

**“Mitigating CO₂ Emissions in
Transportation: Opportunities and
Challenges”** by Professor Andreas
Schafer, Energy Institute, UCL

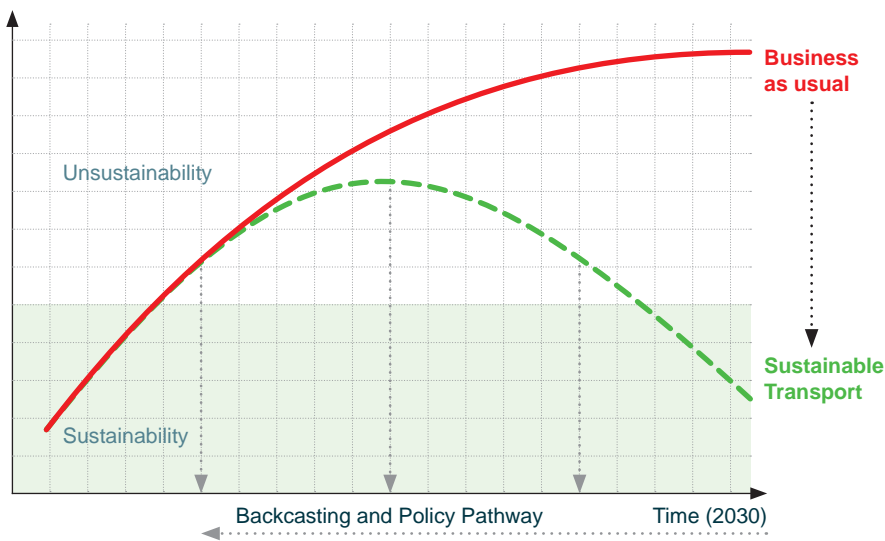
World wide transport demand continues to increase at a substantial pace, with a switch from slow to fast modes.

Summary Presentations

Growth in Global Mobility (1950-2005)

Scenario Analysis and Backcasting

Multy-Criteria Sustainability Impact
 Accessibility
 CO₂
 Local environment
 Economy
 Safety



Backcasting provides a means of developing and testing normative scenarios – with a policy pathway developed back to the present.

“A concern, not with what futures are likely to happen, but with how desirable futures can be attained.”
 (Robinson, 1990)

CO₂ Emission Reductions in the Freight Sector

Estimated CO₂ savings from a set of carbon reducing measures

Carbon-saving measure	Potential CO ₂ saving by 2020 (%)
Ecodriving training	5
Speed reduction	2
Switch to biofuel	15-20
New vehicle technology	10
Modal shift	3-5
Optimised vehicle size	7-10
	5-10
Smarter city logistics	2-4

Reproduced with permission from DB Schenker's Land Division Sweden. Source McKinnon & Piecyk, 2012 (based on DB Schenker CSR Report)

Summary of the discussions

Stronger Behaviour Change Policies needed:

Policies and research tend to be **too focused on technology behaviour change**.

Introducing effective **Behavioural change policies** will require engagement with actors across all sectors, since travel is a derived demand.

The academic community should put more research effort into identifying effective **behaviour change measures**, their costs and what impacts can be expected from their introduction.

Strengthening CO₂ Emissions Reduction policies:

The greatest challenges are in the **freight sector**. Technological solutions to reduce heavy goods vehicles CO₂ emissions do not exist on a large scale at the moment. But '**smart logistics**' solutions can help such as telematics, route planning or eco-driving.

- **Green taxes and Regulations** are still **too timid** if they are to be effective signals in the transport and logistics markets.
- **Strengthening the economy** is higher up the political agenda than **reducing carbon emissions**. The challenge is to **even up these two priorities** on the political agenda and in public dialogue.

Role of local authorities is very important:

Finding ways to **engage with local authorities** is key. Local authorities that currently have well developed carbon reduction strategies tend to be a minority.

They are under no obligation individually to contribute to the CO₂ emissions reduction targets. Yet local authorities **play a key role** and are the **experimental ground** for change and leverage.

A **backcasting tool**, such as the one developed by Robin Hickman could:

Be used by policy makers to explore alternative futures and encourage 'optioneering'
Help demonstrate to local and central government decision makers what can and cannot be achieved in different time scales, what measures cost, what the implications are of a certain course of action

Models developed by academics, such as the backcasting tools, have a lot to offer but they need to be in the **public domain**.

Strengthening links between academia, policy-making and practitioners:

Collaboration between **academics** and **government departments** should be increased. One route would be to strengthen links between government's **Chief Scientists** and **academia**.

Procurement procedures for **framework contracts** should be reviewed to ensure a greater representation of academia.

Academic centres of expertise, such as the UCL Transport Institute and the UCL Energy Institute, can provide institutional memory and up-to-date knowledge, and form a catalyst for **on-going dialogue between policy makers and academics**.

Policy-makers could have more input in **influencing academic research agendas**. While academic autonomy is highly valued there is a need to ensure that research helps policy making.

Background

This seminar is part of a programme of activities funded through an EPSRC 'Impact Acceleration Award'. The initiative aims to create bridges between senior researchers, key policy makers and practitioners

outputs are rapidly absorbed into policy making and practice, and have practical impact.

This seminar was an opportunity for key policy makers

with the researchers concerned their relevance to policy making and practice.

The following institutions were represented:

Department for Transport
Department for Energy and Climate Change
Department for Communities and Local Government
House of Commons Library

Society of Motor Manufacturers and Traders Limited
Westminster University
Chalmers University of Technology in Sweden
Energy Institute, UCL
Civil Environmental Geomatic Engineering, UCL
UCL Transport Institute

References

- Schafer, A. (2009). Transportation in a climate-constrained world. Cambridge, Mass, MIT Press.
- Hickman, R., Banister, D. (2013). Transport, climate change and the city. Routledge, London.
- Browne, Michael and Allen, Julian and Woodburn, Allan G. (2013) London freight data report 2013. Technical Report. Transport for London.