ENCI-LowCarb Research Seminar, CIRED[1], Paris March 16, 2012

Seminar Proceedings

This document contains overview of the presentations and discussions at the *ENCI LowCarb Project*[2] *Research Seminar* on March 16, 2012, where the scenario work for Germany and France within the ENCI-LowCarb Project was presented.

Copies of the graphical material shown during the presentations is available from http://www.lowcarbon-societies.eu/index.php?id=56

Gunnar Boye Olesen, INFORSE-Europe[3], March 30, 2012

Presentation: Ambitious Mitigation Scenarios for Germany

Eva Schmid, PIK[4], presented the German scenario work within the ENCI-LowCarb Project, as documented in the project reports on the German model work and scenario process.
The presentation included:

1. ***Introduction***, including an explanation of the analytical - deliberative approach used in the project, and the project's combination of socio-political and techno-economic perspectives
2. ***Methodology,*** including an explanation of the use of parsimonious narratives, which are stories (narratives) with the most condensed information (parsimonious), equal to parsimonious quantitative models that describe some relation in the best possible way with few/the fewest variables. This concept was taken from the methodology of the SSP scenarios, prepared for the next IPCC assessment report. Eva also explained the stakeholder involvement process. Here stakeholders were asked about the development (of technology choices or evolutions like par capita mobility etc.) they find likely and the development they find desirable, during dedicated workshops. In many cases, a substantial difference between likely and desirable future developments was detected.
3. ***Scenario Definition*.** The stakeholder input was used for the scenario definition. The dimensions of "desirable" and "likely" were then used for the scenario development of the mitigation scenarios. For example stakeholders of the transport sector were in favour of decreasing road transport, but they did not found this development to be likely.

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2 *ENCI-LowCarb Project* (European Network engaging CIvil Society in Low Carbon Scenarios) ENCI-LowCarb is a European project financed by the 7th Framework Program for research of the European Commission and coordinated by Climate Action Network France. The other project partners are INFORSE-Europe, CIRED, PIK, Germanwatch. For more information of the project, pleas refer to www.lowcarbon-societies.eu

3 *INFORSE-Europe*, International Network for Sustainable Energy - Europe

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4. ***Scenario Results.*** Eva described the three scenarios that came out of this process: ”*Continuation”, ”Paradigm Shift”, ”Paradigm Shift+”*. The first one summarised the stakeholders' indications of likely or realistic developments, the second one followed the indication of desirable developments of a majority of the stakeholders, and the third integrated additional technology solutions (large biofuel development) that were not supported by all stakeholders. All scenarios respect an emission reduction of 85% in 2050 in comparison to 1990. The “Continuation” scenario leads to a carbon lock-in because it included the assumptions that coal power plants have to run until the end of their technical lifetime and that road freight transport is increasing. Together, fossil fuel based freight mileage and coal power plants (including lignite) consumed 55% of the German domestic carbon budget (the emission budget that can be emitted over the whole scenario period in order to respect the climate target). This lead to lack of carbon budget for personal transport, decreasing strongly personal motorised mobility, which was not acceptable in the eyes of the stakeholders. The restriction of the de-carbonisation options for the scenario switched the effort to expensive emission reductions in the heating sector. In the two “Paradigm Shift” scenarios, the carbon lock-ins were avoided, which caused mitigation costs to be significantly lower than in the “continuation” scenario.
5. ***Scenario Evaluation.*** The stakeholders preferred the “Paradigm Shift” scenario as a more acceptable way to reach 85% emission reductions than the “Continuation” scenario with carbon lock-in limiting “personal freedom of mobility”. 'The stakeholders preferred the “Paradigm Shift” scenario over the “Paradigm Shift+” scenario because of the risk of substantial public protests against large-scale use of the contested technologies (CCS, biofuels).
6. ***Conclusion:*** The scenarios showed possible ways for 85% CO_2 emissions with cumulative GDP losses between 0.8 and 3.5% compared to respective reference scenarios with 40% CO_2 emission reduction in 2050 relative to 1990. They also showed that socio-political opposition might pose significant barriers to realise the proposed emission reduction targets.

Questions and Answers

Question: In the presentation you mentioned that there are protests against new power lines. Did you consider to propose underground cables instead?
Answer: It was briefly discussed among many other things, but the stakeholder debate did not go into details in regard to this part of the infrastructure.

Question: Since you made scenarios with 85% emission reductions, did you also try to achieve higher targets?
Answer: Yes, up to 90-95% emission reduction the model can find solutions, depending on the scenario. The model has a production function that makes it not suited for total de-carbonisation targets, above 95% - the model could not find a solution then.

Question: Did you ask how workshop participants would like to change their own lifestyle?
Answer: This was not the focus in the stakeholder dialogues (participants were invited as stakeholders, not as individuals). But in the transport meeting we asked the invited stakeholders about their personal mobility choices.

Question: How is the CO_2 reduction of 3.5% of GDP s in the “Continuation” scenario calculated (it seems small compared with the effects that is seen (reduction of personal transport etc.)?
Answer: The GDP loss is calculated in comparison to a scenario with 40% reduction, which is generally perceived in Germany as the result of a development without new political measures to reduce emissions.

Question: Did you test a scenario with no limit on CO_2 emissions?
Answer: No, as this is not politically discussed in Germany.

Question: The "Continuation" scenario has larger reductions in heating sector and higher costs, how does that match with other findings that de-carbonisation in heating sector is some of the cheapest de-carbonisation measures?
Answer: Heating sector de-carbonisation is technically not necessarily complicated and individual measures may be available at low costs. However, there is large inertia in the heat sector and expert judgements predict slow turnover rates in the renovation of houses and the like.

Presentation:
Acceptance and Economic Assessment of Low Carbon Scenarios - A Participatory Approach Applied to France.

Ruben Bibas and Sandrine Mathy, (CIRED), presented the French scenario work within the ENCI-LowCarb project, as documented in the project reports about the French model work and scenario process. The presentation included:

1. ***Introduction*** and overview of process with stakeholders
2. ***Description of the Imaclim-R France model***, including the new technical modules developed and the world vision that comprises the assumption of unchanged consumption patterns in a world with high energy-prices without an international climate treaty.
3. ***In the residential sector*** the measures supported by a majority of stakeholder (eco tax credits, zero interest loans, third party financing etc.) that will lead to 40% reduction in the residential energy consumption. Households have to invest in refurbishment, but after 2025 expenditures for refurbishment and energy consumption are decreasing.
4. ***In the transport sector*** measures agreed by the majority of stakeholders include investments to foster modal shift from road to rail and some taxes on kerosene and heavy truck transport. Stakeholders were not in favour of a large-scale development of electric cars. Cars are getting more and more efficient and the use of electric-hybrid cars is given priority: from 2040 50% of all cars are electric hybrid.
5. ***In the electricity sector*** stakeholders agreed to ban shale gas, but not to ban other debated technologies (nuclear, CCS). In the resulting scenario nuclear continues to be an important electricity source, where many plants (40 GW out of 63 GW) are renovated to extend their lifetime 20 years, and 8 new reactors are added. The result is a decreasing share of nuclear, from about 80% of power supply today to about 45% in 2050.
6. ***The overall results*** shows positive effects for GDP and a reductions of 50% the energy bill compared to the reference scenario. The scenario with stakeholders' acceptance (majority of stakeholders) leads to 68% reduction in 2050, which is below the "Factor Four" target of 75% reduction. A scenario with additional measures: an energy/CO_2 tax (instead of carbon only) and obligatory housing renovation leads to 73% reduction. But these two additional measures were not supported by the majority of stakeholders.
7. ***Stakeholder reactions***: Stakeholders requested sensitivity analysis including different fossil fuel prices assumptions (variations of +/-30% were tested) and changes in consumption patterns.
8. ***Some conclusions:***
   I. The process proved that it is feasible to develop scenarios based on stakeholder contributions.
   II. More stakeholder workshops (feedback loops) would have further reinforced the robustness of the scenario..
   III. Stakeholders asked for clear policy signals. They are not against climate policies, but against political uncertainty.

Questions and Answers

Question: How was the global vision for the scenario developed?
Answer: Stakeholders decided that the development of a strong climate agreement was not likely. The lack of a global agreement meant that measures like a carbon tax, were not adopted on a global level. The effect of this is that even though there is a relatively high fossil fuel price because of lack of climate agreement, which fosters low carbon investment, there are no CO_2/energy tax revenues that can be used to alleviate impacts or accelerate technology development.

Question: The model has 1% decoupling between freight and GDP, is that optimistic/ambitious?
Answer: Historical freight volume and GDP have been linked, so: yes it can be seen as optimistic.

Question: Is the biofuel use too high in the scenario, given the recent controversies about biofuel?
Answer: The assumption is from IEA were used, which could be called optimistic, but it is a credible source.

Question: Is it possible to mobilise the work force that is needed for the building renovation?
Answer: Stakeholders see no problem to get workers trained in e.g. 5-10 years. The main problem for stakeholders is profitability in renovation, but there is also problem with the structure of sector, partly because renovation companies are very small (difficulties to dedicate time or training). Stakeholders find the renovation rate of 200,000 houses/year in France to be no problem, but that the increased action up to 900,000 houses/year in 2040 could be a challenge.

Comment: You do not discuss funding for municipal public transport that has been reduced in recent years.
Answer: This was not taken as an issue by the stakeholders.

Question: How are the renewable energy potentials derived?
Answer: They are taken from the recent négaWatt scenario.

Question: How could the increase in power sectors' emissions in 2045-2050 be avoided?
Answer: They are caused by the construction of gas power plants (both with and without CCS) when decommissioning nuclear power plants. They can be replaced with energy efficiency or renewable energy, but since the renewable energy potential is already used, energy efficiency would be the preferred option. Stakeholders did not agreed in further measures to reduce energy consumption.

Round-Up
The organisers thanked the participants and told that the presentations and the reports with documentation are available from the ENCI-LowCarb project websites:
www.lowcarbon-societies.eu and www.enci-lowcarb.eu