next, the chapter showed that co-operation is an intrinsic and non-negotiable part of nuclear energy projects, and that nuclear co-operation plays a significant role in the emerging nuclear power projects in the case study countries.

Another section in the chapter engaged with media bias in the case study countries and demonstrated that Turkish media discourses on Türkiye's foreign policy conduct in the Eastern Mediterranean are partial and may be classed as biased.

Finally, the 'Discussion' chapter also highlighted the pressing need for nuclear newcomer countries in the MENA to try and moderate international scrutiny and public opposition to nuclear energy.

The next chapter is the 'Conclusion, which summarises the objectives and results of this study.

8. Conclusion.

8.1. Introduction.

During this study several notable threads in the data have materialised, including the dominance of a security of supply-based energy security conceptualisation and energy security as the primary motivating factor of nuclear energy development. Additionally, the data has also indicated a case-dependency as differences in energy security understandings and nuclear energy motivations have suggested some country-specific variance. Furthermore, the specific demands of the operational space of the MENA have become apparent, which is reflected, for instance, in the absolute need to moderate international scrutiny of the emerging nuclear energy programmes in the region. Also, the formative effects of resource scarcity on energy security thinking have surfaced, which is reflected in the high security status assigned to security of supply. Another emergent insight has been the need for international co-operation in newcomer countries to participate in nuclear knowledge and technology exchange. Moreover, the reliance on news discourses has proven to be challenging as it remains uncertain to what extent state-owned media in non-democratic regimes in the MENA is dependable.

8.2. Study results - The responses to the research questions.

8.2.1. Inquiry (1) - The comparative analysis of elite views of energy security and nuclear energy in elite texts in Egypt, Jordan, and Türkiye.

This study has established the elite perceptions of energy security and nuclear energy proliferation in oil-poor countries in the MENA. Specifically, this study determined a varied range of energy policies in the inquiry into the elite perceptions of energy security in the case study countries. Interestingly, the analysis of elite views revealed common energy security strategies and ambitions, while other factors were more distinguished in specific case study countries. For example, all three case study countries are pursuing a green energy transition that is expected to lower carbon emissions, while equally improving energy self-reliance by growing the renewable energy sector. Here, the policy commitment by Egypt and Jordan is more profound than in Türkiye where significant investments into the domestic coal sector and reluctant climate change policies raise doubts about Ankara's will to improve the ecological sustainability of its energy sector. Furthermore, all three case study countries are trying to become an energy trading hub to regulate energy transit through their territory, export indigenous energy or electricity, or trade imported energy resources. Here, the desire to function as an energy hub is most intense in Türkiye where its geographical position, expansive and growing pipeline infrastructure, and off-shore natural gas discoveries have increased the perceived importance of the energy hub model.

Overall, however, security of supply-based strategies are the dominant energy security policies observable in the elite perceptions of energy security in Egypt, Jordan, and Türkiye. Precisely, security of supply-centred strategies are referenced the most in elite discourses and represent the central pillars of each country's energy security

strategy. Thus, security of supply-based strategies have the highest perceived importance.

The inquiry into the elite perception of nuclear energy development also revealed case-dependent variability as well as common goals shared by all three case study countries. For instance, all three case study countries are attracted by the low-carbon credentials of nuclear energy as well as the technology's overall environmental sustainability. National prestige is another motivating factor driving nuclear energy adoption in the case study countries. Importantly, the national prestige motivation is most profound in Egypt where the nuclear energy programme signifies a techno-nationalist symbol of national pride, a factor also observable in Türkiye, albeit slightly less profound. Interestingly, the data on the elite perceptions of nuclear energy in Jordan did not identify any meaningful level of national prestige driving the pursuit of nuclear energy development. Another nuclear energy driver detected in the data on the elite perceptions of nuclear energy is the intention to explore and exploit indigenous uranium reserves. Again, this policy intention is not present in all three case study countries, as only Jordan and Türkiye voice their desire to tap into their domestic uranium deposits, which is motivated mainly by their desire to improve their energy independence.

Overall, however, the most prominent motivating factor of nuclear energy development in the case study countries are energy security pressures. Precisely, nuclear energy development is driven predominantly by energy security concerns that arise from security of supply risks associated with the countries' lack of significant hydrocarbons (or oil in the case of Egypt) and the resultant energy import dependence. Energy security concerns are presented as the most important nuclear energy motivations in the elite texts and consistently signify the fundamental and primary motivating factors in elite texts across the three case study countries.

8.2.2. Inquiry (2) - Framing analysis of news discourses on energy security and nuclear energy in Egypt, Jordan, and Türkiye.

The inquiry into the energy security and nuclear energy frames in the sampled news media discourses demonstrated the distribution and frequency of dominant discursive themes that reveal central news media narratives, while also providing some data on public opinions due to the mutually constitutive relation between news media discourses and public opinions. Overall, the data ascertains the conceptualisation of energy security and the motivation for nuclear energy in news media discourses in the case study countries. Interestingly, the data revealed a distinct case-dependency as individual countries are defined by a country-specific distribution of energy security and nuclear energy frames. It is also important to note that the four master frame categories were chosen effectively as all frame attributions were captured by the four categories.

For instance, the energy security frames in the sampled news media discourses in Egypt are distinguished by their primary focus on a green energy transition that associates energy security with an energy system transformation that favours green energy technologies. This reflects the case study countries' common objective of developing green energy technologies and aligns with the elite perceptions data that identified a strong policy objective of improving the environmental sustainability of the energy system in Egypt. However, the frame distribution in the sampled news media discourses in Jordan indicates a traditional security of supply-based energy security conceptualisation. This aligns with the elite perceptions data and illustrates the centrality of security of energy supply in Jordan's national security strategy. Finally, in the sampled news media discourses on energy security in Türkiye energy security is primarily presented as a function of operating as an energy trading hub, which echoes

the results from the elite perceptions inquiry that clearly noted the importance of the energy hub concept in Türkiye's energy security understanding.

Overall, the distribution of frame attributions in the sampled news media discourses on nuclear energy in Egypt is comparatively balanced. However, most frame attributions are linked with the 'Utility' master frame category that holds sub-frames that identify added, supplementary benefits of nuclear energy as the main motivating factors. Moreover, in the sampled news media discourses on nuclear energy in Egypt, environmental sustainability is presented as a principal motivating factor of nuclear energy development. This aligns closely with the elite perceptions of energy security data, which indicated a strong energy policy aim of improving the environmental sustainability of Egypt's energy system. In the sampled news media discourses on nuclear energy in Jordan, however, energy security is presented as the primary driver of nuclear energy development. This aligns with both the elite perceptions of energy security and the energy security frames data in Jordan, which identify energy security and especially security of supply as the dominant nuclear energy drivers. In the sampled news media discourses on nuclear energy in Türkiye, most frame attributions are linked with the 'Energy Security' master frame category. This illustrates the exponentially rising energy demand in Türkiye, which imposes a hefty financial burden arising from significant and rising energy imports and makes energy security the primary driver of nuclear energy development in the country (Anadolu Agency, 2015b). The dominance of the energy security motivation is also reflected in the elite perceptions of nuclear energy data, which established that energy security factors are significant motivating factors underlying nuclear energy development in Türkiye.

8.2.3. Inquiry (3) - The study of security intensifications in news discourses on energy security and nuclear energy in Egypt, Jordan, and Türkiye.

The security intensification (or securitisation) data revealed that the security status assigned to individual energy security and nuclear energy 'problems' and 'remedies' differs between the case study countries. For example, in the sampled news media discourses on energy security in Egypt, an existential threat status is assigned to climate change, which is presented as an issue of national security importance. The ecological awareness observable in the security intensification data in Egypt mirrors the elite perceptions and energy security frames data, which indicate aligned elite and popular perceptions that are both in favour of transforming the ecological sustainability of the national energy system. In Jordan, however, the sampled news media discourses portray security of supply as the most pressing energy security risk. This is also reflective of the dominant themes in the elite perceptions, and energy security and nuclear energy frames data in Jordan, which clearly identify security of supply as the most dominant energy security factor. In the security intensifications data in Türkiye, however, the comparative centrality of the energy hub model is accentuated as the security status of operating as an energy trading hub is only intensified in the sampled news discourses in Türkiye. Thus, according to the sampled news media discourses on energy security in the case study countries, the security importance assigned to the energy hub model in Türkiye is higher than in Egypt and Jordan, which aligns with the elite perceptions and energy security frames data that also demonstrated the comparative centrality of the energy hub model in Türkiye.

In the sampled news media discourses on nuclear energy in Egypt, security intensifications elevated the security profile of nuclear energy risks and climate change concerns. Especially the heightened awareness of climate change concerns as a motivating factor of nuclear energy development echoes the heightened level of

environmental awareness observed in the elite perceptions, energy security frames, and security intensifications linked with energy security data in Egypt. In Jordan, the security intensifications heightened the security status of the nuclear energy risks and recommended a resultant discontinuation of the national nuclear energy programme. Moreover, in the sampled news media discourses on nuclear energy in Jordan, security intensifications also elevated the security importance of water scarcity and subsequent nuclear-fuelled water desalination activities. This aligns with the elite perceptions data, which identified Jordan as the only case study country that pursuit nuclear energy development to produce drinkable water through water desalination. In Türkiye, the highest available security intensification categories are assigned to nuclear energy threats that are presented as issues of existential risk to the survival of the Turkish state. The sampled news media discourses on nuclear energy in Türkiye present the discontinuation of the nuclear energy programme and the guarantee of high nuclear safety standards as solutions to remedy nuclear energy risks.

Overall, however, the security intensification data confirmed the trend observed in the elite perceptions data that the energy security motivation is predominantly driven by security of supply-based factors and that nuclear energy development is primarily driven by energy security concerns. The dominance of security of supply-based energy security drivers echoes the prevailing energy security conceptualisation in resource-deficient countries and confirms the enduring dominance of the security of supply motivation in oil-poor countries.

Importantly, this study combines three discourse types; namely, it directly attains elite and news media discourses, and indirectly gains data on public perceptions due to the mutually constitutive association between news media and public perceptions. Crucially, the opinions expressed in news media coverage are significant as they mirror public and popular perceptions and indicate to what extent official, public, and news

media opinions align (Garyantes and Murphy, 2010). This study contends that perceptions or opinions that are shared by the elites and the news media signify issues of heightened, perceived importance as the alignment reveals a unified, national position. Precisely, in the case that elite and news media opinions are aligned, the opinion at hand represents the favoured response option that has been chosen deliberately by the elites and the news media. Thus, the elites and the news media agree that the chosen opinion represents the most accurate response to the issue at hand. This amplifies the perceived weight of the opinion that now represents multiple intra-national opinion groups (i.e., elites and news media) and reflects a unified, national position. Conversely, in the case that the elite and news media opinions do not align, the perceived significance of the opinion is reduced. Precisely, both opinion groups disagree on the most appropriate response to the issue at hand, which lessens the indicative value of either opinion as they fail to coalesce into a national position.

Consequently, this study argues that an opinion shared by the elites and the news media is a more comprehensive and accurate reflection of the national perception and has therefore more explanatory merit than a misaligned opinion that differs between the elites and the news media. Especially the elite views and security intensification data showed considerable direct congruence as both data sets identified security of supply as the most dominant energy security factor and nuclear energy motivation. Here, the elite and news media opinions are aligned, which heightens the perceived importance of the topic as both discourses coalesce into a unified, national position.

8.3. Study results - The perceived significance of nuclear energy in the case study countries' energy strategies.

8.3.1. Egypt.

Generally, nuclear energy signifies albeit one element of Egypt's multi-pronged, national energy strategy that relies on a relatively balanced usage of different energy types. The 'Integrated Sustainable Energy Strategy 2035' lays out the country's future energy mix composition that integrates a significant share of renewable energy sources and relies also on nuclear energy as a baseload electricity provider (IEA, 2023). Overall, the Egyptian authorities have made significant investments into the renewable energy sector and especially the Benban Solar Park symbolises effectively the country's commitment to the green energy transition (IRENA, 2018). The shift towards renewables and demand-side measures is expected to contribute to Cairo's sustainability objectives, while the country's renewable energy developments are deeply interwoven with substantial knowledge and monetary support from international institutions. Hence, while Cairo is committed to continue its deep-sea drilling operations in the Eastern Mediterranean Sea and is eager to increase its indigenous natural gas production in the short and medium-term, the national energy strategy has shifted firmly towards more sustainable practices and technologies (EBRD, 2022). The clear policy aim is to lower the long-term importance of fossil fuels in the economy.

Overall, nuclear power represents a strategic and valuable component of Egypt's future energy system. Nuclear energy development in Egypt has demanded a high level of commitment that has strengthened inter-state relations with Russia and its state-owned reactor vendor Rosatom but has also required the approval of considerable long-term financial costs (Al-Monitor, 2020). Moreover, the El-Dabaa

nuclear plant is perceived as an essential component of the country's future economy and is expected to facilitate industrial development and economic growth. The technology is also valued for its reliable and stable electricity supply, while authorities are also attracted by its ability to lower opportunity costs and diversify the domestic power system.

In sum, nuclear energy and renewables represent the country's most important future energy technologies that are associated with aspirations to become an international electricity and green hydrogen trading hub. Hence, nuclear energy signifies a comparatively important energy technology choice that contributes to the country's green energy transition and is favoured especially because of its status as a clean energy type. While the current energy system and the short to medium-term energy strategy still relies on fossil fuels, albeit at gradually diminishing rates, their importance is expected to continuously reduce in the long-term.

8.3.2. Jordan.

In its 'Jordan Energy Strategy 2020-2030' policy document, the Jordanian authorities identify the growth of its renewable energy capacities as a primary energy security goal but also consider nuclear energy an important future energy choice (MEMR, 2020). Overall, however, the Jordanian authorities have shifted their focus firmly towards the green energy transition and significant capital has been allocated to solar and wind projects. The Tafila Wind Farm project signifies a landmark development that symbolises the country's energy market liberalisation efforts that have attracted private investors by removing red tape and implementing an attractive investment climate (Kiwani and Al-Gharibeh, 2020). Not only is Jordan eager to raise its energy self-sufficiency, but the country also understands that the abundant solar and wind resources offer a great opportunity to decarbonise its fossil fuel-dependent energy system to reach its sustainability goals. The growth of renewables in the country is also indicative of deep-rooted cooperation with international institutions that have channelled considerable capital into the domestic renewable energy sector. Hydrocarbons, however, have signified an existential risk factor for a long time and the lack of indigenous fossil fuels defines their perceived role in the country. There is a strong emphasis on de-carbonising the national energy system and fossil fuels are expected to play a gradually diminishing role in Jordan's national energy strategy (IRENA, 2021). This is motivated by the country's severe energy import dependence but also due to fossil fuel's adverse climate change effects.

Between 2007 and about 2018, nuclear energy was presented as a strategic long-term investment that was expected to profoundly transform the national energy sector. The hope was to achieve energy independence, while possibly gaining financially from excess capacity exports (El-Anis, 2012). The technology was also heralded as a

mechanism by which to accomplish the country's sustainability objectives and improve the environmental credentials of its national energy system (Petra, 2010).

Importantly, since 2018, the national nuclear energy programme has shifted its focus and is now contemplating the deployment of several small modular reactors (SMR) (Rosatom, 2018). Overall, the Jordanian plans for a nuclear power plant never progressed beyond an inter-governmental pre-investment agreement and the country did not even conduct a feasibility study for its chosen reactor type (WNA, 2022). Thus, while the initial enthusiasm might have been high, the lack of sincere and enduring commitment to the project as well as the re-orientation towards unproven SMR options, suggests that nuclear energy signifies a comparatively insignificant energy technology choice. In fact, Jordan presents itself as a best practice case that demonstrates how renewable energy development can be accomplished in developing countries and considers renewable energy as the most important energy technology option to mitigate its energy security problems (Kiwani and Al-Gharibeh, 2020). Importantly, fossil fuels continue to perform a vital function in the national energy system and remain the second-most significant energy type in current as well as future-oriented, medium-term national energy strategies.

8.3.3. Türkiye.

Throughout the analytical timeframe of this study the perceived importance of nuclear energy, fossil fuels, and renewables has changed. Türkiye has long resisted calls to adopt more environmentally sustainable practices and commit to a more substantial energy system transformation (MOD, 2016). Hence, the deferred yet gradually intensifying integration of renewables and demand-side measures are relatively recent additions to Türkiye's energy strategy. Nuclear energy has been considered a crucial element of the national energy strategy since the beginning of this study's analytical timeframe in 2009, while renewables have only become a significant energy policy option about a century ago (WNA, 2020).

Nuclear energy in Türkiye is expected predominantly to supply electricity for Türkiye's rapidly growing population and add significant baseload capacity to satisfy the country's rising demand (IAEA, 2022b). However, nuclear energy is also perceived as an important element of Türkiye's energy system diversification that can support economic development and industrial growth. While the initial capital investments are substantial, Ankara believes that stable electricity prices as well as low uranium and operations costs make the project economically viable in the long-term (WNN, 2023). Also, the Akkuyu nuclear power plant is presented as an important component of the country's de-carbonisation efforts.

Thus, at the beginning of this study's analytical timeframe, nuclear energy was perceived as a more significant energy technology choice than renewables. However, at the same time, the country's almost complete dependence on energy imports made fossil fuels the most significant energy type. Yet, this has changed now as renewables are increasingly marketed as the most important future energy system components and fossil fuels have become increasingly insignificant in future energy

system projections. The 'Renewable Energy Resource Areas' scheme, for instance, aims to grow foreign direct investment volumes to develop the domestic renewable energy sector (MFA, 2023). Moreover, green energy technologies are central components of the country's sustainability strategy and are expected to help diversify the economy, while empowering especially rural communities. However, most importantly, renewable energy is understood as a strategic tool to diversify the energy sector and lessen its energy import dependence (Enerdata, 2021).

In 2024, however, fossil fuels are still a significant component of Ankara's energy strategy. For instance, Türkiye wants to increase the utilisation of its domestic coal reserves by increasing production outputs and is hopeful that recent natural gas discoveries in the Black Sea can improve its energy self-sufficiency (Al Jazeera, 2020). At the same time, nuclear energy and renewables are also considered exceptionally important energy technologies, which suggests that the perceived importance of nuclear energy, renewables, and fossil fuels is relatively balanced.

8.4. New knowledge and contributions to the available literature.

8.4.1. Contributions to the international relations scholarship.

Overall, the IR literature on the MENA is comparatively limited (Halliday, 2005; Hinnebusch, 2015; Valbjørn, 2017). However, “[i]t is not true that the Middle East is totally absent from IR scholarship” (Darwich, 2015, para. 2) as several notable publications have endeavoured to develop IR theory in the context of the Middle East (see Walt, 1987; Barnett, 1998; Halliday, 2005; Hass, 2012; Hinnebusch, 2015). Overall, however, the Middle East is under-represented in studies on IR theory (Hinnebusch, 2003; Halliday, 2005; Dunne, Hansen and Wight, 2013; Acharya and Buzan, 2017). In fact, the available literature is not only limited in IR theory applications in the context of the MENA, but there is the general, observable trend “[t]hat the study of *International Relations – its main theories, its dominant centres of teaching and research, its leading publications – neglects or marginalises the world beyond the West*” (Acharya, 2011, p. 620). Similarly, Acharya and Buzan (2017) criticise the persistent parochialism and ethnocentrism of the IR scholarship that continues to favour Western voices and contexts. Therefore, at a fundamental level, this study contributes to the limited literature on IR research in non-Western contexts.

This study has demonstrated the applicability of both the geopolitical and the global energy governance approach to describe energy interdependencies in the context of this study (Wilson, 2021). Precisely, the geopolitical approach holds an ‘access-based’ understanding of energy security that is rooted in structural realism and perceives energy resources as existential needs to guarantee state survival (Klare, 2004, 2006, 2009, 2015; Dannreuther, 2010, 2013; Glaser, 2013b; O’Sullivan, 2013). This study identified the geopolitical approach to energy in IR theory as the most appropriate theorisation to describe the security of supply-centred energy security understanding

in the case study countries. The logic behind the appropriateness of the geopolitical approach in the context of this study arises initially from the case study countries' resource scarcity. The lack of indigenous fossil fuels (or oil in the case of Egypt) makes the case study countries net energy importers, which raises their energy security risks and their susceptibility to energy supply disruptions (Peters and Westphal, 2013). The importance of energy to the case study countries is subsequently heightened as it is perceived as a scarce commodity of strategic value (Klare, 2009). Importantly, energy is classified as a 'strategic mineral'; a commodity that sits at the heart of economic security and is predominantly attained through imports, which elevates the supply of energy to an issue of national security (Haglund, 1986). Thus, the dominance of security of supply-based energy security perceptions in the case study countries is driven by the lack of significant domestic oil and natural gas resources that increases their 'external dependency', which raises the exposure to energy supply disruptions (Russett, 1984). Consequently, the case study countries rely on security of supply-based energy security strategies as they are the most effective policies to gain access to adequate quantities of energy, mitigate the insecurities linked with their energy import dependence, and overcome their lack of indigenous hydrocarbons.

The 'global governance approach' signifies the second, alternative behavioural logic, which contrasts the 'geopolitical approach', and is used in this study to theorise the high levels of co-operative operations describing the process of nuclear energy development in the case study countries. Here, liberal IR theory is employed to describe energy interdependencies as a shared undertaking that permits the resource-deficient case study countries to tap into transparent and inclusive energy markets to attract cross-border technology exchange. This theoretical variant is constituted by the reality that very few governments have access to a complete list of resources required by their economies (Verrastro and Ladislav, 2007). International actors are attracted by the positive-sum understanding of international co-operation

that can aid in remedying the energy scarcity-induced energy insecurities and develop additional energy technologies, such as nuclear energy (Goldthau and Witte, 2009b; Lesage, Van de Graaf and Westphal, 2010). In this study, the nuclear energy adoption process of the case study countries is marked by their dependence on international co-operation. In fact, the influential role of inter-state collaboration in realising nuclear energy integration is profound and a characteristic factor of the international nuclear energy sector (Jewell, Vetier and Garcia-Cabrera, 2019). The case study countries take advantage of the mutually beneficial potential of regulated international co-operation and attempt to realise energy security-driven nuclear energy development. Hence, in the context of this study, both the 'geopolitical approach' and the 'global governance approach', two principal IR theories on energy, have been applied in the context of the MENA. The dual applicability of these concepts arises from the energy insecurity situation in the case study countries that imposes on them a certain (security of supply-based) energy security behaviour, and the obligatory reliance on external suppliers of nuclear energy technologies in contemporary, newcomer states.

Additionally, this study's inquiry into the security intensifications of energy security and nuclear energy discourses contributes to the literature on the nexus between IR theory, energy, and the MENA region. Specifically, at a fundamental level, this study adds to a burgeoning literature on energy securitisation that includes studies on energy securitisation in the EU (Natorski and Herranz Surrallés, 2008), Germany and Poland (Heinrich and Szulecki, 2018; Szulecki and Kuszniir, 2018), and UK and Poland (Judge and Maltby, 2017). Furthermore, this study also contributes to the limited, available literature on energy securitisation in non-Western contexts, such as studies on energy securitisation in China (Nyman, 2013, 2014; Leung et al., 2014; Nyman and Zeng, 2016), and Russia (Wilson, 2019). Importantly, a growing literature on IR theory and securitisation in non-Western contexts has demonstrated the applicability of the securitisation concept to contexts beyond the West (Wilkinson, 2007; Vuori, 2008;

Christou and Adamides, 2013; Adamides and Christou, 2015; Nyman and Zeng, 2016; Mabon, 2018a). Overall, however, there is very limited research on securitisation in the context of the MENA, a region with highly idiosyncratic facilitating conditions that differ markedly from the Copenhagen School in their understanding of ruler, society, politics and rights (Chatterjee, 2004; Greenwood and Wæver, 2013; Kapur and Mabon, 2018; Mabon, 2018a, 2018b). Importantly, to the best of author's knowledge, Christou and Adamides (2013) and Iseri (2019) are the only studies that investigate the securitisation of energy in the context of the MENA. Thus, to the best of author's knowledge, this study represents the first systematic and comparative inquiry into energy securitisation in the context of oil-poor countries in the MENA. More specifically, this study signifies the first comparative analysis of the securitisation of energy in news media discourses in Egypt, Jordan, and Türkiye. Consequently, this study has produced new knowledge on the securitisation (or security intensification) of energy in news media discourses in Egypt, Jordan, and Türkiye, and in oil-poor countries in the MENA.

Moreover, securitised discourses hold issues of extraordinary, perceived importance, which contain narratives that are intensified to an existential risk level (Wæver, 1995; Buzan, Wæver and de Wilde, 1998). Especially these securitised discourses are valuable to the elites as they convey possible topics of perceptive misalignment that may escalate to public discontent and eventually form oppositional positions. This is especially critical in the context of the MENA as regional states have traditionally been susceptible to popular uprisings, demonstrated by the wide-reaching revolutionary movements of the Arab Spring (Greenwood and Wæver, 2013; Hamid, 2015; Ryan, 2022). Thus, this study produces valuable data for the case study countries' regimes that can form the rational basis for pre-emptive public policy adjustments.

Another contribution to the available literature is the joint instrumentalisation of framing and securitisation analysis. Precisely, as outlined in the methodology chapter, this study structures the securitisation analysis by dividing the constituent parts of the securitisation move (i.e., existential threat declaration and extra-ordinary counter-measure) across the 'problem effect' and 'endorsing remedy' framing effect categories. This has produced data on the exchange between existential threat declaration and extra-ordinary counter-measure, which effectively captures perceived energy security risks, while also elucidating the role of nuclear energy as a counter-measure to energy insecurity in the case study countries. This specific, combined instrumentalisation of framing and securitisation analysis was pioneered by Mortensgaard (2020) who analysis discourses on the migration crisis on the EU's southern border in Danish newspapers. However, this study signifies the first systematic application of Mortensgaard's (2020) methodological approach to news media discourses on energy in the context of the MENA.

8.4.2. Contributions to the scholarship on energy security and nuclear energy.

The available literature on regional aspects of nuclear energy development often reports on nuclear energy in the context of green energy transitions or renewable energy technologies (Schmidt et al., 2012; Kumetat, 2014; Brand and Blok, 2015; Griffiths, 2017). However, to the best of author's knowledge, the only study systematically examining nuclear energy policy in the context of a conventionally sized nuclear reactor (~1 GWe) and focussing on a sub-regional cluster of countries in the MENA is Jessica Jewell's 2011 article 'A nuclear-powered North Africa: Just a desert mirage or is there something on the horizon?'. Jewell (2011a) determines the motivations for nuclear energy development of countries in North Africa but uses a largely quantitative methodology that compares capacity indicators of newcomer countries against benchmark values set by established nuclear countries. This study diverges from Jewell (2011a) as it focusses exclusively on resource-deficient case study countries and uses a purely qualitative methodology that combines data on the elite perceptions, frames, and security intensifications of nuclear energy. This study's inquiry into nuclear energy illustrates the range of elite, public, and popular narratives, which permits a country-specific conceptualisation of nuclear energy motivations, while also permitting a comparative analysis that demonstrates divergence and congruence. This data signifies new information that advances the understanding of nuclear energy conceptualisations and motivations in Egypt, Jordan, and Türkiye; in energy-deficient countries; and in the context of the MENA.

8.5. Future research agenda.

This study has identified several interesting trends in the data that have not been studied in this thesis due to word limit constraints. However, these trends lend themselves well for a future research agenda as they describe and identify salient issues that have not been answered conclusively.

One area that merits further analysis is Jordan's failed nuclear energy programme and especially the reasons for its demise. This study and the available literature has shown that Jordan has always had low capacities and motivations for a nuclear energy project and has shifted its energy policy focus towards the exploration and exploitation of indigenous shale oil and renewables (Jewell, 2011b). However, the question remains why Jordan's pursuit of an average sized 1 GWe nuclear energy plant has failed. Was it due to the country's low capacities and motivations for nuclear energy development or was it a conscious energy policy choice that favoured other domestic energy types, or was it a combination of both?

Another interesting topic for further academic inquiry is Türkiye's recent shift towards more environmental awareness that resulted in the adoption of several international treaties and official announcements that declared Ankara's desire to develop its green energy credentials. However, this study has shown that Türkiye is committed to expand the exploitation and utilisation of its indigenous coal resources, while much energy policy focus is directed at the prospect of exploiting further hydrocarbon deposits in the Eastern Mediterranean and the Black Sea. Therefore, the question arises: How sincere and far-reaching is Türkiye's stated desire to improve its environmental sustainability?

Another area that lends itself well for further inquiry is the relative importance of water desalination as a driver of nuclear energy development in the case study countries. This study has shown that water desalination is at most a secondary driver of nuclear energy development in Egypt and Jordan, while it is missing completely from the nuclear energy motivation in Türkiye. In fact, even in Egypt and Jordan, water desalination signifies a subordinate and practically neglectable motivating factor of nuclear energy development. Thus, this study has revealed that water desalination is not understood as a key motivating factor of nuclear energy development in the case study countries. This breaks, for instance, with Jewell (2011a) who names water desalination as one of three primary motivating factors of nuclear energy development in North Africa. Thus, this study's data questions the accuracy of the existent knowledge and raises the following question: To what extent does water desalination in water deprived countries drive nuclear energy development?

8.6. Conclusion.

While the textual, framing, and securitisation analyses produced a wealth of data, the main insights can be compressed into several key points.

The first important point has been the realisation that energy signifies an unusually important commodity in the case study countries. Precisely, the resource scarcity-borne energy security risks exert substantial security and financial pressures that elevate the security status assigned to energy. This is clearly reflected in the high security status given to security of supply and energy security in the security intensification data. Thus, in the case study countries, the role of security of supply is elevated to an issue of existential importance. This is common in energy-poor countries and underscores the influential function of oil scarcity in the case study countries.

Secondly, the perceived importance of nuclear energy vis-à-vis other, alternative energy types differs between the case study countries and has, in some instance, even changed within the analytical timeframe of this study. Egyptian policy-makers, for example, understand nuclear energy as a national project of great symbolic value that is expected to alleviate expeditiously rising electricity demand and make available for export additional capacities of indigenous natural gas. While fossil fuels are still key energy types, renewable energy is perceived as most significant in future-oriented energy strategies and nuclear energy represents a vital contributing mechanism by which to accomplish large-scale de-carbonisation of the national energy system. Conversely, while the Jordanian nuclear energy programme was initially perceived as a revolutionary opportunity to fundamentally transform the country's energy security situation, it has now fallen out of favour and is no longer considered an important energy technology choice. The Jordanian authorities perceive renewable energy as

the most important energy type, while the country's persistent fossil fuel dependence remains an important secondary issue that underlies indigenous oil shale exploration and rising imports of LNG to diversify the national natural gas supply. Finally, in Türkiye, hydrocarbons continue to play a significant role in the national energy strategies, which is reflected in the enduring and increasing reliance on domestic coal resources and the country's expansive natural gas infrastructure that supplies relatively reliable energy at comparatively affordable rates, often regulated through long-term supply agreements. However, nuclear energy is perceived as an instrumental national project that dominates future energy system configurations in conjunction with renewable energy technologies. While energy system sustainability has only relatively recently become an important policy aim, the perceived importance of renewables, nuclear energy and fossil fuels is relatively balanced.

Another important insight has been the fact that all three case study countries proactively try to moderate their energy insecurities that result from the lack of (significant) indigenous oil resources. Precisely, the case study countries are all invested in several distinct and concurrent energy policy strategies that are effectively captured by the master frame categories devised to structure the framing analysis. Thus, the case study countries all rely on a country-specific combination of energy supply security, market liberalisation, green energy transition, and energy hub strategies. Importantly, due to the lack of domestic oil resources, the case study countries all pursue energy independence, which is reflected in the propensity for related energy strategies, such as energy supply diversification or the growth of indigenous energy types.

The country-specificity in energy security thinking is a further notable point. Precisely, it is observable in this study's data that Egypt is defined by a comparatively high level of environmental awareness. Jordan, however, favours a security of supply-centred

energy security concept and nuclear energy motivation. Finally, in Türkiye, the energy hub model idea has permeated elite views and news discourses on energy security. Here, energy security is perceived as primarily a factor of operating as an energy trading hub.

Uncertainty about press freedom is another contentious topic that potentially undermines the dependability of discourse analysis that relies on corpora sourced from news outlets in the MENA. Precisely, it is uncertain to what extent the impartiality of news corpora can be expected as (non-democratic) regimes in the MENA routinely exert influence over the news media. Practices involve, for instance, the nationalisation of news outlets, the dissemination of state propaganda through state-owned news media channels, the appointment of editorial staff by the ruling regime, or the threat of legal persecution if news discourses do not align with elite views. Resultant, analysts are faced with a dilemma as they are often uncertain whether their discourse analysis captures elite views or views of a free press, that may contain oppositional narratives, when sourcing news corpora from news outlets in the MENA. In the context of this study, this uncertainty arose in the study of the pro-nuclear stance of the sampled news media discourses.

Another important point has been the small size of the available scholarship on energy security and nuclear energy in oil-poor countries in the MENA, especially in the context of framing and securitisation analysis of news discourses. As the preceding chapter has shown, the available literature is limited, and this study produces new data and knowledge in an emerging but still very narrow scientific field. Therefore, this study's data cannot be compared and benchmarked with much existent data. Instead, one of this study's principal strength is its ability to venture into novel territory and develop a scientific niche that has so far been left untouched.

9. Appendix.

Appendix. Master Frame and Sub-frame quantity for 'energy security' and 'nuclear energy', and all case study countries.

| Subject | Master Frame | Sub-frame | Number of Frames | | |
|--------------------------------|------------------------|---|------------------|--------|---------|
| | | | Egypt | Jordan | Türkiye |
| Energy Security | Energy Supply Security | Energy supply security | 3 | 21 | 22 |
| | | Energy price fluctuations | 0 | 2 | 1 |
| | | Improve regulation, pricing, and standards | 0 | 5 | 0 |
| | | Reduce energy consumption | 0 | 2 | 1 |
| | | Increase reliance on domestic (local) resources | 0 | 38 | 21 |
| | | Modernise energy network/energy sector investment | 0 | 3 | 2 |
| | | Strategic energy (hydrocarbon) storage | 2 | 7 | 16 |
| | | Reform energy prices | 2 | 4 | 0 |
| | | Remove/reform subsidies | 9 | 3 | 0 |
| | | Limit energy import dependence | 2 | 18 | 13 |
| | | Import additional energy | 3 | 8 | 8 |
| | | Construct energy infrastructure | 5 | 12 | 9 |
| Produce/import reliable energy | 4 | 14 | 4 | | |

| | | | | |
|------------------------------|--|----|----|----|
| | Produce affordable energy (i.e., lower costs) | 2 | 36 | 6 |
| | Attract international assistance (i.e., international banks) | 14 | 15 | 0 |
| | (Bilateral) co-operation | 19 | 28 | 23 |
| | Achieve energy independence (i.e., self-reliance) | 5 | 70 | 18 |
| | Explore and exploit indigenous hydrocarbons | 7 | 23 | 20 |
| | Natural gas (+ LNG) | 12 | 7 | 11 |
| | Oil (+ Shale Oil) | 4 | 17 | 4 |
| | Coal | 0 | 0 | 5 |
| | Optimise non-renewables | 5 | 0 | 0 |
| | Energy diversification | 17 | 40 | 33 |
| | Energy supply stability | 3 | 4 | 2 |
| | Oil refinery | 6 | 5 | 2 |
| | Limit hydrocarbon dependency (Grow renewables) | 7 | 21 | 5 |
| Market Liberalisation | Market liberalisation | 0 | 1 | 0 |
| | Regulatory framework for green investments | 0 | 3 | 0 |
| | Attract FDI | 9 | 29 | 7 |
| | Energy market reform | 3 | 6 | 0 |
| | Public-private partnership (PPP) | 6 | 11 | 2 |
| | Attract private sector investment | 16 | 39 | 7 |

| | | | | |
|-------------------------|--|----|----|----|
| Green Energy Transition | Liberalise energy imports | 1 | 3 | 0 |
| | Green energy transition | 10 | 22 | 3 |
| | Limit climate change | 0 | 1 | 1 |
| | Energy efficiency | 10 | 25 | 12 |
| | Utilise natural gas | 0 | 3 | 4 |
| | Increasing demand of, and reliance on electricity | 0 | 7 | 0 |
| | Use waste to generate electricity | 0 | 2 | 0 |
| | Develop electricity storage | 0 | 4 | 2 |
| | Build and upgrade T&D infrastructure | 0 | 3 | 1 |
| | Electric charging infrastructure | 0 | 2 | 0 |
| | Take advantage of benefits/potential of renewables | 0 | 4 | 0 |
| | Limit climate change effects | 0 | 2 | 2 |
| | Feed-in-tariffs | 1 | 4 | 0 |
| | Green projects/electricity | 6 | 47 | 9 |
| | Attract international assistance (i.e., international banks) | 3 | 13 | 3 |
| | (Bilateral) co-operation | 1 | 22 | 3 |
| | Smart meters | 2 | 3 | 0 |
| | Electricity storage system | 1 | 1 | 0 |
| | Low cost of renewables | 2 | 3 | 6 |

| | | | | |
|-------------------|--|----|----|----|
| | Reduce reliance on hydrocarbons | 2 | 1 | 0 |
| | Attract investments (e.g., FDI) | 9 | 23 | 4 |
| | Public-private partnership (PPP) | 2 | 5 | 0 |
| | BOO schemes | 1 | 2 | 0 |
| | Reduce carbon emissions | 8 | 14 | 5 |
| | Develop renewable energy capacities | 22 | 48 | 27 |
| | Geothermal | 0 | 0 | 4 |
| | Hydropower | 0 | 1 | 3 |
| | Solar | 12 | 27 | 7 |
| | (Green) hydrogen | 6 | 8 | 3 |
| | Wind | 12 | 25 | 7 |
| | Develop nuclear energy capacities | 3 | 26 | 11 |
| | Domestic uranium resources | 0 | 8 | 0 |
| | Low-carbon emissions | 2 | 0 | 0 |
| | Cost effectiveness | 1 | 1 | 0 |
| Energy Hub | Energy hub | 25 | 12 | 24 |
| | LNG facilities | 0 | 0 | 4 |
| | Attract investments (e.g., FDI) | 0 | 0 | 3 |
| | Hydrocarbon (i.e., gas) storage facilities | 0 | 0 | 9 |
| | Spot gas market | 0 | 0 | 6 |

| | | | | | |
|-------------------|--------------------|---|----|----|----|
| | | Import LNG & natural gas | 0 | 0 | 6 |
| | | Improve the (geo)political position | 0 | 0 | 6 |
| | | Attract international assistance (i.e. international banks) | 0 | 0 | 8 |
| | | Economic/cultural implications of pipeline connection | 0 | 0 | 6 |
| | | (Bilateral) co-operation | 0 | 0 | 18 |
| | | Benefiting all countries involved/improve relations w. partners | 0 | 1 | 14 |
| | | Green energy exports | 0 | 5 | 1 |
| | | Export natural gas | 7 | 0 | 8 |
| | | Export electricity | 4 | 4 | 0 |
| | | Export indigenous renewable energy (i.e., electricity) | 5 | 2 | 0 |
| | | Export indigenous hydrocarbons (i.e., gas) | 10 | 2 | 0 |
| | | Electricity interconnectors | 14 | 13 | 1 |
| | | Develop LNG trade | 9 | 2 | 4 |
| | | Pipeline connection | 8 | 6 | 77 |
| | | Transit country | 3 | 1 | 25 |
| | | Strategic location | 2 | 4 | 12 |
| Nuclear Energy | Energy Security | Energy Security | 2 | 6 | 4 |
| | | Reduce energy costs | 1 | 33 | 10 |
| | | Energy density advantages | 2 | 0 | 0 |

| | | | |
|--|----|----|----|
| Uranium is widely available/cheap | 2 | 0 | 0 |
| High electricity capacity | 1 | 0 | 1 |
| Lower hydrocarbon dependency | 10 | 5 | 4 |
| Long operational lifetime | 2 | 0 | 1 |
| High volume of energy | 5 | 0 | 1 |
| Produce stable and reliable energy | 6 | 5 | 5 |
| Produce base-load electricity | 1 | 2 | 4 |
| Rely on indigenous energy resources | 0 | 11 | 4 |
| Avoid energy supply disruptions | 0 | 1 | 0 |
| Acquire hedge against oil price volatility | 0 | 1 | 0 |
| Take advantage of stable electricity prices | 0 | 5 | 0 |
| Avoid using costly fossil fuels for power generation | 1 | 2 | 2 |
| Optimise fuel-mix for power generation | 3 | 0 | 1 |
| Lower energy import dependency | 0 | 41 | 20 |
| Achieve energy/electricity supply/mix diversity | 23 | 15 | 12 |
| Cover increased electricity demand | 5 | 17 | 20 |
| Generate cost-effective electricity | 10 | 13 | 5 |
| Explore, exploit, and utilise indigenous uranium resources | 0 | 40 | 0 |
| Increase energy independence | 0 | 19 | 5 |

| | | | | |
|-------------------------------------|---|----|----|----|
| Environmental Sustainability | Environmental Sustainability | 0 | 0 | 0 |
| | Sustainable development | 3 | 6 | 1 |
| | Limit climate change | 2 | 1 | 3 |
| | Limit global warming | 3 | 0 | 0 |
| | Offers opportunity to counter global warming/climate change | 1 | 0 | 0 |
| | Decrease/avoid carbon emissions | 23 | 9 | 21 |
| | Reduce dependence on fossil fuel resources | 4 | 0 | 0 |
| | Contribute to green energy transition | 2 | 2 | 2 |
| Utility | Utility | 0 | 0 | 0 |
| | Other nuclear radiation applications (i.e., medical) | 0 | 29 | 0 |
| | Lead to social/cultural development | 5 | 2 | 0 |
| | Benefit the economy | 15 | 9 | 8 |
| | Benefit national industry | 6 | 1 | 0 |
| | Lead to national welfare | 4 | 0 | 1 |
| | Achieve advances in science, technology, and education | 5 | 1 | 0 |
| | Indicate national/regional stability | 1 | 0 | 0 |
| | Develop the local infrastructure | 1 | 0 | 0 |
| | Educate local NPP workforce | 3 | 19 | 15 |
| | Take advantage of nuclear safety record | 1 | 3 | 6 |

| | | | | |
|--------------------------|--|----|----|----|
| | Nationalisation of nuclear energy (knowledge transfer) | 3 | 0 | 19 |
| | Avoid opportunity costs of using domestic fossil fuels | 4 | 0 | 0 |
| | Improve inter-state relations through NP energy co-operation | 5 | 0 | 6 |
| | Generate electricity to support infrastructure (projects) | 2 | 2 | 0 |
| | Generate electricity for water desalination | 7 | 17 | 0 |
| | Contribute to become an energy hub | 1 | 1 | 2 |
| | Generate electricity for export | 0 | 8 | 0 |
| | Localisation - local companies | 5 | 0 | 3 |
| | Localisation - employment | 8 | 1 | 11 |
| | Localisation - technology | 3 | 1 | 0 |
| National Prestige | National prestige | 1 | 0 | 0 |
| | National achievement | 6 | 1 | 5 |
| | Large national project | 3 | 3 | 2 |
| | Nuclear energy as a national energy | 4 | 0 | 1 |
| | Accentuate the technological superiority of NPP technologies | 9 | 4 | 3 |
| | Equate NP with other major national achievements | 2 | 0 | 0 |
| | Realisation of a long nuclear dream | 5 | 0 | 1 |
| | Acquire international recognition | 3 | 0 | 1 |
| | Praise the safety credentials of NPP | 26 | 21 | 17 |

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