



European Network of
Transmission System Operators
for Electricity

SUMMARY OF ENTSO-E PUBLIC CONSULTATION ON RESEARCH AND DEVELOPMENT PLAN

31 MARCH 2010

BRUSSELS

ENTSO-E acknowledges stakeholders' responses received during the public consultation on the first ENTSO-E Research and Development Plan (R&D Plan) that has been announced on 11 January 2010. The following stakeholders responded before the announced deadline (22 February 2010) and their responses were evaluated by ENTSO-E and taken into account accordingly:

- **Sia-conseil:** A specialized business & management consulting company in the energy sector.
- **VEÖ:** The group of the Austrian electricity industry (producers, distributors, dealers). The Association with its approximately 140 members, which account for more than 90% of the Austrian electricity generation and represents the interests of the Austrian electricity industry at home and abroad.
- **GE Energy:** One of the world's leading suppliers of power generation and energy delivery technologies.
- **Nord Pool Consulting AS:** Consulting branch of NordPool, a PEX for physical and financial power contracts, as well as for European Union emissions allowances (EUAs) and global certified emission reductions (CERs).
- **EWEA:** The voice of the wind industry, actively promoting the utilization of wind power in Europe and worldwide.
- **BDEW:** The German Federation of Energy and Water Management (BDEW), representing some 1,800 companies from local and municipal to regional and international companies.
- **EOA:** The European Ocean Energy Association (EU-OEA) is a non-profit association with a growing international membership of more than 60 of the world's leading companies involved in marine and tidal energy technologies.
- **Verbund:** Austria's largest electricity producer and transporter.
- **Mr. Angelo L'Abbate:** personal comment of ERSE expert in power system planning. ERSE (ENEA - Research on the Electrical System S.p.A.) develops research projects of general interest to the national electricity system, focusing on applied research and with a system-oriented approach).

Most of the comments and suggestions received supported ENTSO-E in its task to improve the first edition of the ENTSO-E R&D Plan. Some of the comments are taken into consideration and some others will be taken into consideration for the next edition of the R&D Plan.

It is ENTSO-E understanding, based on the inputs received during the Public Consultation Process, that stakeholders:

- welcome the participatory nature of the R&D Plan, but remark the need of reinforce this participation,
- recognise the general proposition and visions of the R&D Plan relating to security, adequacy and sustainability of energy,
- agree to the necessity of a long term perspective to face the challenges that have to be made in the European power system,
- demand further development of governance and management structure as well as coordination mechanisms with other Industrial Initiatives to be launched in the framework of SET Plan.

The following part of the document is an overview on the comments received and their implementation in the final release of the first R&D Plan.

GENERAL COMMENTS:

- For power industry in Europe, the future challenges will be different from the historical ones, as a result of the 20-20-20 goals defined by the European Union. To achieve the 20-20-20 goals, transmission reinforcement alone is not sufficient, hence it is important to maximising capacity in the Subgrid with Smart Meters, Smart Grids and Smart Homes, i.e. flexing in distributed generation to meet demand and flexing in demand to meet generation. Therefore, the new challenge of Smart Grids should involve numerous stakeholders as indicated by some contributions (GE Energy, BDEW). Moreover, a suggestion (GE Energy) is made to give more explanations to the public on the advantages of Smart Grids. It is obvious that the European TSO's should collaborate and work close together with the DSO's of Europe since most of the Smart Grids applications will be installed in their grids.

ENTSO-E is on the opinion that the relevant comment should be addressed to all stakeholders involved in this issue. However this kind of awareness campaigns are not considered part of the R&D Plan, which is mainly focused to overcome technological barriers.

- Availability for a close collaboration for the preparation and development of the R&D Plan has been confirmed by some stakeholders (OEA, EWEA). This cooperation should be extended also to association dealing with energy sources that currently are probably not mature enough from a technological point of view, but in a relatively limited number of years, could assume a considerable relevance (ocean and tidal energy). Other stakeholders (VEÖ, Sia-conseil) stressed the interest of the involvement of all relevant actors like PEX or the research community in the whole process.

The participation is open to all relevant stakeholders defined in the R&D Plan. In some of the work streams additional actors have been identified. The governance and management structure will ensure the valuable contribution of different stakeholders. In the detailed description of process for drafting the R&D Plan it is mentioned the role of stakeholders and the external network of experts to support the ENTSO-E Working Group R&D (WG R&D) in drafting preliminary version of the R&D Plan.

- It has been pointed out (OEA) that huge penetration of RES could reduce dramatically the sources intermittency, by smoothing their highly unpredictable behaviour.

ENTSO-E understands the issue, but considers that this issue should be carefully assessed also considering the need of a strong European commitment for developing the transmission grid to guarantee the full exploitation of large scale RES capabilities.

- Some stakeholders (VEÖ, Verbund) remarked the possible impact of facilities developed for demonstration projects in the current system, e.g. by increasing international interconnection capacity between some countries, etc. and the necessity of a fair and transparent management of these cases.

The budget of the R&D Plan has been estimated in accordance with FP7 rules for eligibility costs. This means that for large investments in new facilities executed in the demonstration projects, only the depreciation cost, calculated in accordance with standard accounting principles in the relevant TSO, is considered part of the R&D Plan. On the other hand it should be stressed that the R&D Plan does not cover the deployment of new technologies at European level. It is focused to demonstrate the suitability of these new technologies, tools or methodologies to be implemented in the immediate future by the ENTSO-E members.

- The relationship between research and demonstration as well as between clusters and work streams (Verbund) should be better explained.

Some paragraphs in Sections 4.5 and 5 have been modified in order to clarify these issues.

GOVERNANCE AND MANAGEMENT STRUCTURE:

- Several contributions (GE Energy, Verbund) underline the need of improvement related to the management and the governance of the R&D Plan. In addition, details are required to address issues related to funding and program management.

ENTSO-E understands the importance of management and governance model and this issue is reflected in the final version of the R&D Plan by including a dedicated section. A special section (3.4.2) provides details on the roles and responsibilities inside ENTSO-E concerning the R&D Plan. Moreover, the collaboration with the European Commission (EC) is included to ensure consistency between various activities in the frame of European Industrial Initiative (EII).

It should be noted that due to the expected close connection between the R&D Plan and the EC Strategic Energy Technology Plan (SET Plan), some of the governance rules would be developed in a coherent way with the general framework outlined by SET Plan, which is still under definition.

In addition, one final remark is that the R&D Plan must be dynamic not only in terms of contents but also in terms of management and governance. The experience in the coming years will determine the adjustment in the governance rules and procedures in accordance with the basic principles established in this edition of the R&D Plan and the general framework for SET Plan implementation.

- A clear explanation regarding decision of project funding and project monitoring as well as relationship with SET Plan and FP7 (Verbund) is demanded.

As mentioned previously a specific governance structure for the SET Plan and the European industrial initiatives under the SET Plan umbrella are still in definition stage. The final edition of the R&D Plan includes specific proposal for project selection and monitoring in accordance with existing FP7 rules, until a more specific mechanism is defined in the framework of SET Plan.

It should be noted that for this initial phase of the implementation EC, or the relevant SET Plan body, is keeping the responsibility of project's selection for funding and project's monitoring because most of the funds are expected from FP7 until other sources are available.

- A definition of Key Performance Indicators (KPIs) (Verbund, Sia-conceil, EWEA) for monitoring the R&D Plan development and a detailed risk assessment are missing.

Risk assessment and definition of KPIs are tasks closely connected with the specific target to be achieved by the Grid initiative in the framework of SET Plan, and still under discussion with EU representatives, Member States and Regulatory Authorities (ERGEG). Taking into account that the R&D Plan includes research, development and demonstration the main risk is associated with the accomplishment or not of the R&D Plan objective in terms of expected impact for integrating and managing large amounts of RES by 2020 and beyond.

Taking into account that TSOs are regulated companies, it is sought that explicit recognition of R&D activities are part of the tasks to be carried out by TSOs. Consequently, TSOs should be fairly rewarded by the tariffs or any other suitable remuneration scheme that could be implemented.

- Some of the comments addressed (EWEA) point out the synergies between the European Wind Initiative and the ENTSO-E R&D Plan, emphasising the need of close cooperation among different industrial initiatives within the framework of SET Plan.

ENTSO-E agrees with this approach, however, no relevant changes have been introduced in the document because of this coordination must be held in the

framework of the overall SET Plan governance structure, which is still under definition mainly by EC and Member States.

DISSEMINATION AND SHARING OF RESULTS:

- The need of a more clear description of the results' dissemination and sharing was addressed in some of the responses (Verbund), including issues relevant to this topic such as Intellectual Property Rights (IPR), access rights to background and foreground, etc.

The final version of the first edition of the R&D Plan includes several improvements in Section 3.4.3 to address stakeholders' concerns with regard these topics. In any case it must be necessary to keep absolutely clear that ENTSO-E members are taking strong commitment to share knowledge and results (foreground) coming from the R&D Plan. This commitment cannot have backdated impact, and background is only granted in accordance with the relevant agreements. These agreements are based on the actual need of this background for the suitable exploitation of new knowledge and tools, but having a reasonable compensation for the TSO, which develops this background. A direct reference to FP7 definitions for research and demonstration activities is included in the R&D Plan.

TECHNOLOGICAL ISSUES:

- The need of a network code was emphasized by some contributions (GE Energy, Sia-conseil, BDEW), especially with the growing penetration of variable and distributed energy (RES). Furthermore, the new development of DC transmission networks to connect off-shore wind farms will require the use of grid codes to ensure an appropriated connection of RES to the transmission networks, and achieved in a transparent and competitive manner.

ENTSO-E is well aware about the importance of a network code in order to ensure consistency of connection conditions for all types of generation sources. A pilot code related to this is considered by ENTSO-E as a high priority issue in its Work Plan for 2010. This issue is already in progress inside ENTSO-E and it is managed by a specific Working Group.

- The importance of market integration and market design issues is emphasized by some contributions (BDEW, GE Energy, NordPool, VEÖ), especially in relation with the ambitious RES integration. Transparency and maximisation of transmission capacity must be made available for the market whilst ensuring network security standards.

ENTSO-E is well aware on these issues. Its strategic plan presents key actions to be taken into account and already in progress e.g. ENTSO-E Ten Year Network Development Plan. Moreover a dedicated ENTSO-E Committee (Market Committee)

is in charge to manage these issues. The market issues are also included in the R&D Plan, in relation with the cluster 4.

- The R&D Plan should not be limited to transmission projects, but also include projects to be driven in common by TSOs and DSOs. Some contributions (BDEW, L'Abbate-ERSE) have suggested mentioning clearly in the document the need of this cooperation.

ENTSO-E confirms the need of a close cooperation between TSOs and DSOs. Smart grid is obviously a common issue involving several stakeholders like TSOs and DSOs, as already mentioned above in this paper. However, the final version of the first edition of the ENTSO-E R&D Plan covers the most urgent research and demonstration activities to be carried out in the coming years under the leadership of the TSOs community in order to ensure the grid operators (transmission grid operator in this case) play a facilitator role in the achievement of the 2020 targets, avoiding the grid becomes the bottleneck of the future European electricity system.

- Some participants to the consultation process (L'Abbate-ERSE) stressed the need to dedicate resources to demonstration and implementation of innovative technologies (e.g. FACTS, storage, HVDC, PMU/WAMS) and architectures (e.g. off-shore grids).

ENTSO-E agrees with this comment. Cluster 2 has mainly the above mentioned objective. In any case it is necessary to take into account that most of the innovative technologies to be demonstrated within the framework of this first ENTSO-E R&D Plan must be mature enough in the next two or three years, in order to allow its validation by 2015 – 2018 and being in conditions to contribute to the 2020 targets.

Since the ENTSO-E R&D Plan is the first pan-European TSO initiative to focus on R&D projects with common interest there is expected to be a positive spinoff where groups of TSO's and other stakeholders will initiate other R&D projects than mentioned in the R&D Plan.

- Several comments were directly addressed to the specific content of Section 6 and 7 (work streams and R&D projects). One stakeholder (Sia-conseil) suggests the interest of defining a new base work stream to set up a system base case to be used in all the other work stream and highlight the degree of uncertainty existing today with regard the potential impact of demand response. Other contributions (Verbund) pointed out that some projects in Section 7 did not fulfil the basic requirement for being part of the R&D Plan (e.g. involving several TSOs from different countries, etc.).

ENTSO-E would like to comment that, besides the undoubted relevance of the R&D Plan within the Association activities, there are many other activities carried out in parallel to this R&D Plan such as the previously mentioned drafting of Grid Codes or the setting up of common scenarios and grid parameters to be used by TSOs in many different studies. On the other hand the uncertainty of demand response at this moment is one of the reasons why this topic is part of the R&D Plan. If there were no open questions regarding this topic, there were not justified to include them in the

R&D Plan. Last issue regarding the inclusion of some projects in Section 7, ENTSO-E would like to clarify that these on-going projects carried out by some TSOs at national level are included in the R&D Plan as a proof of the actual commitment of TSOs for sharing activities and results in the R&D field.

- There is no justification for the work streams that intend to elaborate on grid control issues at European level (Verbund).

ENTSO-E considers that the greater the penetration of variable RES generation in the system, the more important become the need of supervision and control at pan-European level that is what gives rise to these work streams and to a large extent the R&D Plan itself. However, this statement must be supported by technical analysis, simulation studies and demonstration projects and these are the objectives of these work streams. It does not mean that the R&D Plan result can be anticipated five years in advance. Today the grid security at European level is one of the drivers of the R&D Plan.