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350 European stakeholders develop consensual roadmaps for mitigation



Senator Frank Horch
Ministry of Economy,
Transport and Innovation

When in 2007, a Lead Partner was needed to coordinate EU CO2 80/50, the currently most distinguished climate protection project in Europe, this task was entrusted to Hamburg – both an honour and a duty.

Our task was to organise a parallel process in 14 European metropolitan regions that integrated the regional decision makers and was aimed at helping develop regional mitigation strategies.

Hamburg provided a modest financial contribution and the manpower necessary throughout the project duration.

In 2009, the Joint Research Centre of the European Union evaluated the GRIP methodology used in this project and praised it as Best Practice. Subsequently, the Covenant of Mayors recommended all its signatory cities the use of this method.

This commendation helped to find an industrial partner who enabled the financing of the second project stage: the implementation of regional scenario workshops with stakeholders from politics, economy, science and NGOs.

I thank the sponsor General Electric for enabling this important project stage with funds from their ecomagination initiative.

The project's concept is trailblazing:

More than 350 European decision makers from politics, economy, science and non-governmental organisations have joined efforts as regards planning Europe's climate future.

They worked with actual regional data. They discussed and immediately saw the results of their assumptions.

Playfully and at the same time scientifically sound, they developed future scenarios for Europe.

Those who shall later consent to a climate action plan were integrated into the decision-finding process from the very beginning.

The results are also a milestone for Europe. They are no forecast, they reflect the prognoses of European stakeholders. But they reveal us the leverage points of climate politics.

We now know, we can achieve the 80% target.

We have learned that many stakeholders still know too little about mitigation and have not enough confidence in the feasibility of climate-change-limiting actions.

We now can competently judge the efficiency of various measures and incorporate this into our political planning.

We know that a fully carbon-free electrical grid would "only" provide 25% to our 80% reduction target.

We understand that the remaining 55% must be achieved in non-electrical energy consumption, by energy-saving and energy-efficiency and by use of non-fossil fuels.

The results from EU CO2 80/50 will be incorporated into our Climate Action Master Plan, they improve it and protect us from errors. The same will occur in other regions.

I thank METREX, the University of Manchester and the partners for their sustained commitment. This can certainly not be taken for granted and is a shining example for Europe.

Extracts from the speech of Senator Horch on the occasion of the METREX Conference in Hamburg on October 7, 2011.



Partner



350 European regional stakeholders participated in 50 consensus-driven energy and emissions scenarios

The EUCO2 Project represents the first time that so many high-level regional stakeholders have met to debate the issue of climate change mitigation in a consistent setting. This has enabled the production of consensus-driven scenarios which aimed to deliver 80% reductions in CO₂ emissions by 2050.

The EUCO2 project uses GRIP™, the Greenhouse Gases Regional Inventory Protocol developed by Sebastian Carney at the University of Manchester. GRIP™ is a recommended process by the Covenant of Mayors to its member cities.

From its outset the EUCO2 project recognised that an 80% reduction in emissions by 2050 is technically possible, but that it would be difficult to translate into policy. It also recognised that to deliver such policies would require the buy-in and understanding of regional policymakers and other key stakeholders – this is also the tenet of GRIP™.

The EUCO2 Project – Three Stages

EUCO2 80/50 is a three stage approach to mitigation. In 2009, the first stage was completed resulting in the production of a set of greenhouse gas emissions inventories and energy baselines for each participating metropolitan region in accordance with GRIP™ standards.

In 2010, these baselines were transferred into the GRIP's™ scenario software for use in regional scenario workshops. In this second stage, regional stakeholders were actively engaged. The University of Manchester worked with each of the regions to identify key stakeholders; the regional authority subsequently assembled these stakeholders into regional scenario workshops, which usually contained 8 to 10 participants.

The stakeholder's task was to produce energy-emissions scenarios that deliver at least an 80% reduction in emissions. These scenarios were formed through facilitated discussions led by University of Manchester researchers regarding actions, policies and other drivers of change, together with potential risks associated with emissions reductions, to explore the effects of these assumptions in terms of a change in emissions. Through consensus-building in these scenario exercises, the stakeholders were able to produce a consensus scenario.

The third stage of the EUCO2 project will be the formation of policy together with further exploration exercises using GRIP™ by regional stakeholders, as policy is implemented.

How does the scenario tool work?

The discussions in the scenario workshops were based on the same drivers as the IPCC (Intergovernmental Panel on Climate Change) SRES (Special Report on Emissions Scenarios). Associated with these discussions, the stakeholders were asked to quantify their discussions in terms of:

- Changes in the demographic and economic makeup in 2050
- Changes in technologies used for electricity generation and supply
- Changes in sectorial energy demand

The effects of these changes were instantly fed back to the stakeholders through the GRIP™ scenario software showing a change in CO₂ emissions (whether an increase or a decline).

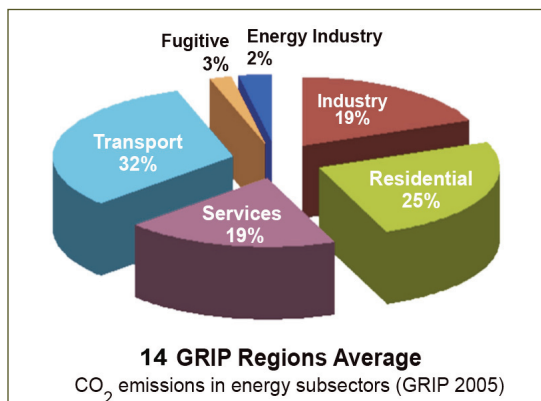
Who participated in the scenario workshops?

The level and type of stakeholders engaged varied slightly between the metropolitan regions. The stakeholders included ministers, state secretaries, representatives of the Chambers of Commerce, CEOs from the industrial, housing and service sectors, senior academics, heads of public administration and scientists.

What do the results tell us?

The results of the scenario workshops should not be considered as predictions. **They provide us with insights, in terms of alternative futures, of how stakeholders see their regions' energy future developing up to 2050, which mitigation measures they see as possible and what the key issues are for them. This helps analysts and policy makers to identify what is seen as the key steps in mitigation for each region.**

The results will influence the regional climate strategies. They should contribute to the formulation of national and European strategies.



The data from the regional CO₂ inventories were input into the scenario software and thus used in a computer simulation



Example of a scenario assumption: changes in the non-electrical energy mix of the residential sector and the effects on the sector's and region's overall CO₂ emissions.

What are the key findings?

Each of the 50 scenario workshops differed **but largely reiterated** findings known by experts, but not necessarily by laymen:

1. Only 35% of the scenarios reached the target of an 80% reduction.

Whilst the target of each scenario exercise is an 80% reduction in CO₂ emissions, the reductions realised in the scenarios vary between -37% and -99%. Approximately two thirds of the scenarios fell short of an 80% reduction – with these figures not including international aviation and marine emissions (which would likely result in lower emissions reductions, based upon the discussions regarding domestic aviation).

These results suggest that it is the consensus of the stakeholders engaged that a reduction in emissions of 80% is not possible. There are many potential reasons for this, but it would indicate that stakeholders need further information and guidance than is currently provided, together with additional political and economic incentives, to see mitigation targets realised.

2. Southern European stakeholders were less confident in mitigation chances than the rest of Europe.

The scenarios in Italy and Portugal deliver lower CO₂ reductions than those in the other participating European countries. The highest emissions reductions in the scenarios come from countries with lower emissions in the baseline year, such as Norway. Further research will seek to identify if this trend is due to cultural differences, awareness, or something else.

3. Low Carbon Electricity generation is key to mitigation.

In each scenario the CO₂ released per unit of electricity reduces (carbon intensity). In many scenarios the carbon intensity of electricity production reduces to almost zero.

However, many scenarios include electricity production from fossil fuels without Carbon Capture and Storage (CCS) to continue in 2050 – these scenarios tend to deliver the lowest emissions reductions. More than half of the scenarios contain 20% of fossil electricity generation in 2050 without CCS.

The switch to a low carbon intensive grid is necessary to enable sectorial electrification if a mitigation-focused policy is to be realised.

4. A 100% decarbonised grid would on its own reduce European CO₂ emissions by less than 25%.

A 100% decarbonised grid on its own would lead to different results in the partner regions. It would deliver an overall reduction of 5% in Rotterdam, 29% in Hamburg and 50% in Stuttgart. Across Europe the reduction would be less than 25%.

A decarbonised grid is an important contribution to mitigation, but the remaining 55% in Europe would need to be met through changes in energy demand and the fuel mix of each sector.

5. Emissions reductions in the buildings sector are key to mitigation.

In the residential and service sectors, demand reduction measures, such as insulation together with low carbon fuels, can deliver high CO₂ emissions reductions. In combination with changes in behaviour, these sectors could contribute 25% of Europe's CO₂ emissions reductions.

6. Increased Industrial efficiency can contribute substantially to emissions reductions.

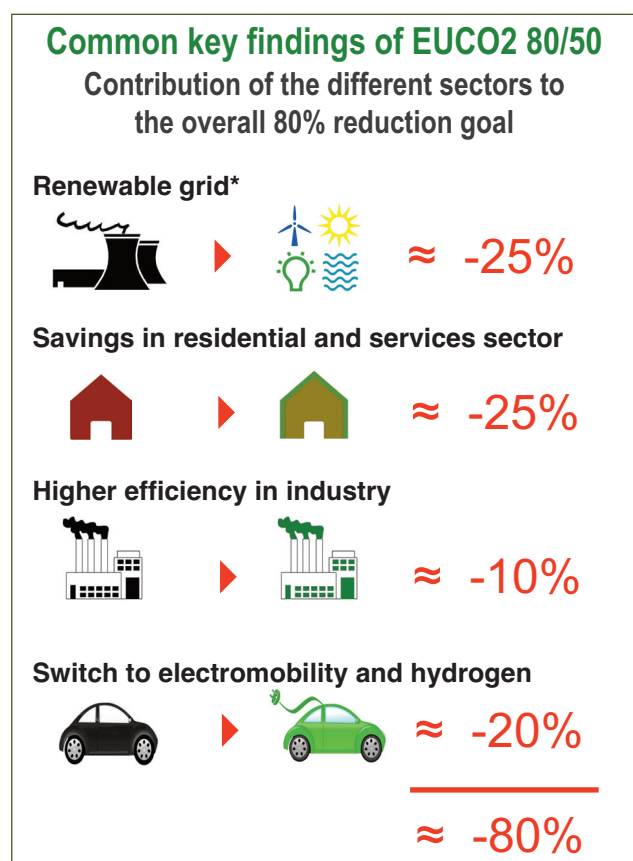
A consistent storyline in the scenarios is that the industrial sector, for financial and efficiency reasons, will need to reduce its energy consumption per unit of economic output (energy intensity), and with this their CO₂ emissions, by at least 50% to deliver the overall emissions reductions.

7. Savings in electrical energy are necessary even with a decarbonised grid.

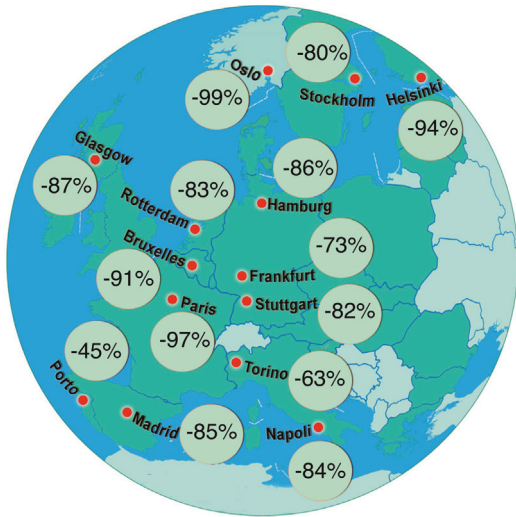
A supply-orientated scenario would suggest that reductions in electricity demand are not necessary if a zero carbon grid is available. Nevertheless, if emissions associated with electricity production do reduce, then this will make it easier to meet future demands of electrical energy in the transport sector. However, it should be noted that this approach would require larger-scale implementation of policy than may be required.

8. Road transport is key to mitigation.

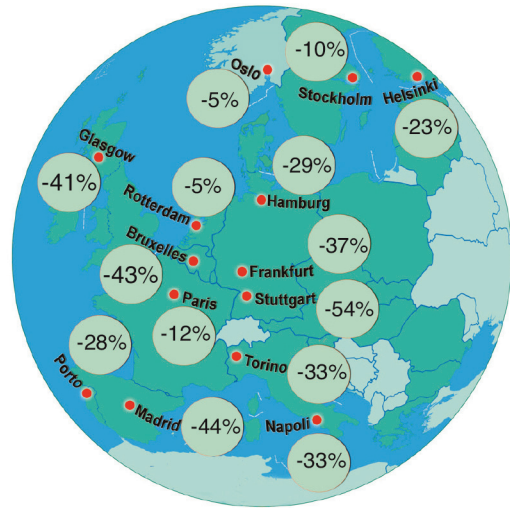
In the majority of scenarios the road transport sector delivers the highest sectorial emissions reductions. These emissions reductions are realised through efficiency improvements and 'fuel' switching to electromobility, hydrogen and bioenergy. If the common approach taken in the scenarios was to be realised across Europe, it would result in a decrease of European CO₂ emissions of 20%.



* A 25% reduction in emissions due to a near zero carbon grid is reflected in the different sectors in the scenario tool according to each sector's electrical consumption and the change in the carbon intensity of the electricity produced. The 25% are thus composed of 15% in the residential and services sectors and 10% in industry.

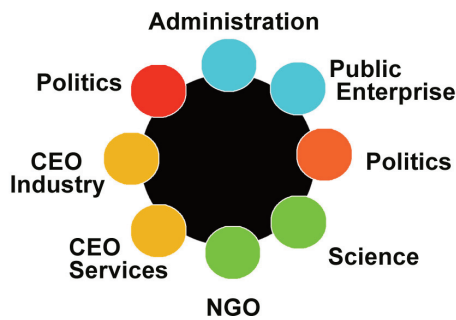


The highest emissions reduction scenario in each region



Regional CO₂ reduction effects of a carbon-free grid

Example of Stakeholder's Participation



Raimo Inkinen
Executive Director of Helsinki Region
Environmental Services

In the Helsinki region, the EUCO2 project has pushed on the plans to revise the current climate strategy targets from the year 2007 and helped create a long-term climate vision for the region in collaboration with the cities.

The EUCO2 project succeeded in bringing key stakeholders to the same table to consider the most significant mitigation measures and the scale of the necessary changes. The GRIP tool will be advantageous in working out the new targets."



Roger Read
Secretary General of METREX

One significant finding of the project is that Europe's metropolitan areas have the clear potential to become largely renewable energy self-sufficient, with all the attendant benefits of energy security, price stability and economic competitiveness that this can bring.

They need to dramatically reduce the energy consumption of their buildings and transport systems and use their land and buildings to generate the power they need to meet this lower demand. The key to European decarbonization lies in a decentralized approach to energy planning and supply in its major urban areas.

One of the outcomes of the project for METREX is the need for planning an energy approach that enables urban planners to do the calculations to demonstrate the reality of this conclusion.

Because of the EUCO2 80/50 project, planners can present an effective route to European decarbonization and the mitigation of dangerous climate change."



Heiko Kasseckert
Association Director of the Regional Association
FrankfurtRheinMain

The FrankfurtRheinMain region relies on communication and collaboration between all parties to achieve the required change in energy.

We discussed strategies and measures aimed at achieving a drastic reduction in greenhouse gases quite intensively and constructively with representatives of business, associations and politics during the EUCO2 80/50 scenario workshops we held in our region.

Thanks to these discussions and our cooperation with our European partners, we have been able to grasp the complex relationships more easily and make considerable progress in achieving a sustainable energy and climate policy.