European Network of
Transmission System Operators
for Electricity

SUMMARY OF ENTSO-E PUBLIC CONSULTATION ON R&D ROADMAP 2013-2022

17 DECEMBER 2012

FINAL VERSION

Contents

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1 BACKGROUND

The Research and Development (R&D) Roadmap is an important ENTSO-E deliverable. It is required by the Third Energy Package, both in Directive 72/2009 and in Regulation 714/2009.

The first ENTSO-E R&D Roadmaps published in 2010 and 2011 were entitled 'R&D Plan'. The R&D Roadmap defines the core R&D activities of TSOs within ten years, targeting twenty-year transmission system needs. It has impacts and benefits not only for TSOs but also for society as a whole.

By closely collaborating and sharing R&D investments, transmission system operators (TSO), partners and key stakeholders will be able to reach their key milestones and maximize results. While drafting the R&D Roadmap, ENTSO-E has done extensive interactions and exchanges both internal with its members and external key stakeholders.

In order to collect stakeholders' feedback and wide public opinion, ENTSO-E has launched a public consultation from 17 September until 15 October 2012.

In parallel to the ENTSO-E R&D Roadmap, the European Electricity Grid Initiative (EEGI) Roadmap also performed a public consultation. The EEGI covers both transmission and distribution R&D activities, in which ENTSO-E contributes to defining the transmission R&D part. The core TSO R&D activities of clusters and functional objectives are defined in a consistent manner in both the ENTSO-E R&D Roadmap and the EEGI Roadmap. Therefore, comments received on the TSO R&D part are taken into account when considering improvements on both the ENTSO-E R&D Roadmap and the EEGI Roadmap.

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2 COMMENTS FROM THE PUBLIC CONSULTATION

Stakeholders appreciate the R&D Roadmap which is visionary and addresses challenges ahead. They welcome the opportunity given by ENTSO-E to provide comment to the Roadmap. The R&D Roadmap enables all stakeholders to have a clear understanding of the R&D priorities of transmission system operators.

A broad range of organisations has provided directly comments to ENTSO-E or via the EEGI channel. This represents a mix of industrial associations, generation, NGO, consultant companies, research institutes, academia and independent experts. The Table below summarises main concerns and suggestions of stakeholders.

Name	Type	Areas of interest
NGO	NGO	Environmental aspect is special interested. Suggestion to improve a functional objective T14 is provided.
Austrian Institute of Technology	Research institute	Suggests highlighting R&D need to overcome low public acceptance of traditional overhead lines.
MEDGRID	Association	Suggests reinforcing cooperation with non-EU Mediterranean countries and transferring knowledge.
Friends of the Supergrid	Association	Strong collaboration with stakeholders is suggested. In addition a proposal to increase an extra funding for sharing, coordination and dissemination of results was made.
Tractebel	Consultant	Raises a question on how to deploy results of the PEGASE project
RSE	Research institute	Raises a question on how to deploy results of the GridTech project
EdF	Generation	A cost-benefit analysis to evaluate an R&D project is asked. Interdependence and strong coordination among clusters is needed. Strong stakeholders' involvement is suggested. Specific comments for each cluster are provided.
Wärtsilä	Consultant	Suggests including flexibility from generation.
SmartestEnergy	Consultant	Requests calculation methods of KPIs.
EPIA	Association	Suggests considering photovoltaics to provide flexibility and extra system services.
Eurelectric	Association	Encourages dissemination and knowledge sharing activities.
Eric Arnould, university of Bath	Academia	Suggests collaborating with social science expert to gain public involvement.

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3 ANSWERS TO THE COMMENTS

The comments and suggestions support ENTSO-E in the effort to improve the R&D Roadmap. ENTSO-E has considered all comments and adapted the final text of the R&D Roadmap.

In addition to the process to implement stakeholder's comments, the language and writing style were improved to make the Roadmap even better understandable.

Besides many small changes in the final version, main concerned issues of stakeholders are grouped and clarified in the following sections.

3.1 STAKEHOLDER INVOLVEMENT

Stakelholder involvement is critical not only to support the content of the Roadmap, to share resources, competences and knowledge, but also a prerequisite condition to disseminate the R&D results. At the end, stakeholders receive R&D benefits and they should be strongly welcomed, accepted and involved.

Stakeholders are not limited to manufacturers, renewable and generation sectors, distribution system operators, but also regulators, research institutes, other relevant and interested parties.

The gain of aligning TSO R&D can be leveraged with coordinated synchronization and cooperative methods between the R&D clusters and the various stakeholders, since in many cases the stakeholders will find it relevant to participate in all or several of the proposed clusters.

The stakeholder involvement is defined in Chapter 4 and Chapter 5, as well as in the description of clusters and functional objectives.ENTSO-E has adapted the description of some specific tasks of functional objectives to highlight explicitly the stakeholder involvement.

Another issue of stakeholder involvement is the public acceptance of transmission infrastructure. Stakeholders suggested improving description of fuctional objective T14 to make it clear and explicit. ENTSO-E highly appreciates their suggestion and has adapted the description of T14.

3.2 KNOWLEDGE SHARING

One of the main R&D outcomes is competence and knowledge. The dissemination of information, results, best practices and lessons is crucial to inform effective development and integration of optimal solutions. Stakeholders encourage the dissemination of success criteria and realistic business cases based on intensive pilot studies.

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The knowledge sharing should not limit only partners involved within pan-European transmission system, but also to a wider audiences and outside Europe. Through exchanges with other partners (from Mediterranean countries, to Asia, America, etc.) to strengthen R&D activities.

ENTSO-E is working to define a knowledge sharing platform. Some initial description is available in Appendix B.2 in the R&D Roadmap.

In order to highlight this issue, a sentence is inserted in section 4.4:

"Innovative concepts can be rapidly disseminated throughout Europe so that the best technologies and solutions can emerge and gain acceptance."

And other in section 5.3:

"Knowledge can be quickly disseminated and shared among stakeholders and interested parties."

3.3 INTERDEPENDENCY OF CLUSTERS

In order to organize the R&D activities in a structured way, they are grouped in clusters according to TSO functions, i.e. network development, operation, market, asset management and interface with distribution systems. The outlined six focus clusters and their functional objectives are all relevant. A R&D project may cover several clusters or functional objectives. The implementation of the R&D Roadmap is strongly coordinated.

A sentence is inserted in section 3.2 to stress this point:

"Even though each cluster is defined according to TSO functions they are all interdependent hence R&D activities are performed in a coordinated fashion."

3.4 NETWORK FLEXIBILITY

ENTSO-E's R&D Roadmap focuses on the challenges with grid stability and integration of renewables into the power generation mix. A large part of the focus is on controlling and operating the pan-European grid, and in smart demand control. However, ENTSO-E would like to highlight the importance of simultaneous flexible power generation mix as one part of the solution.

A sentence is inserted in chapter 2:

"*To maintain the balance of supply and demand, flexible power generation (e.g., hydro power plants and gas-based combustion engines) is still needed for large-scale integration of renewable power sources*."

ENTSO-E also considers flexibility and extra system services provided by distributed energy sources through distribution system.

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3.5 KEY PERFORMANCE INDICATORS

Key performance indicators (KPI) are used as one of methods to monitor the contribution of the R&D activities. Besides qualitative R&D benefits and impacts, quantitative indicators should be defined.

In general, a good KPI is meaningful, understandable and measurable. It should be meaningful and understandable for TSOs and relevant parties ranging from policy makers, regulators, manufacturers to customers. It should be also measurable to quantify and validate contribution, resulting in gaining confidence.

At a first attempt, ENTSO-E has included KPIs in every functional objective's description. However, ENTSO-E has not finalized the work on defining KPIs and their calculation methodologies. The KPI definition is still work-in-progress with a detailed description and guideline for the calculation methodologies of all the proposed expected KPI values. In addition, no single functional objective has its own KPI. It should be understood that many functional objectives contribute to achieve a KPI. Therefore, a decision not to include KPIs in the functional objective's description has been taken. An approach to summarise necessary information in the Appendix B.6 has been selected as appropriate. A full KPI proposal is expected to be ready and published in a separated document in early 2013.

A section on KPI is inserted in the Appendix B.6.

A full KPI report will be available early 2013, in which some aspects of costs and benefits will be considered.

4 CONCLUSIONS

Stakeholder involvement is crucial to successfully realise the R&D Roadmap. ENTSO-E acknowledges contribution of stakeholders during drafting and public consultation.

Defining a comprehensive R&D Roadmap is challenging. However, implementing the R&D Roadmap is even more challenging.

No single TSO alone will be able to conquer the many challenges facing the electricity industry. In order to succeed, TSOs must work together and collaborate with DSOs, universities, research institutes, generation companies, consumers and industrial manufacturers. Through close cooperation, Europe's TSOs can achieve their R&D goals and maximize results. Knowledge can be quickly disseminated and shared among stakeholders and interested parties.

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