

POLICY *brief*

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Recommendations for the DG Energy 2050 Roadmap¹

Author: Leonardo Meeus, Isabel Azevedo, Claudio Marcantonini, Jean-Michel Glachant, and Manfred Hafner

Editor: Annika Zorn

Highlights

- The European Commission recently released a first roadmap that already indicates what could be the relative contributions of the different sectors to reduce greenhouse gas emissions 80 to 95% below 1990 levels by 2050, which is setting the scene for new EU level policy actions. A second roadmap should be released by the DG Energy 2050 later this year, 2011.
- Different stakeholders have already presented their vision of the path towards 2050 and different strategies to make it happen are emerging at member state level, which bring new risks for policy fragmentation, but also opens new opportunities for cooperation among member states and for European added value.
- We provide a rationale for ten priority EU-interventions to add European value to member states' first steps on the road towards 2050. We distinguish three different types of EU involvement to 2050, i.e. "effort sharing", "harmonization", and "level playing field".



Florence School of Regulation

The Florence School of Regulation (FSR) was founded in 2004 as a partnership between the Council of the European Energy Regulators (CEER) and the European University Institute (EUI), and it works closely with the European Commission. The Florence School of Regulation, dealing with the main network industries, has developed a strong core of general regulatory topics and concepts as well as inter-sectoral discussion of regulatory practices and policies.

Florence School of Regulation
Robert Schuman Centre
for Advanced Studies

European University Institute
Villa Malafasca
Via Boccaccio 151
50133 Firenze - Italy

Contact FSR coordinator:
Annika.Zorn@eui.eu

¹ Topic 3 of the EU FP7 funded project THINK, project report available at: <http://think.eui.eu>

DG Energy 2050 Roadmap

Following the European Council’s target to reduce greenhouse gas emissions 80 to 95% below 1990 levels by 2050, the European Commission recently released a general roadmap that already indicates what could be the relative contributions of the different sectors. This is setting the scene for new EU level policy actions. In the policy area of transport, there is already a follow up roadmap which formulates priority actions. We want to address the area of energy.

In what follows, we derive recommendations for the 2050 energy roadmap by addressing three questions. What are the key 2050 policy challenges? How are Member State pioneers dealing with these challenges? What is the role of the EU in addressing these common 2050 challenges?

What are the key 2050 policy challenges?

Several stakeholders have presented visions of the low-carbon energy system they desire for 2050². There are six key 2050 policy challenges to achieve these visions:

Box 1. Main energy policy challenges
<p>Energy efficiency Ambitious energy savings</p>
<p>GHG emissions Decarbonisation the electricity sector</p>
<p>Renewable energy Ambitious renewable energy penetration levels</p>
<p>Energy infrastructure Electricity grid adequacy (expansion and smartening of the grid)</p>
<p>Internal energy market Electricity supply security (timely investments and system flexibility)</p>
<p>Technology innovation and R&D Technology development is a precondition for most of the above challenges</p>

2 We analyzed the visions of the European electricity industry association Eurelectric, representatives of the European gas industry (Gas Advocacy Forum), the European Climate Foundation, the International Energy Agency and a non-governmental environmental organization in cooperation with an association of the renewable energy industry (EREC/Greenpeace).

How are Member State pioneers dealing with these challenges?

Several EU member states are already dealing with the key 2050 policy challenges, while they are in different stages of the political process. The Danish, German, and Irish governments have explored the policy options but the resulting strategies have not yet been legislated. In Finland, France, and the UK, a legal commitment has already been reached. The UK is the only member state that has reached the implementation stage of its legally binding 2050 strategy.

These **diverse strategies** emerging at member state level bring new risks for policy fragmentation, but also open new opportunities for cooperation among member states and for European added value. An example of possible **policy fragmentation** is the decision of the UK government to introduce a national carbon price floor for electricity generation from 2013 onwards. Another example is the possible introduction of purely national “generation capacity” mechanisms to address locally the security of electricity supply concerns in France and in the UK. However, an example of **new opportunities for cooperation** among member states is the apparent will of pioneering member states, such as UK or Germany, to further integrate their electricity transmission grid to enable their low-carbon energy strategies.

Pioneering member states have also in common the establishment of a **procedure to track progress** to allow the adaptation of their policies on the road towards 2050. For instance in France, the legislation foresees that the French government will need to report on the status of the implementation of its policy on a yearly basis. Also in Germany, the strategy foresees that the government will need to monitor and report on progress every three years. In the UK, the Committee on Climate Change makes an annual progress report, and the government is also required to present regular reports on progress. These reports have advocated stronger measures.

What is the role of the EU in addressing these common 2050 challenges?

We have to distinguish three different types of possible EU involvement (Box 1) to derive beneficial EU actions to address the key 2050 policy challenges. A case-by-case approach is necessary because the potential of value added created by the different types of EU involvement greatly differs in each policy area. In some areas, a combination of all the three types of EU

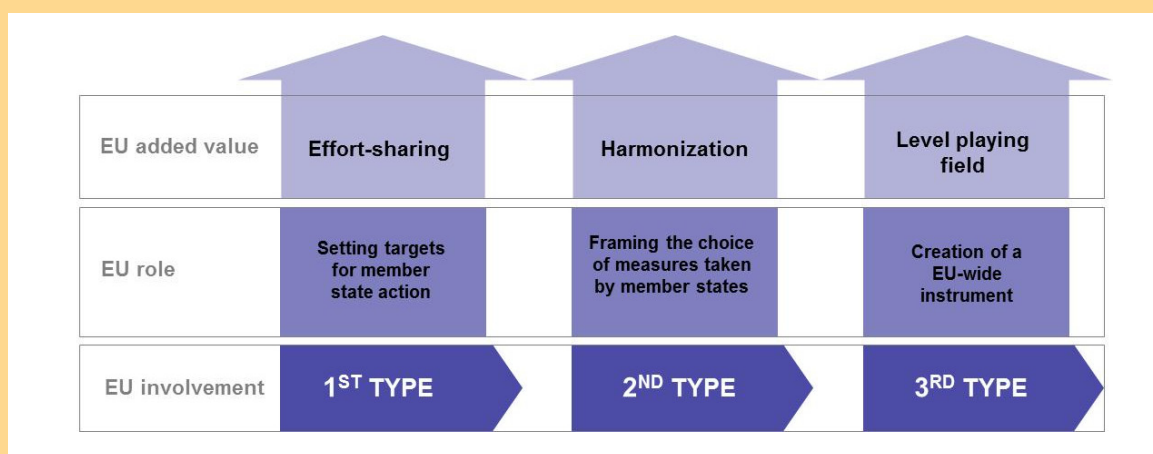
Box 2: case by case approach to derive promising European policy options

First type of EU involvement: (“effort sharing” by setting binding targets for member state action). It can create EU added value when there is a common European interest that will not be pursued or that will be achieved too slowly/costly if not all member states contribute.

Second type of EU involvement: (“harmonization” by framing the choice of measures taken by member states).

It can create EU added value when there is policy fragmentation and this situation is costly due to incoherence.

Third type of EU involvement: (“level playing field” by creating an EU-wide instrument). It can create EU added value when a single approach is beneficial, and there is strong enough agreement among member states on what this most appropriate instrument is.



involvement can be promising, while in other policy areas it seems more appropriate to focus on one type of EU involvement. The only rationale criterion is the actual value added to reach the 2050 targets.

Energy efficiency

1) *Making energy saving targets binding* is a promising first type of EU involvement (“Effort sharing”). The transition costs to 2050 are very sensitive to the energy saving ambitions. Moreover, there is a history of indicative energy saving targets not being achieved; and there is an increased risk of locking-in into energy inefficient technologies and assets with a long lifetime. This could be addressed by setting binding energy savings targets for 2020 and beyond (overall targets as well as sector specific targets).

2) *Mobilizing cities towards a low carbon future* is a promising second (“Harmonization”) and third (“Level playing field”) type of EU involvement. Measuring and reporting tools for cities could indeed be harmonized (second type), which would

allow an EU city benchmarking so that cities are required to report about their progress or lack of progress (third type).³

GHG emissions

3) *Strengthening the carbon price signal* is a promising first (“Effort sharing”), second (“Harmonization”), and third (“Level playing field”) type of EU involvement. Binding GHG reduction targets beyond 2020, i.e. more stringent and credible long-term caps (first type); coherence between carbon pricing and renewable energy instruments (second type); and an EU carbon market repository, platform, and authority for EU-ETS are indeed complementary ways to strengthen the carbon price (third type).

3 See THINK Final Report **Topic 2** “Smart Cities Initiative: How to Foster a Quick Transition towards Local Sustainable Energy Systems.” and FSR Policy Brief Issue 2011/02 January 2011 on smart cities.

Renewable energy

4) *Integrating renewable energy technologies into the internal electricity market* is a promising second type of EU involvement (“Harmonization”). The massive deployment of renewable energy will indeed have a major impact on the electricity market, also due to the fact that this market will be more and more European. The natural support schemes for renewable energy could therefore be at least market conform in the sense that they could expose renewable technologies to wholesale market price signals.

5) *Creating a level playing field for renewable energy cooperation with non-EU countries* is a promising third type of EU involvement (“Level playing field”). The massive renewable energy sources just outside EU borders, in the Mediterranean area, are indeed attractive to develop in the 2050 context. Creating a level playing field for cooperation with these non-EU countries would help to progress these multilateral projects. This could be done by creating common bodies of Mediterranean regulators and transmission companies, as well as an EU RES trade platform for the Mediterranean.

Energy infrastructure

6) *Harmonizing the regulation of distribution and transmission grids* is a promising second type of EU involvement (“Harmonization”). Smart grids indeed need smart regulation.⁴ Regulators could for instance be mandated to enable the transition (e.g. supporting innovation in a Europeanization process) rather than being only responsible for improving the cost efficiency of grids.

7) *Establishing an EU infrastructure investment cost recovery instrument* is a promising third type of EU involvement (“Level playing field”). The existing European cost recovery instruments are indeed inadequate, while transmission expansion is crucial to enable the transition. An EU regulated asset base for key European interconnections paid by an EU tariff component would be an advanced solution, while a reduced alternative could be to have an inter-TSO fund for key European infrastructure investment. Such a scheme exists already for costs compensation; and it has shown that it is too difficult for European stakeholders to find a consensus among them so the new financial scheme would need to be set at the EU level by an independent third party.

⁴ See FSR policy brief 2010/01, June 2010 on smart grids.

Internal energy market

8) *Creating an internal balancing market* leads to a promising first (“Effort sharing”), second (“Harmonization”), and third (“Level playing field”) type of EU involvement. The existing stakeholders visions have in common that they project ambitious grid expansions across borders. This reduces the need for back-up capacity, but only if there is an internal balancing market, while today these real-time markets are mainly national in scope. The reservation costs of balancing services would need to be shared (first type), the services would need to be harmonized (second type), eventually leading to a level playing field with an EU internal balancing market code (third type).

9) *Harmonizing security of electricity supply mechanisms* is a promising second type of EU involvement (“Harmonization”). Regulators have indeed expressed concerns that Security of Supply measures are still mainly national in scope, and that possible external effects on neighboring countries and markets are often not considered. Harmonization could, for instance, include the provisions to permit demand resources to be able to participate in these balancing on equal footing with generation, which is not the case with existing conventional mechanisms.

R&D

10) *Complementing the Strategic Energy Technology Plan (SET-Plan)* is a promising third type of EU involvement (“Level playing field”). The plan is currently industry focused and based on a bottom-up approach; and so it needs to be complemented by a more top-down approach from a European point of view. An extended SET Plan should prioritize projects proposed by different industries and also improve the balance between early innovation to create new options and later stage innovation to push the most promising options into the market.⁵

⁵ See **THINK** Final Report **Topic 1** “Public Support for the Financing of RD&D Activities in New Clean Energy Technologies.” and FSR Policy Brief Issue 2011/01 January 2011 on RD&D.

Recommendations

Track progress

The path towards 2050 requires a continue following-up of investments and choices made by private actors, as well as policy implementation by policy makers, similarly to what several pioneering member states have already started doing at the national level.

Ten priority EU-interventions to add European value to member states' 2050 first steps

<<Ten priority interventions </>> Type of EU involvement>>	1 st	2 nd	3 rd
1) Make energy saving targets binding	√		
2) Mobilize cities towards a low carbon future		√	√
3) Strengthen the carbon price signal	√	√	√
4) Integrate renewable energy technologies into the internal electricity market		√	
5) Create a level playing field for renewable energy cooperation with non-EU countries			√
6) Harmonize the regulation of distribution and transmission grids		√	
7) Establish an EU infrastructure investment cost recovery instrument			√
8) Create an internal balancing market	√	√	√
9) Harmonize security of electricity supply mechanisms		√	
10) Complement the Strategic Energy Technology Plan (SET-Plan)			√