

Embedding Carbon Management in Higher Education Institutions: A Journey to Sustainable Campus

Dr Muhammad Mazhar

Senior Lecturer and Sustainability Coordinator

Nottingham Business School, Nottingham Trent University, UK

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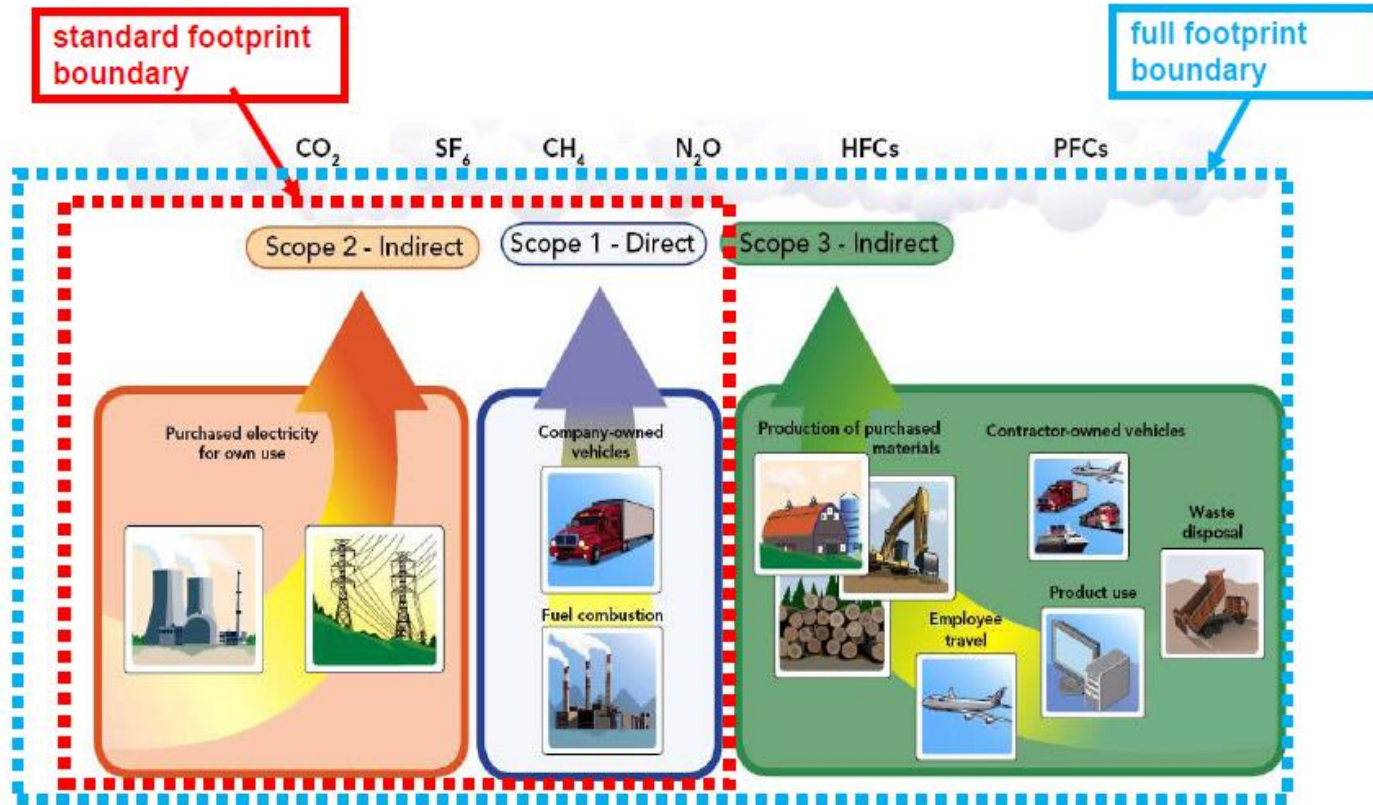
Session Outline

- Policy context
- Impact and role of higher education institutions (HEIs) (universities)
- Organisational drivers
- Story of the UK HE sector
- Carbon management process and strategies
- Challenges
- Good practice case study: Nottingham Trent University, UK
- Lessons to be learnt
- Q & A

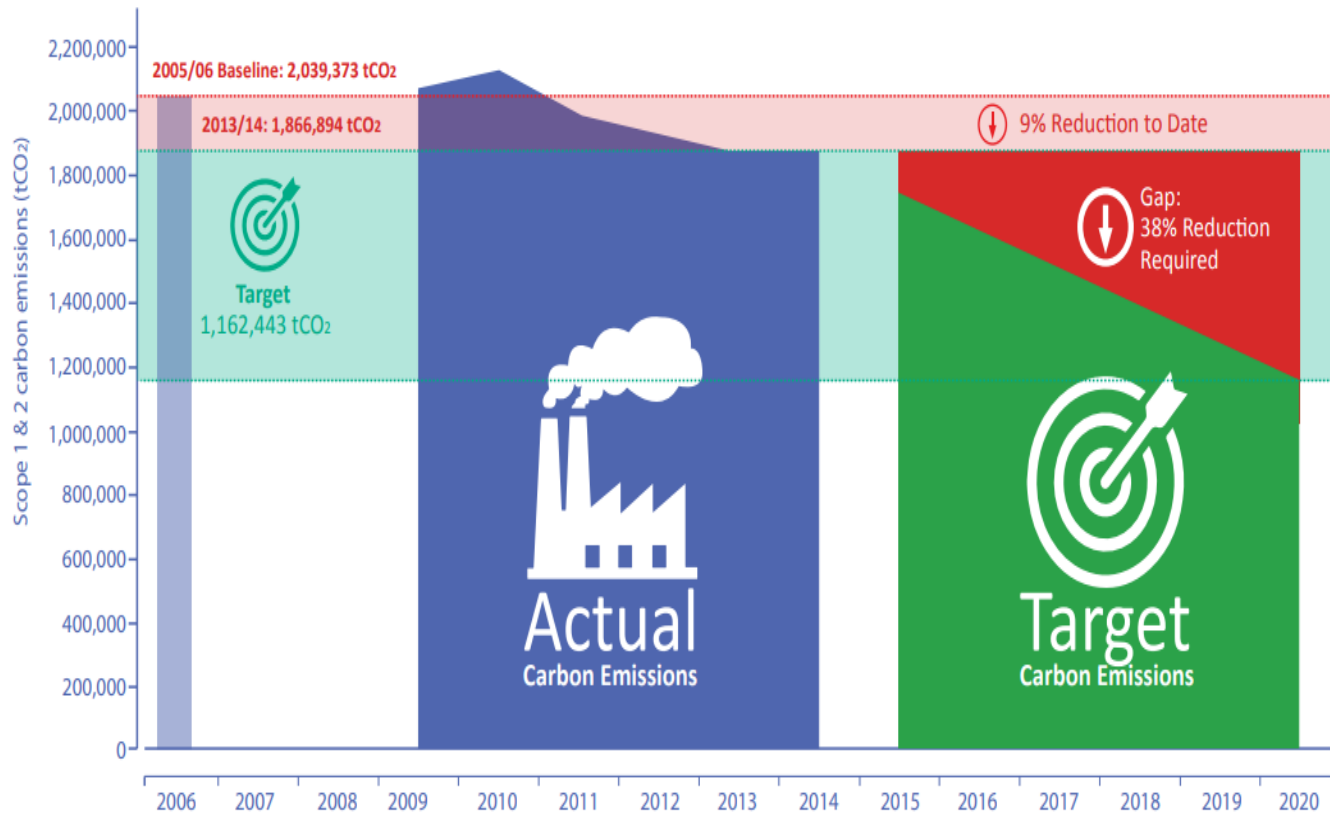
Policy context

- Climate change and carbon emissions
- Global action on climate change
- EU action – policies and targets
 - The 2030 EU climate and energy framework
 - 40% cuts in greenhouse gas emissions (from 1990 levels)
 - 27% share for renewable energy
 - 27% improvement in energy efficiency
- UK Climate Change Act 2008
 - 80% reduction by 2050 and 34% by 2020
- Portugal aspires to be carbon neutral by 2050
 - Aims to reduce overall emissions in the sectors covered by existing agreements by between 18% and 23% by 2020
 - MEET2030 commitment at COP22 in Marrakesh
- HE has a key leadership role

Operational boundary



Impact of universities on the environment



Organisational Drivers

- Climate change
- Doing the right thing
- Government laws and regulations
- Higher education sector policy
- Internal organisational policies
- Energy prices
- Financial savings
- Reputation and market position
- Student & staff recruitment and retention
- Provision of healthier and comfortable environment
- Respond to pressure from NGOs and other groups

Story of the UK HE sector

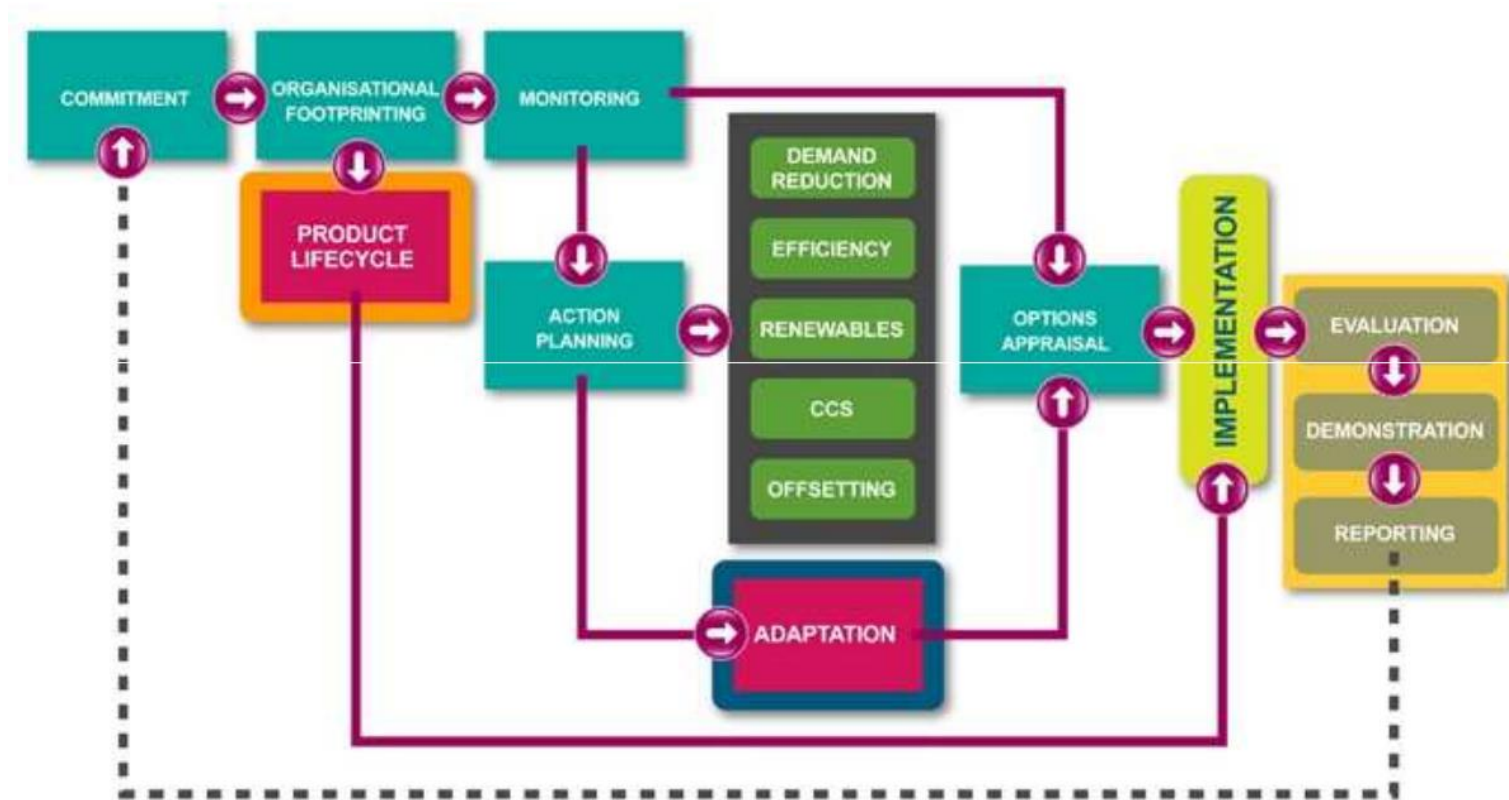
- HEFCE adopted the Climate Change Act 2008 targets
- Universities had to develop carbon management plans (CMPs) to respond to HEFCE
- Capital funding linked to carbon management performance
- A strong policy driver
- Carbon management as one of the strategic [environmental] issues
- Overall, universities have made progress and performance varies significantly
- Funding mechanism changed
- The Office for Students (OfS) replaced HEFCE in 2018



LEARNING IN FUTURE ENVIRONMENTS



Carbon management process



Source: <http://www.windenergynetwork.co.uk/wp-content/uploads/2011/07/Carbon-Management-Process.pdf>

Carbon management strategies

- **Technical**

- Process innovation
- Energy efficiency interventions
- Renewable energy technologies (Solar PVs, Wind turbines, Biomass, Geothermal, Combined Heat and Power etc.)

- **Organisational/management**

- Planning
- Strategic decision-making
- Governance
- Culture

- **Behavioural/human factors**

- Awareness raising
- Engagement
- Participation

Some technologies to explore



Challenges

- Lack of capital funding
- Lack of time and human resources
- Lack of senior management commitment
- Lack of strong policy framework
- Growing estate and business
- Complex buildings stock (Historical/listed buildings)
- Priority to core business
- Lack of knowledge and expertise
- Low carbon/energy efficiency market complexity
- Staff and students' resistance to behaviour change

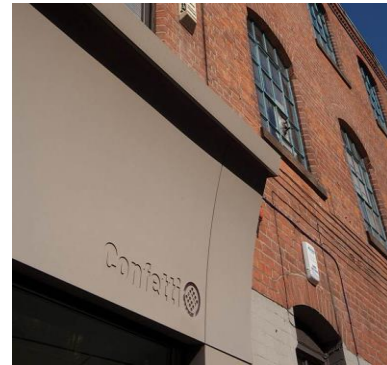


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Nottingham Trent University (NTU) – Case Study



- **30,000** Students
- **4** Campuses
- CIRCA 200,000m² of estate
- **8** Academic Schools
- Offer **over 500** courses



NTU Strategic Plan

Creating
the university of
the future



Core Strategic Themes

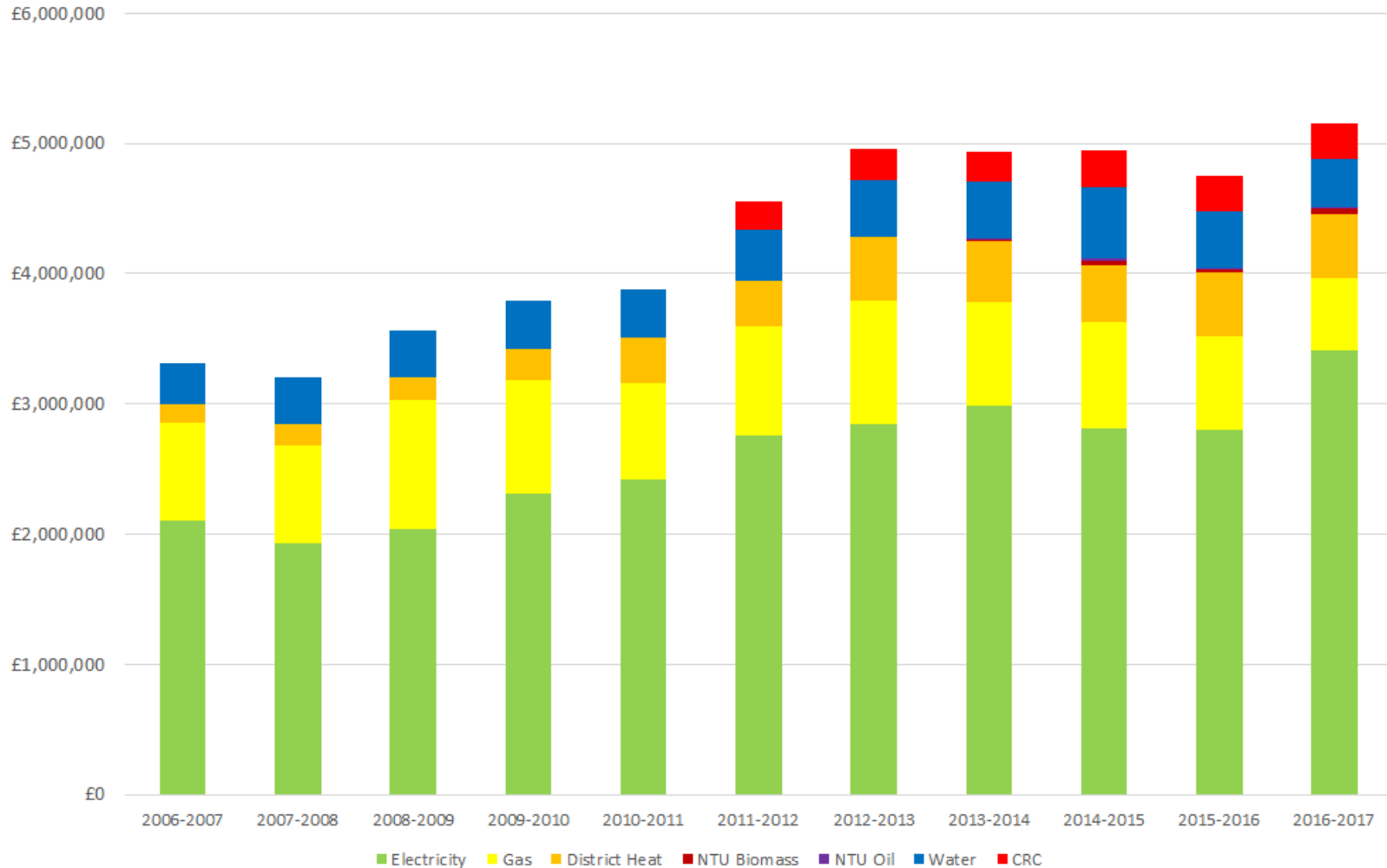
1. Creating Opportunity
2. Valuing Ideas
3. Enriching Society
4. Connecting Globally
5. Empowering People

NTU is embedding Sustainable Development Goals (SDGs)



Energy and Water Cost

Utility Spend



Policies and Strategies

- Environmental Policy
- Energy Policy
- Carbon reduction Strategy for the Estate
- Transport Plan
- Waste Policy
- Water Policy
- Sustainable Food and Drinks Policy
- Biodiversity Policy

Target: Cutting carbon footprint by 29% by 2020/21

Biodiversity



Green Spaces



Waste



Sustainable Construction



Carbon emissions



Engagement



Transport



Education



3 BREEAM

'Excellent'

buildings, including a new carbon negative hub at Clifton, and many more expected.



1 plan to reduce our carbon emissions by **29%** per FTE staff and student by **2020/21**.



1.2 million viewers watched the Peregrine Falcons rear **4** chicks in 2015/16.

Recycling more than **90%** of all waste



40% is sorted on site.

Internationally recognised **Environmental Management System (ISO14001)**.



3 green roofs.

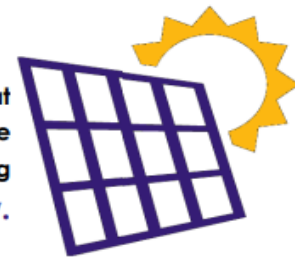


Our Greening the City initiative

is transforming areas from grey to green space.



Solar PV installations at all 3 campuses are generating **350Kw**.



Silver Food for Life award

for sustainable sourcing of ingredients in NTU catering



>10% local

>10% organic.

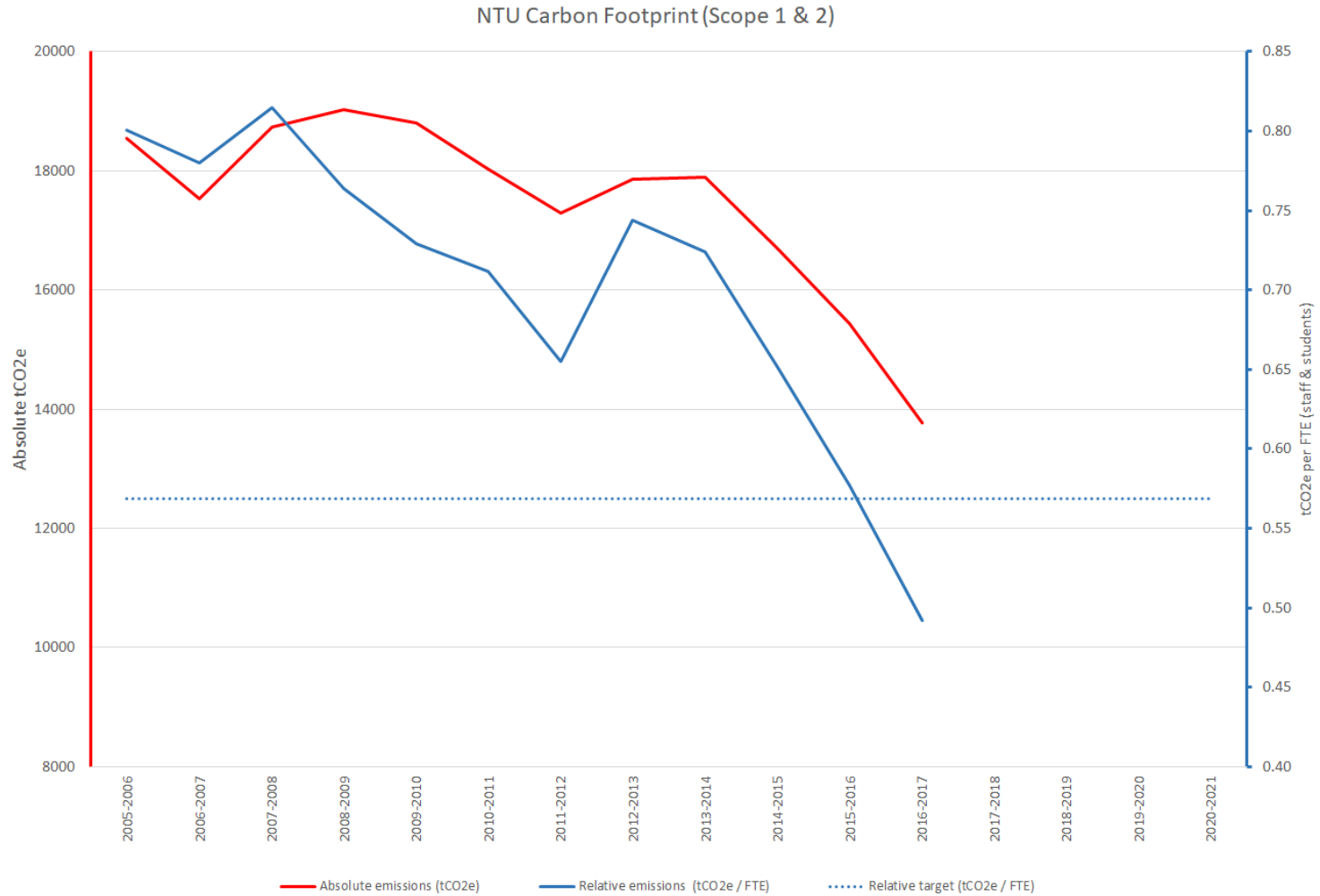
2 green flag awards recognise the quality of our green spaces.



43% of commuters use public transport, **30%** cycle or walk, **27%** drive to NTU.



Carbon Performance



NTU is one of the
most sustainable
universities in
the world



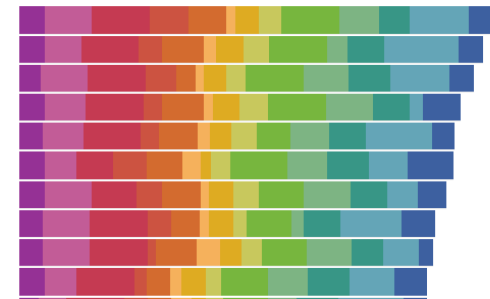
People and Planet University League

- National league – all universities are scored
- Scored on information from website and EMR returns
- Carbon management and carbon reduction are part of it



FIRST CLASS UNIVERSITIES

- 1 Manchester Metropolitan University
- 2 University of Gloucestershire
- 3 Nottingham Trent University
- 4 University of Worcester
- 5 Aston University
- 6 University of Bedfordshire
- 7 University of Brighton
- 8 Cardiff Metropolitan University
- 9 Swansea University
- 10 City, University of London



Year	Position
2017	3 rd
2016	1 st
2015	4 th
2014	4 th
2013	7 th

UI Green Metric World University Ranking

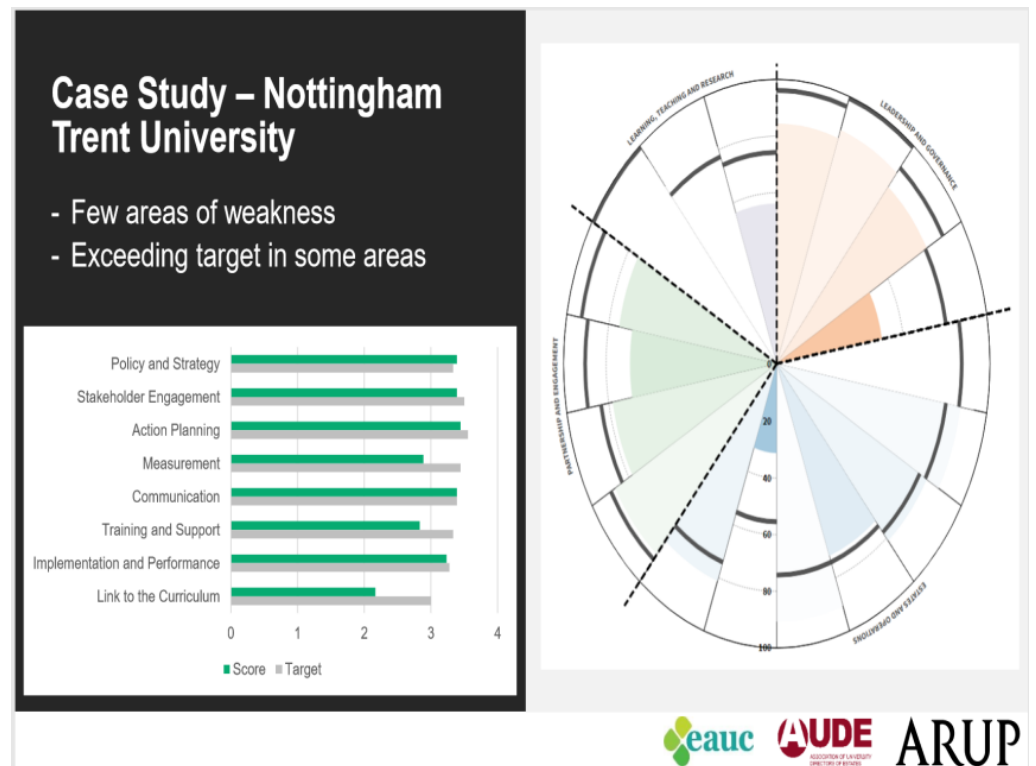
- Voluntary international metric
- Data collected through online questionnaire
- Criteria and indicators:
 - Setting and Infrastructure
 - Energy and Climate Change
 - Waste
 - Water
 - Transportation
 - Education and Research



Year	Position
2017	5 th
2016	9 th
2015	15 th
2014	3 rd
2013	n/a

Sustainability Leadership Scorecard

- EAUC, AUDE and Arup launched the Sustainability Leadership Scorecard
- 'All in One' tool which captures data and performance from various sources
- Pilot is done by universities
- Self-assessment tool, though gap analysis validation, external verification also provided



Year

2017 - Pilot

Environmental Management System (EMS)

- Voluntary international standard
- History – NTU since 2012
- Risk based approach
- Leadership – greater importance
- NQA audit Nov 2017 – transition
- Non Conformances:
 - Energy efficiency
 - Waste documentation

- EMS for universities
- NTU received Platinum
- 'Checking and Correcting'



Governance

Join Executive
Team
Sustainability
Forum

Sustainable
Development
Operations
Forum

Sustainable
Development
Academic
Forum

Student
Sustainability
forum

Lessons to be learnt? (1)

- Practice what you preach
- Robust policy framework is needed
 - ‘Carrot and stick’ approach
- Effective carbon management plans and reporting
- Competitive benchmarking such as University League
- Engagement with the academic community is essential
- Sharing best practices
- The power of students?
 - 85% believe that universities should incorporate and promote sustainable development

Source: <https://sustainability.nus.org.uk/articles/sdg-teach-in-launches-today>

Lessons to be learnt? (2)

- **CMPs are valuable tools** to assist in carbon management
- **Disconnect** between planning and delivery
- Driven by middle managers in **estates/environment team**
 - Other departments need to contribute
- Complex and focused on **technical/engineering** solutions
- Lacking focus on **strategic** and human/social factors
- Unsupportive of wider stakeholder **engagement**
- Not aligned with **core university policies** and strategies
- Focus on **scope 1, 2 and 3**

Critical success factors



Thank you

Any Questions/Comments?

Email: muhammadusman.mazhar@ntu.ac.uk



@u_mazhar

@NBS_Susty



NTU Sustainability



ntu_sustainability

International Carbon Management Study

The research aims to investigate the current international carbon management practices, drivers and barriers within higher education institutions

Please complete the short online survey

<https://www.onlinepesquisa.com/s/33c21ee>