



EREGG Opinion on the ENTSO-E Pilot Community-wide Ten-year Electricity Network Development Plan

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INFORMATION PAGE

Abstract

This document (Ref. E10-ENM-22-04) sets out ERGEG's opinion on ENTSO-E's pilot Community-wide ten-year network development plan. This is done in accordance with the legislative requirements in the 3rd Package and as guidance for ENTSO-E work in this area.

ERGEG's Advice (Ref. E10-ENM-22-03) on the principles behind a Community-wide ten-year network development plan was published in June 2010 and is frequently referred to in this document.

Target Audience

Transmission system operators, National Regulatory Authorities, the European Commission, energy suppliers, traders, electricity customers, electricity industry, power exchanges, academics, and other interested parties and their representatives are the target audience for this paper.

Related Documents

CEER/ERGEG documents

- "Final Advice on the Community-wide Ten-year Electricity Network Development Plan", 10 June 2010, Ref: E10-ENM-22-03. http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_ERGEG_PAPERS/Electricity/2010/E10-ENM-22-03_TYNDP%20advice_10-Jun-2010.pdf

External Documents

- "Pilot Ten Year Network Development Plan, 2010-2020", 28 June 2010, ENTSO-E. https://www.entsoe.eu/fileadmin/user_upload/library/SDC/TYNDP/TYNDP-final_document.pdf
- Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC. <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0055:0093:EN:PDF>
- Regulation (EC) No 713/2009 of the European Parliament and of the Council of 13 July 2009 establishing an Agency for the Cooperation of Energy Regulators. <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0001:0014:EN:PDF>
- Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/2003. <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0015:0035:EN:PDF>

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Executive Summary

This document gives the ERGEG opinion on the Pilot ENTSO-E Community-wide Ten Year Network Development Plan (TYNDP) for electricity. On 10 June 2010, ERGEG published its Advice on the development of the Community-wide TYNDP (e.g. key stakeholders to consult, inclusion of data and scenarios to be tested) and the specific network issues that should be addressed in the TYNDP (i.e. the content). This advice was envisaged to provide guidance to ENTSO-E. Since that time, ENTSO-E has published its pilot TYNDP for electricity. Below, ERGEG outlines its opinion on this pilot plan. The Advice ERGEG published in June 2010 has been used as the basis for structuring and elaborating this opinion.

This ERGEG opinion concludes that the pilot TYNDP for electricity is a good starting point for monitoring investments and identifying the priority infrastructure challenges that need to be met for a European-wide Internal Electricity Market (IEM) to develop. The pilot plan will help ACER to be able to quickly initiate an overall assessment of the first official TYNDP in 2012.

The reasoned opinion below highlights areas in which the pilot plan does not meet the Advice criteria published by ERGEG in June 2010. It also provides specific recommendations on how subsequent TYNDPs can be improved, through measures addressing both the process of developing the plan and specific issues the plan addresses. Improvements can be made in areas of scenario-development, better harmonising data sources to give a holistic Community-wide appraisal of the electricity network and a more detailed evaluation of the impact of planned projects on the Community-wide network. Improvements can also be made in the way stakeholders are consulted during elaboration of the plan and in the publication of data on the ENTSO-E website.

1. Introduction

According to Regulation (EC) No. 714/2009 (the Electricity Regulation) ENTSO-E shall adopt and publish a Community-wide Ten-Year Network Development Plan (TYNDP) every two years. The Community-wide TYNDP shall include the modelling of the integrated network, scenario development, a European generation adequacy outlook and an assessment of the resilience of the system.

The Agency for the Coordination of Energy Regulators (the Agency) shall provide an opinion on national ten-year network development plans, which are also required to be developed according to the Regulation, in order to assess their consistency with the Community-wide TYNDP. If the Agency identifies inconsistencies between a national/TSO TYNDP and the Community-wide TYNDP, it shall recommend amending either the national/TSO TYNDP or the Community-wide TYNDP as appropriate.

In order to provide guidance to ENTSO-E on the development and content of the Community-wide TYNDP, ERGEG published in early June 2010 its Advice on the Community-wide TYNDP¹ (Advice). This Advice has been used as the basis for structuring and elaborating the present ERGEG opinion on the Pilot ENTSO-E Community-wide TYNDP (published late June 2010).

ERGEG is aware that the current TYNDP by ENTSO-E is only a first, pilot, version. ERGEG's opinion on this pilot has been produced as part of an ongoing process. It provides the first detailed opinion on the differences between the content of the published Community-wide TYNDP and the requirements defined by ERGEG in its Advice.

This document is intended to be submitted to the Agency in order to be used in the preparation of the first official opinion of Agency on the TYNDP. The Agency's opinion is expected in 2012, when ENTSO-E will publish its first "real" TYNDP. ERGEG envisages that the opinion document will be developed further – together with the Advice – if and where considered necessary by the Agency.

¹ Ref. E10-ENM-22-03, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_ERGEG_PAPERS/Electricity/2010/E10-ENM-22-03_TYNDP%20advice_10-Jun-2010.pdf

2. Issues for a regulatory opinion²

One objective of the Community-wide TYNDP is to eliminate physical congestion on the electricity network where it is considered to hinder the development of cross-border trade and market integration. The Community-wide ten-year network development plan must provide a shared vision on the European power system. For that purpose, the plan must build on complementary processes:

- EU-wide scenarios;
- Development of infrastructure country by country, based on the developed scenarios and generation adequacy outlook.

This requires both top-down and bottom-up approaches. ENTSO-E must identify scenarios and provide transmission system operators (TSOs) with sufficient information on the major cross-border issues to be solved. TSOs must provide national specific information to ENTSO-E.

When forming its opinion on the plan, the Agency will evaluate each step and assumed outcome of all parts of the TYNDP process described in this Advice, including especially whether the following processes have been undertaken and the following issues addressed:

- ENTSO-E has prepared scenarios and these have been applied also at regional and national level;
- Modelling of the integrated network has been made by applying both bottom-up and top-down approaches;
- Consultation of all relevant stakeholders has been conducted at European, regional and national levels and the outcome of these consultations has been documented;
- An assessment of the resilience of the system has been made;
- European and national generation outlooks have been prepared and are consistent with each other;
- Coherence between the national, regional and Community-wide ten-year network development plan is met; and
- A monitoring report on the implementation of the national and Community-wide plans has been prepared.

Furthermore, the national and Community-wide TYNDPs must ensure:

- Security of supply;
- Non-discrimination;
- Effective competition;

² This chapter provides information directly from ERGEG's Advice in order to introduce and explain the structure of the document.

- Efficient and secure functioning of the internal electricity market; and
- A sufficient level of cross-border interconnection open to Third Party Access (TPA).

The power system is to be designed so that demand is met efficiently and safely. This means that the power system should be planned, built and operated so that sufficient transmission capacity is available to deliver generated electricity to meet the needs of consumption in a way which is economically efficient. In this way, the benefits will be maximised and the costs minimised from the European perspective.

In addition, flexible investment solutions which take into account alternative futures should be promoted. The transmission network should allow for well-performing joint operations. This requires coordination, both in the planning of the power system and at the operating stage.

The planning process should be smooth, efficient, consistent and transparent.

3. General Issues

Ensuring Security of Supply

In order to ensure Security of Supply (SoS) and reliable operation, TSOs constantly monitor the system and implement the appropriate correction measures to avoid, as far as possible, any violation of operating rules.

ENTSO-E is currently in the process of agreeing and setting up common procedures in order to enable the TSOs to share the same standards, methodology and ensuring that the future TYNDPs are resting on consistent regional studies.

TSOs' individual and combined expertise and experience is required to safeguard SoS and, through the TYNDP, demonstrate the capability and readiness to respond to their respective challenges.

The construction of multiple generation-demand scenarios for evaluating new transmission elements is the tool to be used by the TSOs for dealing with uncertainties.

These scenarios are taken from the Generation Adequacy Outlook (GAO) which in itself is a part of the System Adequacy Forecast (SAF), which serves as the core input document for the TYNDP.

The current TYNDP has identified regions where SoS could be at risk, but the approach has not been satisfactory because of an insufficient level of detail.

Moreover, studying only two scenarios is insufficient to obtain a correct view of the SoS situation to be taken into account in the TYNDP. This is especially important since SoS is a central part of grid development and one of the key driving forces behind the TYNDP (and its related legal framework, explained at the beginning)

Ensuring Effective Competition

Fostering competition and market integration will increase welfare, whereas inadequate, constrained cross-border exchange capacity is a barrier to market integration and competition. Removing constraints will eventually require new transmission capacity. The availability of relevant information on the existing as well as on the new transmission infrastructure is perceived as important for achieving the more equitable conditions for fair and effective competition.

The TYNDP should therefore describe in a more detailed way than the pilot currently does how enhanced and more effective competition can be achieved with the planned transmission projects.

Furthermore, while stating in the TYNDP report that regulated Third Party Access (rTPA) will promote effective competition, it is not elaborated how this is supported and reflected in the projects addressed in the TYNDP.

Ensuring transparent information on trends in generation and grid development

The TYNDP states that a common transmission grid with non-discriminatory rTPA is also key to the organisation of the Internal Electricity Market (IEM).

The TYNDP indicates further that generation is subject to competition and to market forces of increased unpredictability.

However, here too a higher degree of transparency will enable better efficiency in the planning process. Therefore, the SAF and TYNDP reports should merge information from individual market players into appropriate statistics and analyses, preserving at the same time the confidentiality of commercially sensitive information.

In this way, non-discriminatory treatment of all market players and stakeholders shall be kept, while providing for well argued and detailed conclusions regarding coming trends for generation and grid development³.

The current TYNDP identifies the integration of offshore renewable energy sources (RES) as an important driver of offshore and onshore network development in the next decade. However, the current TYNDP does not assess the infrastructure needed.

Whereas significant development of offshore RES will take place in Europe, especially in the North Seas (a significant installed capacity is projected in National Renewable Energy Action Plan, NREAPs), integration of offshore RES should be addressed in the next TYNDP.

Efficient and Secure Functioning of the IEM

The current TYNDP describes the European electricity network investment needs through a sub-division of six regions. Some regions are described in more detail than others but not all regions are covered in a comparable and sufficient level of detail and accuracy from the overall perspective of the IEM.

According to the current TYNDP, the IEM will be supported by reducing current or future constraints or the reinforcement and extension of cross-border capacity. A large portion of the projects addressed in the TYNDP (28,500 out of 42,100 km) is driven either solely by the needs of the stakeholders and market participants in the IEM, or by a combination of the needs from the IEM, maintaining SoS and needs for integration of RES, most notably wind power. Nevertheless, the plan does not actually allow for any assessment of the extent to which the projects (in particular cross-border reinforcements or extensions) contribute to the IEM and how these projects meet community expectations.

³ Regarding transparency, please refer also to ERGEG's Advice on Comitology Guidelines on Fundamental Electricity Data Transparency, which are currently under public consultation: Ref. E10-ENM-27-03, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_CONSULT/CLOSED%20PUBLIC%20CONSULTATIONS/ELECTRICITY/Comitology%20Guideline%20Electricity%20Transparency/CD/E10-ENM-27-03_FEDT_7-Dec-2010.pdf

Non-existence of a comprehensive assessment of system resilience is considered as something significantly lacking in the pilot TYNDP.

Finally, more details are required in the TYNDP especially related to the long-term perspective. In order to achieve an efficient and secure functioning of the IEM, only collection of data from national TSOs and regions is not sufficient. More effort has to be put into the (semantic and syntactic) synthesis of the individual inputs provided by the TSOs.

Sufficient Level of Cross-Border Interconnection Open to rTPA

The current TYNDP states that sufficient cross-border interconnection capacity within the common transmission grid of the EU, with non-discriminatory TPA, is key to the organisation of the IEM. However, in the absence of any regional market analysis and prioritisation of projects, it is presently not possible to assess to what extent this objective is being fulfilled.

Treatment of Third Party Projects

ENTSO-E states in the current TYNDP that cross-border interconnection projects from third parties (e.g. cross-border interconnections exempted from the Regulation) should be included in the TYNDP and the relevant information made available to the public. However, in the current TYNDP a few merchant lines are listed in the Appendix 1, but they are not taken further into consideration nor described at a sufficient level of detail.

In order to achieve the key energy policy goals of the EU - the 20-20-20 targets - there will be more joint projects between ENTSO-E TSOs and third parties. The information on these projects shall be made publicly available and should be fully taken into account within the TYNDP.

Coherence of National, Regional and European Network Development Plans

The current TYNDP aims at ensuring coherence between national and regional plans. However, a top-down approach has not been applied in this TYNDP as it should be.

Moreover, although references to the EU 20-20-20 targets are included in the TYNDP, it is not explained how and to what extent the targets were taken into account in the evaluation and elaboration of the TYNDP.

In ERGEG's Advice, it is postulated that the national/TSO plans should, if possible, be made publicly available via the ENTSO-E webpage. This is currently not the case. According to discussions with ENTSO-E it is, at least for the moment, not their intention to publish these national/TSO plans in this way. Although it is understood that this may be a temporary situation, it is also strongly advisable to provide one central access point (i.e. via the ENTSO-E webpage) where harmonised detailed information on national plans can be accessed by interested stakeholders or the wider public.

Also, in the future, the individual TSOs' national plans will have to be translated into English and made available to the Agency by ENTSO-E. This is so the Agency can provide its official opinion on the TYNDP based on all the necessary facts, information and arguments.

4. Consultation Process and Stakeholder Involvement

General

All consultations for the preparation of the pilot TYNDP were held on a Community-wide level. However, contrary to the ERGEG advice, no national or regional consultations under oversight of the national regulators were held. The detailed process for TYNDP consultations shall be agreed with the Agency in the future and described and published accordingly on the ENTSO-E website in advance of the consultation process.

Consultation and Workshop

After a first draft had been finalised by ENTSO-E, stakeholders were given an opportunity to provide written comments. Starting on 1 March 2010, a public consultation lasting six weeks was conducted by ENTSO-E. The responses received from this were published on ENTSO-E's website and a corresponding report was published on 21 May 2010. Only some comments were taken into account for the further development of the pilot TYNDP.

After the release of the draft TYNDP, a stakeholder workshop was held by ENTSO-E where all stakeholders had the opportunity to comment, both during a discussion of presentations and by means of their own presentations. Presentations delivered at the workshop were also published on the ENTSO-E website for a limited time period. Contrary to ERGEG's advice, no minutes of the workshop can any longer be found on the ENTSO-E website. This is proposed to be corrected not just for the first official TYNDP that is due in 2012 but also for the pilot version released in June 2010.

The ENTSO-E report on their consultation is well structured by topics and is generally useful to follow-up discussions. On the other hand, this approach does not indicate which comments from the consultation have (or have not been) taken into account. This kind of differentiation should happen in future consultations. Future consultation reports, therefore, should make it possible to identify how and why comments have been considered/not considered in the final plan.

It is positively recognised that stakeholders had the opportunity to discuss scenarios as well as network development. There are also no restrictions on the kind of stakeholder consulted. Nevertheless, the ERGEG Advice suggests that stakeholders be consulted at an early stage of the TYNDP process and at every stage where they could be helpful to ENTSO-E (e.g. for scenario development). Moreover, there should be consultation on the scenarios at an early stage and with the involvement of a wide range of experts.

It has been indicated by ENTSO-E that for the next TYNDP a consultation regarding the scenarios will take place before modelling the network and before the actual identification and proposal of the specific grid projects. The consultation will involve all stakeholders and address the main drivers behind the needs / projects in the TYNDP.

As the System Adequacy Forecast is one of the key inputs to the scenario development, there shall also be a consultation regarding this at an early stage.

Furthermore, in order to be able to include third party projects in an appropriate way and in order to be able to consider all relevant information and interests as appropriate, it is necessary to actively involve all affected stakeholders during the development of the TYNDP.

5. Scenarios

The current TYNDP presents no detailed, specific scenarios. It does give two general ones. Nevertheless, ERGEG appreciates the approach to combine bottom-up with top-down processes in order to cover a wide range of possible developments and their impact on the transmission system.

A sufficient range of scenarios is needed in the next, i.e. the first official TYNDP, including in the first instance a base scenario (reflecting the situation if existing trends are prolonged) and then extending to a number and range of advanced scenarios which will cover all probable and foreseeable relevant developments in the IEM in the coming 10 years. A reference to the SAF scenarios (conservative, best estimate, worst case) is mentioned in the current TYNDP, but its relevance needs to be explained with a higher level of detail and used accordingly in the scenarios development.

Scenario A takes into account the most probable demand evolution and the commissioning of new power plants considered as certain.

Scenario B takes into account the generation capacity evolution described in scenario A and in addition power plants whose probability of being commissioned is considered as reasonable according to the information available to the TSOs.

Scenarios have to be defined further, taking into account, in particular:

- Developments in the demand for electricity (elaborating on macro-economics, market, climate, population, efficiency, technical development, etc.)
- Evolution of generation (considering mature and innovative technologies, generation profiles, grid integration, policies, etc.).

The current TYNDP gives several examples for existing scenarios (Nordic master plan, EWIS study) and key parameters (CO₂ indicators, renewable indicators, generation forecast) but does not develop any more detailed and specific sub-scenarios. Moreover, no process or workflow on a scenario is built up based on this set of information is given. Both these elements need to be included in the future.

In general, the definition of scenarios as a comprehensive set of parameters and cases as given in the current TYNDP is in line with ERGEG's Advice, that is they go beyond the scope of scenarios as defined in the SAF:

- **scenario** as general development into a possible future (described above)

and

- **case** as specific point in time within a scenario, providing all necessary detailed data and assumptions for network calculations (loads, weather, availability, merit order).

Cases are the base for building investment plans.

The bottom-up approach adopted from the SAF seems based on good practice, and is coherent with the overall EU targets (itself a top-down approach) mentioned above, albeit with no final consistent scenarios overview.

Stakeholders' Involvement

There has been no stakeholder involvement at the stage of developing scenarios as already mentioned in chapter 2.

Moreover, the strong involvement of stakeholders regarding the EU 20-20-20 targets - and related scenario development – needs to be included in the development of future TYNDPs.

6. Generation Adequacy Outlook

Method

The GAO is developed using a bottom-up approach based on the information the national TSOs deliver to ENTSO-E. It is to a large extent a collection of different TSOs' assumptions paired with 2 scenarios and illustrates a conservative outlook and a growth outlook on generation development. For the pilot TYNDP, the chapter concerning the GAO is taken directly from the SAF.

The national TSOs provided data for the years 2010, 2015, 2016, 2020 and 2025. Data for the other years were interpolated. ERGEG recommends that TSOs provide yearly values at least until 2025, because any interpolation is highly questionable and does not provide an adequate basis for forecasting.

The TYNDP also lacks a clear conclusion on where the highest potential for new generation can be found (based on primary energy, grid connection potential, demand) and where there is the highest potential for imports from a European point of view. ENTSO-E stated in the consultation workshop that this should be part of national considerations. However, ERGEG considers that this shall be covered in the TYNDP. As an example, the issue of generation location and import dependencies could be illustrated in a 'domestic' and a 'European least-cost/highest-welfare' approach.

Consistency of European and national outlooks

Consistency between European and national outlooks is attempted by copying the national outlooks into the GAO. The reasons for this approach are explained in the pilot TYNDP, but the national detailed GAOs are not publicly available. This should be provided in the future.

7. Modelling of Integrated Network

The grid adequacy analysis must also be built on the final scenarios and a European power market model. The simulations shall be based on an integrated market and load flow model.

In the current TYNDP, the scenarios and the necessary grid investments identified are not connected. In other words, the modelling of the integrated network has been made by only applying bottom-up approaches. This is not considered satisfactory and needs to be improved in the future.

The main basis for the identification of the TYNDP's grid projects should be a top-down approach. For this, the two scenarios in the current TYNDP need to be broadened and deepened (see also comment on Scenarios, chapter 3). Furthermore, these scenarios should be applied to a European network model and to market modelling.

The detailed modelling of the European network should also include the North Sea⁴ and address the question of whether and which offshore grid architecture (e.g. HVDC or AC) is feasible. In addition, potential preparation measures for progressing further with the interconnection with third countries such as North Africa or Turkey should be included in the European network model.

Investment deficits especially concerning interconnectors should be made transparent within the TYNDP through the market analysis as well as the best approach to cope with them, as derived from the top-down and bottom-up scenario analysis.

⁴ Referring to North Seas Countries Offshore Grid Initiative

8. Criteria

8.1 General

The grid planning principles outlined in the document appear to a large extent consistent with ERGEG Advice.

Technical criteria are the core business of TSOs and are usually shared among TSOs. However, the current TYNDP does not offer sufficient transparency regarding the practical application of the criteria used.

In particular, the current TYNDP should be more transparent and detailed with respect to the degree of harmonisation between the TSOs and the measures taken to address the heterogeneous practices.

8.2 Technical Criteria

Grid planning principles

Grid planning principles are described in the current TYNDP. They are based on the expertise of TSOs, implemented in the development of multilateral studies.

Investment needs are assessed according to thermal, stability, voltage and reactive power as well as short-circuit criteria as suggested in the ERGEG Advice. Nevertheless, the results of the corresponding assessments from the national and regional studies are not provided. This should be improved in the future.

Several contingencies taken in account are described briefly in the current TYNDP. This is done largely by applying the N-1 security criterion in terms of the loss of a single transmission circuit or transformer, but N-1 has also been applied to some generators. Finally, in some cases of rare but severe failures (e.g. loss of a busbar), multiple failures or failures combined with maintenance were considered. It is recommended for the next TYNDP to provide a well argued description of the reasons behind applying the different security criteria.

Technical Criteria Description

Technical criteria are qualitatively and briefly described in the TYNDP. Upon request by the Agency, ENTSO-E should be able to provide a quantitative description of any of these criteria.

In particular, the system stability criterion should be more clearly described in the TYNDP, especially because it affects virtually all of the synchronous area.

Technical criteria Definition

As the TYNDP is based on national/TSO plans, multilateral studies and coordination, ENTSO-E and the TSOs should define the applied criteria and contingencies taken into account and should transparently describe the consistency of these criteria with regional analysis.

Indeed, the TYNDP should ensure that a necessary and common minimum standard is used to assess investment needs.

8.3 Economic Criteria

Principles of Economic Analysis

The current TYNDP describes qualitatively the general principles of cost-benefit analysis that should be widely considered for grid planning. Nevertheless, the investments proposed by ENTSO-E do not include any substantial cost-benefit analysis performed by TSOs, because the investments have been selected and proposed by individual TSOs, and there is no information on whether these were subjected to a cost-benefit analysis.

Harmonisation of the definition and implementation of the relevant socio-economic criteria is a mandatory issue to be resolved for the next TYNDP.

Scope of the Plan

For appropriate monitoring of the plan, relevant prioritisation criteria are needed to assess the impact of non-completion of projects on social welfare.

The scope of the TYNDP is to identify reinforcements that provide the highest European social welfare return, in particular in order to highlight the essential projects that meet European challenges. In that context, social welfare should also be represented through cost-benefit analysis developed by TSOs.

Economic Criteria Definition

Common socio-economic criteria underpinning the grid planning process should be transparently described in the TYNDP as well as the approach taken by ENTSO-E to ensure their consistency with those applied at regional and national levels.

The implementation of this approach remains a complex task considering interdependence of projects.

8.4 Market Analysis

The need for the development of new cross-border capacity largely originates from the EU energy policy decisions and energy market developments.

In this respect, in 2002 the Barcelona European Council set the target for Member States of a level of electricity interconnections equivalent to at least 10% of their installed production capacity by 2005. This criterion has the advantage, as a first step, to be simple and

pragmatic, however it remains insufficient for determining the degree of interconnection necessary to really meet all the relevant IEM challenges.

Prior to the cost-benefit analysis and at a larger scale, grid planning should benefit from the dissemination of market studies developed in multilateral initiatives (e.g. as in SWE region) This approach, echoing the assessment of resilience of the system, should help to highlight cross-border capacity that needs to be developed to meet market and market participants' needs.

9. Assessment of Resilience

Existing and Decided Infrastructure

According to the ERGEG Advice, the TYNDP should provide a comprehensive map of existing and decided infrastructure. The expected map is then divided into several sub-maps for each regional group. For a European network planning approach, it is not sufficient to just combine regional plans. One comprehensive, European plan must be created instead.

The assessment should highlight the essential (priority) projects that meet European challenges. As already stated in previous chapters, this requirement is not met in the current TYNDP.

Moreover, the rate of transmission capacity usage during the previous five years is not specified in the TYNDP.

Bottlenecks

The main current bottlenecks and their impacts on cross-border transmission capacity are not described in the current TYNDP.

The current TYNDP includes several sporadic descriptions of each region's bottlenecks. There is, however, no comprehensive assessment in the plan that identifies future bottlenecks for all Member States.

Projects' Details

The current TYNDP indicates the main transmission infrastructure that needs to be built or upgraded over the next ten years, but it does not indicate where persisting weaknesses are located, nor does it clearly specify the impact of projects on cross-border capacity.

Technical risks on projects and alternative investments are not presented in the plan either, although the ERGEG Advice suggested that the TYNDP should include a summary of investment plans as well as investment gaps identified at national level and input from the regional plans.

Moreover, the current TYNDP should analyse the sensitivity of the investment needs depending on the different scenarios and, where appropriate, on the different cases used for grid planning, but this is missing in the current TYNDP.

The current TYNDP describes the barriers to an increase in cross-border capacity and identifies the main difficulties regarding permission procedures. ERGEG appreciates that ENTSO-E underlines the lengthy permission procedures as an important obstacle and this has been addressed in the Energy Infrastructure Package. It should be further tackled through the actions that follow from it.

10. Conclusion

ERGEG appreciates ENTSO-E's effort to provide a comprehensive view of the key drivers for the development of the transmission system. To contribute to the further development of the TYNDP, a number of improvements are suggested below, especially with a view to taking all the necessary elements into account in future work:

- When collecting information to be used in the TYNDP, ENTSO-E should follow ERGEG's Advice to a large extent. However, a clear connection between the different specific issues within the TYNDP is still missing;
- Enhanced and more completed scenario development needs to be provided.
- Network and market modelling shall serve as the basis for the project selection.
- This pilot TYNDP uses a bottom-up approach for building scenarios as well as for network studies. Future TYNDPs require in particular significant efforts on cooperation and harmonisation of inputs from individual TSOs in order to introduce a top-down approach and a comprehensive assessment of resilience.
- In the absence of top-down grid planning, ENTSO-E could not provide a full assessment of resilience in the current TYNDP, as is required by Regulation 714/2009.
- Harmonised methods and detailed criteria for grid planning should be developed and elaborated in the next plan. They are a prerequisite for an assessment of projects included in the TYNDP.
- The number of almost 500 projects included in the current TYNDP highlights the effort carried out by ENTSO-E to promote coordinated transmission network development. For such a long list of projects, a clear prioritisation is essential. The need for prioritisation was raised at the bilateral discussions between ERGEG and ENTSO-E during the preparation of the pilot TYNDP and it should be taken properly into account when preparing the next TYNDP.
- The projects mainly result from bottom-up approaches of bilateral or multilateral studies. In the absence of any top-down approach in the selection of grid projects, it is not possible for ERGEG to assess to what extent the projects fulfil the objectives of integration of the IEM. Market analysis based on several scenarios should be broadened and detailed.
- ERGEG recommends that, in future, third party projects should also be reported to ENTSO-E proactively by responsible parties.
- The pilot TYNDP submitted by ENTSO-E clearly depicts social acceptance difficulties based upon TSOs' experience of grid development and identifies potential improvements in this domain. Social and environmental issues can influence investments costs and investments should positively address social welfare.

- Finally, improving permission procedures is a great challenge for grid development in the coming years, requiring a joint effort not only by TSOs but also by the Member States, the European Commission and regulators.

The pilot TYNDP is a starting point highly appreciated by ERGEG for monitoring investments and will allow ACER to initiate an overall assessment as early as the first TYNDP, in line with the Regulation provisions, in 2012.

Annex 1 ERGEG

The Council of European Energy Regulators (CEER) is a not-for-profit association in which Europe's independent national regulators of electricity and gas voluntarily cooperate to protect consumers' interests and to facilitate the creation of a single, competitive, efficient and sustainable internal market for gas and electricity in Europe. CEER acts as a preparatory body for the European Regulators Group for Electricity and Gas (ERGEG).

ERGEG is the European Commission's formal advisory group of energy regulators. ERGEG was established by the European Commission, in November 2003, to assist the Commission in creating a single-EU market for electricity and gas. ERGEG's members are the heads of the national energy regulatory authorities in the 27 EU Member States.

The work of CEER and ERGEG is structured according to a number of working groups, composed of staff members of the national energy regulatory authorities. These working groups deal with different topics, according to their members' fields of expertise.

This report was prepared by a drafting team under the Electricity Network and Market Task Force (ENM TF) of the Electricity Working Group (EWG).

Annex 2 Glossary and Abbreviations

Term	Definition
AC	Alternating Current
ACER	Agency for the Cooperation of Energy Regulators
CEER	Council of European Energy Regulators
EC	European Commission
ENTSO-E	European Network of Transmission System Operators for Electricity
ERGEG	European Regulators' Group for Electricity and Gas
EU	European Union
EWIS	European Wind Integration Study
GAO	Generation Adequacy Outlook
HVDC	High Voltage Direct Current
IEM	Internal Electricity Market
MS	Member State
NRA	National Regulatory Authority
NREAP	National Renewable Energy Action Plan
RES	Renewable Energy Sources
SAF	System Adequacy Forecast
SoS	Security of Supply
TEN-E	Trans-European Networks for Electricity
TPA	Third party access
TSO	Transmission System Operator
TYNDP	Ten year network development plan