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Nottingham Trent University

The Role of Climate Literacy in Management Education

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EQUIS ACCREDITED

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SMALL BUSINESS CHARTER

PRME CHAMPIONS Principles for Responsible Management Education

Introduction

- Dr Petra Molthan-Hill is Co-Chair of the United Nations Principles for Responsible Management Education (PRME) Working Group on Climate Change and Environment and Professor of Sustainable Management and Education for Sustainable Development (ESD) at Nottingham Business School, Nottingham Trent University, UK. She is an international multi-award-winning expert for Climate Change Mitigation Tools, Greenhouse Gas Management and ESD and leads the ‘Climate Literacy Training for Educators, Communities, Organizations and Students’ (CLT-ECOS) distributed worldwide.
- She has worked with organizations from SMEs to bigger organizations like the NHS on how to reduce GHG emissions and is lead author of the 'Handbook of Carbon Management. A Step-by-Step Guide to High-Impact Climate Solutions for Every Manager in Every Function ' https://www.routledge.com/The-Handbook-of-Carbon-Management-A-Step-by-Step-Guide-to-High-Impact-Climate/Molthan-Hill-Winfield-Howarth-Mazhar/p/book/9781032227603

Halve CO_2 emissions by around 2030

In order to limit global warming to 1.5°C, the IPCC stresses that the world needs **to halve CO_2 emissions by around 2030** and reach Net Zero CO_2 emissions by mid-century.

In addition, the IPCC emphasises ***the need for deep reductions in non-CO_2 emissions across the economy*** to achieve this limit.

CDP (2020) *Foundations for science-based net-zero target setting in the corporate sector:* https://sciencebasedtargets.org/resources/files/foundations-for-net-zero-full-paper.pdf p5

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UN REPORT from 8th of September 2023

- “There is a “rapidly narrowing window” for governments to move faster, according to the report, as global greenhouse gas emissions must peak by 2025 at the latest, and be rapidly reduced from there, to limit temperature rises to 1.5C above pre-industrial levels.
- Emissions are still rising, however, and there is a gap of 20 to 23 gigatonnes of CO_2 between the cuts needed by 2030 to limit global temperatures to 1.5C and the world’s current emissions trajectory.
- The report that was published hurriedly in draft by the UN on Friday, will form the basis of the first “global stocktake” under the 2015 Paris agreement. That process is meant to track countries’ efforts to meet the goals of the treaty.

“Achieving net zero CO_2 and greenhouse gas emissions requires systems transformations across all sectors and contexts, including scaling up renewable energy while phasing out all unabated fossil fuels, ending deforestation, reducing non-CO_2 emissions and implementing both supply and demand side measures,” reads key finding 6 of the report.

https://unfccc.int/sites/default/files/resource/sb2023_09_adv.pdf

https://www.theguardian.com/environment/2023/sep/08/un-report-calls-for-phasing-out-of-fossil-fuels-as-paris-climate-goals-being-missed

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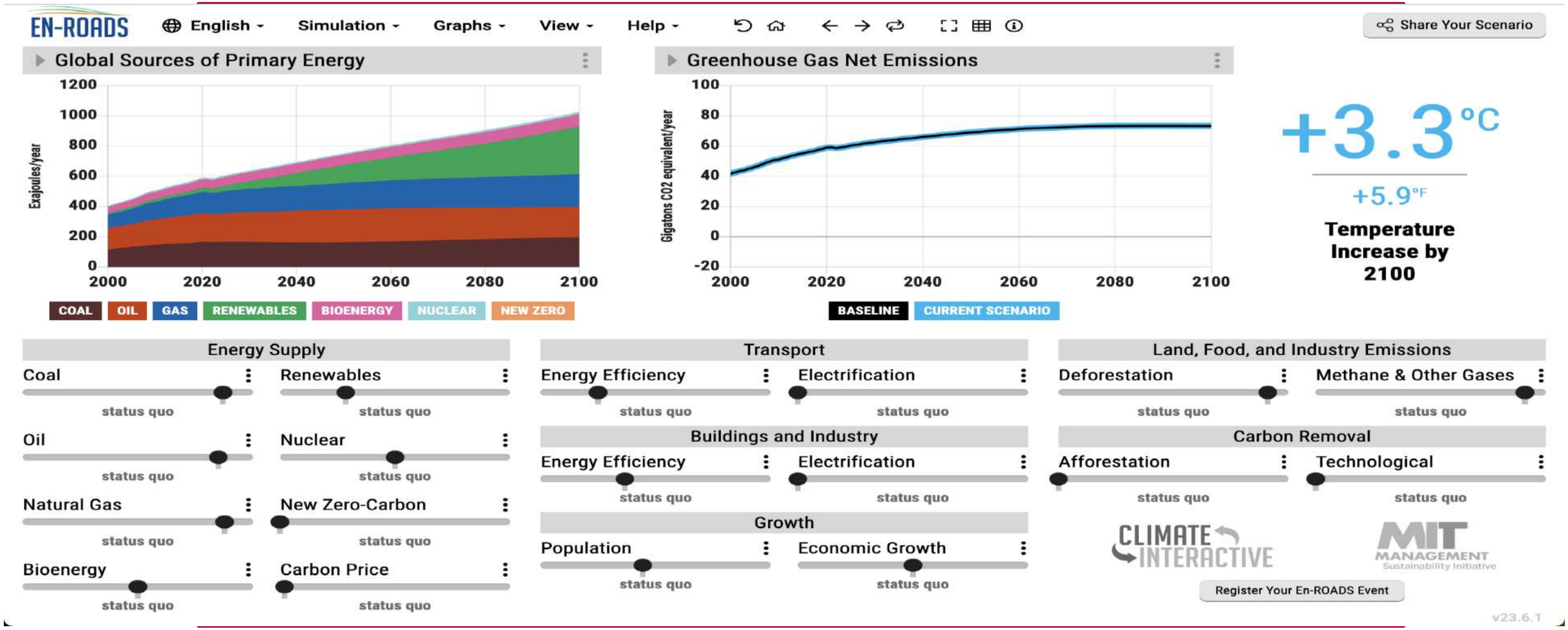
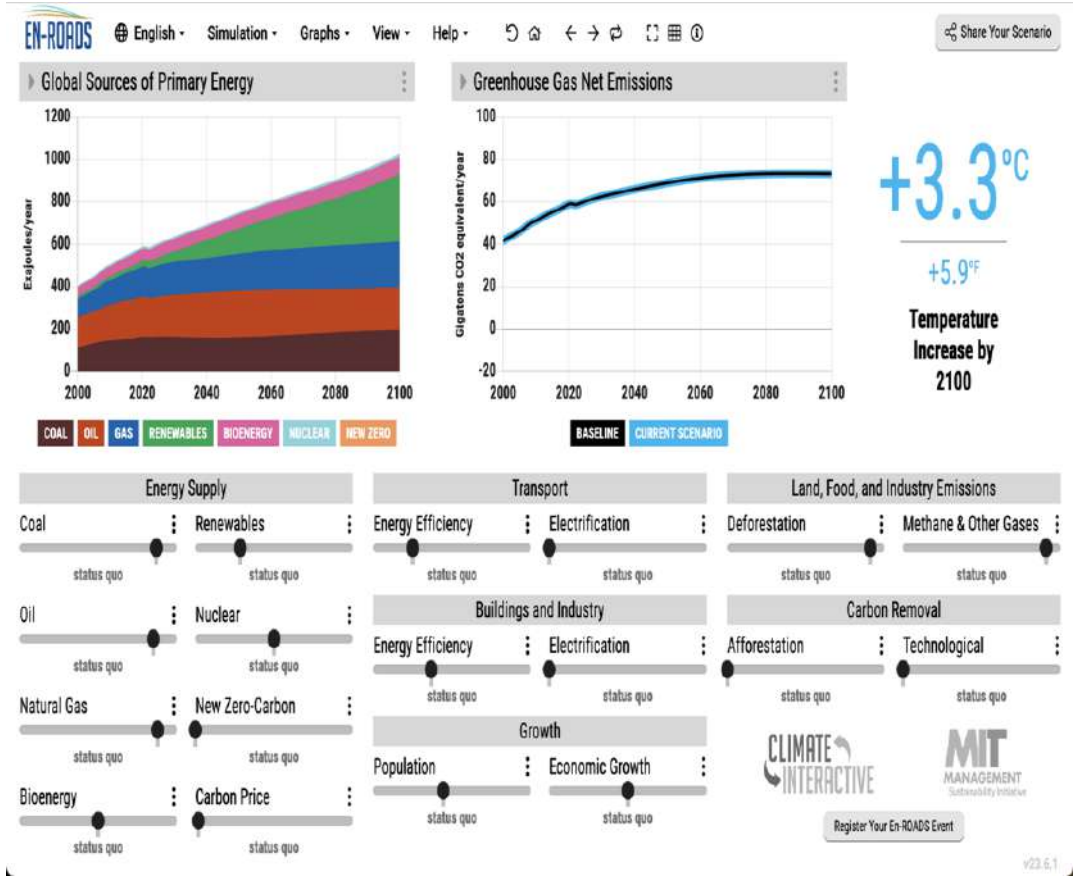


Our key challenge: How to get to 1.5°C? Activity

En-ROADS is a cutting-edge simulation model used to test climate solutions and generate climate scenarios for the future.

Our key challenge: How to get to 1.5C? Activity

https://en-roads.climateinteractive.org/scenario.html?v=23.9.0



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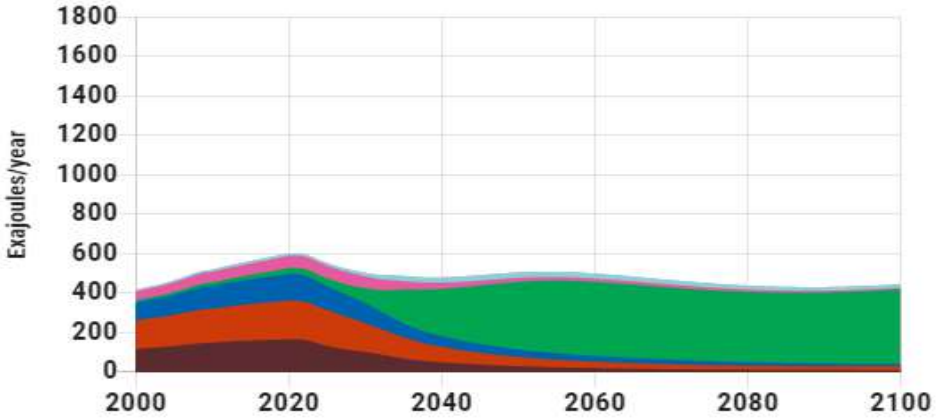
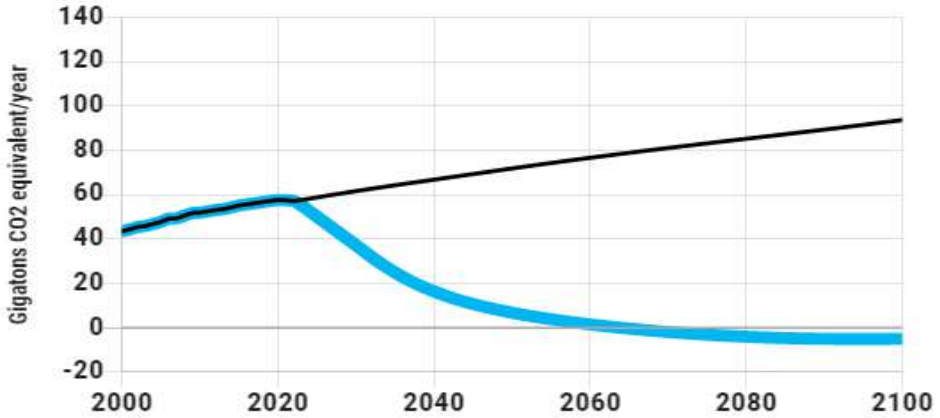
en-roads.climateinteractive.org/scenario.html?v=22.5.0&p1=110&p7=100&p10=5&p16=-0.03&p23=-30&p39=248&p47=4.7&p50=5&p53=98&p55=98&p57=-10&p59=-10...

EN-ROADS | English | Simulation | Graphs | View | Help | Share Your Scenario

Global Sources of Primary Energy



Greenhouse Gas Net Emissions



+1.4°C

+2.5°F

Temperature Increase by 2100

Energy Supply

- Coal: very highly taxed
- Renewables: highly subsidized
- Oil: very highly taxed
- Nuclear: status quo
- Natural Gas: very highly taxed
- New Zero-Carbon: status quo
- Bioenergy: highly subsidized
- Carbon Price: very high

Transport

- Energy Efficiency: highly increased
- Electrification: highly incentivized

Buildings and Industry

- Energy Efficiency: highly increased
- Electrification: highly incentivized

Growth

- Population: status quo
- Economic Growth: status quo

Land and Industry Emissions

- Deforestation: highly reduced
- Methane & Other Gases: highly reduced

Carbon Removal

- Afforestation: high growth
- Technological: low growth

CLIMATE INTERACTIVE

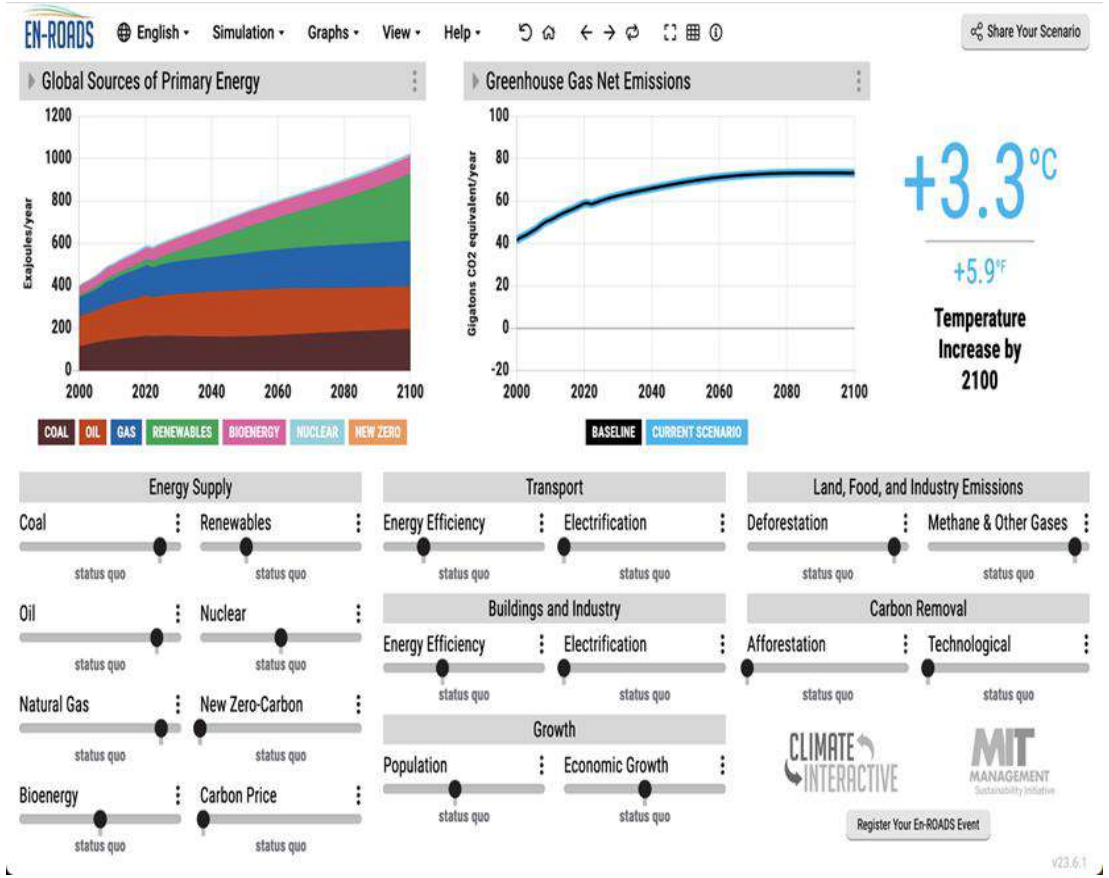
MIT MANAGEMENT Sustainability Initiative

Register Your En-ROADS Event

v22.5

Type here to search | EN | 13°C Partly sunny | 21:23 24/05/2022

Solutions from En-ROADS



Big changes will be achieved by:

- Increasing energy efficiency and electrification in transport, buildings and industry.
- Reducing Methane e.g. by reducing food waste.
- Increasing natural carbon capture as much as possible, including stopping deforestation and increasing afforestation.
- Agreeing on a carbon price.
- CLIMATE LITERACY

Project Drawdown

Video Series:

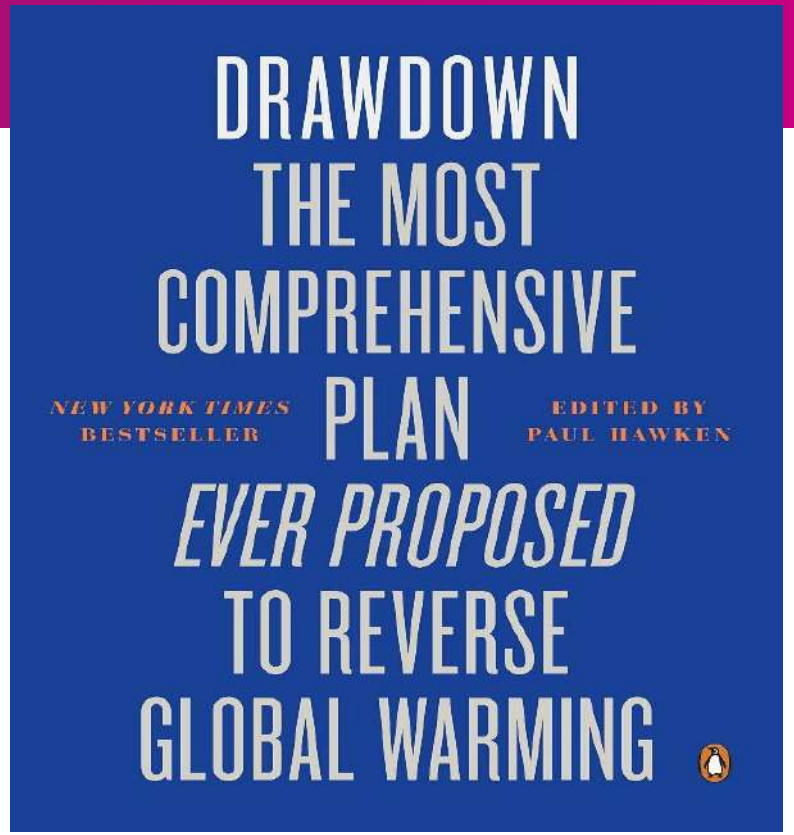
https://drawdown.org/climate-solutions-101

Solutions:

https://drawdown.org/solutions

https://drawdown.org/solutions/building-retrofitting

Retrofitting a-guide-for-non-residential-buildings:
https://www.hertfordshire.gov.uk/media-library/documents/environment-and-planning/building-futures/retrofitting-a-guide-for-non-residential-buildings.pdf



Electrification: Energy Communities

What are Energy Communities?

Citizens, public and private entities produce, consume and share 100% renewable energy. First, the solar panels are installed in the spaces provided by the Producer Members, and the energy is produced for self-consumption and distribution of the remainder to the remaining members of the community (Consumers).

Note: The term "Energy Communities" covers the legal figures of Collective Self-Consumption and Renewable Energy Communities .

https://comunidades.greenvolt.com/comunidades-de-energia/

So one solution is to buy electric cars?!

To travel 412 miles or 663 km

- Bike 30 kg CO_2e
- Coach 40 kg CO_2e
- Train 64 kg CO_2e
- Small electric car (driver only) 148 kg CO_2e
- Small efficient petrol car (driver only) 237 kg CO_2e
- Plane 368 kg CO_2e
- Large SUV (driver only) 1.02 tonnes CO_2e

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Embodied carbon of **25 tonnes CO_2e** Range Rover Sport HSE (Calculation by Mike Berners-Lee (2020) *How bad are bananas?* Page 145)

High emitting countries: Canada uses **15.50 tonnes of CO_2 emissions** per capita (EU 6.42; US 15.24)

Low emitting countries: Bangladesh at **0.51 tonnes of CO_2 emissions** per capita (Brazil 2.04; Kenya 0.36)

Solutions:

Buy SMALL electric car!

Replace car with bicycle or/and public transport

Car Sharing

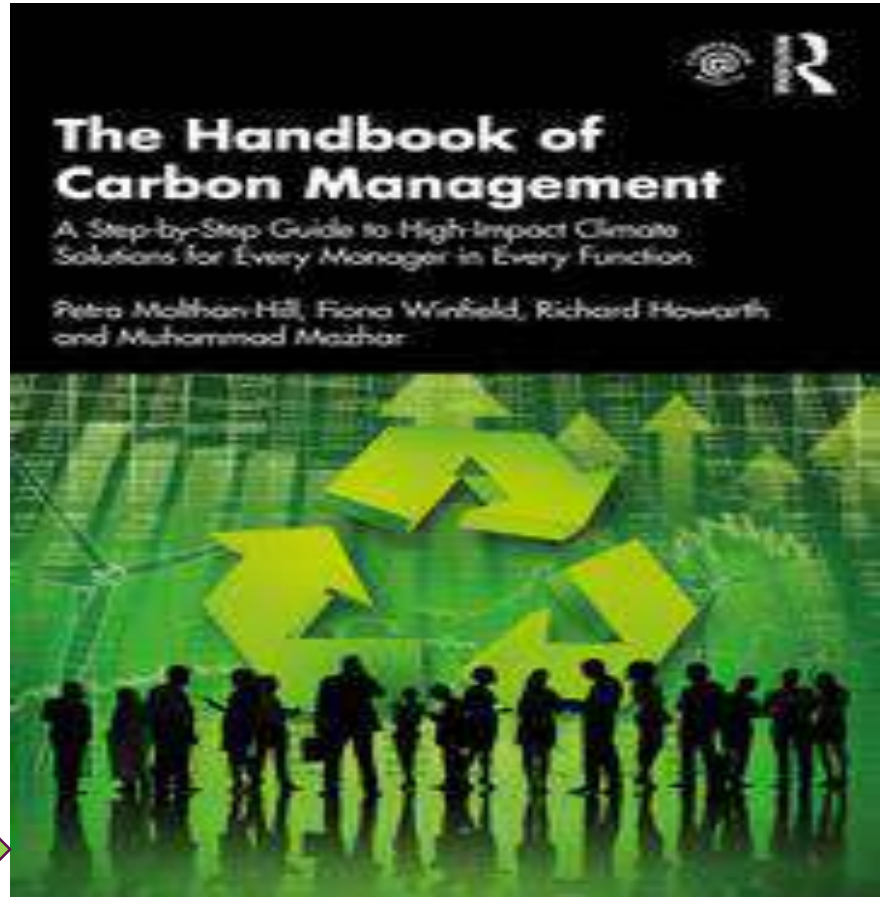
Research needed: Improve carbon accounting for electric cars; Climate communication; Climate Literacy Training

More info about transport and…..

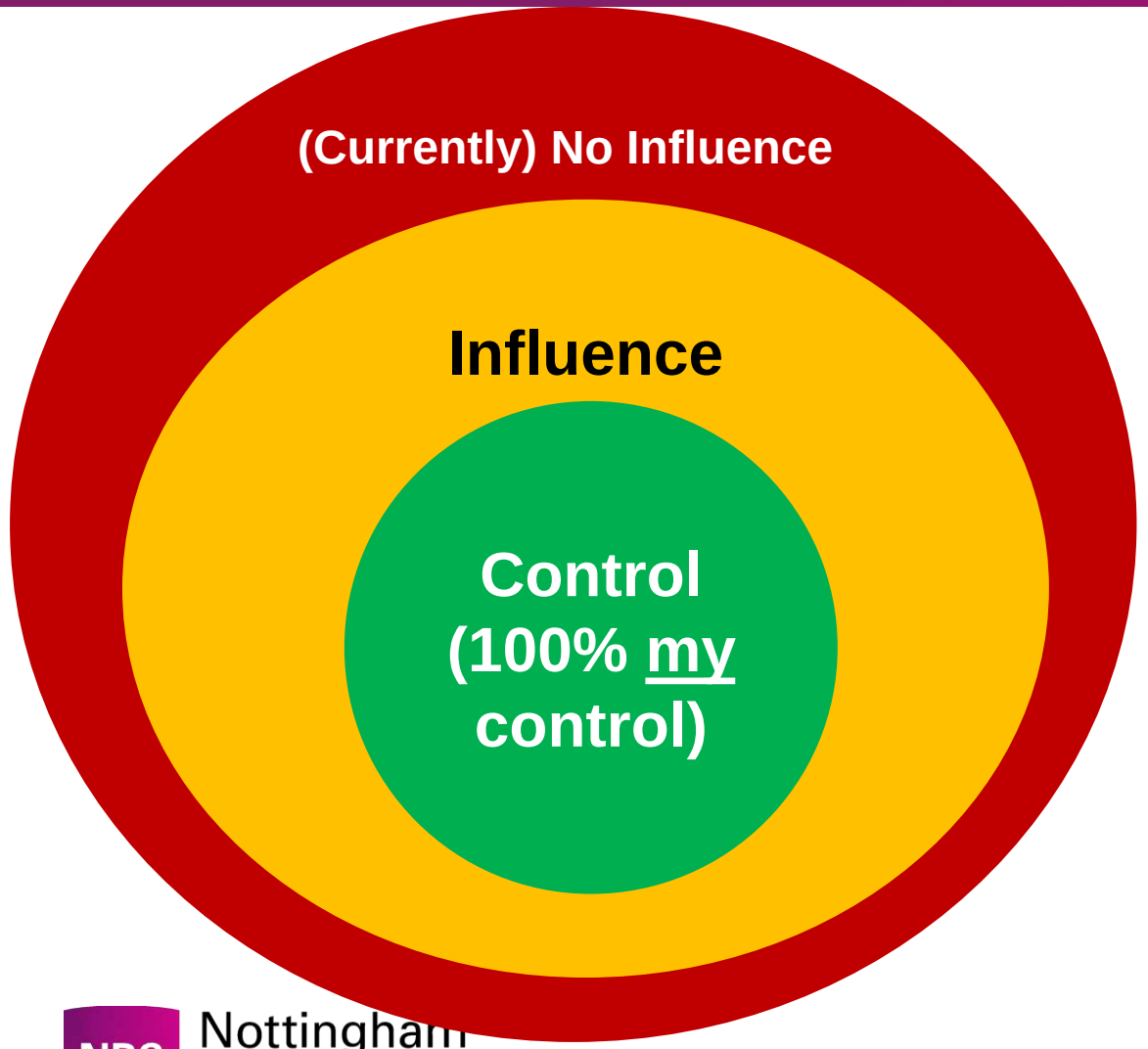
The Handbook of Carbon Management: A step-by-step guide to high-impact climate solutions for every manager in every function (Routledge)

- Procurement and Supply: pushing the boundaries to remove carbon emissions
- Marketing for a better climate
- Pension funds, accounts and other investments
- GHG emissions accounting
- Climate communication and reporting to internal and external stakeholders

https://www.routledge.com/The-Handbook-of-Carbon-Management-A-Step-by-Step-Guide-to-High-Impact-Climate/Molthan-Hill-Winfield-Howarth-Mazhar/p/book/9781032227603



Emotions, Climate Crisis & Attention: Covey Model



Reflection:

After the activity do you feel you are in the **green**, **yellow** or **red** circle of influence?

Please draw these circles and focus on the green and yellow one:

Which climate actions could you take?
How could you move into the yellow or green circles with regard to climate action?

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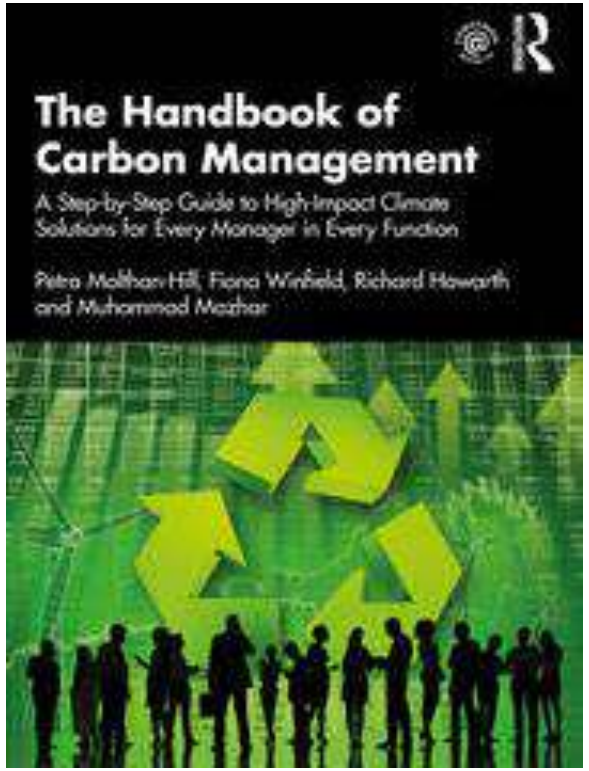
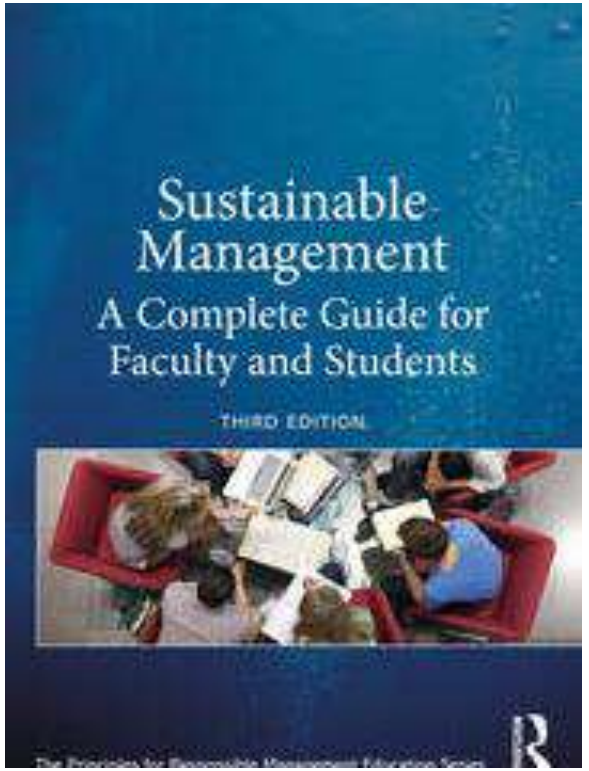
What else could you do?
Integrate into every discipline/function

https://www.routledge.com/Sustainable-Management-A-Complete-Guide-for-Faculty-and-Students/Molthan-Hill/p/book/9781032253756

https://www.routledge.com/The-Handbook-of-Carbon-Management-A-Step-by-Step-Guide-to-High-Impact-Climate/Molthan-Hill-Winfield-Howarth-Mazhar/p/book/9781032227603





Get the certificate and be part of a community….

Take our free Climate Literacy & Action Training in November (on fixed days, virtual, interactive):

*On behalf of the **UN PRME Working Group on Climate Change & Environment and QS Impact**, we would like to invite you to join our upcoming Climate Literacy & Action Training CLT-ECOS.*

Please register here:

https://www.unprme.org/prme-working-group-on-climate-change-and-environment/prme-climate-literacy-training

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Inspired by Carbon Literacy Training in:

- Chapple, W., Molthan-Hill, P., Welton, R., Hewitt, M.
- **Lights Off, Spot On: Carbon Literacy Training Crossing Boundaries in the Television Industry.**
- *J Bus Ethics* **162,** 813–834 (2020).

https://doi.org/10.1007/s10551-019-04363-w

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What if every recruit in every organisation from the world's business schools were qualified as Carbon Literate?

Carbon Literacy Training for Business Schools

Developed by **Nottingham Business School (Nottingham Trent University)** in collaboration with the **UN PRME Champions, Oikos International and the Carbon Literacy Project.**

The aim is to ensure that academics, students and others are Carbon Literate within a short time frame, to ensure that as many people as possible are actively involved in embedding climate solutions in their own life and work.

To do this, we have chosen a train-the-trainer approach, where we offer regional events inviting all the universities and business schools in the vicinity to train academics and students there, so they can become trainers in their own institutions and/or get involved in training in other parts of the world.

Every business school student needs one hour of Climate Change Science Education

Knowledge and understanding of a broad range of scientific concepts and processes related to climate change (e.g. climate, deforestation, habitat loss, water cycle, soil erosion, air pollution), its causes and its consequences, ecologically, socially, economically and politically.

Knowledge and understanding of the dynamics of climate change impact across time and space (e.g. delayed consequences, reducing the quality of life, security and development options of future generations).

Ability to distinguish critically between certainties, uncertainties, projections and risks associated with climate change, and evaluate messages about and public interpretations of climate change science.

Awareness of strategies and technologies to address the negative impacts of climate change (e.g., reducing carbon consumption, encouraging low-carbon development, reducing deforestation through sustainable forest management, improving water and waste management).

Table published in: Molthan-Hill, P et al (2021), *Climate change education at universities: Relevance and strategies for every discipline.* in: Handbook of Climate Change Adaptation and Mitigation (3rd edition), Springer: Cham, Switzerland. Adapted from definitions provided by Mochizuki Y, Bryan A (2015) Climate change education in the context of education for sustainable development: Rationale and principles. Research 9(1): 4-26.

Climate Change Mitigation Education into the core curriculum of every discipline

Developing values, knowledge and skills required to make choices and decisions that minimize the use of natural resources, emissions, waste and pollution; while contributing to the development of new solutions to the climate crisis (e.g., rethinking the way we live, buy and consume, how our daily lives are organized, how we socialize, exchange, share, educate and build identities).

Taking individual and/or collective action with the potential to have immediate, direct impact (e.g., reducing energy consumption, using non-polluting and renewable energy sources, environmental conservation, re-forestation and re-greening).

Contributing to policy development with long-term positive impact on societal behaviour by examining economic systems, social structures, cultural patterns, lifestyle expectations, consumerism, wealth distribution, aspirations and value systems and their underlying responsibility for excessive greenhouse gas production.

Table published in: Molthan-Hill, P et al (2021), *Climate change education at universities: Relevance and strategies for every discipline.* in: Handbook of Climate Change Adaptation and Mitigation (3rd edition), Springer: Cham, Switzerland. Adapted from definitions provided by Mochizuki Y, Bryan A (2015) Climate change education in the context of education for sustainable development: Rationale and principles. Research 9(1): 4-26.

What else could you do?

Improve your general climate literacy by yourself

Free online course:

https://www.futurelearn.com/courses/climate-literacy-and-action-for-all

Please pass on or do yourself☺

https://www.futurelearn.com/microcredentials/climate-solutions-for-a-net-zero-future

Climate Solutions: Using Your Influence in the Workplace for a Net Zero Future

Explore impactful climate solutions to apply in your workplace and beyond to help your organisation and society achieve net zero.

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impact

https://charteredcertifications.com/learning/courses/ccml

Please send this Referral Code to anyone who might be interested, so they will enjoy a special 10% discount when registering to this program with this Coupon Code:

Referral Code / Coupon Code is: C9034FAC

CHARTERED
INSTITUTE OF PROFESSIONAL CERTIFICATIONS

Certified Carbon Management Leader (CCML)

Petra Molthan-Hill and Stephen Snider

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Recommend to organisations to do this short training (90 minutes)

CoachingOurselves is…

- a company co-founded in 2008 by Professor Henry Mintzberg and Phil LeNir.
- a library of ~100 peer learning discussion guides available on important organizational and management themes.
- small groups of employees getting together, live or virtually, for 90-minutes of self-directed or facilitated learning and insight sharing.
- a collaboration with 60+ management and business school thinkers across the globe who author our peer learning discussion guides based on their own research, seminars, and workshops.
- www.coachingourselves.com

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CoachingOurselves Topic: Climate Actions for Every Employee

Awareness of sustainable development issues with environmental and social impacts is now integral for quality organizational leadership.

Use the CoachingOurselves peer learning discussion guide “Climate Actions for Every Employee” in your peer learning programs to help your leaders, managers, and individual contributors understand how their small individual actions have multiple benefits for their workplace, home, and communities. Catch the message of possibility and get all employees involved in actively supporting your organization’s sustainability goals.

Theme areas: transportation, energy, food, coffee, and natural carbon capture options.

Contact Warren@coachingourselves.com for more details.

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UN PRME Working Group on Climate Change

- Please join us https://www.unprmeclimate.org/
- Register as a member
- Get the newsletter
- Join our Working Group as a trainer when you get your certificate – send us your photo and a short profile
- Share your research in a webinar

Pass it on

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Thank you

Want to find out more?
Please contact Prof Dr Petra Molthan-Hill
petra.molthan-hill@ntu.ac.uk