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Network of

European Environment and  
Sustainable Development  
Advisory Councils (EEAC)

Energy Working Group/Chair

## Comments on the “Stock Taking Document” of the European Commission : “Towards a new Energy Strategy for Europe 2011 – 2020

### 1. Introduction

In 2009 EEAC adopted a statement on “Sustainable Infrastructures for Europe” which specified some of the ideas of its 2008 statement on “Sustaining Europe for a long way ahead. Making long-term sustainable development policies work”. The focus of this comment further builds on these ideas and relates to the decarbonisation road map 2050 and the energy infrastructure policy needs from a long-term perspective.

Infrastructure needs are inherently linked to the future of the power sector. First of all, infrastructure needs are related to anticipated demand. In that sense the full use of available energy saving potential and respective binding policies merit highest priority.<sup>1</sup>

Furthermore, infrastructure is not technology neutral but essentially linked to technological choices. A conventional power mix has different infrastructure needs than a supply based upon higher renewable shares. Off-Shore Wind energy for instance is more distant from the centers of electricity consumption than conventional plants and requires new approaches to balancing demand and supply. As infrastructure bottlenecks may impede the potential growth of a power source, explicit decisions on the future power mix will be unavoidable for a coordinated infrastructure and decarbonisation strategy. The planned “Energy Infrastructure Package” therefore should be strongly linked to the Decarbonisation Roadmap 2050.

The long term reflections launched by the Consultation Paper are to be welcomed. But the choices ahead should be communicated in a clearer, transparent and open way.

### 2. Targets and benchmarks for the Decarbonisation Road Map

In line with the conclusions from the forth IPCC-report the European Council stated in October 2009 that industrial countries have to reduce greenhouse gas emissions by 80 – 95% by 2050. This should be the overall target level for the decarbonisation road map. Given the evidence by a number of scenario studies, that this target is easier achieved in some sectors than in others and that the power sector belongs to the sectors with very high decarbonisation potential, climate neutrality in the electricity sector should be the appropriate benchmark for the decarbonisation road map.

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<sup>1</sup> See: EEAC Statement and Conference Report on: Energy Efficiency – Key pillar for a competitive, secure and environmentally friendly European Energy Policy, 2007

Power technology options which fail to meet the benchmark of climate neutrality should be excluded from the options seriously assessed. While the potential for full decarbonisation is the criterion for the primary selection of different energy technology pathways, other sustainability criteria should also be considered, when different options are compared, such as:

- a broad concept of societal cost, including all external effects such as air pollution, accidental risk including unlimited liability or the cost and potential for long term safe waste storage.
- Identification of potential land-use conflicts (also related to maritime areas)
- Aspects of energy security, especially those relating to risks of long-term cost developments for imported resources such as uranium or coal,
- System compatibility of combining different power sources,<sup>2</sup>
- Acceptance issues,
- Further initiatives on energy efficiency and their impact on the dynamics and direction of power plant renewal in the next decades.

### 3. 100% Renewables Option

Recent studies show that it is possible to provide all electricity needs of the EU by renewable energy<sup>3</sup>. Cost estimates tend to show that security of supply can be ensured and that cost may be equal or lower than a conventional power mix. A transition towards renewable power is also associated with wider benefits such as lower import dependency, meeting strong sustainability criteria or global technology leadership.

A transition scenario towards a 100% renewable power sector therefore should be one of the options to be considered for 2050 Road-Map and effectively compared with other power mix scenarios.

While a political commitment of the European Commission for 100% renewables by 2050 might be premature, any policy suggested for the 2050-Road Map should keep the transition pathway for the 100% renewable power option open.

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<sup>2</sup> On the basis of available studies, the German Advisory Council on the Environment has identified a conflict between intermitting power sources and baseload oriented sources. The latter will not be sufficiently flexible, to meet the residual demand from intermitting power: (SRU (Sachverständigenrat für Umweltfragen) (2010): 100% erneuerbare Stromversorgung bis 2050: klimaverträglich, sicher, bezahlbar. Berlin: SRU. Stellungnahme 15.

, SRU (Sachverständigenrat für Umweltfragen) (2009): Setting the Course for a Sustainable Electricity System. Five Propositions. Berlin: SRU.

<sup>3</sup> March 22<sup>nd</sup> 2010 EEAC has organised a workshop on “Scenarios and Policies for Decarbonisation” which has gathered the authors of some those scenarios. The workshop is documented under [www.eeac-net.org](http://www.eeac-net.org). Among the most prominent recent studies are:

SRU (Sachverständigenrat für Umweltfragen) (2010): 100% erneuerbare Stromversorgung bis 2050: klimaverträglich, sicher, bezahlbar. Berlin: SRU. Stellungnahme 15.

, McKinsey & Company, KEMA, The Energy Futures Lab at Imperial College London, Oxford Economics, ECF (European Climate Foundation), E3G, ECN (Energy Research Center of the Netherlands), The Office of Metropolitan Architecture (2010): Roadmap 2050: A practical guide to a prosperous, low-carbon Europe. Vol. 1-3. [http://www.europeanclimate.org/index.php?option=com\\_content&task=view&id=72&Itemid=79](http://www.europeanclimate.org/index.php?option=com_content&task=view&id=72&Itemid=79) (06.04.2010).

, PWC (PriceWaterhouseCoopers), PIK (Potsdam-Institut für Klimafolgenforschung), IIASA (International Institute for Applied Systems Analysis), ECF (European Climate Forum) (2010): 100% renewable electricity. A roadmap to 2050 for Europe and North Africa. [http://www.pwc.co.uk/pdf/100\\_percent\\_renewable\\_electricity.pdf](http://www.pwc.co.uk/pdf/100_percent_renewable_electricity.pdf) (06.04.2010).

, EREC (European Renewable Energy Council) (2010): RE-thinking 2050. A 100% Renewable Energy Vision for the European Union. Brüssel: EREC

, Öko-Institut, Prognos AG (2009): Modell Deutschland. Klimaschutz bis 2050: Vom Ziel her denken. Endbericht. Basel, Freiburg: Prognos, Öko-Institut.

It is of high importance, that elements of a policy agenda beyond 2020 are becoming part of the road map – especially as regards continued preferential treatment of renewable power. In order to better coordinate infrastructure planning and dynamic renewable energy growth, a more precise road-map for renewables growth by 2030 is needed.

#### **4. Infrastructure Package 2010**

As the European Commission has indicated, the existing framework for TEN-E is insufficient and needs to become “ more strategic, coherent and better resourced”. In that respect, the role of ACER also needs to be strengthened.

The TEN-E, however, should be more than a mere compilation of the national 10-year Network Development Plans and the plan suggested by ENTSO-E. They should focus on the overlay linkages and new long-distance lines with a Trans-European Added Value to identify priority projects with special need for political and financial support. Not every small step national grid improvement is a strategic priority for the transition needed in the EU.

Infrastructure extension should also be in line with other EU policies. Grid investments, which clearly are intended to undermine the EU Emission-Trading System by allowing imports from coal power plants outside the EU and not subject to the cap-and-trade-system to member states, should not qualify for TEN-E.

TEN-E also must anticipate more clearly the new needs of rapidly growing renewable energy. More than a third of electricity will come from renewable sources by 2020, and this amount may continue to grow throughout the third decade. Adapting infrastructures to this politically wanted growth of renewable energy requires a much more strategic planning approach.

It is of utmost importance to closely coordinate power restructuring and grid development. As infrastructure planning implies long lead times and as investment risk needs to be minimized as part of an appropriate incentive framework, preparations for an agenda 2030 for power from renewable sources should be started in the next years.

Scenarios and as far as possible policy commitments for renewable electricity by 2030 should be linked to a strategic assessment of mid term infrastructure needs for renewables. What is needed is a European planning approach, which allows to assess and if necessary to correct the bottom-up planning on the basis of national 10 year plans and the respective work of ENTSO-E. The European Commission and its agencies therefore should invest in independent supranational planning capacities for TEN-E.

As the user pays principle and private system-operator responsibility will continue to remain essential pillars of financing TEN-E, the European Commission should also assess further instruments to create incentives for investments into grid extension. Because of likely limited public financing possibilities, the Commission should consider a European framework for tendering those investments that are of strategic European relevance, but which are not part of the private investments plans.

Furthermore due care should be taken for the Trans-European dimension of grid development. Of immediate importance are linkages from the EU countries to Norway and a clear commitment to cooperate with Norway in order to make use of the considerable pump storage potential. Furthermore, the “Mediterranean Solar Plan” and Desertec need to be incorporated in strategic reflections.

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