TYNDP
PUBLIC CONSULTATION
REPORT ON RECEIVED COMMENTS

21.05.2010

Contents

1 Background

Last year European Commission released the 3rd Legislative Package for the Internal Market in electricity. That paved the way to the European Network of Transmission System Operators for Electricity (ENTSO-E) creation. According to this regulation (EC) 714/2009, Art. 8.3 (b) *"ENTSO-E shall adopt a non-binding Community-wide ten-year network development plan"* (TYNDP) with the objective to ensure greater transparency regarding the entire electricity transmission network in the Community and to support the decision making process at regional and European level.

ENTSO-E, having recognised that:

- the overwhelming response of European society to the climate change issue translates into massive investments in renewable energy sources whose efficient integration into the grid is a challenge that has to be urgently and adequately addressed;
- the wide scope and ambitious objectives of the TYNDP require a large number of dedicated resources, as well as the conception and implementation of processes and methodologies that have not been applied in a pan-European level before;
- the TSOs should continue to contribute towards the Internal Energy Market by ensuring the maximum transparency concerning the operation and development of their transmission grids;

decided to proactively release this report as the first TYNDP before the coming into force of the 3rd Package (2011) in the form of a pilot project.

The present TYNDP was release for public consultation of 1st of March 2010, followed 2 weeks later by the present public workshop on 19th February 2010. This consultation was finished on 11th of April 2010.

2 Answers to the consultation process

During the 6-week consultation, ENTSO-E received mails from the following 21 stakeholders, representing the European Commission, network users, local population, manufacturers and consultants either directly or via European associations:

1. Dong Energy
2. E.ON
3. EC – DG ENER
4. EDF Energy
5. Edison
6. ENA - Energy Networks Association
7. Energy Norway

8. EPSU - European Trade Union Federation of Public Service

9. Eurelectric - Union of the Electricity Industry

10. EWEA - European Wind Energy Association

11. Federation of Swedish Farmers

12. Greenpeace

13. Iberdrola

14. Nordenergi

15. NorGer

16. RGI - Renewables Grid Initiative

17. SER - French Renewable Energy Association

18. Statoil

19. T&D Europe - The European Association of the Electricity Transmission & Distribution Equipment and Services Industry

20. Tractebel Engineering

20. Vattenfall

All the received answers to the TYNDP are publicly available on the ENTSO-E website.

ENTSO-E also received first oral feedback from stakeholders during the dedicated workshop on March 19th gathering more than 110 attendees, and through several presentations of the TYNDP report. Written supports and minutes of the stakeholders' workshop are publicly available on the ENTSO-E website.

The present report proposes a synthesis of all feedback received.

3 Main concerns

About all stakeholders welcomed the initiative of ENTSO-E to anticipate on the entry into force of the EC Regulation 714/2009, and to address thus the urgency to build transmission lines in order to enable the achievement of the European Energy Policy goals.

Beyond some understanding and clarification issues, stakeholders comments can be sorted into two main categories:

- Mostly suggestions to improve future releases of the TYNDP report (information display, methodologies, scope, …) – most of which backing up the roadmap ENTSO-E proposes in this respect – with only few requests regarding the project-report in consultation;
- Suggestions to improve more generally the legal and regulatory framework, which ENTSO-E can contribute to but by definition more directed to EC and Regulatory Authorities.

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The ENTSO-E response to the comments received for TYNDP- pilot project is structure as follows:

Methodology for TYNDP	Urgency
	Synthetic & detailed picture of congestion
	Assessing investment needs
	Individual project assessment
	Projects relevant in TYNDP
	Description of every project
	Monitoring
	Need to involve of stakeholders
Scenarios & assumptions	Handling uncertainties
	Need of top-down approach
	Need of a 202020 scenario
	Need of longer run outlook
Economic, regulatory & legal framework	TYNDP binding?
	Cost & benefit allocation, financing
	Merchant lines in the TYNDP?
	Permitting procedures, social acceptance
Technologies	A chapter in TYNDP?
	Cables
	HVDC
	Smartgrids, DSM, storage, …
Local concerns	Specific projects
	Specific countries

Quotes from stakeholders are in *italic* in the following sections.

3.1 Methodologies for TYNDP

The TYNDP pilot project report is acknowledged as an achievement. The improvements proposed by ENTSO-E for the next release – mainly the development of a "*202020 scenario*" with involvement of stakeholders, dedicated TSO works and studies as bases of the next issue and proposal of European planning standards (criteria) – are strongly encouraged. Expectations also regard the information made available in the report, with request to both detail and draw synthetic pictures.

3.1.1 URGENCY

The sense of urgency is stressed by almost all stakeholders: grid developments takes time and little time is left for meeting the EU 2020 targets. (*It is crucial to speed-up now the development of key transmission system infrastructures to meet evolving* energy and environmental needs – RGI).

ENTSO-E fully shares the concern. This is the reason why on the one hand the release of the first TYNDP report has been anticipated. Chapter 3 of the TYNDP report depicts the major challenges for grid development and proposes solutions to overcome them. It points out in particular the issue of permitting procedures and suggest improvements in this respect in section 3.3 and appendix 5 of the TYNDP report: they can be harmonised and clarified with compulsory time limits, e.g. about 3 years, without harming citizens rights. Controlled permitting procedure and secured financial means for TSOs are the keys to achieve the expected network developments in due time. ENTSO-E will support EC, ACER to solve these two priorities.

Updating and improving the TYNDP content will prove all the more useful that these two key-concerns are solved (*„The next TYNDP should reflect the proposals/agreements on the key regulatory issues"* – Eurelectric*)*. Yet, ENTSO-E already started working also on all other issues, as depicted in the following sections. ENTSO-E resources are focused on addressing such methodological improvements to take full advantage of the 2-year period to enhance the next release of the TYNDP report in Spring 2012.

3.1.2 SYNTHETIC & DETAILED PICTURE OF CONGESTION

Six stakeholders ask for a simple picture of the present congestion level and in ten years, provided all projects are completed (*„show how trading capacities will develop"* –EWEA). In addition to such synthetic picture, some suggestions are made to give in the TYNDP a comprehensive picture of the present bottlenecks *„flows on lines compared to capacities in all situations"*. With respect to the present situation, ENTSO-E supplies a lot of information, especially on its websites[1], which enable an accurate characterization of congestion in every

[1] http://www.entsoe.eu/index.php?id=70 and http://www.entsoe.net

corner of Europe and in all possible respects (NTCs, capacity auction results, etc.). A link to this comprehensive source of information is now introduced in section 2.3 of the TYNDP report so as to both give access to this information and keep the focus of the report on grid development.

An outlook with respect to main capacities increase in Europe is now introduced in the TYNDP report (in section 6.8) via synthetic maps, summing up the information in Appendix 1 to the TYNDP report, so as to give the reader an easier understanding of the expected improvements.

3.1.3 ASSESSING INVESTMENT NEEDS

„Chapter 5 should be the heart of the next TYNDP. Their current limited scope is probably due to the pilot nature of the project" (Nordenergi). Integration of new generation assets and relief of bottlenecks are key-concerns for stakeholders and a more thorough focus is asked.

Easy to understand metrics are expected. The target interconnection capacities proposed by the European Council in March 2002 is mentioned, sometimes to recommend it as it or to reject it as it „*may result in a misallocation of resources into potential uneconomic areas*"(EDF Energy). With respect to investment needs identification, four stakeholders back up the use of market studies („assess the commercial interest – Nordenergi) to identify main bottlenecks limiting social welfare, e.g. with a goal of *„price convergence"* (EDF Energy).

As stated in section 8.3 and conclusion of the TYNDP report, ENTSO-E fully support the concern and is developing methodologies and tools in this regard: developing a common ENTSO-E pan European market modelling reflecting as close as possible the forces that drive the commercial flow of electricity and its translation into physical power flows is one of the three main focus of ENTSO-E efforts.

Additionally, two stakeholders stress the importance of *"the enhancement of market mechanisms to time-and cost-effectively solve congestion and balancing problems in the grid*[2]*"* (Statoil). This statement is fully in line with the ENTSO-E perspective stressed in section 3.4 of the TYNDP report: enhanced market rules or mechanisms can prove, up to a certain point, more sufficient, cheaper and quicker solutions to remove the congestion than grid development.

3.1.4 INDIVIDUAL PROJECT ASSESSMENT

Every single project in the TYNDP has proved beneficial in the sense that it contributes efficiently to increase social welfare. Some stakeholders wish more detailed explanation would be supplied regarding *which technical and economical criteria have been used"* (EWEA) to assess every project.

[2] In this respect, the issue of splitting price areas is addressed, EDF Energy pointing out the importance of "*maintaining enough liquidity*" in every of them.

The pilot project derives from numerous market and network studies performed by all ENTSO-E members, using a great variety of criteria which ENTSO-E managed to present synthetically in chapters 7 and 8 of the report. In particular, security analysis does not limit to the compliance to the N-1 criterion but addresses also the more complex issues of resilience to other severe contingencies, on a case by case basis in order to propose most appropriate grid development. Besides, ensuring sustainability and minimising adverse impact on the environment are indeed crucial aspects to select and prioritise projects, as stated in section 8.2.4 of the TYNDP report. All stakeholders views on this issue agree with ENTSOE to *"recommend that the main criterion for selecting the projects is the overall welfare to the society"* (EC).

ENTSO-E is also presently setting up common procedures so that TSOs share the same methodological standards, enabling future TYNDPs to be based on consistent Regional studies. Common evaluation criteria for projects of European importance will be part of future grid codes and consulted with stakeholders.

3.1.5 PROJECTS RELEVANT IN TYNDP

As well as four other stakeholders, *"Nordenergi would welcome a list of clear and transparent criteria on why certain grid projects are included or not included in the TYNDP"*. *"This version seems more a mere collage of the national plans developed by TSOs than a European Plan as defined in the Directive: it can be a good starting point, acceptable for this very first stage, but in the following releases some improvements are necessary"* (Edison).

As stated p68, projects in the TYNDP report are those addressing at least one of the three pillars of the EU energy policy: Security of Supply; integration of RES and fight against climate change; economic efficiency and realisation of the IEM. In spite of sharing this common definition, RG reports show different sensitivities from one country to another about what to label *"of European significance"*: the European subsidiary principle applies, and similar issues can reported of European importance in one country (and possibly received European funding to be solved), and not in another. For this first pilot project, ENTSO-E preferred to deliver the most transparent and comprehensive information to the reader, as deciding on which project to present in the TYNDP report is a complex issue, requiring further investigation with stakeholders.

Beyond giving a more synthetic picture, prioritisation of projects is addressed in the answers to the consultation (based on "*higher welfare*"? "*urgency of every situation*"...). EC points out *"Clear prioritisation of projects is also essential in order to provide important projects with proper regulatory incentives. The important projects might be candidates for funding from European sources or subject to European infrastructure compensation schemes such as the Inter TSO Compensation mechanism. The aspect of European funding will be further examined in the Energy Infrastructure package."* On the other hand, other stakeholders as Energy Norway wish "The underlying national development plans should be available for all stakeholders and all fundamental drivers on national, regional and European level should be shown in the TYNDP".

The publication of NDPs within the next two years will supply the required information at national level. The TYNDP report will evolve so as to complement this information providing a synthetic picture of issues and projects of European relevance.

3.1.6 DESCRIPTION OF EVERY PROJECT

Some suggestions are made regarding a more complete description of every project. A common focus is the assessment of grid transfer capability increases enabled by reinforcements (EC, Eurelectric…). Also suggested is some clustering of projects when *"to increase cross-border capacity often several projects need to be constructed*" (EC), or to show "*impact corridors*" (RGI). Eurelectric also proposes reporting on the main difficulties every project may face ("*[e.g.] permitting procedure, financing, technological gaps, regulatory gaps*")

ENTSO-E shares the concern of providing structured information delivering a clear and complete view to stakeholders and can adapt in the perspective of the future releases of the report. Consistency with other European reporting processes (notification of Energy infrastructures, NDPs…) will be accounted for to take full advantage of every reporting tool.

3.1.7 MONITORING

"*Furthermore, in the upcoming plans there is a need for an evaluation on how the foreseen investment needs have developed, whether the development has been as predicted, and how the needed investment projects have gone forward. Here also explanation is needed in case a project has been for some reason postponed*" (Nordenergi).

ENTSO-E is fully aware of this duty. This first release TYNDP will be the basis for seeking consistency with national and regional plans when the 3rd Package comes fully into force in early 2011. The detailed description of projects in Appendix 1 provides the necessary data to enable monitoring of the implementation of the plan as from the second edition.

3.1.8 NEED TO INVOLVE STAKEHOLDERS

11 stakeholders stressed the importance of the involvement of stakeholders in giving inputs and developing scenarios for the TYNDP, especially with the perspective of the EU 2020 targets (see next section).

ENTSO-E welcomes this support. As stated in the conclusion of the TYNDP report, the first priority with respect to the preparation of the next release is indeed to update the present bottom-up scenarios, as well as develop shared, long-run, top-down, scenarios, involving stakeholders and especially policy decision-makers. This complex, time consuming matter, will require the commitment and consensus of concerned parties to define at least the 2020 horizon and the completion of the EU2020 targets based on the NREAPs finalised by June 2010.

Works about other pending issues, especially shared resilience criteria in whatever respect, are also to be prepared. These are however long-lasting concerns. The scope of coordinated works must first be carefully defined especially with stakeholders and Regulatory Authorities, before completion deadlines can be proposed. Progress in this respect will enrich the next releases of the TYNDP.

3.2 Scenarios and assumptions

The construction of multiple scenarios for evaluating new assets is an indispensable tool when it comes to dealing with uncertainties. 13 out of 21 stakeholders addressed this subject in the consultation process

As stressed in the conclusion of the TYNDP report and as first next step in the stakeholders' meeting, developing shared, long-run, top down, scenarios, involving ACER, stakeholders, policy and decision-makers is the major concern of ENTSOE, with the goal to define at least the 2020 horizon.

Some more specific concerns are highlighted hereafter.

3.2.1 HANDLING UNCERTAINTIES

Three stakeholders stresses the complexity of the planning process because of uncertainties. "*A source of uncertainty is the possibility of decommissioning or mothballing a number of plants at the only decision of the owners of the plants. It is understandable that SO`s should take into consideration this possibility and be prepared for this situation by adverting of possible lack of capacity and possibly the need of new lines to connect new facilities that could replace those*." (Iberdrola).

"*In addition, transparency in network and generation data could be improved subject to confidentiality to allow for improved accuracy around forecasts*." (EDF Energy)

As stated in §3.2 of the TYNDP report, ENTSOE believes greater transparency and hence efficiency in the planning process can be achieved: the System Adequacy Forecast (SAF) and TYNDP reports can merge information from individual market players into appropriate statistics and analyses preserving the confidentiality of commercially sensitive information and thus provide in a non-discriminatory manner to all market players and stakeholders sound conclusions regarding coming trends for generation and grid development, which all stakeholders can share and use as inputs to their own business plan.

3.2.2 NEED OF TOP-DOWN APPROACH

Five stakeholders stressed the importance of developing a top-down approach. ENTSO-E fully supports the idea that "*Any future scenario development should be based on the*

bottom up scenarios already created and together with the NREAPs to produce long-run, top down scenarios involving the relevant stakeholders. This work should ensure that the views of the European Commission and potential trajectory pathways to meet the EU low carbon and renewable targets are included." (EDF Energy)

3.2.3 NEED OF A 202020 SCENARIO

Eighteen stakeholders point out that "*TYNDP should have the main focus on transmission investment needs in order to fulfil the 20.20.20 targets*" (Energi Norway). *"The assumptions of the two background scenarios in the TYNDP are based on achieving 25% of RES in electricity consumption, which is far below the EU RES target of 20% in energy consumption that corresponds to around 35% of electricity consumption*". "*TYNDP should be based on data included in NREAPs that will be submitted by EU Member States by June 2010*" (Greenpeace).

Member States are to submit their National Renewable Energy Action Plans (NREAPs) in June 2010 and it would be prejudicial if the present report attempts to devise and present a scenario depicting "a" trajectory EU 2020 targets for the power sector, which might induce more confusion than help. Therefore the TYNDP report focuses on bottom-up scenarios, highlighting mainly mid-term trends, enabling a comparison with the targets set.

As stressed in the stakeholders' meeting, the first next step is to develop by end 2010 a scenario regarding the completion of the EU 2020 targets based on the NREAPs finalised by June 2010.

3.2.4 NEED OF LONGER RUN OUTLOOK

Five stakeholders point out that "*the growth of renewable electricity doesn't stop at 2020*" (RGI) or that "*ENTSO-e could provide a Pan-European planning vision for grid infrastructures with more detailed studies taking into account long-term EU policy targets*" (EWEA) and in general the development "*of the energy sector beyond 2020*" (Greenpeace). The vision for 2050 with large or full decarbonisation is supported explicitly by three stakeholders.

By nature, the TYNDP report must give greater focus on the coming 10 years but it stressed that grid planning should anticipate long run perspectives beyond the coming ten years to ensure resilience is achieved. The longer-run perspective is addressed in chapter 10: building on several study projects, a qualitative long-run vision can be sketched, with an ever increased role of the transmission grid, especially to give EU consumers reliable access to RES.

3.3 Economic regulatory and legal framework

Beyond the TYNDP report itself, stakeholders suggested evolutions of the economic, legal and regulatory framework. In this respect, ENTSOE has no decision power.

3.3.1 TYNDP BINDING?

This issue is addressed by various stakeholders, expressing different standpoints:

"*The 3rd Energy Package does not provide full clarity and is therefore subject to different interpretations with regard to the legal obligation placed upon ownership unbundled TSOs to prepare ten-year network development plans on national level. Absence of this obligation may result in increasing inconsistency between the investment projects across the EU and lack of transparency in the whole planning process.*" (Eurelectric)

"*Nordenergi is aware of the fact that the plan is non-binding, but believes that the plan will form the basis of a common European coordination.* " (Nordenergi)

"*The exact mix of generation and demand is subject to many factors, because of this inherent need for flexibility, we agree with ENTSO-e that the TYNDP should not and cannot be made binding.*" (ENA)

3.3.2 COST & BENEFIT ALLOCATION, FINANCING

Six stakeholders worry that "*financing of transmission projects is not secured*" (T&D); or that "*cost distribution should be based on the expected benefits from a regional perspective in a way that makes it attractive to invest. (…). In particular, development of off-shore grids will require a set of completely new regulatory arrangements for cost sharing.*" (Eurelectric).

The proposals are the following: "congestion income to finance new lines"(Nordenergi); "*regulator support for urgent projects, EC support for new technologies, support by TEN-E program for Pan-European projects*" (T&D); "*The important projects might be candidates for funding from European sources.*" (EC).

As pointed out in the TYNDP report, securing the financial means to achieve the expected network developments in due time is a key-concern. Especially the connection of large amounts of RES generation often in remote locations requires investment in transmission assets. These are significant for TSOs financial means; with respect to the final electricity bills the 23 to 28 billions € necessary over the coming 5 years for additional transmission mentioned in the TYNDP report represent about 1€/MWh.

3.3.3 MERCHANT LINES IN THE TYNDP?

8 Stakeholders mentioned so-called merchant lines, 1 opposing their development („*Discourage the development of merchant lines*" – EPSU);and 7 presenting them as an option to quicken developement process and requiring merchant lines to be present in the TYNDP:„*Edison suggests that the 10-yndp leaves an adequate space for private investments that are a key tool for market development and cross border NTC increase*" (Edison); „*Clear and neutral criteria and transparency concerning their inclusion or non-inclusion is essential*" (Nordenergi). The exemple of the NorGer project, which was presented during the stakholders' workhsop, is recalled.

The concern is two-folded:

- As stated in §6.8.2, the TYNDP report acknowledges merchant lines as a means to solve financing issues. At the same time it points out that the co-existence of regulated and exempted projects may cause some serious consistency issues – precisely those addressed in the previous section above –, making the grid development process more complex rather than simpler. There are merchant lines in the TYNDP report and when projects reported in Appendix 1 can be reported as exempted one, this information is to be found with appropriate comments.
- The second concern is indeed how to include project in the ENTSO-E TYNDP which do not stem from ENTSO-E members, in particular – but not only – merchant lines developed by third parties. „*The decision to include such projects in the TYNDP should be based on transparent and objective evaluation criteria"* (Eurelectric). For the next issue, such criteria will be developed so as to provide proper inputs to the next release in a non-discriminatory manner. The present TYNDP report will mention that ENTSO-E will develop and implement criteria to select projects from non ENTSO-E members for the next release.

3.3.4 PERMITTING PROCEDURES, SOCIAL ACCEPTANCE

Half of the stakeholders address the concern, with a consensus -E that "*The authorization process is often the most relevant obstacle to building a new transmission facility"* (Edison). The key proposal is to simplify the process: "*Licensing process should be accelerated/simplified at least for urgent projects*" (T&D); "*The process of obtaining a regulatory approval for the grid projects should be simplified and shortened*" (Eurelectric); etc. Other suggestions are also made: to identify "*success stories as good examples*" (Vattenfall); definition of "*strategic infrastructure corridors*" (RGI); etc.

TSOs face globally a complex legal and regulatory context, especially for permitting procedures, stemming from a multitude of different authorities. ENTSO-E can only stress this point and suggests improvements in this respect in section 3.3 and appendix 5 of the TYNDP report: permitting procedures can be harmonised and clarified with compulsory time limits, e.g. about 3 years, without harming citizens rights. Controlled permitting procedure and secured financial means for TSOs are the keys to achieve the expected network developments in due time. ENTSO-E will support EC, ACER to solve these two priorities.

3.4 Technologies

3.4.1 A CHAPTER IN TYNDP?

Eurelectric states, with the support of T&D Europe "*the topic of transmission technology has not received sufficient attention in the pilot plan and should be further elaborated in the next issue of the TYNDP. The revolutionary nature of the targets for renewable energy also requires the revolutionary development of transmission technology: they must to go hand in hand.*"

Unfortunately, it is not possible to give a comprehensive description of all the R&D done about grid operation and development in the TYNDP report. The reader is invited to refer to the ENTSO-E R&D Plan[3]. In this respect, the technology chapter only presents a brief illustration of the researched fields, to illustrate in which respect transmission projects presented in Chapter 6 indeed take advantage of the best available technologies to meet present and future grid development challenges.

3.4.2 CABLES

Three stakeholders recommend higher recourse *"to other techniques instead of overhead lines such as underground cables" (Federation of Swedish farmers).*

It must be underlined that the use of these technologies in the transmission grid is limited to projects with specific requirements due to economic reasons (depending on technology and local context, resort to EHV underground cost can be in the range of 5-20 times OHL cost), due to technical reasons (reactive power compensation, resonance, protection issues) and due to reliability and time to repair constraints."

3.4.3 HVDC

EWEA suggests "taking into account all ongoing R&D work in multi-terminal DC grid configurations in the first TYNDP."

The TYNDP report contains more than 9600 km of new HVDC links. As stressed in chapter 9, multi-terminal DC is investigated, but still in R&D phase. The Kriegers flak project, a front runner, has been investigated on this basis.

[3] available at www.entsoe.eu

3.4.4 SMARTGRIDS, DSM, STORAGE

Three stakeholders suggest to develop “more efficient use of existing grids” (Greenpeace), “including smart grids and demand-side-management” (ENA, Greenpeace), and “Potential use and location of storage” (Greenpeace, T&D).

As stressed in chapter 7 (especially section 7.3), possible mitigation measures to a network constraint largely vary, depending on the situation at stake. It has to be checked if the measure is sustainable. Although of key importance to monitor and operate the network, investments in IT, smart devices and appliances are not reported in the TYNDP so as to focus on transmission issues.

Regarding storage, large facilities are indeed considered. Distributed storage solutions are today no alternative solution to transmission grid development as their capability, regarding power as energy issues, is about 100 or 1000 times too small compared to transmission grid requirements[4].

3.5 Local concerns

Some particular projects or countries dragged specific comments.

3.5.1 SPECIFIC PROJECTS

The interconnection between Spain and France raise concerns as not being identified as “priority”, considering “*[it] will contribute to develop of RES in Iberian Peninsula, needed to reach the 2020 objectives*” (Iberdrola).

Sections 5.2 and 6.2.2 of the TYNDP report clearly mentions first the French-Spain interconnection when depicting the situation and states that an interconnection between France and Spain would be required to reach the long-term objective of 4000 MW.

All projects in the TYNDP report contribute to achieving the European goals and complement themselves to develop the overall transfer capability of the grid in all locations. Besides, with further RES development to expect in order to reach the EU 2020 targets, this set of transmission projects is only likely to be complemented.

3.5.2 SPECIFIC COUNTRIES

“SER stresses the gap between the situation in France as described in this document […] and the situation observed by the French wind power industry” (SER)

[4] This fact does not prevent these solutions to prove very useful at a smaller scale; or to become an alternative in a much longer run, with the possible development of massive V2G (Vehicle to Grid) solutions, once batteries operation and management issues are solved.

"An example in the pilot plan that rise questions on the criteria is the low number of expansion projects in Sweden and France" (Nordenergi)

The TYNDP report is intended to give a pan-European perspective and further national concerns are to be found in National Development Plans (see also § 3.1.5 earlier). With respect to investment needs and projects in France and Sweden, all those potentially interfering at international level are mentioned.

European Network of Transmission System Operators for Electricity
Public consultation on Pilot Ten-Year Network Development Plan

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DONG Energy response to ENTSO-E's pilot Ten-Year Network Development Plan (TYNDP)

DONG Energy salutes the achievement of ENTSO-E in the making of the pilot Ten-year Network Development Plan (TYNDP). The result is a comprehensive European-wide overview and reference for the transmission network. The report reveals profound knowledge of the transmission challenges technical as well as structural - now and in the future. It points to significant investments in the European power grid in order to help achieve the European energy policy goals.

In general terms, DONG Energy holds the view that the current pace of transmission infrastructure deployment across the EU/EEA is far too slow given the strategic goals and challenges ahead, notably to efficiently integrate and disperse the massive future increase in renewable energy generation and to further an EU-wide single market for energy so as to ensure lower costs and greater security of supply. There are many reasons for this, some of them related to unnecessarily long planning procedures, others to hesitations and delays on the part of decision-makers within and between the TSO's themselves and cooperation with the electricity exchanges.

DONG Energy hopes that the TYNDP will provide the necessary impetus to accelerate the deployment of transmission infrastructure across Europe. Taking the case of Northern Europe as but one example, if transmission build-out from the Nordic countries to continental Europe is not accelerated, much renewable generation risks being "locked-in", to the detriment of consumers, security of supply and the wider environmental goals of the EU.

As part of ENTSO-E's focus areas going forward, DONG Energy would therefore propose that possibilities for more merchant lines in the future should be made a priority. In addition, DONG Energy would encourage ENTSO-E, perhaps in tandem with the European Commission, to look at how Public-Private Partnerships (PPPs) could help finance, build and operate transmission lines. The use of PPPs in other areas (e.g. transport, public health, waste management, water distribution, research) underline the potential benefits for energy infrastructure in this approach.

Indeed, among all the listed transmission projects in the pilot TYNDP there is a conspicuous absence of merchant line projects. Whether this is a general exclusion or it is a question of forgotten transmission projects is difficult to ascertain. As mentioned, DONG Energy believes that the TSO's on a much larger scale than today should make benefit of the initiatives, resources and financial

capacity presented by merchant lines. This would add significantly to the acceleration needed in transmission deployment across Europe.
In this context we lack TYNDP initiatives guided towards wider and more extensive use of merchant transmission lines. Indeed, the briefly mentioned issues surrounding merchant lines in the pilot TYNDP (page 122-123) strike a worryingly pessimistic tone, overemphasizing the difficulties involved. The regulatory issues related to merchant transmission lines are manageable and should not be seen as a stumbling block nor be used as a pretext for putting merchant lines into a "second tier" category of transmission infrastructure.

To name one example of the possible attractions of merchant lines, the report identifies one of the problems with new interconnecter projects as cross-border and cross-TSO cost and benefit sharing. This is indeed often recognized as a problem, but DONG Energy wants to draw attention to the fact that for merchant lines the case is different. Even in those cases where a merchant line is a joint venture between multiple investors and the sharing of costs and benefits needs to be dealt with, the issues involved are not new to commercial operators who will approach the issue, as in other areas, by commercial negotiations and subsequent agreement. This is another reason for the desire to look wider and more actively at the contribution that merchant lines can make to the acceleration in transmission deployment across Europe.

Another comment of a general character is the somewhat lacking commercial focus of the report. . An example is the description of main drivers for investments in new or refurbished power lines and the following grouping of the main drivers into the three categories: Security of Supply, Internal Energy Market, and Renewable Energy Sources. DONG Energy lacks, if not necessarily a fourth category – then the acknowledgement that behind all the three categories, and above all investments a commercial objective is decisive. It should not be forgotten that in a European electric market driven by market powers, the need for transporting power from one area to another will reflect a commercial benefit (and hence a social benefit). DONG Energy finds it fundamental that all network development plans are evaluated on their social economic welfare. In the forthcoming step of implementation of the investments, we believe it is the duty of the regulators to favour the network investments with the highest social economic welfare benefits.

Our last comment, also of general character, concerns the demand for a truly open process in the further development of the TYNDP. The course plotted so far by ENTSO-E promises well for the future and leaves DONG Energy with high hopes and expectations. The pursuit of transparency should, in our opinion, entail total transparency of methodology, including access to all calculations, access to data sources and full insight into the foundations of subsequent decision-making and conclusions.

Finally, we will take the opportunity to commend ENTSO-E for the speed at which this phase of the TYNDP is progressing. DONG Energy looks forward to

our continued cooperation and to an open and productive exchange of views in the future.

If the above comments from DONG Energy cause any questions or comments please do not hesitate to contact us.

None of the above comments from DONG Energy are confidential.

Yours sincerely
DONG Energy

ENTSO–E AISBL
Avenue Cortenberg 100
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Belgium

9 April 2010

ENTSO-E Pilot Ten-Year Network Development Plan

EDF Energy welcomes the opportunity to comment on the ENTSO-E Ten Year Network Development Plan (TYNDP) 2010-2020.

EDF Energy is one of the UK's largest energy companies with activities throughout the energy chain. Our interests include nuclear, renewables, coal and gas-fired electricity generation, combined heat and power plants, electricity networks and energy supply and services to end users. We have over 5 million electricity and gas customer accounts in the UK, including both residential and business consumers.

EDF Energy believes that the plan is a positive and necessary step towards the implementation of the EU Third Package and the attainment of a single European energy market. We support this work and believe that this level of stakeholder involvement will help to ensure the future success of a fully integrated electricity market.

EDF Energy has the following general comments on the pilot TYNDP, which mainly focus on areas for improvement, recognising that this plan is a pilot and represents work in progress.

Data Transparency

All modelling undertaken should use consistent scenarios and assumptions which will allow a better cross comparison of individual TSO's results and facilitate more accurate forecasting. In addition, transparency in network and generation data could be improved subject to confidentiality to allow for improved accuracy around forecasts.

Information Provision

ENSTO-E could provide useful information to aid stakeholder's internal risk assessment processes for individual projects. This could include;

- Information regarding any ancillary transmission work required to connect the new project to the grid as currently these two aspects are not explicitly linked.
- ENTSO-E inputs, such as, social acceptability, technological gaps, financing and detail on any potential regulatory gaps.

Furthermore we believe it would be helpful to clarify that priority levels for the transmission works including connections should reflect any costs inherent in late commissioning to the economy as a whole.

Any increase in cross border interconnector capacity should address both increases in commercial (NTC) and physical capacity and should be subject to periodic review. This should be inline with the principles of the EU Third Package, which is to release as much physical and commercial capacity as available.

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Interconnector Capacity

It is important that any increased interconnector capacity should be undertaken on a commercial case by case basis, rather than a minimum target level which may result in a misallocation of resources into potential uneconomic areas. This would also reduce the risk of assets becoming stranded.

Capacity decisions should be left for the market to determine and are outside the remit of the EU Third package. The profitability of individual interconnectors is likely to vary widely depending on local opportunities and prescribing a minimum interconnector level (for example, the European Council proposal of 10% made in 2002 but not yet implemented) could undermine current and future investment and may also result in uneconomic interconnectors being constructed.

One of the goals of increasing interconnector capacity is price convergence, which as stated in the TYNDP will, at a European level increase liquidity in all national markets, promote competition and deliver the most efficient generation dispatch on a pan-European level. However, it should be explicitly recognised that as prices converge the profitability of interconnectors will be reduced as the lower price differential will reduce the benefit of using the interconnection capacity and the volume transmitted.

Network and Market modelling

The inclusion of network and market modelling is expected to underpin any prudent network and investment appraisals. However, should this model focus on the influence of smaller price zones on market outcomes and infrastructure needs, attention would need to be paid to the issue of fragmenting the wholesale national market into less liquid regional markets. The individual markets will not have the same level of liquidity as a unified national market.

Background Scenarios

The use of a bottom-up approach is appropriate at this stage to reflect the actual network developments that are currently taking place at Member State level. Any future scenario development should be based on the bottom up scenarios already created and together with the National Renewable Energy Action Plans (NREAPs) to produce long-run, top down scenarios involving the relevant stakeholders. This work should ensure that the views of the European Commission and potential trajectory pathways to meet the EU low carbon and renewable targets are included. In the UK, DECC has produced similar pathway scenarios in order to better understand trajectories to meet the UK's 2020 and 2050 targets.

If you have any queries on this response or would like to meet to discuss it further, please do not hesitate to contact Michel Tocher on +44 (0)20 7752 2167, or myself.

Yours sincerely

Denis Linford
Corporate Policy and Regulation Director

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EDISON RESPONSE - CONSULTATION ON THE "TEN-YEAR NETWORK DEVELOPMENT PLAN 2010-2020

GENERAL REMARKS

Edison shares ENTSO-E view on the first release of the Ten Year Network Development Plan 2010 – 2020 as a key tool to provide the stakeholders with a detailed and exhaustive representation of the current status of the European transmission network. The Plan can actually help to identify and address both the major congestions on interconnectors which hinder the development of cross-border trade and market integration and the most relevant bottlenecks affecting the transmission grid within a single TSO.

Edison appreciates this first release of the 10-yndp as a key input for starting the planning process depicted in the third package provisions. Nonetheless this version seems more a mere collage of the national plans developed by TSOs than an European Plan as defined in the Directive: it can be a good starting point, acceptable for this very first stage, but in the following releases some improvements are necessary.

Reference scenarios

Edison shares the importance to base the 10-yndp on scenarios developed through both top-down and bottom-up approaches. Whereas energy policy (as for example the 20-20-20 targets) is carried out at European level, the geographical distribution of generation and demand can be better set out by national TSOs.

Regarding the top-down approach, however, Edison thinks that a sound and accurate macroeconomic analysis is required, especially while depicting the trends in demand evolution for the medium (up to five years) and long (up to 10 years) term. In our opinion, ENTSO-E should involve reliable international institutions and organizations (e.g. Eurostat, IEA etc.), whose economic analyses should be duly taken into account while selecting the demand level to be referred to in the planning process. This will guarantee the neutrality and reliability of the resulting energy market scenarios and their consistency with the forecasts on European macroeconomic development in the medium and long term.

In particular Edison suggests to elaborate a common reference scenario able to combine both macroeconomic forecasts on European energy consumption and the energy policy objectives agreed at EU level. According to this scenario, ENTSO-E could identify the demand and generation requirements for each country, in order to match energy policy targets (top-down) with local investment needs (bottom-up).

Energy flows

A clear picture of the energy flows in the European transmission network is needed in order to highlight cross border and national bottlenecks.

Notably, we believe that the 10-yndp should include the NTC for each bottleneck, along with the amount of NTC needed to relieve the congestion. This would provide stakeholders with a direct representation of the necessary improvements in the European transmission grid and of their impact in term of new lines.

Priority of investments

All the investments included in the 10-yndp shall be resilient to the system by definition: according to the Third Package provisions ENTSO-E cannot include in the Plan any project that is not consistent with this requisite. Therefore, we believe that other parameters, such as the level of urgency, should be adopted as a way to prioritize the investments in some areas. Anyway TSOs should carefully avoid to rank the single projects aimed at filling the identified gaps.

Private investments vs regulated investments

The Third Package provisions allow for private investments in infrastructures besides regulated investments carried out by TSOs.

Edison suggests that the 10-yndp leaves an adequate space for private investments that are a key tool for market development and cross border NTC increase.

For instance, many infrastructures are often envisaged to increase cross border capacity, but they cannot be realized by the relevant TSOs due to both the lack of money and the focus on overriding investments within national territory. The contribution of private investors may allow to overcome this impasse, since the only requirement is the presence of an adequate remuneration: exemption from TPA may be a solution, but other instruments (e.g. bilateral agreements with the local TSOs for the infrastructure remuneration) are welcomed.

Harmonization on authorization process

The authorization process is often the most relevant obstacle to building a new transmission facility. In each European country there are different requirements and procedures: for instance, a cross border project can be easily authorized in a country and not in the neighbouring one due to the differences in national legal frameworks.

Thus, the 10-yndp should include some principles on the harmonization of the authorization procedures, providing the Commission and the stakeholders with a

clear picture of the different processes existing throughout EU and of the main difficulties faced by the local TSOs.

Integration of renewables sources

The 20-20-20 targets are quite ambitious and require a strong integration of renewable energy sources in the transmission network. This kind of sources cannot be exploited anywhere, but only in the regions where they are particularly abundant. TSOs are thus called to adequately develop the transmission grid in order to allow a full exploitation of RES and to avoid curtailments due to congestions or lack of transmission facilities.

The 10-yndp already highlights this situation, by identifying investments in grid reinforcements aimed to integrate renewable generation: nonetheless Edison suggests that in future releases ENTSO-E will explicitly prioritize this kind of investments to help the achievement of the 20-20-20 target. Some national legislative and regulatory frameworks, currently incentivize TSOs' investments in projects oriented either to cross border trade or to improve NTC between different regional markets, thus diverting funds from transmission facilities aimed at RES integration.

WHO WE ARE

Born in 1881, Edison, one of the oldest energy companies in Europe. When the national monopoly on electricity was established in Italy in 1963, Edison had to diversify its business, but thanks to the first wave of EU Directives in 1996, it could re-focus its business on energy once again. Today Edison is the leading new entrant in the Italian energy market, with 50,2 billions kWh produced in 2008 and a market share of 16,4% of national output. Thanks to 7.000 MW of new highly efficient and low emission plants (CCGT thermo plants, as well as hydro and wind power plants), the Company has now a total installed capacity of more than 12.000 MW. In 2008, Edison reported revenues of 11.066 mln €.

Thanks to one of the most ambitious investment plans in Europe, Edison aims at becoming the second largest electricity company in Greece through the recently established joint venture with Hellenic Petroleum. As shown by the recently approved Business Plan (2009 – 2014), Edison will invest 7.2 billion euro in natural gas (exploration and production activities, in major gas import infrastructures, such as the Rovigo LNG offshore re-gasification terminal and the ITGI-Poseidon and GALSI pipelines) and in power generation sector, with a particular focus on renewable energy sources (hydro and wind power allow the Group to cover over 40% of the green certificate requirement with its own production). Other investments will constitute strategic developments in fast-growing markets, such as Greece, Romania and Turkey. As from 2009 the new offshore LNG terminal in Rovigo will contribute to the diversification of the country's supply sources with its re-gasification capacity of 8 bcm of natural gas a year, equal to 10% of Italy's

demand for natural gas. In 2012 there will be the start up of Galsi and ITGI pipelines, which will connect Italy and European markets to Algeria and Caspian Sea, two areas rich in hydrocarbons.

Mr Konstantin Staschus
Secretary General ENTSO-E
100 Avenue de Cortenberg
1000 Brussels
BELGIUM

9 April 2010

Dear Mr Staschus

RE: ENTSO-E's consultation on Pilot Ten-Year Network Development Plan 2010 - 2020

Energy Networks Association (ENA) is the trade association funded by the major licensed electricity and gas transmission and distribution companies in the UK.

We welcome the opportunity to comment on ENTSO-E's consultation on the pilot Ten-Year Network Development Plan. The TSO members of ENTSO-E are to be congratulated for pro-actively publishing this pilot Plan well ahead of the official 2011 implementation date for the 3rd Package.

In the short term, between 2010 and 2015, the Plan lists almost 500 projects, worth between €23 bn and €28 bn.

The development of Europe's transmission networks is clearly an essential part of the process of meeting the EU's long term goals of a sustainable, competitive and secure internal electricity market. We agree with ENTSO-E that meeting EU energy policy and low carbon targets set for 2020 and 2050 will require co-ordinated efforts from all the relevant stakeholders, including the DNOs, and not just the TSOs.

Bottom up –Top down approach

This first Plan from ENTSO-E focuses on bottom up scenarios, highlighting mainly mid term trends. Clearly this "bottom up" approach will need to be complemented by the more sophisticated "top down" policy approach which ERGEG outlined in its draft advice, to ensure that an effective, coordinated plan is developed that is consistent with the EU's 20- 20-20 vision.

The publication of Member States' National Renewable Energy Action Plans expected in June, will aid the development of the Ten-Year Plan, feeding into the top down approach, much as this Pilot Ten-Year Pan will aid the National Governments as they develop their Action Plans.

Wind generation

We know that the European electricity market will need to incorporate increasing quantities of intermittent wind generation, which will require the coordinated reinforcement of electricity networks across the EU. The Ten-Year Plan is fundamental to achieving a coordinated European approach to this work.

ENTSO-E also has a key role in ensuring that this plan is effectively developed and maintained in consultation with key stakeholders, including the distribution network companies (DNOs). Particularly important from the distribution companies' perspective is the interface between them and the transmission networks in the context of demand side management.

In addition, we know that substantial amounts of back-up generation will be needed to counter the problems of intermittency.

Flexibility

It will be critical to ensure that there is sufficient flexibility in the Plan to adjust network investments over time to address changes to the pattern of generation across Europe, whether in response to the markets or to policy interventions.

The exact mix of generation and demand is subject to many factors - some of which are difficult to predict across a 10 year planning horizon. Because of this inherent need for flexibility, we agree with ENTSO-E that the Ten-Year Plan should not and cannot be made binding.

On the other hand, there needs to be a firm commitment from Member States to deliver the Plan, and there must be a process to address the impact of material changes in the generation/demand mix to try to avoid the risk of leaving stranded assets.

Regulators' role

The 3rd Package sets out the respective roles and responsibilities of the regulatory agency ACER, and ENTSO-E, giving the TSOs a prominent role in terms of developing the ten year network plan, and ACER responsibility for providing a regulatory opinion. It is therefore important that ACER and the National Regulatory Authorities build the competences and resources enabling the regulators to develop the right set of processes and criteria to properly evaluate ENTSO-E's proposals. At the same time it will be important for ACER and ENTSO-E to develop a good working relationship.

Challenges for Grid Development

The Ten-Year Plan refers to the various challenges for grid development in Europe, the most notable of which would seem to be the "lack of social acceptance" for major infrastructure projects, which can lead to significant planning delays and uncertainties. The National Regulatory Authorities will have an important role to play in ensuring there are consistent criteria for assessing planning decisions.

The UK planning system has just introduced the Infrastructure Planning Commission, which is independent from central Government and will decide planning applications for nationally significant infrastructure projects, including power stations and large

wind farms. It is hoped the IPC will speed up the planning approval of major infrastructure projects in the UK and we suggest this concept could usefully be adopted elsewhere in Europe.

In addition National Policy Statements are being developed to ensure there is a clear policy framework for significant infrastructure projects.

Investments

There are issues surrounding the funding of the significant investments that will be required in terms of network reinforcements, cross border infrastructure, and “super grids”. The right incentives framework will be needed if such essential investments are to be made in a timely fashion.

R&D

Another key issue will be identifying the financing mechanisms for these future grid investments. We believe the outcomes from the Commission’s seventh framework research program could provide useful inputs in this context.

David Smith
Chief Executive

EnergyNorway

Your reference	Our reference	Date
-	DM-271129	9 April 2010

Energy Norway response to the ENTSO – E Consultation on the Pilot Ten-Year Network Development Plan.

ETSO-Es pilot Ten-Year Network Development Plan (TYNDP) is a good first start for the necessary future planning of a common European transmission system, which can be developed into an important tool to coordinate different European grid projects and necessary investments. Energy Norway thanks ENTSO – E for the opportunity to comment on the Pilot TYNDP, and hopefully bring forward comments that can improve the document in the future.

Energy Norway is a trade organisation for about 260 generators, suppliers, distributors and contractors in Norway. Energy Norway's members each year produce nearly 130 TWh, which is some 99 per cent of all power production in Norway. Our members have approximately 2.5 million grid customers, which is about 91 per cent of Norway`s grid customers. The members of Energy Norway have some 15 000 employees, and had a gross turnover to end-users in 2009 of 75-80 billion Norwegian kroner.

In the coming years, substantial investments in the electricity grid are required to achieve European goals such as security of supply, the integration of renewables and market integration. Both cross-border connections and the internal grid need to be strengthened and extended, making European coordination necessary. In addition, development of common rules and criteria for network planning, licensing and financing of projects are important issues to resolve in order to reach these goals. The TYNDP can become the document where all these issues are addressed and coordinated. In the following pages we comment where the current TYNDP in our view can be improved to meet its full potential.

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A European top-down perspective needs to be added

The experience from former common Nordic planning in Nordel shows that the planning has had, to a large extent, a national perspective. Transmission needs are given by physical laws and not by national borders or control areas. It would therefore be beneficial for the system as a whole to analyze transmission investment needs based on the underlying power system (existing grid, future plans/forecasts for production and load) in a European perspective regardless of national borders and existing control areas. In this respect the European 202020 targets and their obligations regarding RES are of imperative importance. Hence, the TYNDP should have the main focus on transmission investment needs in order to fulfill the 202020 targets and comprise detailed tables on the assumed demand and generation development in all relevant areas. In this respect the TYNDP should build on national obligations regarding RES in 2020 and on national plans on the actual allocation of new production compared to evolving load and future generation mix. The fulfillment of national RES obligations may lead to a surplus of energy some regions. The consequences of such a surplus situation should be discussed and analyzed in the TYNDP.

As the current TYNDP in its first stage seems based on a bottom up approach only summarizing national plans, it is important that future TYNDPs add a European perspective and focus on those projects that are necessary to fulfill the European energy policy targets 2020 and beyond.

The TYNDP should clearly state which of the proposed interconnectors are based on a common bilateral understanding between the involved countries and which projects are purely published because they figure in national plans. The latter should be explained regarding the reasons why there is not a common interest for developing these projects at the current stage.

Increased urgency

EU energy policy targets for 2020 and beyond will be a major driving force for future transmission development needs. In order to achieve the 202020 targets it is imperative that network development is speeded up. The TYNDP has its core focus on the coming 5 – 15 years divided into mid-term (until 2014) and long-term issues. The background for such time intervals is unclear. In a transmission development time perspective, investments necessary to achieve goals in 2020 should already be on the drawing table and cover a time frame of at least 10 years. Hence, the initial period of focus should be on the coming 10 years with a widened planning period of 5 to 10 years covering perspectives up to 2030.

Transparency

Transparency in the underlying national planning processes and fundamental drivers for future investment needs is important for stakeholder involvement. The underlying national development plans should be available for all stakeholders and all fundamental drivers on national, regional and European level should be shown in the TYNDP.

Coordination between internal and interconnector investments

Several existing cross border interconnections are restricted by internal bottle necks, stability issues or operational security reasons. It is important to highlight such restrictions in the TYNDP and suggest concrete actions (operational, market design, investments) in order to remove these and increase utilization of existing and future interconnections.

Neutrality towards non-TSO investment

Building the grid to meet the 2020 targets requires considerable investments and a expedite development. Investments by other actors than TSOs could be an important contribution to this important task. Hence, if there is commercial interest in developing interconnectors it should be encouraged. Especially in the northern parts of Continental Europe, the North Sea and the Baltic Sea region, intermittent wind production will increase the demand for system- and balancing services, as analyzed in the current TYNDP. Hydro based producers see increasing market opportunities for such services and are willing to invest in both pump storage stations and interconnectors. One example is the NorGer project, which has already applied for a license to build and to operate in Norway. It is important, that the TYNDP facilitates commercial interconnection initiatives, if they meet the European criteria of increasing security of supply, market integration and an increased share of renewables. The current TYNDP unfortunately fails to address the NorGer project, and only mentions the TSO-TSO Norlink project (nr 142 in the list), which at the present date has not started the licensing process.

From planning to implementation

The TYNDP is a first step in order to show future investment needs. However, in order to launch from planning to actual investments there are several other issues that needed to be addressed:

- Licensing processes are time consuming and cumbersome. Different processes and decision criteria between different countries can significantly increase the obstacles in interconnector investments.

- Government agencies, regulators and license bodies may be understaffed and lack the necessary resources and competence to process and coordinate applications efficiently in and between involved countries.

- Political awareness, will and action to accommodate and facilitate the processes leading to necessary increases in transmission capacity may be lacking, especially if national interest are at stake.

In order to reveal such obstacles and put pressure on further development the Commission could appoint a coordinator with the mission to follow-up the above mentioned issues in relation to the projects given priority in the TYNDP. The findings from this follow-up should be revealed in then TYNDP on given priority projects. It is especially important to show the relation between interdependent projects thorough Europe.

E.ON proposals to review

ENTSO-E's Pilot Ten-Year Electricity Network Development Plan

A welcome report

The E.ON Group welcomes the pilot Ten-Year Electricity Network Development Plan (TYNDP) and appreciates its voluntary and proactive nature. We are aware that elaborating such a comprehensive plan without knowing the exact expectations of different stakeholders is a challenging task. Therefore we do not intend to criticize any part of the plan as such but do recommend a number of additional considerations that need to be accounted for.

Our comments reflect the wish to promote an efficient internal market for electricity, which requires optimal congestion management measures in the short-run and commitments to grid enhancement projects in the long-run. Such projects should be viable, as measured by economic social welfare: it would not be efficient, in contrast, to prevent all transmission bottlenecks, given that many exist for only a few hours in the year.

The TYNDP report marks an important step in the development of the European Grid: to ensure the development of the Internal Electricity Market, to promote expansion of renewable energy and to guarantee Security of Supply.

Additionally, we would stress that the planning process for the European Grid will be developed under a new framework: namely the unbundling of generation and transmission - and the implementation of energy policy at the European Union level. Both the EU authorities and ENTSO-E need to manage a planning process that will be influenced from both the bottom-up and top-down. Achieving an efficient balance will be a tricky task.

Influencing the planning process from the bottom-up

The Transmission System Operators (TSOs) are primarily responsible for providing reliable networks at the national level and are, consequentially, concerned with changes to national generation and load patterns.

It is essential that planning from the bottom-up closely involves Distribution System Operators and formally recognises them in the governance arrangements. Significant intermittent generation is connected at distribution network level; the effect of which can feed through to transmission network congestion and ultimately to cross-border capacity congestion.

Influencing the planning process from the top-down

We would emphasize that a sense of urgency is required if European energy policy targets are to be met. This applies to the planning and construction of network projects. Otherwise we see a major risk that the carbon reductions to be achieved through forthcoming renewable energy projects, and the building of more efficient conventional generation, will not be achieved without experiencing greater disruption on the transmission network. The management of congestion constraints is likely to

become increasingly detrimental to liquid energy trading and to create higher costs for consumers.

This means that TSOs do not have the luxury of waiting for full certainty about investments in new power plants and therefore we see an important analytical and advisory role for ENTSO-E, to drive the pace of network expansion.

Clear technical analysis

Although the report mentions the n-1 criterion, a clear statement is missing to ensure that its definition is both precise and shared amongst the European TSOs, without which it cannot be applied successfully.

Furthermore existing bottlenecks within the regions and across borders should be shown clearly in the plan, including proposals to repair them.

The appropriate starting point

The report gives a good overview of the current transmission projects of European significance. However, our impression is that current bottlenecks between market areas are not emphasized sufficiently enough. Therefore we propose that ENTSO-E look in more detail at current congestions, price differentials and volumes of congestion rents, in order to analyse where investments would be most beneficial. In this context we support the application of a market model as proposed in figure 58, which would allow an assessment of the extent to which existing bottlenecks should be removed.

As already mentioned, there will always be uncertainty whether specific generation plant projects will be realized, or that demand increases as predicted. Therefore a fundamental component of the plan should be an elaborated set of scenarios. Such scenarios should then be subject to consultation, with the important engagement of the national regulators.

Furthermore the scenarios should extend beyond the worst and best estimate cases. This would provide regulators and stakeholders with more confidence in the outcome of the plan.

We are specifically concerned about the consequences of connecting greater volumes of renewable generation (RES). It is not yet clear that planning for the European Grid of 2020 is fully compatible with the promotion of RES needed to meet EU policy.

Therefore, we favour a consequence analysis of the different scenarios to give stakeholders a view of what would happen under the different scenarios, i.e. when it may not be possible to build lines as planned.

Additional considerations

We recognise that the TYNDP has to account for complex legal issues, licensing procedures and regulatory rules. It is therefore reasonable that the plan attempts to include consideration of the risk that these issues will delay investment. There will be benefit in terms of communicating the benefits of the plan, if such potential barriers are acknowledged early on.

Given the number of stakeholders and authorities involved, and the complexity inherent in managing bottom-up and top-down influences in parallel, an open discussion is needed to define the governance structure, from EU level down, needed behind the expansion of the European Grid.

Similarly we would like to see greater elaboration of the specific impact of disparate technologies, especially in the context of the RES targets and the major growth of off-shore capacity.

Finally, we note that the recently released European Wind Integration Study report confirms the urgent need for the reinforcement of those transmission infrastructure and interconnections already identified and incorporated in national plans. A number of these reinforcements are awaiting consents and it is crucial that pressure is brought to see consent decisions progressed quickly.

Ten-Year Network Development Plan 2010 – 2020

ENTSO-E

Consultation (1 March 2010)

EPSU RESPONSE

The European Federation of Public Service Trade Unions (EPSU) welcomes the consultation: Safe, reliable and well-functioning networks are a backbone of modern society on its way to realize de-carbonised economy. It is appropriate therefore that ENTSO-E organizes a broad consultation.

Summary of EPSU recommendations - 10 Year Network Development Plan 2010-2020

Ownership and operation of the network: it matters
We recommend that ENTSO-E´s planning should clearly indicate how the ownership of the different lines will develop and including of the supergrids.
Future network development including building further cross-border connections and the possible supergrids should be regulated and publicly owned infrastructures. We recommend ENTSO-E to express itself clearly in favour of publicly owned and operated networks now and in the future

Privacy issues
We recommend that TSOs adopt "privacy proof" tests which can be applied when seeking permission to develop the networks

Skills and employment
We recommend that the 10 year investment plan is accompanied by a labour market forecast to provide a signal to the electrical industry where problems can be foreseen.
We recommend that the 10 year investment plan is accompanied by an overview of national education and training plans how the industry, public authorities and the companies and trade unions (through collective and other agreements – also of a transnational nature) are stimulating training, education and upskilling. This will contribute to the implementation of Smart Grid European Technology Platform recommendation 10.
We recommend that ENTSO-E issues guidance to the TSOs to ensure they have qualified and skilled staff including for maintenance and repairs.TSOs should have staff to deal with maintenance, repairs and emergencies.
We recommend that ENTSO-E explores how emergency crews can be created that assist other TSOs in case of problems. This should be done in consultation and cooperation with the unions concerned.
We recommend that the ENTSO-E brings together the social partners to discuss how the industry can ensure qualified staff will be available to deal with tomorrow´s challenges.

Role of Social Dialogue
We recommend that the ENTSO-E 10 year plan underlines the importance of involving all stakeholders, explicitly mentioning the trade unions as well. ENTSO-E can develop guidelines with the trade unions as to ensure involvement of the workforce and their unions in the early stages of planning, designing and developing.

Certification and Verification
We recommend that ENTSO-E develops a policy of certification and verification to assist an appropriate implementation of the Network Development Plan. Elements we suggest of such a policy for companies:

- *Having sufficient staff with the appropriate training and skills to accomplish the tasks*
- *Verifiable health and safety procedures in line with industry best practice*
- *Good level of social dialogue, including information and consultation practice*
- *Respecting collective agreements*
- *Contribution to industry training courses and funds*
- *Respecting Corporate Social Responsibility principles*[1]

Register of certified companies, and an accompanying register of companies that do not respect the high level standard.

Authorisation and Permitting procedures
We recommend that ENTSO-E and its member organizations participate in broad debate in society to explain their projects and planned investment. And while procedures can be streamlined, harmonized European procedures are not welcome if not accompanied by ensuring democratic decision-making that gives local communities a voice.
We recommend ENTSO-E to consider a broadly based advisory body to comment on its work and with resources to play this role.

Electro-magnetic fields
We recommend ENTSO-E to take a prudent approach and ensure pre-cautionary principles are integrated in the work around electro-magnetic fields. We expect ENTSO-E to fully support the concerns of its workers (of the TSOs) for continued information and research.

On network investment
While recognizing that projects can serve more purposes, we recommend that projects which are needed to strengthen security of supply or are needed to better deal with the integration of renewables get priority over projects that solely function to improve the function of the internal market.
We recommend that ENTSO-E discourages the development of merchant lines
We recommend that TSOs position themselves as employers defending autonomous collective bargaining and the importance of being attractive employers.

A European grid
We recommend that ENTSO-E explores the social consequences of developing the supergrids and a European grid with the trade unions. Trade unions should be involved when these networks are developed.

[1] Eurelectric has signed a European agreement on CSR with the European trade unions. It lays down key principles including for CSR reporting. http://www.epsu.org/a/5343 The European companies have also accepted the Global Reporting Initiative and the Electric Utilities Sector Supplement. A forthcoming report by EPSU will demonstrate that more can be done to prevent CSR from becoming a whitewash operation though. http://www.epsu.org/a/6018

The European Federation of Public Service Trade Unions (EPSU) welcomes the consultation: Safe, reliable and well-functioning networks are a backbone of modern society on its way to realize de-carbonised economy. It is appropriate therefore that ENTSO-E organizes a broad consultation.

The 10 year plan while several pages addresses many issues and in fact still does not address all, or all adequately, as can be seen by our

EPSU has the following comments:

Ownership and operation of the network: it matters.

Most of the Transmission networks are in public ownership in Europe. This should become the rule.
Why:

- The Transmission networks are a European public commons to deliver security, safety, reliability and assisting in addressing global warming
- With the different challenges for the development of networks for the future, introducing an element of risk and motives which are not appropriate to the running of a public service network (profit maximization) should be prevented;.
- There are huge issues over privacy involved as recent studies have indicated[2] Publicly owned compa nies command more trust then private companies;
- Coordination issues will be more easily resolved if commercial interests do not intervene.
- It appears likely that the price of electricity will increase (the market does not work in utilities hence driving up the price, large investment is needed in renewables, generation and networks; CO_2 price) Citizens will feel more comfortable with public companies, close at home (local public enterprise) as with multinational giants that ultimately seek higher profits.

EPSU finds the stress that the infra-structure is developed by public-private partnerships problematic.[3] While the private sector can play a role in building the infra-structure and has done so, the *ownership and operation of the networks is a key public task which can not be left to the private sector*. Indeed except for the UK, all EU Member States have opted for public ownership of their transmission networks. The transmission networks which were privately owned in Germany, one has returned to public ownership through take-over (Tennet took over EON´s network) Another one -Vattenfall Europe´s transmission network is being bought by Elia – goes to semi-public status. And while that is possibly a positive aspect it has burdened the companies with more debt.

Public-private partnerships introduce an additional element of risk and complexity of contracts and management that Europe´s citizens and business can ill afford. The European energy regulators (ERGEG) have also noted that the future development of smart grids,

[2] See publication on Privacy by design of the Ontario Information and Privacy Commissioner with the Future of Privacy Forum. http://www.futureofprivacy.org/ and http://www.futureofprivacy.org/2009/11/17/smartprivacy-for-the-smartgrid-embedding-privacy-in-thedesign-of-electricity-conservation-2 See also www.smartgridprivacy.org

[3] Several publications of Public Services Internal Research Unit of the University of Greenwich testify to the complications of PPPs. http://www.psiru.org/ While not directly linked to the electricity industry, the behavior of Aquiris, a subsidiary of Veolia Water and charged with waste water treatment of Brussels demonstrated how commercial interests will dominate over the public interest. Involved in a dispute over payments, the company stopped treating Brussels waste water polluting the river Zenne which had just been cleaned up after many years and great expense. We do not know a publicly owned company that has done something similar. http://www.corporateeurope.org/water-justice/content/2010/02/aquiris-veolias-lost-bet-brussels

smart metering and distributed generation will make planning also more complex further introducing risk.

The financial and economic crisis forces countries to adopt austerity plans. It is worrisome that without much debate and with an absence of societal consent some governments might chose to partially privatise the electricity sector including the networks. Given the many challenges and difficult choices the sector faces and including the network projects for the future, this is an ill-fated choice.

Safety, security, equal access and integrating renewables energy sources are the primary goals. We are concerned that private enterprise compromises these goals as each and every single day the aim is to make a profit and this often goes at the expense of other goals. Already forgotten is how Enron wrecked the US and how bankers brought entire countries and millions of people into poverty.

We do not believe that consumers are willing to pay a higher price because the companies need to get the signal that they must invest and line the pockets of CEOs and shareholders. With other words a public option will also be cheaper as the public companies find cheaper capital and lower interest rates as they do not take risk.[4]

We recommend that ENTSO-E´s planning should clearly indicate how the ownership of the different lines will develop and including of the supergrids.
Future network development including building further cross-border connections and the possible supergrids should be regulated and publicly owned infrastructures. We recommend ENTSO-E to express itself clearly in favour of publicly owned and operated networks now and in the future.

Privacy issues

Above we have already indicated the importance of addressing privacy issues. This is not just an issue in the case of smart meters but also in the case of smart grids. The technological developments are very fast. While it can be argued this is a primary responsibility for the DSOs and Regulators, smart grids technologies will also be used by TSOs. To obtain trust and acceptance TSOs will have to take these concerns serious, be forthcoming with solutions and halt developments that are not privacy sound. Addressing privacy issue in the stage of planning and designing in less costly then adding these afterwards.

We recommend that TSOs adopt "privacy proof" tests which can be applied when seeking permission to develop the networks.

Skills and employment

The 10-yer Network Development Plan of ENTSO-E is to address the *skilled and qualified workforce*. Several studies including for the European Commission[5] have concluded that there is a problem here with on the one hand an aging workforce in the electricity and other sectors and on the other hand less students (and very few women) graduating in technical studies plus a bad image of the industry due to the restructuring that has taken place in the industry. If the industry wants to become an attractive employer especially for the skilled and qualified technical and engineering staff its image will need to improve. Since the opening of the electricity and gas markets restructuring has been a main feature of the industry[6] with

[4] A theoretical perspective on utilities was given by John Maynard Keynes, see annex
[5] Future of Jobs and Skills – electricity, gas, water and waste (2009) TNO and others http://www.eurofound.europa.eu/publications/htmlfiles/ef0956.htm
[6] The EcoTec report for the European Commission on the effect on employment of opening the electricity and gas market is available at: http://www.epsu.org/a/2939

recent examples including Vattenfall Germany´s policy to outsource core functions and seek 180 million Euros in savings from its employees and Eon´s Perform to Win plan which outsources key IT functions and continues further restructuring. A positive example concerns GdfSuez which concluded a forward looking employment and training transnational agreement with the trade unions applying to all its European companies.[7] Apart from the challenges in recommendation 10 of the strategic plan (see below) Job security will be one of the keys to make the sector attractive.

The transition to a decarbonised electricity production, the development of new networks and the technological changes related to "smart" technologies will require more workers and a need for more investment in training, education and upskilling.

Both the Smart Grids European Technology Platform in its Strategic Development Plan (recommendation 10: *Develop the "skills" base in the electricity networks sector – without resolving this problem of resources, any progress will be severely constrained*)[8] as well as Eurelectric in its paper on Smart Grids (…"development of people skills and competencies… p.15.) address this issue.

The skill issue is not just relevant for the TSOs themselves but equally for the companies engaged in maintenance and repairs of network.
The lack of skilled staff might make it more difficult to maintain, repair of engage in emergencies. TSOs are to have their own staff for this. There is the risk that due to outsourcing and subcontracting this workforce is no longer available when needed as companies will rely on the market to obtain when needed – but then such staff might not be available.

TSOs have often supported each other in case of emergencies caused by storms, flooding or other circumstances of an exceptional nature. ENTSO-E can play a coordinating role and the TSOs can develop emergency crews which can easily operate in other countries. Due to the different contractual issues the unions should be involved.

Lastly we note that the legislator was concerned that TSOs, ISOs or ITOs would not have enough human resources to meet their obligations and specifically addressed this for example in art 12 of the 2009 directive in which TSOs are responsible for:

(a) ensuring the long-term ability of the system to meet reasonable demands for the transmission of electricity, *operating, maintaining and developing* under economic conditions secure, reliable and efficient transmission systems with due regard to the environment;
(b) ensuring adequate means to meet service obligations
(emphasis added)

We recommend that the 10 year investment plan is accompanied by a labour market forecast to provide a signal to the electrical industry where problems can be foreseen.
We recommend that the 10 year investment plan is accompanied by an overview of national education and training plans how the industry, public authorities and the companies and trade unions (through collective and other agreements – also of a transnational nature) are stimulating training, education and upskilling. This will contribute to the implementation of Smart Grid European Technology Platform recommendation 10.

[7] 3 March 2010 close to 3000 workers demonstrated against Vattenfall, the Swedish owned operator in front of the Swedish embassy as the company is state-owned http://www.epsu.org/a/6289 18 June 2009 workers from several countries protested against the EON Perform to Win plans which outsources key IT functions. http://www.epsu.org/a/5302 EON also brutally closed a call centre without information and consultation and without a social plan 20 January 2010 http://www.epsu.org/a/6134 For the example of GdFSuez see http://www.epsu.org/a/6290

[8] http://www.smartgrids.eu/documents/3rdGA/SmartGrids_SDD_Draft_25_sept_2008.zip See also annex

We recommend that ENTSO-E issues guidance to the TSOs to ensure they have qualified and skilled staff including for maintenance and repairs.TSOs should have staff to deal with maintenance, repairs and emergencies.

We recommend that ENTSO-E explores how emergency crews can be created that assist other TSOs in case of problems. This should be done in consultation and cooperation with the unions concerned.

We recommend that the ENTSO-E brings together the social partners to discuss how the industry can ensure qualified staff will be available to deal with tomorrow´s challenges

Role of Social Dialogue

The labour market forecast can be developed by ENTSO-E and discussed and presented to the *European sectoral social partners for the electricity* sector. EPSU has no objection if ENTSO-E would participate with some status in the electricity social dialogue (ENTSO-E members are also employers)[9] . The European Commission develops the idea of sector skill councils which EPSU and the electricity social partners have supported.

EPSU´s affiliated unions remark that there are many projects which are developed, several platforms that exist and sometimes with the support of the European Commission. EPSU notes that trade unions are often not involved.

We recommend that the ENTSO-E 10 year plan underlines the importance of involving all stakeholders, explicitly mentioning the trade unions as well. ENTSO-E can develop guidelines with the trade unions as to ensure involvement of the workforce and their unions in the early stages of planning, designing and developing.

Certification and Verification

The development of smart grids and smart meters needs to be accompanied with a clear policy regarding *certification and verification* of the companies which work on electricity related issues. Networks become more complex and with smart grids, smart meters and distributed generation it is important that safety, security, reliability and quality are spread and monitored throughout the value chain of the sector. EPSU affiliated unions note the on-going process of outsourcing, sub-contracting and sub-sub-contracting. Companies from several European countries can be involved. The European consideration of licensing of companies that are competent to work on grids and including smart grids (around which a whole industry of appliances and services is likely to develop) is possibly also key to get more acceptance of smart technologies. Earlier we made the point on privacy – citizens need to understand what kind of companies they do business with.

This is also task of the regulators (to which ENTSO-E should draw attention) but the TSOs play a role as they interact with such companies and will have to ensure to work with certified and verified companies. This could be developed in the *Operational Handbook*[10].

As trade unions we regard the negotiating and signing of collective agreements a key benchmark of verifying if a company is bona-fide or not. Companies that do not sign and negotiate collective agreements usually do not have good practices of information and consultation and social dialogue and seek to escape parts of their obligations, for example contributions to industry funds for training, to meet pension obligations, to pay sector wages etc.

[9] Practical details of this will need to be sorted out between ENTSO-E and Eurelectric which represents the employers side in the sectoral social dialogue committee electricity. Not all ENTSO-E members are also members of Eurelectric´s national associations.

[10] http://www.entsoe.eu/index.php?id=57

Companies developing the networks or participating in TEN-E or recovery projects and thus receiving funding from the EU should be of high reputation and respect CSR principles.[11] Funding should be conditional on being certified and verified. Part of the verification is to consult with the trade unions on company social behavior.[12]

We recommend the establishment of a register of certified companies, and an accompanying register of those companies that violate the certification and verification policy.

We recommend that ENTSO-E develops a policy of certification and verification to assist an appropriate implementation of the Network Development Plan. Elements of such a policy for companies:

- *Having sufficient staff with the appropriate training and skills to accomplish the tasks*
- *Verifiable health and safety procedures in line with industry best practice*
- *Good level of social dialogue, including information and consultation practice*
- *Respecting collective agreements*
- *Contribution to industry training courses and funds*
- *Respecting Corporate Social Responsibility principles*
- *register of companies that do not respect the high level standards*

Authorisation and Permitting procedures

It has become part of standard repertoire in the electricity industry to complain of the long duration of procedures to obtain authorization to build new power lines or construct new generation capacity. The ENTSO-E plan is no exception and a whole annex is devoted to it. ENTSO-E warns for the possibilities of delay for timely construction which can risk the achievement of European policy targets. It notes that cross-border lines are seen by the public as “commercial lines of limited or nil benefit to the local population” with the cost being borne by the local communities. ENTSO-E notes the costs of increased coordination; diverging procedures between countries etc.

ENTSO-E further notes the “unwillingness from stakeholders to support TSOs in the argumentation for the social acceptance of projects” and the “difficult balancing between environmental impacts and other public interests in evaluation of importance of a grid project by third parties.”

EPSU is concerned that such rhetoric serves the purpose of obtaining easier permitting and authorisation schemes overruling local or regional, or even national interests when a line is to cross several countries as will be the case with the supergrids. There might be overriding public interests but the lack of involvement of citizens and other groups including the trade unions in designing and developing projects explains at least some of the resistance. If unions and others are not involved; and in particular if our interests for secure employment, good industrial relation practices and decent pay and conditions for those involved are not integrated in the design; development and operation of the project, why to support ? And the same will be true for many other organisations.

We note here also that the benefits of projects (social welfare) are too much assumed. Underlining much of the development is that the internal market must to be completed.

[11] Eurelectric has signed a European agreement on CSR with the European trade unions. It lays down key principles including for CSR reporting. http://www.epsu.org/a/5343 The European companies have also accepted the Global Reporting Initiative and the Electric Utilities Sector Supplement. A forthcoming report by EPSU will demonstrate that more can be done to prevent CSR from becoming a whitewash operation though. http://www.epsu.org/a/6018

[12] Experience of EPSU and members is that having CSR policies is not a guarantee that they are implemented.

Citizens and workers have not experienced much benefit of the internal market and research of the European Commission and other stakeholders is often one-sided and ignores the problems as they do not fit the ideological perspective.[13] One again the current financial, economic and social crisis demonstrates the dangers of such blindness[14] and see the perspective of Keynes in the annex.

While the public consultations of ENTSO-E and ACER/ ERGEG are appreciated; it is clear from the reactions to ACER/ERGEG consultations and we assume to the consultations of ENTSO-E that contributions are predominately from the industry and companies with deep pockets seeking to influence the outcome of regulations. They do not act in the general interest There are no broadly based advisory structures to ENTSO-E or for that matter to ACER that could provide a more critical perspective and counter-balance and hence why assume that the plans and regulations are in the public interest ?

We recommend that ENTSO-E and its member organizations participate in broad debate in society to explain their projects and planned investment. And while procedures can be streamlined, harmonized European procedures are not welcome if not accompanied by ensuring democratic decision-making that gives local communities a voice.

We recommend ENTSO-E to consider a broadly based advisory body to comment on its work and with resources to play this role.

Electro-magnetic fields

The investment plan makes a reference to electro-magnetic fields. ENTSO-E indicates it supports the ELF EMF basic restrictions of the Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines ("Guidelines for limiting exposure to time varying electric and magnetic fields (1Hz to 100kHz) published in July 2009" as used in the EU Recommendation. They are from the ENTSO-E point of view "adequate and suitable in general in respect of exposure of the general population to electric and magnetic fields generated by high voltage electricity circuits". We note that the European Commission has consulted the social partners on this Directive. This consultation can result in changes that might be further reaching as is currently foreseen. EPSU regards protection of workers very important and has argued that the (revised?) Directive should also be linked with continuing research, involving the representatives Europe's workers and build a pool of expertise. The Directive should clearly ensure the risk assessments to reduce exposure to lower levels integrating ALARA (as low as reasonably achievable) principles. This optimization will give a lead to technological developments and limit exposure to the public and workers. A precautionary approach and to adopt risk reduction and prevention principles is hence important. We have called for medical monitoring of exposed workers to be imposed where an exemption is requested, so that workers at particular risk (for instance, those with implants, heart problems or pregnant women) are automatically taken out of the equation and other workers are in any case monitored and their individual health records duly documented. We underline that the EMF Directive is not established to hinder technological progress and stress that workers health and safety also in the case of new technologies is important.[15]

[13] Poor choices and the limits of competitive markets in the provision of essential services to low income house holds, PSIRU, 2008; http://www.epsu.org/a/4150 Or for a critique of the Commission´s benchmarking reports, see PSIRU for EPSU http://www.epsu.org/a/3235

[14] The dangers of the ideological blindnes to the problems deregulated (financial) markets can pose are described in *Free Fall – free markets and the sinking of the global economy*, Joseph Stiglitz, 2010

[15] EPSU contribution to the consultation available at:
http://www.epsu.org/IMG/pdf/electro_magnetic_fields_response_on_consultation.pdf

We recommend ENTSO-E to take a prudent approach and ensure pre-cautionary principles are integrated in the work around electro-magnetic fields. We expect ENTSO-E to fully support the concerns of its workers (of the TSOs) for continued information and research.

On network investment

ENTSO-E notes that the network consists of about 300 000 km of lines and about 42.100 kms of lines will be new or refurbished in the next 10 years. That are only the projects of so-called European significance. The breakdown according to the EU policy objectives (lines which contribute to security, to the integration of renewables and to creating the internal market) is helpful. The final conclusion of ENTSO-E is that these projects due to be completed within the next five years (close to 19.000 km of lines) represent investment costs ranging from 23 to 28 billion €, spread all over Europe. It represents a fraction of the total investment efforts of TSOs (i.e. it does not include national or local investments on new/refurbished infrastructure, etc.) The costs are high representing an average cost of over 1.2 – 1.5 million Euros for each km of lines with local differences due to terrain and other conditions.

Table 10 investment costs of transmission projects of European significance to be completed within the period 2010-2014

Perimeter	Investments (billion €)
RG North Sea	12 to 14
RG Baltic Sea	11 to 13
RG CCS	11 to 12
RG CCE	8 to 9
RG CSW	6 to 7
RG CSE	4 to 5
Total ENTSO-E	23 to 28

ENTSO-E notes further that the financial and economic crisis might lead to delays.
We appreciate the critical position of ENTSO-E towards “merchant lines” in 6.8.2. Merchant rules have no place in the public network. ENTSO-E should block the development of such lines. We are concerned that ENTSO-E does not have full information and/or can not release such information for reasons of commercial sensitivity or confidentiality (p.122-123) This is not acceptable as such lines cherry pick on the public infrastructure and pose a risk to the public system.

We reiterate our earlier criticism (under authorization procedures): the benefits of an internal market are too much assumed. The European social welfare costs of integrating countries just for the purpose of creating a single market are probably underestimated. The following key phrase from the NDP is telling: “Only well developed, liquid, and technically sound markets can produce trustworthy signals to assist the network developer in finding the most optimal solutions.” This is the type of dangerous assumptions that Keynes pointed out when criticizing economists (see annex). As professor of energy policy Steve Thomas (PSIRU, University of Greenwich) has argued such markets will not come about. [16]But imagine they would: companies would produce at marginal costs driving certain companies to bankruptcy as happened with British Energy (the UK nuclear company) and which had to be bailed out at the expense of the taxpayer.[17] We also note the concerns of ENTSO-E regarding the increasing difficulties to predict generation capacity (p.36).

The electricity price will increase due to the sheer size of investments to be realized. Citizens are also asked to shoulder investment in new power plants; in reducing CO_2 emissions, new technologies such as smart meters. The cost-benefit analysis is not always convincing (such

[16] Several research documents are available at: http://www.epsu.org/r/324 and also at www.psiru.org
[17] http://www.epsu.org/a/383

as of smart meters for example) Such faulty analysis also hurts the projects of the TSOs. Reducing demand and rewarding companies DSOs and TSOs for this might avoid large costs.

We are concerned that Regulators and TSOs will seek to reduce costs in light of the above. Examples are the interference of the UK regulator with pension costs and the German regulator with general labour costs. Regulators are not employers of the workforce in the electricity industry and have no expertise in labour market issues and hence such interference is not acceptable. We expect this position of the TSOs as well. The pressure on costs can lead to further outsourcing of core functions and more subcontracting and the problems involved (see earlier under *certification and verification*) , it will also make the sector less attractive as employer (see earlier on *skills and employment)* An additional concern is that such cost reduction efforts impact on maintenance and repairs, often using new technologies (improved monitoring, fault detection…) to argue for longer life times, less (or euphemistically called: more targeted) maintenance schedules and longer amortization periods of networks. Models will play up the benefits and reduce the costs to society when networks fail.

The large investments confer a huge responsibility on the TSOs, and also for this reason TSOs should be impeccable with high social and environmental standards, avoiding risks and with rates of return that ensure costs and investment are covered but without profit top up.

While recognizing that projects can serve more purposes, we recommend that projects which are needed to strengthen security of supply or are needed to better deal with the integration of renewables get priority over projects that solely function to improve the function of the internal market.

We recommend that ENTSO-E discourages the development of merchant lines.

We recommend that TSOs position themselves as employers as well defending autonomous collective bargaining and the importance of being attractive employer.

A European grid

There is much discussion of smart grids, Rings and a European grid. ENTSO-E should indicate further how this will come about and what the implications will be for the operation of the networks and work of TSOs. EPSU is supportive of cooperation between TSOs. An important element in such a development should be to integrate social dialogue and information, consultation and participation rights for the workers concerned

We recommend that ENTSO-E explores the social consequences of developing the supergrids and a European grid with the trade unions. Trade unions should be involved when they are developed.

The European Federation of Public Service Unions - EPSU - represents workers in the electricity sector including in transmission, distribution, generation, retail services in public and private companies, including small and multinational ones. EPSU also represents worked in broad wide area of public services (national and European administrations, local and regional governments, health and social services, and utilities such as in electricity, gas, water and waste, both in public and companies. EPSU members understand the importance to the economy of safe, affordable and reliable electricity. Public service workers are also users and they, their families and the communities they live in depend on secure supply of electricity. EPSU represents 8 million dues paying members organized in more then 250 trade unions.

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Annex

John Maynard Keynes on Utilities

John Maynard Keynes identified in the 1920s cost and demand conditions under which competition doesn't emerge. This seems largely forgotten. Keynes goes further, to explain how economists move from simplifying assumptions to abandonment of the actual facts, and to conclude that reality is what their model says. The problems caused by introducing competition in the electricity sector in Europe (and documented by Steve Thomas of PSIRU in several publications for EPSU (www.epsu.org/r/34) but also Australia and the US are similar and underline the validity of the observation of Keynes.

"*The beauty and the simplicity of such a theory [competition producing economic efficiency] are so great that it is easy to forget that it follows not from the actual facts, but from an incomplete hypothesis introduced for the sake of simplicity. Apart from other objections to be mentioned later, the conclusion that individuals acting independently for their own advantage will produce the greatest aggregate of wealth, depends on a variety of unreal assumptions to the effect that the processes of production and consumption are in no way organic, that there exists a sufficient foreknowledge of conditions and requirements, and that there are adequate opportunities of obtaining this foreknowledge. For economists generally reserve for a later stage of their arguments the complications which arise — (1) when the efficient units of production are large relatively to the units of consumption, (2) when overhead costs or joint costs are present, (3) when internal economies tend to the aggregation of production, (4) when the time required for adjustments is long, (5) when ignorance prevails over knowledge, and (6) when monopolies and combinations interfere with equality in bargaining — they reserve, that is to say, for a later stage their analysis of the actual facts. Moreover, many of those who recognise that the simplified hypothesis does not accurately correspond to fact conclude nevertheless that it does represent what is 'natural' and therefore ideal. They regard the simplified hypothesis as health, and the further complications as disease*." (Keynes, 1972)

Keynes, J. M. "The End of Laissez-faire" in The Collected Writings of John Maynard Keynes, Vol. 9, Essays in Persuasion, London, The Macmillan Press, 1972
As quoted on http://www.epsu.org/a/3235

Annex

Smart Grids European Technology Platform in its Strategic Development Plan

Recommendation 10: Develop the "skills base" in the electricity networks Engineering in the energy sector, electricity grids in particular, is seen by many as oldfashioned and "difficult" as it requires a high level of competence in mathematics, physics and other sciences. This discourages the potential new students from studying and pursuing a career in power engineering. Across Europe there is a shortage of experienced engineers, technicians and craft personnel to match the huge increase in capital spending and complexity of a SmartGrids society. This is compounded by the fact that the retirement rate of experienced engineers exceeds the recruitment rate of new experts into the electricity sector in general.

Recommended Actions: All stakeholders in the electricity sector have a responsibility to improve the image of the sector, e.g. by engaging with educational institutions and explaining in an understandable way the real benefits of being involved with and able to deliver solutions to the energy, climate and environmental challenges of today. There exists a limited scope to attract today's students into the sector, in support of delivering the 20/20/20 targets. Therefore, cross training of staff already engaged will be required to meet the shortfall in skills. Nevertheless, this needs to be complemented by providing incentives for young people to study related subjects – for that effective communication will be required to provide information regarding the exciting careers available in electricity networks. A once-in-a-lifetime opportunity to help achieve a secure supply of energy and help the fight against climate change is exciting enough to attract the "young potentials" of the future, under the condition that it is communicated and presented in an appropriate way Governments should work with industry and the professional institutions to encourage all stakeholders, especially network companies, to provide adequate training and experience for their employees. Regulators will then also be able to provide adequate incentives in support of that. Network operators should eventually get much more (and openly) involved at all levels of education and research, to bring more motivated people into the sector, to show that innovation and complexity can be exciting, fun and well rewarded.

ENTSO-E pilot Ten-Year Network Development Plan

A EURELECTRIC Response paper

April 2010

The **Union of the Electricity Industry–EURELECTRIC** is the sector association representing the common interests of the electricity industry at pan-European level, plus its affiliates and associates on several other continents.

In line with its mission, EURELECTRIC seeks to contribute to the competitiveness of the electricity industry, to provide effective representation for the industry in public affairs, and to promote the role of electricity both in the advancement of society and in helping provide solutions to the challenges of sustainable development.

EURELECTRIC's formal opinions, policy positions and reports are formulated in Working Groups, composed of experts from the electricity industry, supervised by five Committees. This "structure of expertise" ensures that EURELECTRIC's published documents are based on high-quality input with up-to-date information.

For further information on EURELECTRIC activities, visit our website, which provides general information on the association and on policy issues relevant to the electricity industry; latest news of our activities; EURELECTRIC positions and statements; a publications catalogue listing EURELECTRIC reports; and information on our events and conferences.

EURELECTRIC pursues in all its activities the application of the following sustainable development values:

Economic Development
- Growth, added-value, efficiency

Environmental Leadership
- Commitment, innovation, pro-activeness

Social Responsibility
- Transparency, ethics, accountability

Dépôt légal: D/xxxx/xx.xxx/x

EURELECTRIC Response to ENTSO-E pilot Ten-Year Network Development Plan

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EURELECTRIC Response to ENTSO-E pilot Ten-Year Network Development Plan

General comments

EURELECTRIC welcomes the fact that ENTSO-E took proactive steps by publishing the pilot Ten-Year Network Development Plan (TYNDP) before the Third Energy Package is fully implemented in March 2011.

EURELECTRIC is committed to actively contributing to the consultation process with the aim of developing a coherent plan that will be used as guidance for building the EU-wide electricity grid network.

With the large scale integration of renewable energy sources, the European electricity grids are facing enormous challenges to meet the EU 2020 targets and will have to undergo a fundamental structural change. The exceptionally short timeframe until 2020 makes it crucial to **increase the sense of urgency** among all the involved stakeholders to make them realise that the actions need be taken already today.

Prior to the liberalisation of electricity markets, grid investments were based on the principle of proximity between generation and load centres. Cross-border flows were limited and grid planning was mainly national-based. The increase of cross-border trade between national markets in recent years has put significant pressure on the grid. **In our view, even before the implementation of the RES targets, massive investments in the grid reinforcement are currently needed and must not be delayed.**

With regard to the integration of wind generation, we believe TSOs should prioritize grid reinforcement plans in those areas where connection of wind farms is most urgent. As some of the future locations of the large wind parks are already known in many Member States (Scotland, North Germany, North Sea etc), TSOs have to take this information into account in their planning. Therefore, **TSOs should no longer wait until the wind farms are in the construction phase before they start developing their plans and build the required grids.**

Finally, in order to ensure **grid development in the most cost-efficient way, we believe that network investments should go hand in hand with establishment of a well-functioning cross-border market design. Development of cross-border day-ahead and intra-day, as well as balancing/reserves markets will contribute positively to resolving congestion and facilitating free electricity trade.**

Specific comments

EURELECTRIC acknowledges the work done by ENTSO-E with regard to the draft pilot TYNDP and recognises its positive value in a number of respects. First of all, the development of the pilot plan has initiated a new process of cooperation and exchange of information amongst TSOs. The quality of this cooperation will be one of the key elements in the successful implementation of grid investment.

Secondly, the draft pilot plan is a first example of a quite comprehensive and detailed picture of current grid investment projects. And, thirdly, the pilot plan provides a significant input for the discussion on what the next issue of the TYNDP should look like.

The pilot plan, however, does not address a number of key issues related to European grid planning. In our response, we aim to point out the areas for further analysis and improvement, as well as give input on possible solutions.

1. Top-down vs. bottom-up

EURELECTRIC wishes to stresses that the current pilot plan is more of a compilation of national network plans, rather than a genuine Pan-European grid plan. We believe that the overall EU grid planning should be done using a top-down approach and should include projects that are relevant from the EU perspective. **National/regional plans should stem from the EU TYNDP and be consistent with the overall EU grid planning objectives. Using t**he top-down approach should also facilitate coherence between national plans. For example, a Pan-European or multi-national project must be included in the national plans of all the involved countries.

In our view, the next 2012 TYNDP should aim to be based on a common European network model and give a coherent overview of the main (existing and expected) congestions and the security ("N-1") problems on the European level (not only region by region). The different scenarios used to determine these congestions and security problems should be documented in the TYNDP, including the assumptions made for (additional) renewable energy sources. In the view of the on-going process of developing a "common grid model" by the AHAG work stream on capacity calculation, the next TYNDP should aim to take on board the outcome of this work. Harmonization of assumptions and calculation throughout Europe will help avoid the situation where specific national or local solutions "prevail" over European standards.

Another important aspect relates to the legal nature of the plans. The 3rd Energy Package does not provide full clarity and is therefore subject to different interpretations with regard to the legal obligation placed upon ownership unbundled TSOs to prepare ten-year network development plans on national level. In EURELECTRIC's view, all TSOs should be subject to an obligation to publish 10-year national network plans. Absence of this obligation may result in increasing inconsistency between the investment projects across the EU and lack of transparency in the whole planning process. This issue should be carefully analysed by the

regulatory authorities and any possible solutions should aim to avoid the risk of having fragmented and incoherent European grid investments.

We also support the idea of conducting a consequence analysis of different scenarios to illustrate to all the stakeholders what the situation will look like in the event that the transmission grid is not built as planned.

2. Assumptions in the background scenarios

EURELECTRIC wants to draw attention to the fact that the assumptions of the two background scenarios in the report are based on achieving 25% of RES in electricity consumption, which is far below the EU RES target of 20% in energy consumption that corresponds to around 35% of electricity consumption. This means that **the projects outlined in the pilot plan are not sufficient to meet the EU 2020 targets.**

EURELECTRIC recognises the fact that until the national RES action plans are made public, it will be difficult to elaborate a fully-fledged RES background scenario. However, we believe that this inconsistency has not been really highlighted in the communication of the pilot plan. Therefore **it will be of paramount importance to develop a new "RES scenario" in the next issue of the plan to ensure that all grid investments needed to achieve the 2020 targets are included.** Development of the background scenarios in the next issue of the TYNDP should involve all stakeholders.

3. List of projects

EURELECTRIC considers the list of five hundred projects in the report to be of high value as it represents a first comprehensive summary of the on-going initiatives across the EU. The outline of the projects region by region reasonably facilitates the understanding and orientation in the report.

However, the current plan does not allow the reader to draw an overall EU-wide picture of the main grid investment needs and corresponding grid projects. This is partly due to the lack of clear and harmonised criteria to assess the projects' contribution to the overall grid planning. **To be authoritative, the next plan will have to include a snapshot of the key priority projects and an analysis of their future impact on grid capacities and trade.** The pilot plan also does not provide sufficient insight into how projects are interrelated and it is therefore difficult to evaluate their consistency. In our view, **it is of high importance to analyse the impact of the planned off-shore grid investments on the on-shore grid reinforcement needed to transport power from the off-shore wind mills far into the mainland.**

Moreover, it is also difficult to form an opinion on the real state of play of the listed projects and the probability of them meeting the outlined schedule. We propose that a **risk assessment should be conducted for each project**: for example, by focusing on elements related to a) social acceptability, b) technological gaps to be overcome, c) financing, d)

regulatory gaps, etc. These elements would then complete the current TYNDP phases of each project (under consideration/planned/design & permitting/under construction). It will be also important to include an analysis of various alternative measures to mitigate risks and overcome problems in case of grid project delays.

We also want to point out that investment by private actors can be an important contribution to the challenges of building the grid promptly. Therefore the interconnection projects that are driven by private investors and that increase security of supply, improve integration of renewables or contribute to market integration, should be included in the TYNDP alongside projects led by TSOs. The decision to include such projects in the TYNDP should be based on transparent and objective evaluation criteria. In any case, to give a full picture, a list of planned merchant lines should be attached to the TYNDP, specifying whether such plans have been authorized or not (yet). This issue should be addressed in a timely manner in order to facilitate the overall process of building up the grid by making use of all available financial resources, both public and private. As an illustration, we want to highlight that, while addressing the Nord.Link project, the present TYNDP fails to mention the competing NorGer merchant project. The latter has already sought for a concession in Norway, contrary to Nord.Link, which is still in a very early planning stage. Our proposal would be to include the NorGer project in this TYNDP alongside with Nord.Link.

4. Regulatory approval and licensing procedures

The process of building grids is currently extremely lengthy and the average length of time it takes to build a new line is around ten years. It is therefore evident that **if the RES 2020 targets are to be met, there should be a change in the mindset of all the decision makers:** the TSOs, the regulators, the Member States as well as the Commission. All the decision makers in close interaction with market stakeholders have to develop a new coordinated approach to RES development and grid expansion based on the principle of cooperation and immediate action. The next TYNDP should reflect the proposals/agreements on the key regulatory issues.

In our view, the following steps could be undertaken to achieve significant improvements needed in the regulatory framework of the European electricity grid:

- **The process of obtaining a regulatory approval for the grid projects should be simplified and shortened**. As mentioned earlier in the report, we believe it is crucial that TSOs start planning the grid before they get detailed information about location of the new generation units. Regulators should also positively support these projects in the early stage of the process. Regulators should set up regional committees in order to ensure cross-coordination and develop a common model for evaluating regional socio-economic benefits. Investment planning should be based on the results of this regional model, be done in a transparent way and involve market stakeholders.

- **Procedures for granting permits and licenses by the Member States** should be **facilitated.** Member States should be requested to take steps towards

harmonisation the licensing process across the EU. At the moment, the licensing procedures for transmission are the main underlying reason for the lengthy process of building new grids.

- **An EU governance mechanism to oversee the build-up of the EU-wide electricity grid should be introduced.** The Commission should also play an important role in coordinating and monitoring the implementation of the TYNDP and giving guidance to all the involved decision makers. In this respect, the publication of the Energy Infrastructure Package by the Commission will be of significant importance to ensure that the major challenges related to building the European grid are being addressed in a timely and coordinated manner.

5. *Financing and cost allocation principles*

In the next TYNDP, grid investments' financing and cost sharing between the involved TSOs should be analysed and proposals on main principles should be elaborated. This work should be done by TSOs in cooperation with Regulators and the Commission.

The aim of the regulatory framework will be to ensure that transmission investments with positive socio-economic welfare are carried out. The cost distribution should be based on the expected benefits from a regional perspective in a way that makes it attractive to invest. In practice, it could mean that a TSO, not involved in the construction of the interconnection line, but benefiting from the increased socio-economic welfare due to increased capacities, could take part in the financing of this investment.

In particular, development of off-shore grids will require a set of completely new regulatory arrangements for cost sharing. This is related to the fact that in many cases off-shore grids will be built through a Member State without having direct connection in that Member State. In EURELECTRIC's view, provided benefits are shared between customers from different Member States, costs should also be borne by several Member States. Setting up such a governance framework by the national regulators, together with ACER, must be seen as an urgent priority.

6. *Transmission technology aspects*

In our opinion, the topic of transmission technology has not received sufficient attention in the pilot plan and should be further elaborated in the next issue of the TYNDP. **The revolutionary nature of the targets for renewable energy also requires the revolutionary development of transmission technology: they must to go hand in hand.** For example, new techniques would have to be developed to bridge large distances between the off-shore wind farms and the on-shore load centres, as the current AC technology is not technically sufficient for this purpose. The grid development process needs to be supported by the required R&D and the necessary funds to support such R&D have to be established without delay.

7. *Social acceptance*

To conclude our specific comments, we want to address the issue of social acceptance of new transmission lines by the public. In this respect, we believe the key to success is an early and transparent communication about the costs and benefits of the process, together with cooperation between all the relevant European, national and local stakeholders.

Involvement of all the stakeholders and decision makers is necessary to contribute to increasing public understanding of the need for new grids to meet the 2020 environmental targets. In this context, **it should be the task of ENTSO-E to prepare input for politicians and regulators to illustrate the link between new lines and creating a better environment.** The TYNDP should be used as a basis for providing sufficient justification for the grid expansion and its impact on reaching the RES targets as well as a communication tool to promote these messages.

Recommendations

1. *Update of the pilot TYNDP by the end of 2010*

In the view of awaited publication of the RES national plans in June 2010, EURELECTRIC strongly recommends ENTSO-E to prioritise its resources for an update of the pilot TYNDP by the end of 2010. This update should primarily focus on the analysis of the adequacy of the current grid projects to ensure that the 2020 targets are met in each Member State and overall in the EU.

2. *Output of the next TYNDP in mid 2012*

Based on the reasoning elaborated earlier in the paper, EURELECRIC suggests the following areas for improvement. The next TYNDP should:

- Introduce a top-down approach by formulating requirements for a European integrated grid, based on the EU-wide network and market models;
- Give a clear picture of congestions and security problems on the EU level, their amount and how capacity is calculated. The plan should show the impact of bottlenecks (e.g. in terms of (over)loading, duration of not being n-1 secure etc) for the individual network elements in the current situation as well as for the different scenarios;
- Develop a “RES” background scenario assuming that the 2020 RES targets will be fully met.
- Outline the grid investment needs and corresponding priority projects:

    - Include all types of investment needs: current urgent needs, off-shore projects and on-shore grid reinforcement needed to connect the off-shore grids with the consumer centres;
    - Assess their consistency in terms of geography, timing, technical aspects etc and give assessment about their feasibility;
    - Assess the impact of the grid projects on the trading capacities;
- Make proposals for changes of the regulatory approval and licensing procedures;
- Make proposals for principles of cost sharing and socio-economic assessment of the listed projects.
- Assess various grid technology options.
- Develop communication messages of the TYNDP towards the public in the EU.

A periodic "system retrospect" analysis could be carried out after each release of the TYNDP (as it has been done by UCTE for adequacy study in the past).

This "system retrospect" analysis would be useful:

- to have an overview of the current European generation/demand adequacy,
- to show and explain the existing congestions of the current grid system and thus to point out where the efforts should be clearly focused in the short/mid term,
- to monitor the changes on the TYNDP's hypotheses and explain them (reasons for project's dismiss/inclusion, delays etc).

In our view, more efforts can be done to achieve better transparency of the report and the background work. Publication of network and generation data (as long as they are not confidential) used during analysis should be pursued in order to let stakeholders analyse and fully share TYNDP's deliverables. It would also allow the stakeholders to carry out a better assessment of the interactions between generation and network development. Common understanding of this interaction will help reinforce the forecast process.

3. *Timing of the next TYNDP in mid 2012*

EURELECTRIC recognises that in order to ensure that the next issue of the TYNDP is high quality, a lot of effort, coordination and innovation will be required. To achieve this, sufficient time is needed. Against this background, **EURELECTRIC calls for the development of the next TYNDP to be carried out in parallel with the speedy implementation of the identified grid projects. No further delay can be allowed if the 2020 RES targets are to be met.**

Annex

South-West region

Interconnection between Spain and France

The pilot TYNDP mentions the upgrade of the interconnection between Spain and France. Nonetheless, the relative importance of dealing with this major European bottleneck and with its consequences for the neighbouring energy markets should be particularly stressed.

Interconnection between Portugal and Spain (p.69)

The target of achieving a 3000 MW of NTC in the interconnections between Portugal and Spain does not seem to be supported in the document. As it relates to a 10 year Plan, it would be important to point out whether TSOs consider this commercial capacity to be adequate to avoid market splitting due to the prices in Portugal and Spain. The consumers would benefit from the gradual elimination of market splitting situations in both countries.

The renewable energy scenario considered in this Plan is unknown and the plan does not take into account the new generation which has been planned, namely, the hydro schemes. Also, a longer term (15 to 20 years) target for the evolution of the NTC between Portugal and Spain, which would be important for those agents interested in promoting new generation projects beyond the 10 year horizon, is not provided by the TYNDP.

According to the document “Plano de Desenvolvimento e Investimento da Rede de Transporte 2009-2014 (2019)” - “Transmission Network Investment and Development Plan 2009-2014 (2019)”- published in February 2008 by the TSO (last known published document on this matter by REN), where a reference to an interconnection level of 3000 MW can be found, the following generation plants are due to come online until 2019:

Transmission Network Investment and Development Plan 2009-2014 (2019)

NOVAS CENTRAIS HÍDRICAS DE GRANDE DIMENSÃO ATÉ FINAL DE 2019

Central	Potência líquida (MW)	Data de entrada em serviço
Picote 2	1 x 238	2011
Bemposta 2	1 x 191	2011
Alqueva 2	2 x 120 rev.	2011
Baixo Sabor	2 x 70 rev.	2013
Venda Nova 3	2 x 218 rev.	2014
Salamonde 2	1 x 85 rev.	2014
Total	1330	
Centrais do Programa Nacional de Barragens com Elevado Potencial Hidroeléctrico - PNBEPH		
Fridão	2 x 81,5	2015/19
Foz Tua	3 x 78 rev.	2014
Daivões	2 x 54,5 rev.	2015/19
Padroselos	1 x 113 rev.	2015/19
Gouvães	1 x 112 rev.	2015/19
Vidago	2 x 45 rev.	2015/19
Almourol	2 x 39	2015/19
Pinhosão	1 x 77 rev.	2015/19
Girabolhos	1 x 72 rev.	2015/19
Alvito	1 x 48	2015/19
Total	1096	
Total Geral	**2426 MW**	

rev : grupos reversíveis

NOVOS CENTROS PRODUTORES TÉRMICOS DE GRANDE DIMENSÃO ATÉ 2019

Tipo de central	Potência liquida (MW)	Ano de entrada em serviço e localização	
Ciclo Combinado (TGCC)			
1º grupo	392	2009	Lares
2º grupo	392	2009	Lares
3º grupo	392	2010	Lavos
4º grupo	392	2010	Lavos
5º grupo	392	2010	Pego
6º grupo	392	2010	Pego
7º grupo	392	2010	Sines
8º grupo	392	2010	Sines
9º grupo	392	2015/19	Carregado (*)
Total	3528		
Carvão			
1º grupo	400	2015/19	Sines
2º grupo	400	2015/19	Sines
3º grupo	400	2015/19	Sines
4º grupo	400	2015/19	Sines
5º grupo	400	2015/19	Sines
6º grupo	400	2015/19	Lavos (*)
Total	2400		
Total Geral	**5928 MW**		

(*) - Assumida localização como hipótese

Concerning Wind Power, the target presented is 7550 MW which has already been redefined by the Portuguese Government to 8500 MW. The additional capacity (950 MW), which this document does not recognize, however, is thought to have a small impact due to its inherent geographical dispersion in the country.

Specific criterion for the development of the interconnections between national networks (pag. 139)

It would be interesting that in the document the criterion which REN and REE consider to be appropriate to determine the interconnection capacity between Portugal and Spain was specified. This is because the Iberian systems have certain specificities: they jointly perform as an electric island, they connect a large capacity of non-controllable renewable sources (wind, solar, etc) and there is a common market in place where agents are not supposed to be discriminated in either side of the border.

Joint study REN (Portugal), REE (Spain) e RTE (France) (pag. 241 - 256)

This initiative – the development of joint studies – is welcomed and it would be important to provide more information concerning the assumptions employed in the simulations with the models. Two scenarios are mentioned, “minimal” and “best estimate” (pag. 42). However,

there is no indication of which generation plants and which renewable capacity has been considered.

Annual social market benefit (pag. 255 - 256)

The annual social benefit due to the increase of the interconnection capacity is estimated in the range of 70 to 140 M€. The benefit of the interconnection between Portugal and Spain is nevertheless not specified.

Licensing of new transmission network projects (pag. 280)

It is pointed out those building permits for new transmission lines may take between 5 to 10 years to be issued. The 10 year horizon of the network development plan may imply that investments are not carried out if the go-ahead requires the approval of the Plan in which they have been envisaged.

Given the long periods of time which are necessary to obtain the required licenses, it would be better if the Plan considered a longer time horizon.

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EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR ENERGY

Directorate B - Security of supply, Energy markets & Networks
The Director

Brussels, 26 MARS 2010
TREN B1/HH/CS/ap D(2010) 57840

Stephan Kamphues
ENTSO-G President
European Network of Transmission
System Operators for Gas
rue Ducale 83
B – 1000 Brussels

Subject: Energy Infrastructure Package and 10-year Network Development Plans

Dear Mr Kamphues, Dear Stephan,

Following up on the last meeting of the High Level Group, I would like to inform you that DG ENER services are working on an Energy Infrastructure Package to be tabled by the end of this year.

The package aims, among other things, at identifying the issues that prevent energy infrastructure in and towards the EU from being built and proposing solutions to tackle those difficulties. The integration of electricity produced by RES into the grid, to meet the 20-20-20 targets, is also an issue to be considered in the package.

While the EU internal market for electricity and gas is developing, it is not complete yet. Energy infrastructure is key for further integrating the European market, achieving our climate goals and guaranteeing our energy supplies. At the same time, continued energy dependency and lack of infrastructure put at risk the EU's security of supply, notably in the gas sector. For all these reasons, our energy infrastructure will have to be massively reinforced and expanded in a relatively short timeframe, if we want to reach our targets.

Your organisations are contributing in concrete terms to this work. The two ENTSOs have elaborated and published their first drafts of the 10-year Network Development Plans. I recognise the complexity and difficulty of this task and congratulate you for the work done so far. I understand that substantial improvements are still expected for the coming versions following the input from the on-going stakeholder consultations.

Concerning the TYNDP for gas, the conclusions of the 17th meeting of the European Gas Regulatory Forum in Madrid on 14 and 15 January 2010 already contain very useful recommendations[1].

Let me point out the issues and questions to which I would welcome your answers, opinions and analyses:

Both for electricity and gas, a top-down assessment of the infrastructure needs should be carried out, taking in particular into account the EU's 20-20-20 targets and identified priority corridors and recalling the triangle of sustainability, competitiveness and security of supply, while ensuring overall coherence of the 2020 energy mix. In the longer run, this approach should be compared with the existing bottom-up compilation of projects, in order to identify possible gaps. Based on these gaps, the European Commission will be able to assess the incremental investment need and define, if necessary, criteria justifying European funding.

As regards the electricity sector, I would like to raise the following questions:

- Concerning sustainability, which grid infrastructure is needed to deliver our RES and GHG emission targets? Various scenarios should be considered, taking into account national renewable energy objectives or the development of offshore grids in the Northern Seas. It would be very useful if you could take into account the scenario work done by other actors such as the European Climate Foundation, Eurelectric, Greenpeace/EREC and exchange with ongoing specific projects such as OffshoreGrid.
- Concerning market integration and competitiveness, where is the network congested? Which geographical regions are still isolated? What are the current price differentials on each side of major existing interconnections? For each of these interconnections, what is the ratio of the import capacity to the total installed generation capacity for a given Member State? How could better price convergence be achieved?

As regards the gas sector, I would like to raise the following issues:

- Concerning market integration and competitiveness, where is the network congested? Which geographical regions are still isolated?
- Concerning security of supply, I would welcome an analysis of gas infrastructure including the N-1 criterion and physical reverse flows.
- It would be useful to have an indication of the estimated investment need by 2015 and 2020 (in terms of capacity and € amounts) for gas infrastructure, as already exists in the electricity sector.

Generally speaking, I would very much welcome any proposal that you could make for measures at European level to streamline and accelerate the planning and permitting procedures for energy infrastructures of European interest.

I would like to draw your attention to the time constraints concerning the infrastructure package: the Impact Assessment must be finalised by mid June if we are to table the

[1] http://ec.europa.eu/energy/gas_electricity/doc/forum_madrid_gas/meeting_017_conclusions.pdf

proposal for the new EU Energy Security and Infrastructure Instrument, as part of the package, by the end of the year. Therefore I invite you to send us any relevant information at the latest by end of May so that we can give it due consideration.

I am aware that ENTSO-E is waiting for more precise input from the National Renewable Energy Action Plans (NREAPs), which Member States will finalise by end of June 2010 only. However, it would be extremely useful if you could provide a top-down analysis beforehand, based on existing national plans for the development of renewable energies, and other available data. Such information could also be passed on to the Commission informally, so as not to pre-empt a more thorough assessment based on the official NREAPs.

Finally, I would welcome regular exchange at working level between the two ENTSOs, ERGEG and the Commission's services in the coming weeks, to ensure that all views are appropriately reflected in the forthcoming package. You will find attached the letter sent to ERGEG in this regard. Such exchange could be structured around an informal working group jointly with ERGEG, which could meet once every month in April, May and June 2010. I propose to schedule the first co-ordination meeting on 12 April 2010, 14h30 at the offices of DG ENER.

Yours sincerely,

Best regards,

Heinz Hilbrecht

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CC: Mr D. Dobbeni, ENTSO-E President

EWEA

THE EUROPEAN WIND ENERGY ASSOCIATION

EWEA response to the ENTSO-E consultation on the first draft of the Community-wide Ten-year Electricity Network Development Plan

EWEA response to the ENTSO-E consultation on the first draft of the Community-wide Ten-year Electricity Network Development Plan

1. General remarks

The swift achievement of deliverables outlined in the 3rd Package is of utmost importance as network developments must be carried out in good time in order to integrate large amounts of wind power, and other renewable energy technologies. When envisaging penetration levels of 34% renewable electricity by 2020, an early release of this "Pilot" 10 Year Network Development Plan (TYNDP), followed promptly by an updated TYNDP incorporating the National Renewable Energy Action Plans, is crucial to reach this target.

By 2020, most of the EU's renewable electricity will be produced by onshore wind farms. Europe must, however, also use the coming decade to prepare for the large-scale exploitation of its largest indigenous resource, offshore wind power. Europe's 2020 targets would not be achievable in an economical way were mayor transmission projects not built, or were significantly delayed. In this context, EWEA has separated its response in two parts:

1. Urgent elements which should be incorporated in the final version of the TYNDP to be published in June 2010;

2. Points to be reviewed and shortcomings in this draft with concrete actions to be taken for improvement of this draft TYNDP.

EWEA welcomes the stakeholder consultation process conducted by ENTSO-E prior to the publication of the first draft of the pilot TYNDP.

In order to make this TYNDP the basis for future network development on a European level, it is vital that ENTSO-E includes the following elements in its revision, due in June 2010:

- **Align the RES assumption of 25.5% in the TYNDP with achieving the EU 2020 20% RES target:** to achieve 20% RES by 2020 the Commission has stated that 34% of electricity will be renewable by 2020.

- As soon as they are published, **National Renewable Energy Action Plans (NREAP) must be incorporated into the current pilot TYNDP.** The EU 2020 targets must not be undermined by inadequate grid enhancements projected in the TYNDP. An updated TYNDP should be published no later than end 2010.

- **Outline a clear set of priority projects together with a traceable timetable for implementation and monitoring** in order to convert this TYNDP from a mere forecast document into a concise implementation plan for transmission projects.

- **Enhance the TYNDP from being a sheer compilation of National Plans and provide a Pan-European planning vision for grid infrastructure.** To this end more extensive project proposals should be pursued based on more detailed studies, together with a view to long-term EU policy targets.

- **Ensure the EU objective of the creation of an internal electricity market is achievable by developing a truly European grid network** by placing all outlined transmission projects in the broader context of the development of an internal electricity market and, as a first step, ensuring the electricity grid network allows cross-border exchange capacities for each Member State at a minimum of 10% of their installed capacity to be achieved, as agreed by the Heads of States at the Barcelona Council in 2002.

- **Underpin wind power scenario development with an analysis of current market growth and industry expectations in the 2020 timeframe.** EWEA's baseline scenario of 230 GW of installed wind power capacity in 2020 (265 GW "high" scenario) represents expected growth within the wind power sector more accurately than ENTSOs expected 198 GW of installed wind power capacity by 2020. BTM Consult's World Market Update 2009[1] forecasts an installed wind power capacity in the EU of 286 GW in 2020.

- **More attention should be given to the development of transmission technologys and its implications for future grid planning:** A particular effort must be made for a swift large-scale demonstration of multi-terminal DC grid configurations to ensure the development of a future meshed offshore grid. EWEA urges ENTSO-E to take into account all ongoing R&D work in this regard in the first official TYNDP.

In light of long authorisation periods, particularly for cross-border transmission projects, the TYNDP should provide a joint European planning approach towards new transmission lines in order to overcome present planning and administrative barriers for this infrastructure. A first draft of this TYNDP at the given moment is therefore welcome to achieve network developments in due time to integrate large amounts of RES, but – as outlined above – some key elements must be urgently revised.

The revised TEN-E Instrument in the form of a new "EU Energy Security and Infrastructure Instrument", the National Renewable Energy Action Plans, The North Seas Countries' Offshore Grid Initiative, and the Commission's forthcoming Blueprint for a North Sea Offshore Grid – and other priority infrastructure actions – should form the vision for planning and building new electricity infrastructure in a coordinated manner, and the TYNDP should implement that vision.

[1] World Market Update 2009. BTM Consult ApS. March 2010

2. Points to be reviewed in this first draft TYNDP

a) Assumption of the bottom up approach and consistency with the 2020 targets

With the adoption of the RES Directive (2009/28/EC) in 2009, a penetration level of 34% renewable electricity is expected by 2020 and as the cheapest of the renewable electricity, onshore wind, will be the largest contributor to meet this target[2].

In this context, it remains unclear why ENTSO-E has chosen in this first draft TYNDP a bottom-up scenario assuming only about 25,5% of the electricity demand to be supplied by RES, thereby missing the 2020 RES target, in terms of the contribution from the power sector. The National Renewable Energy Action Plans (NREAPs) will be published in June 2010 outlining how each Member States plans to achieve its respective 2020 RES targets and therefore the TYNDP should comprise as a minimum the compliance with the 2020 targets in its bottom-up scenario.

In the context of wind energy targets, 230 GW installed generation capacity in 2020, including 40 GW offshore as a "basline" scenario, should be used, and 265 GW in 2020, including 55 GW offshore as a high scenario[3]. EWEA's forecast can be considered conservative if compared to the forecast from independent consultancy BTM Consult's World Market Update 2009[4], which forecasts an installed wind power capacity in the EU of 286 GW in 2020.

Due to technological development, increased efficiency and increased wind turbine capacity, the average capacity factor of wind generators would be higher than stated in the draft TYNDP: For onshore wind generators, the full load hours are estimated to be between 2100-2300h/year and for offshore wind generators between 3600-3700h/year by 2020[5].

EWEA urges ENTSO-E to therefore change the bottom-up scenario in the TYNDP accordingly and ensure consistency with the 2020 RES target. Any European generation adequacy outlook and resulting network projects in Europe should factor in this EU objective as the achievement of the 2020 RES target must not be undermined by inadequate grid enhancements as proposed in the TYNDP.

The revised bottom-up assumptions should then form the basis of an ambitious top-down view projecting the development of the offshore grid in the North Sea, the Mediterranean Ring, the "Supergrid" and the expansion of the European electricity network.

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[2] Pure Power: Wind energy targets for 2020 and 2030. EWEA. 2009
http://www.ewea.org/fileadmin/ewea_documents/documents/publications/reports/Pure_Power_Full_Report.pdf

[3] Ibid.

[4] World Market Update 2009. BTM Consult ApS. March 2010

[5] Pure Power: Wind energy targets for 2020 and 2030. EWEA. 2009, page 74.
http://www.ewea.org/fileadmin/ewea_documents/documents/publications/reports/Pure_Power_Full_Report.pdf

b) Timing of the first draft TYNDP with regards to the publication of the first National Renewable Energy Action Plans (NREAP)

ENTSO-E states that this first draft TYNDP is important input for power generation investment and policy decision-making in terms of starting a feedback loop between ENTSO-E, generation investors and policymakers to make sure that decisions about new conventional or renewable generation take into account network development, and, by the same token, network plans of TSOs build on realistic generation scenarios.

However, as this first draft TYNDP focuses on bottom-up scenarios which are developed by TSOs, highlighting mainly a mid-term timeframe, it seems inappropriate that it serves now as a starting point for European and national policy makers when deliberating on their National Renewable Energy Action Plans (NREAP) due in June 2010. On the contrary, the development of the NREAPs should be left uncompromised by the network development outlined in this TYNDP based only on bottom-up scenarios. The first NREAPs should rather serve as ambitious top-down elements for future TYNDPs in order to meet the 2020 targets as outlined in the RES Directive. The TYNDP should therefore be revised immediately after the NREAPs are published, and no later than end 2010.

c) Accrual of certain projects strictly to RES generation or to any of the pillars of EU energy policy

ENTSO-E illustrates in this draft TYNDP three main drivers for investment in new or refurbished power lines, in accordance with the three pillars of EU energy policy (RES integration, security of supply and the creation of an Internal Energy Market). The TYNDP rightly states that in most cases there are overlaps between these drivers as all investments cover to some extent aspects of security of supply and market integration. However, the methodology is not entirely clear with regard to how ENTSO-E accrues certain projects strictly to RES generation, or to any of the other two pillars of EU energy policy in graphical representations in the draft TYNDP.

EWEA calls for ENTSO-E to clearly state in the TYNDP that the benefits of developing a truly European grid network would lie not only in overcoming the present congestions on some of the main transmission lines, but would also enable a functioning internal market and provide for security of supply. A European approach towards an optimised European electricity system should be promoted in the TYNDP. Such an approach should not be based on the profitability of the lines only, but as with any strategic investment, reflect European priorities. All new transmission lines outlined in the TYNDP should be placed in the broader context of the development of an internal electricity market, thereby not relating the benefits of grid development solely to wind power, and other renewables. Further to this point, it is unclear how ENTSO-E can integrate a further 100 GW of conventional generating capacity without network reinforcement, upgrading or construction.

Furthermore, there is a lack of clarity as to which technical and economical criteria have been used, and how trading capacities on interconnectors may change in the future. The future TYNDP edition should outline the principles of the technical and socio-economic assessment of the various projects and indicate how trading capacities will develop through a more extensive market modelling.

d) Selected projects in the TYNDP

EWEA welcomes the extensive number of projects outlined in the TYNDP and, after first review, consistency with most existing national network development plans.

However, the TYNDP should be more than a mere compilation of national and regional development plans, rather it should perceivably aim at a Pan-European planning vision for grid infrastructure. Furthermore, the TYNDP should give a clear overview not only of investments planned by TSOs, but also take due account of future infrastructure investments planned by private consortia (e.g. the merchant transmission line between Norway and Germany, NorGer, due to be operational by 2015).

In order to achieve this added value, a set of European priority projects should be outlined in the TYNDP, together with a time axis to serve not only as a forecast document but also as an implementation plan of the projects. Future TYNDPs should implement political decisions taken by the TEN-E Instrument in the form of a new "EU Energy Security and Infrastructure Instrument", the National Renewable Energy Action Plans, The North Seas Countries' Offshore Grid Initiative, and the Commission's forthcoming Blueprint for a North Sea Offshore Grid – and other priority infrastructure actions.

Furthermore, results of relevant power system studies besides EWIS should be taken into account in the project list, both on a regional (e.g. Dena grid study I[6]) and European level (Trade Wind Study).

Within the scope of the Trade Wind study several already planned and new priority projects for transmission networks were identified. The timeframe for these grid upgrade projects covers the years 2008-2030 in three steps, referred to as Stages 1, 2 and 3. Already planned scenarios for new lines and HVDC cables were included in the Stage 1 upgrades. These scenarios were based on, amongst others, grid development information from UCTE, the UK National Grid and Nordel. For the Stage 2 upgrades a more formal methodology is used. The grid reinforcements are selected by upgrading priority interconnections with the highest sensitivity. Finally a Stage 3 grid upgrade is outlined for a long term scenario up to 2030[7].

However, even more extensive project proposals should be pursued in the future TYNDP based on more detailed studies and also taking into account planned energy generation portfolios in the respective countries as some outlined interconnector capacities (e.g. France-Spain: 4 GW) will not be sufficient in the light of long term RES policy such as the Mediterranean Ring, the North Sea Offshore Grid and a European supergrid.

e) Possible benefits and shortcomings from the EU Council proposal of a new Regulation concerning new investment projects in energy infrastructure

ENTSO-E rightly states that the availability of data in order to better forecast future generation developments and investment needs is critical for future releases of the TYNDP. ENTSO-E should therefore carefully select and analyse all available data from stakeholders concerning generation investment sizes and locations, particularly for RES, as this data will

[6] See : http://www.dena.de/en/topics/energy-systems/projects/projekt/grid-study-i/
[7] For a detailed overview on these priority projects, please see: http://www.trade-wind.eu/fileadmin/documents/publications/Final_Report.pdf

be essential for both network modelling and market analysis. The involvement and consultation with external stakeholders will be indispensable in this process and EWEA aims to actively support ENTSO-E in its work.

The proposal of the EU Council for a new Regulation concerning the notification to the Commission of investment projects in energy infrastructure within the European Community, repealing Regulation (EC) 736/96, could provide a useful tool for network planning as it will give an overview on ongoing investments in all sources of power generation. However, in the light of the agreement reached at the March Energy Council, EWEA has serious doubts if it will fulfil its purposes as the proposed thresholds for wind farms on- and offshore are kept at 20 MW, contrary to the opinion of the European Parliament, which endorsed a lower threshold of 5MW for onshore wind power plants.

Whereas the threshold of 20 MW for offshore wind farms is certainly sufficient due to the relative large size of offshore wind farms, the proposed onshore threshold would definitely be too high to obtain an adequate picture of the major development of wind energy in the EU in the last years (39% of all new electricity generating capacity built in the European Union in 2009 was wind power, exceeding all other technologies).

Even within Member States, and most certainly between Member States, there are differences in the average size of individual projects. A substantial number, perhaps as high 40%, of turbines are to be found in wind farms under 10 MW size in some Member States.

ENTSO-E should therefore take into account that it may be reliant on additional stakeholder input and data provision in order to be able to account for all energy projects, big and small, in order to reflect the reality of today's power installations. Bilateral discussions with stakeholders, as carried out prior to the release of this first draft TYNDP, will certainly remain a valuable means to exchange views in detail and to provide data, e.g. generation outlooks in order to mitigate uncertainties in predicting the future location and size of RES generation.

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Federation of Swedish Farmers
Lantbrukarnas Riksförbund

REMISSYTTRANDE

Dnr 2010/5226 Er ref TYNDP2010
2010-04-13 Ert datum 2010-03-01

tyndp-consultation@entsoe.eu

Ten-Year development plan

The Federation of Swedish Farmers (LRF) has received your development plan 2010-2020 and would like to thank you for the opportunity to give you our view on the matter.

First of all we would like to inform you that the mission of LRF is to contribute to the development of entrepreneurs and business people whose operations are based on farming and forestry, so that individual members can realise their goals in terms of profitability, growth and quality of life. The LRF currently has 170.000 individual farm members.

LRF would like to stress one crucial factor for the success of the development plan. Namely that there is a need for social acceptance for transmission assets when building new grids through Europe. We strongly believe that this acceptance when it comes to building overhead (OH) lines does not exist. The reason for this is the great damage that OH-lines cause on the environment and on the people living next to them, for example:
- Forest land is taken out of production because of the power line corridors.
- The electromagnetic radiation creates even wider corridors where people shouldn't live. (Radiation zones).
- The OH lines create obstacles for other buildings and infrastructure.
- The OH lines have a negative impact on the esthetical values of the landscape

The Federation of Swedish Farmers believes that the above mentioned negative effects that OH lines have on humans and the environment is not outweighed by their positive effects. Instead we would propose to use other techniques such as DC underground cables which minimize the negative effects.

This decision has already been taken on a political level in Denmark. They have decided to build their future electricity grid with underground cables.

The Federation of Swedish Farmers would like to emphasise that new transmission lines in Europe also should be built with underground cables. Only then would there be a social acceptance which is needed to speed up the authorization process of these grids. To have more transmission lines between

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European countries is a precondition for achieving the goals of renewable electricity production in Europe.

With kind regards,

Federation of Swedish Farmers

Björn Galant
Expert infrastructure, LRF

09/04/10

ENTSO-E's consultation on Pilot Ten-Year Network Development Plan : Contribution of SER (French Renewable Energy Association)

SER welcomes the publication of the first Ten-Year Network Development Plan and the public consultation process on the document. The present note synthesizes the comments and remarks of the French renewable energy association.

1. The French RES development goals

As stated in the document, the mission of ENTSO-E is "to promote important aspects of energy policy in the face of significant challenges" including the integration of renewable energy sources (RES). Indeed, the European Union has set ambitious goals for the development of RES and the connection of these renewable sources, mainly wind, is one of the most important drivers of this TYNDP (p. 13).

The European targets have been translated into national goals, and France has set an ambitious RES development program. By 2020, installed wind capacity and photovoltaic capacity should reach 25000 MW and 5400 MW respectively (see Figure 1) compared to 4600 MW and 270 MW respectively at the end of 2009.

Table resulting from the work of operational committee No.10 on "renewable energy sources"

Renewable sector	Situation in 2006	Objectives 2020	Growth
Heating process	9,6 Mtoe	19,7 Mtoe	+ 10 Mtoe
Wood (domestic heating)	7,4 Mtoe (5,7 millions of appliances)	7,4 Mtoe (9 millions of appliances)	-
Wood and wastes	1,8 Mtoe	9 Mtoe	+ 7,2 Mtoe
Thermal solar, heating pumps and geothermal	0,4 Mtoe (200 000 housings)	3,2 Mtoe (6 000 000 housings)	+ 2,8 Mtoe
Electricity	5,6 Mtoe	12,6 Mtoe	+ 7,0Mtoe
Hydroelectricity	5,2 Mtoe (25 000 MW)	5,8 Mtoe (27 500 MW)	+ 0,6 Mtoe
Biomass	0,2 Mtoe (350 MW)	1,4 Mtoe (2 300 MW)	+ 1,2 Mtoe
Wind energy	0,2 Mtoe 1 600 MW (2 000 wind turbines)	5 Mtoe 25 000 MW (8 000 wind turbines)	+ 4,8 Mtoe
Solar photovoltaïc	0 Mtoe	0,4 Mtoe (5 400 MW)	+ 0,4 Mtoe
Biofuels	0,7 Mtoe	4,0Mtoe	+ 3,3 Mtoe
TOTAL	≈ 16 Mtoe	≈ 36 Mtoe	+ 20 Mtoe

source: COMOP 10

Figure 1: 2020 RES development goals in France

Surprisingly, the TYNDP makes no mention of the RES development goals of France when analyzing the situation of the three concerned Ensto-e regions, while this is stressed for neighboring countries as Spain or Germany. **SER considers that the French RES development objectives should be**

indicated in the TYNDP when describing the transmission network investment needs. Indeed, the development of RES has also a major impact on the French transmission infrastructure (see part 2).

2. The investments needed on the French transmission system and the identified projects

The current version of ENTSO-E's TYNDP indicates in the fifth chapter areas where investment needs to be made in order to deal with the following issues : Demand growth, future generation evacuation, existing generation evacuation, generation decommissioning, insufficient cross-border capacity, Reliable grid operation and ageing of existing networks.

Considering France, the analysis of that chapter lead to the following remarks :

Compared to other European countries, the situation for the integration of new RES in France looks surprisingly positive in the TYNDP : Regarding generation evacuation, very few zones are highlighted and more than half of them are related to future gas or nuclear power plants (Area of Fos, Penly, Flamanville, etc.) - see Figure 2.

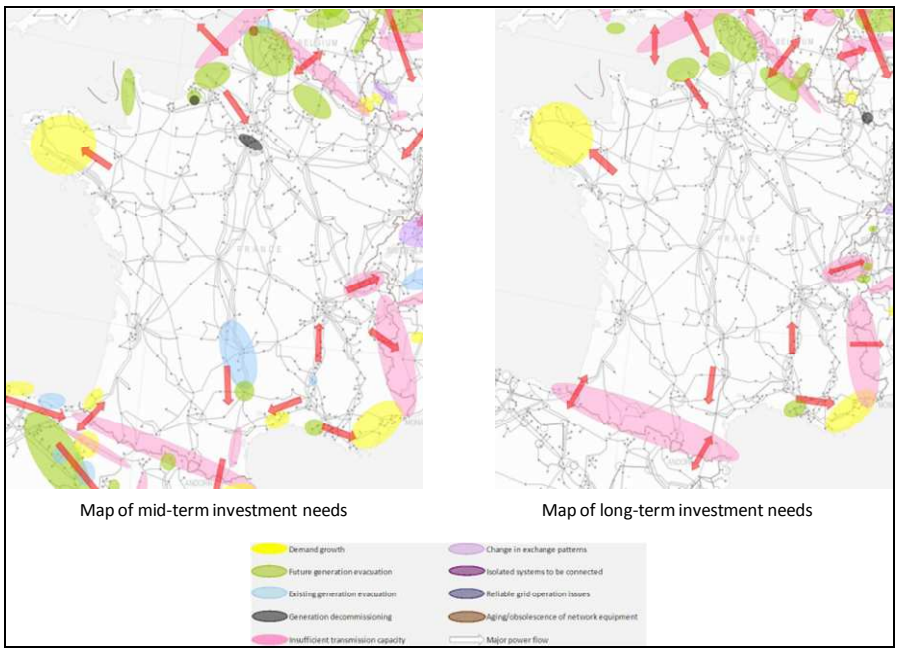

Figure 2: Investment needs in France (source: TYNDP, ENTSO-E)

However, France has set ambitious renewable plans for 2020 and it is agreed that **the integration of this capacity will require grid development**. RTE, the French TSO, indicated in 2008 that the investment for creating the required transmission infrastructure for integrating 18 500 MW of wind power **was of around 1 billion Euros** – see Figure 3.

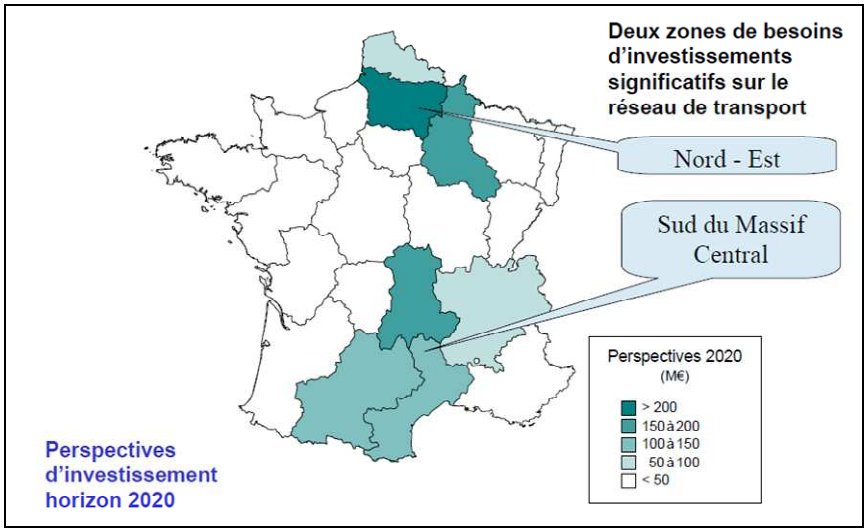

Figure 3: Transmission investment needs for connecting 18500 MW wind power (Source : RTE presentation, 2008)

The transmission grid is already saturated for new projects in many of the windy regions where wind development is possible. Indeed, no significant grid development (except several substations) has been carried out to anticipate and facilitate the integration of RES.

The French Wind Energy Association is working with RTE in order to identify the most critical regions and to quantify the potential of future RES production. As an example, Figure 4 indicates the regions identified by the French Wind Energy Association where the development of wind power is constrained by a lack of connection capacity.

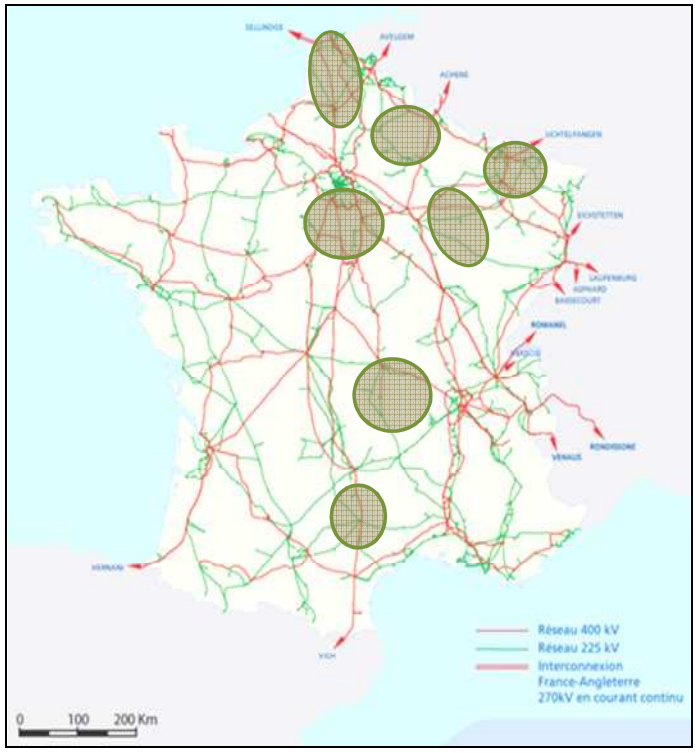

Figure 4: Regions identified by the French Wind Energy Association (SER-FEE) as problematic for grid connection of wind power

The Integration of new RES being one of the 3 pillars of European energy policy and the TYNDP having for goal to show "*every concern ahead on the regional grid and of European significance, and which are likely to trigger HV grid investment in order* ***to restore the HV grid ability to fulfill the duties and services expected from this infrastructure***", the situation explained above shouldn't be disregarded in ENTSOE-S document. **Indeed, these development needs are of European significance as they address the integration of RES, one of the three pillars of the EU's energy policy.**

Considering the time needed for carrying out transmission grid development projects, and observing already today that several regions where wind power is developing are already saturated, **SER is surprised to see only one French project exclusively dedicated to the integration of wind power** (project n°41 – Fruges station), and wonders **where are the projects associated with the amount of 1 billion announced by the French TSO.**

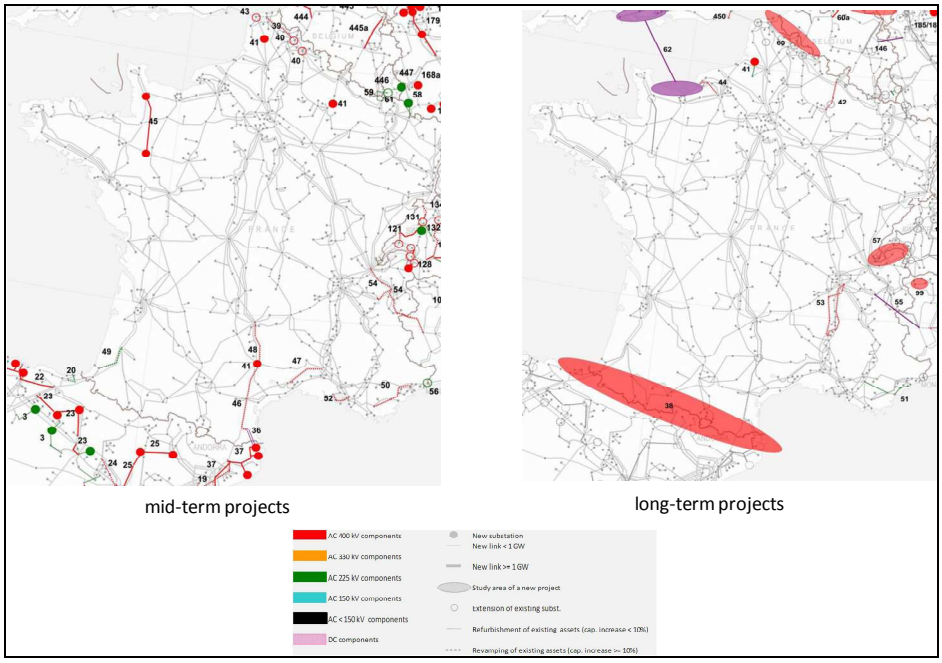

Figure 5: Projects of European significance (Source: TYNDP, ENTSO-E)

As a concluding remark, **SER stresses the gap** between the situation in France as described in this document (no particular RES development, shallow investment needs on the transmission network) and the situation observed by French the wind power industry (ambitious development targets, emerging grid connection limitations and major investment needs announced by the TSO).

Greenpeace submission - Public consultation for the Ten Year Network Development Plan by entso-e

The power sector will undergo major refurbishment and restructuring in coming years and decades. Greenpeace recognises the importance of the Ten Year Network Development Plan (TYNDP) to help guide this modernisation and create a sustainable power generation market. The European Union will have to move towards a smarter handling of electricity, with more efficient generation and consumption, and the development of renewable energy sources.

Greenpeace recommends the inclusion of the following points in the revision of the current and the drafting of the next TYNDP:

1. **Analyse the actual need for transmission grid upgrades and extensions**

In order to avoid the creation of an oversized transmission grid, the actual need for upgrades and extensions should be analysed considering the following issues:

- *Further extension of distribution grids on regional and local level (including smart grids and demand-side-management)*: by linking decentralised generation units and load centres, local and regional mini grids can reduce the need for high voltage transmission grids.
- *More efficient use of existing grids*: a review of current grid codes (e.g. temperature-driven capacity gaps) can increase the capacity of existing grids.
- *Potential use and location of storage facilities*: a smart installation of energy storage units (e.g. close to important load centres) can limit the need for extended or additional grid capacity by balancing contrary demand and supply profiles.

2. **Use a 30-40% share of renewable energy instead of 25% in order to comply with the requirements of the Renewable Energy Directive**

Using a 25% share of renewable energy sources in EU's electricity generation ignores the requirement of EU Directive 2009/28/EC. The 20% target for the share of renewable energy in the EU's gross final energy consumption will require a share of renewable energy of at least one third in the power sector by 2020.[1]

3. **Review of the TYNDP, taking into account the National Renewable Energy Action Plans**

The TYNDP should be based on data included in National Renewable Energy Action Plans that will be submitted by EU Member States by June 2010. This would allow a more informed review of the current TYNDP, with clearer indications on the future development of renewable energy sources.

4. **Incompatibility of the presumed need for 100 GW in additional conventional power with the EU greenhouse gas emission reduction target**

Assuming that more than 100 GW of additional conventional power installations will be needed within the next ten years harbours three essential dangers:

- The addition of emission-intensive power stations will endanger the European Union's overall greenhouse gas emission reduction target of 20-30%.
- The 100 GW assumption does not take into account alternative scenarios for the future European power sector, such as Greenpeace's Energy [R]evolution[2], which target a minimal additional construction of conventional power plants.
- An increasing number of conventional power plant projects are cancelled due to economic and social difficulties. Consequently, the projected completion of power plant investment projects is often overoptimistic and could lead to the unnecessary creation of new transmission corridors.

Greenpeace therefore recommends that a number of scenarios are analysed and that the TYNDP includes a grid vision which allows all kinds of plausible developments.

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[1] See Communication from the Commission to the Council and the European Parliament: Renewable Energy Road Map Renewable energies in the 21st century: building a more sustainable future, COM(2006) 848 final.

[2] Greenpeace International/EREC: *energy [r]evolution – a sustainable global energy outlook*. 2008, http://www.greenpeace.org/eu-unit/press-centre/reports/EU-energy-revolution-report.
Greenpeace/EREC: *Energy [R]evolution - a sustainable energy outlook for Europe*. Forthcoming June 2010.

5. **A vision beyond 2020**

Decisions taken today will determine future development until 2050 and beyond, as grid and power assets are used for at least 40 years.

A number of stakeholders (local power suppliers, independent power generators, and civil society organisations) already support a 100% renewable energy vision for 2050. The TYNDP should therefore also take into account a vision for the energy sector beyond 2020.

6. **Assess the social and ecological impact of new grids**

As mentioned in the first draft of the TYNDP, public opposition to additional overhead lines is a major concern when grid extensions are realised. Social and ecological impacts – and not only financial costs – should be assessed within the recast of the TYNDP. Preference should be given to underground cables and any proposal for new power lines should follow strong ecological and social criteria.

7. **Encourage public input into the development of energy scenarios**

Direct input into TYNDPs is not possible, since public consultations only allow comments on the final outcome of every plan. Scenarios from other stakeholders should be integrated in the development of the plans.

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COMMENTS FROM IBERDROLA TO THE CONSULTATION TO THE TEN-YEAR NETWORK DEVELOPMENT PLAN FROM ENTSO-E

09/04/2010

IBERDROLA welcomes the Plan submitted from ENTSO-E and agrees on the importance of this document as a starting point of successive efforts oriented to give European agents a clear view of the foreseeable future, which will help them in their investment decisions which in turn will be beneficial for the society.

Additionally to the comments sent through our association, EURELECTRIC, we would like to make the following remarks:

1. - We agree with ENTSO-E that unbundling is probably the most important source of uncertainty. On the other hand, lead construction times are continuously getting longer, mainly because of administrative and social problems. As a consequence, we think that both ENTSO-E and national TSOs should work on the following directions:

- To show the necessity/convenience of the proposed infrastructures and how they will benefit customers, emphasizing, if appropriate, the contribution to the development of renewable energies.
- To develop plans and start construction of infrastructures well ahead of the construction of the generation plants, so that they can be connected by the time they are ready.

2. - Regulation is a very important issue in Planning from different perspectives, and countries have different regulations that should be analyzed and presented in the Planning document in order to understand the solutions each country gives to certain problems of supply. For example, the document shows, as a source of uncertainty, the possibility of decommissioning or mothballing a number of plants at the only decision of the owners of the plants. It is understandable that SO`s should take into consideration this possibility and be prepared for this situation by adverting of possible lack of capacity and possibly the need of new lines to connect new facilities that could replace those. In particular, we must say that this is not the case in Spain. The owners of the plants cannot decide to decommission or mothball any plant without the authorization of the government and the approval of the SO. This means that the analysis to be done under this situation will be different from the general case showed in the document.

3. - Economic consistency. We fully agree with the idea that this Planning should incorporate economic consistency criteria. This means that Planners should take into account the economic soundness of the hypothesis. For example, a SO cannot give for granted that a certain generation capacity will be built just because it is necessary for security of supply, if it proves that it will be difficult to recover the investment because of the forecasted utilization of the plant, or if the regulatory conditions are not enough so as to incentivize the investment. Furthermore, in these cases SO should alert Regulators of this fact in order to promote a change in the Regulation.

4. – Transparency. Although the document is very extensive, we still miss some important information, at least, all the information related with the hypothesis and the analyses performed. As an example, it would be interesting to know the economic criteria used for the evaluation of alternatives; the capacity credits given to the different technologies, especially to renewable sources such as wind and solar; the source of capacity factors of renewables (1.800 hours for wind and 650 hours for solar seem low); etc.

Since it has been performed on a bottom-up approach, information used is not clear. For example, we do not know really if the Planning has been done on a basis of 25% renewables in 2020 or, as it is said in some cases, the Planning shows a penetration of almost 30%. In any case, it seems clear that the present Planning does not fulfill the overall 2020 renewable objective, since it is recognized that in the case of the electricity sector a minimum penetration in the range of 30-35% will be needed.

5. - Coordination with national plans. We fully agree with the approach to combine both: bottom-up and top-down criteria. In order to properly do this, it is important to coordinate all the national plans involved. It is also clear that after having all the NRAPs it will not be possible to have a comprehensive top-down view. Even if ENTSO-E updates this Planning by the end of this year incorporating this information, as EURELCTRIC proposes, it will be necessary to start the process of scenario development as soon as possible in order to reach the goal of having the next TYNDP by mid 2012.

As it is said in the document, in the CSW Region a new planning exercise in due in 2010. In fact, in Spain, the formal process has already started by asking agents and Regional Authorities to give their best forecast of transport needs up to the 2020. Since the RNAP has not been approved yet, and there is not a set of scenarios from ENTSO-E to orient agents` forecasts, it will be difficult to coordinate the outcome of this planning with the purpose of the next TYNDP because the timing of both will not be appropriate. So a big coordinating effort will be necessary so that the next TYNDP will not be again a mere superposition of already developed national plans.

6. – Interconnections. Taking into account that the construction of an Internal Market is one of the objectives of the Planning and that the 2002 Barcelona Council set a target of 10% of

installed capacity as the minimum interconnecting capacity to be reached by every country, it is difficult to understand how the upgrading of the Spain-France to 4.000 MW is not forecasted as a priority within the scope of this planning, instead of letting it as a future but not planned infrastructure. Furthermore, this interconnection will contribute to the development of the renewable energy in the Iberian Peninsula, needed to reach the 2020 objectives. In fact, the EWIS project, recently finished, considers appropriate to upgrade the interconnection up to 4-5 GW by 2015 in order to incorporate the renewable energy forecasted. We expect that in the next revision of the Planning this upgrade of the interconnection will be introduced with a clear date to be in service, and that this date will be prior to 2020.

NORDENERGI

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Our ref.
CHS

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Copenhagen, April 9, 2010

Nordenergi response to the public consultation on ENTSO-E's Pilot Ten-Year Network Development Plan (TYNDP)

Nordenergi, the joint collaboration between the Nordic associations for electricity producers, suppliers and distributors, welcomes the opportunity to comment on the "Ten-year Electricity Network Development Plan".

The strong policies from the European Union regarding climate and renewable energy (RES) will enhance the need for a well functioning and integrated electricity market in Europe, a development that calls for significant grid expansion. Market integration and new transmission capacities are needed in order to implement climate policy in a cost-effective way. Larger markets will function in a more efficient way and bring socio-economic benefits. Grid enforcement will also enhance security of supply and system stability.

In the near future there will be substantial need for investments in new interconnectors in order to integrate new renewable energy sources (RES) into the electricity system. The EU 20-20-20 goals and related initiatives to introduce new RES accentuate the need for further integration of the Nordic electricity market into the North European electricity markets. Joint European planning of the transmission infrastructure, as done in the ten-year network development plan (TYNDP) is a very important tool to obtain cross-border investments and internal investments that have an effect on cross-border transmission capacity.

Nordenergi is aware of the fact that the plan is non-binding, but believes that the plan will form the basis of a common European coordination. Nevertheless, it is important that TYNDP sets a framework on the national planning; otherwise it creates uncertainty and undermines the effect of TYNDP in coordinating on a European level. Also, Nordenergi expects that TSOs are committed to carry out plans described in TYNDP and would ideally like all the national plans to have the same status, no matter the organizational form of the system operator.

Chapter 5 should be the heart of the next TYNDP plan. The current limited scope is probably due to the pilot nature of the project. For the next TYNDP, Nordenergi encourages the TSO to evaluate existing and upcoming needs of transmission capacity on a more detailed level.

Below, the most important issues for Nordenergi are expanded.

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Investment from a European perspective

In general, Nordenergi finds that it is important to look at investments in grid infrastructure in a regional/pan-European perspective. The calculations have to be based on European social welfare. This will ensure the most cost-effective investments for Europe as a whole. Otherwise, national views will create non-optimal solutions. A clear top-down approach is needed with respect to regional and national plans.

Overall, Nordenergi finds it important that the European level TYNDP has a high level of ambition to look at grid investment from European perspective and to give a framework for national planning. Therefore, Nordenergi welcomes the TYNDP where ENTSO-E sets up common procedures for methodologies and consistent pan-European scenarios and integrated network model in order to get a consistent grid reinforcement plan. Nordenergi is looking forward to contribute to the consultation process.

National plans versus TYNDP

Nordenergi finds it useful to get a clarification of the links between the national development plans in relation to the TYNDP. This could be done by a description of how the national plans are included in the process of the TYNDP, also with respect to the use of binding and non-binding distinctions in the different plans. This would give all stakeholders opportunity to have their view included in drafting the national, regional and pan-European ten-year network development plans. Especially it is important that TYNDP gives a framework for national planning processes.

Indirectly, each TSO as an input to the community wide TYNDP of ENTSO-E, will have to develop 10-year scenarios for their respective grid. This conflict with that the majority of the TSOs in EU have the status as “ownership unbundled TSOs” which implies that they are not legally required to develop a national TYNDP under the national regulators supervision. Nordenergi finds that a formal requirement for the unbundled TSOs to develop TYNDPs under the supervision of the respective national regulator would strengthen the process. This would make certain that individual plans and reinforcements of the individual plans are aligned with the EU-wide need for network development.

Status for current use of the grid and transparent criteria for project inclusion are needed

To better understand future needs in the grid, Nordenergi suggests that the TYNDP also includes descriptions of how the grids are currently used, where bottlenecks are located, the amount of time that certain areas are congested and the reasons for the congestions. This will give a better understanding of the needed grid reinforcements if also bottlenecks in the internal grid are included in the description and supplemented with the TSO’s views on magnitude of remaining bottlenecks after the grid reinforcements are implemented. If this information is not available it leaves uncertainty on what the project will mean for future congestions and utilization of the transmission grid.

Nordenergi fears that the actual projects mentioned in the plan are inadequate and in terms of timing already behind time. In the Baltic Sea region a number of investments being “under consideration” with commissioning in the end of decade should rather be already in the phase “design and permitting” due to the long time grid development needs.

In general, Nordenergi would welcome a list of clear and transparent criteria on why certain grid projects are included or not included in the TYNDP, as that would help understanding the TSO’s

reasoning. An example in the pilot plan that rise questions on the criteria is the low number of expansion projects in Sweden and France.

In addition, it is important to have all projects that influence the overall system included, including local projects on high voltage levels (reference to section 1.2).

Sensitivity analysis

The TYNDP should include a proper sensitivity analysis that reveals how the proposed investments are affected by varying underlying assumptions.

For example, the share of renewables in the power system in section 0.3.1 is set to 25.5 percent. This is a low share in the power sector as it might be assumed that the power sector should carry a relatively large part of renewables. Therefore, a sensitivity analysis on this parameter could make sense.

Active stakeholder involvement and transparency

Nordenergi finds it very important that the stakeholders are actively involved in the process. Consequently, it is not enough to keep stakeholders informed. To get useful comments from stakeholders, transparency through insight in data and the different scenarios is important. If only the results are presented, it is difficult for stakeholders to give constructive comments.

In addition, Nordenergi also suggests including information and calculations on the individual control areas in the published material. This means that basic assumptions in the calculations can be reviewed.

Need to analyse how to finance identified investments

A method has to be developed in order to ensure an appropriate cost deployment of the network. Therefore, Nordenergi encourages the TSO's in cooperation with the regulators to analyse using an investment model on how investments are ensured and how payments should be divided. In general, it is important in the process to take a more commercial approach, including the fact that other parties than the TSO's also may invest in transmission lines (see next paragraph).

One issue in the financing of transmission lines is congestion income. In this respect it is important to discuss and find common ways on how to use the money collected from congestion. 3rd Energy Package states that congestion income must be used for new lines and improvement of existing lines. It can only be used for tariff reduction if it is approved by national regulators. Hence, Nordenergi urges the TSO's to use congestion income to finance new lines and for improvements. Nordenergi also calls for close cooperation between TSO's and regulators with respect to this issue.

Neutrality towards private network investment

Reaching the EU 2020 goals makes considerable investment in networks necessary. Investments by private companies can be an important contribution to this challenge and should therefore be encouraged. Projects by private investors (so called merchant lines) should be listed in the TYNDP alongside those by TSOs if the projects support the three main goals of integration of markets and renewable as well as increased security of supply. Clear and neutral criteria and transparency concerning their inclusion or non-inclusion is essential.

Specifically concerning the Baltic Sea region chapter, Nordenergi wishes to address the NorGer project that is not mentioned in the current TYNDP, although a concession has already been demanded in Norway. Instead the competing NordLink project is mentioned, which is in a much earlier development state. Therefore, Nordenergi would welcome the inclusion of the NorGer project in this version of the TYNDP.

Smoother and common European licensing procedures

Another issue to address, in the building of new transmission lines, is licensing procedures. In order to be able to actually build the lines, it would be beneficial to agree on easier and harmonised procedures with respect to approval of new transmission lines,. That is, making barriers as small as possible for a successful implementation of the TYNDP. The TSO's should – in cooperation with the European regulators – start working on harmonisation between the European countries in order to minimise the barriers for a successful deployment of the grid.

Nordenergi welcomes the appendix 5 of TYNDP and looks forward that ENTSO-E elaborate on the analysis in a separate document.

Structure of TYNDP

Taking into account the vast amount of information that is included in the TYNDP and the existing needs to further expand the plan, Nordenergi suggests dividing the plan into two parts. First part covering methodology and criteria ("institutional part") and the second part covering needs for investment, plans and technology outlook ("dynamic part").

Furthermore, in the upcoming plans there is a need for an evaluation on how the foreseen investment needs have developed, whether the development has been as predicted, and how the needed investment projects have gone forward. Here also explanation is needed in case a project has been for some reason postponed.

Yours sincerely,

Lars Aagaard, chairman of Nordenergi
Danish Energy Association

On behalf of
Juha Naukkarinen, Finnish Energy Industries
Kjell Jansson, Swedenergy
Steinar Bysveen, Energy Norway

NORGER
connecting renewables

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NORGER comments for ENTSO-E consultation on the 10 year Network Development Plan (TYNDP)

Dear Sirs,

We are glad to have the opportunity to participate in the consultation procedure on the first edition of ENTSO-E's TYNDP. First of all, we would like to express our sincere appreciation on the substantial outcome of the pilot version of the report. It represents a comprehensive and up-to-date European wide new reference source of information in the field of transmission network planning, which is one of the key prerequisites to achieve the European Energy policy goals.

1. Preliminary remarks

In our capacity as owners and promoters of an investment project for a 1400 MW DC line sub sea cable between Norway and Germany, we have studied your report with great interest. We welcome ENTSO-E's initiative for an in-depth consultation with all European stakeholders on the key issues related to cross border interconnectors and how they can lead to improved integration and efficiency in the European electricity market as well as helping to integrate increased volumes of renewable energy into this market.

We have noted the report's analysis of the extensive investments required to implement the TYNDP. These are investments that will come in addition to needed investments in the development and maintenance of domestic grids in most member states. On this basis we find it somewhat strange that Merchant line projects and their contribution towards meeting the challenges outlined are practically excluded in the discussion and analysis in the TYNDP. We can understand that the main focus in the TYNDP is on TSO driven investment projects and that ENTSO-E may not have sufficient information about all Non-TSO Merchant line projects to fully include them in the analysis. Co-operation with owners of Merchant line projects should be encouraged as such projects, including NORGER, are important contributors towards meeting key EU energy policy goals and therefore should be included in the planning process at the EU-level as a project of truly European significance.

2. The case for improved connections between Norway and Germany

Already the 2006 decision establishing the guidelines for trans-European energy networks included in its Annex II connections between Germany and Norway at the top of its list of electricity interconnectors to be developed to non-member states. Since then the attractiveness of a Norway to Germany interconnector has been further strengthened by the extensive plans for development of wind energy on- and offshore in Germany.

Interconnecting Norway with Germany means interlinking two markets with different characteristics, i.e. the Norwegian (Nordic) hydro-power-based system with the German (Continental) market with a large share of thermal production facilities as well as an increasing wind energy capacity. This translates into manifold synergies.

- Improved security of supply in both markets
- Fostering competition in both markets
- Cost-effective balancing for Germany's increasing wind energy capacity
- Support for planned development of large new wind energy production, including offshore installations and offshore grid.
- Nordic Grid Masterplan and its underlying analysis (2008) confirms the very positive potential (consumer/producer surplus) of possible interconnectors between the Nordic countries and Continental Europe

Many of these factors are also mentioned in the draft TYNDP report's discussion of the need for interconnectors in the North Sea region.

3. The NORGER project

The NORGER interconnector project has the following main characteristics:

- NORGER is an approx 600 km HVDC sub sea interconnector cable with a capacity of 1400 MW between Norway and Germany
- The NORGER cable is privately owned and will not require public funding or investment
- Advanced status: Relevant applications for the project have been filed with the regulators in Norway and Germany. When all approvals are in place the project will start-up of operations in 2015

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- Market coupling as basis for operations
- Merchant cable which provides for full TPA without any capacity reservations for owners
- Project partners: Agder Energi AS, Norway; Lyse Energy AS, Norway; EGL, Switzerland;

4. NORGER is a Merchant line project that should be given a high priority in the TYNDP

In its continuing work on the TYNDP ENTSO-E must include Merchant line projects like NORGER as they will play an important role in developing key connections quickly without requiring government financing. ENTSO-E should therefore include privately driven Merchant line projects in the TYNDP. They should not be avoided primarily because of their ownership structure and business model. This is particularly the case for projects that meet the following criteria:

- Fulfilling the characteristics of a Project of European significance
- Advanced planning status
- Backed by solid owners / promoters with corresponding competences
- Established dialogue with TSO's (connection costs; system impacts, limitations etc.) in the receiving grid.

There are many elements in the current circumstances of the European economic situation and the outlook for the energy sector that support the case for welcoming Merchant line cables and private investors who are willing to promote important energy interconnectors:

- The global financial and economic crisis has put high pressure on planned and much needed investments in the energy sector.
- Implementing the TYNDP will require huge investments (23 to 28 billion Euros within the period 2010-2014). As most of the TSOs are state-owned, the main source of the required equity capital will be the state. Due to possible budget restrictions, capital for grid investments might not be available in the amounts necessary.
- In the Nordic area the TSOs are currently involved in extensive planning for sub sea cables as well as internal grid improvements. The attractiveness of being connected to the Norwegian hydro-power based system has facilitated plans for new interconnectors to Denmark, the Netherland, to Germany and possibly to the UK.

- The construction of under sea cables over long distances are major projects and also represent technological challenges. With several of them planned over a short period, not only the financial but also the available organizational capacity of the TSOs involved may become a limiting factor.

- Under such circumstances, merchant cables play an important role: They allow new actors to participate in this field of activity and to provide new sources of capital and bring in additional organizational capacity. Moreover, Merchant line investors would contribute to more competition between actors and to providing innovative and technologically advanced solutions.

- NORGER fits very well into this picture. It is a project backed by solid owners with the necessary competence and organizational capacity. The financial strength of the owners will facilitate the financing of the project.

- NORGER is well advanced and can be operational by 2015. Other projects are in a much less advanced status (listed in the TYNDP as "under consideration" respectively "long term"). NORGER should therefore be among the priority projects of the TYNDP.

- NORGER has the necessary political support: In an official letter to the German Bundestag end of March 2010 the Federal Ministry of Economics and Technology strongly supported the NORGER cable as a key interconnector.

Taking into consideration the above aspects, we hope that in the continued iterative planning process Merchant line projects of European significance - such as our NORGER interconnector – will be considered and be explicitly integrated into a revised version of the TYNDP. For the sake of greater transparency and to support co-operation between stakeholders and the decision making process at regional, inter-regional and European level, it must be in the interest of ENTSO-E to provide the full picture of the most accurate information available regarding all relevant HV grid projects which significantly contribute to achieving European goals in the field of market liberalization and energy policy targets.

5. Conclusions

The NORGER project clearly qualifies for being classified as a project of European significance because it addresses all 3 pillars of the EU Energy policy:

- Security of supply

- RES integration

- Development of an integrated internal energy market

The project has already achieved an advanced technical planning status and is owned and promoted by a solid consortium of 3 energy companies. Electricity connection between Germany and Norway has been identified in several EU documents as a key project of common interest. The underlying business model of the Merchant cable NORGER is fully market based and thus in line with fundamental EU IEM principles and recent statements of DG Energy, that the TYNDP needs to be based on market and network modelling. Therefore, NORGER deserves to be included in the TYNDP on the same criteria as those applied to TSO-supported projects in order to avoid any discrimination issues.

We are convinced that ENTSO-E will take notice of the above statements and reconsider integrating the NORGER project in the second release of its TYNDP.

In case of any questions please do not hesitate to contact us. We would also be glad to get the opportunity to present our NORGER project more in detail to ENTSO-E.

Regards

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NorGer
Technical Director (DPM)

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Renewables Grid Initiative

RGI Comment on TYNDP

Renewables Grid Initiative welcomes ENTSO-E Ten-Year Network Development Plan

Large scale investments in electricity transmission infrastructure must be brought forward without delay in order to meet European clean and sustainable energy goals in scale and in time / Ten-Year Network Development Plan (TYNDP) delivers important policy input for shaping a vision for the grid of the future / RGI offers its support to further enhance the upcoming issues of TYNDP

In March 2010 ENTSO-E, the European Network of Transmission System Operators for Electricity has published the pilot Ten-Year Network Development Plan (TYNDP) which is currently in a public consultation process. This plan presents a forward-looking proposal for electricity transmission infrastructure investments across 34 European countries. In accordance with EU Regulation 714/2009 on cross-border electricity exchanges, the TYNDP is a non-binding plan, to be updated every two years. This first release of the TYNDP puts forward a total of close to 500 investment projects, worth 23-28€ billion over the first five years.

This report is the most comprehensive and up-to-date European-wide reference for the transmission network today. It points to significant investments in the European power grid in order to help achieve the European energy policy goals, especially concerning the development of electricity from renewable energy sources while ensuring security of supply and system reliability of an increasingly complex transmission system connecting 525 million citizens across the ENTSO-E area.

We need to keep in mind that expansion of renewable electricity isn't likely to stop at 2020. If we conservatively assume that future growth of renewable electricity is non-exponential but linear and based on present growth rates and targets, by 2050 more than 85% of electricity could be renewable. Any grid and infrastructure investment needs to keep that in mind as those assets will be long-lived and need to serve system reliability and cost-competitiveness much beyond 2020. Hence any smart planning by grid companies for the next 10 years need to include the long-term option of a fully decarbonised power sector with its variable power

supply and need for a better and co-ordinated grid and load management including sufficient back-up options in a truly liberalised European electricity market.

According to the plan, meeting these goals demands some 35,000 km of new transmission lines and 7,000 km of existing line upgrades. Out of the total of 42,000 km, which represent 14% of the existing transmission lines, TSOs plan to complete 44% of the work in the coming five years, and about 56% in the following five-year period. Many of those projects are triggered by the development of electricity from renewable energy sources.

The Renewables-Grid-Initiative (RGI) promotes the expansion of distributed and bulk renewable energy generation and transmission capacity in Europe. To reach this target, the initiative brings together nongovernmental organisations (NGOs) and transmission system operators (TSOs). For the first time, 50Hertz, Elia, Germanwatch, National Grid, RTE, Swissgrid, TenneT, Terna Ernergy, WWF join forces for a common cause.

The Renewables Grid Initiative (RGI) welcomes the Ten-Year Network Development Plan (TYNDP) because it delivers important policy input for shaping a concrete vision for the grid of the future. The RGI welcomes particularly that ENTSO-E pro-actively produced this pilot report before it became a mandatory exercise of the European TSO community according to the provisions of the “Third EU Energy Package”.

Among experts, it is already common sense that the transformation of the electricity grid infrastructure can no longer keep up with the current development of the renewable energy sources. Against this background, the plan arrives just in time and needs broad support. The challenges society is facing in the field of security of supply and climate protection should be addressed jointly by actors across different sectors of society. TSOs have a core role to play, but a broad alliance of academia, industry and nongovernmental organisations can and must support governments and parliaments to make the necessary decisions to foster the development of electricity from renewable energy sources. A pre-requisite for this is the development of the transmission system. After all, the grid is the essential linkage between electricity generation and the supply of society. It is crucial to speed-up now the development of this key infrastructure to meet evolving energy and environmental needs. The TYNDP can serve as a common point of departure.

Yet, the RGI misses a clear ENTSO-E request for identification and official declaration of strategic "infrastructure corridors" at regional and pan-European level to be prepared on de-

velopment beyond 2020 (priority corridors for future bundling of different kinds of infrastructures) in the study.

Moreover, the RGI misses a clear ENTSO-E statement that for the sake of sustainability the grid developments have to be rated for full integration of wind energy and renewable energy sources in general and that according to the European Energy and Climate policy the integration of electricity from renewable energy sources is doubtless a greater good than its pure economic benefit.

A critical success factor of the future development of the electrical transmission grid is social acceptance. RGI is fully aware that new grids must be built massively to allow the further development of electricity from renewable energy sources in Europe and shares the basic analysis of ENTSO-E in this respect. Therefore, the aspect of social acceptance and ways to enhance it in a transparent and consistent way over Europe deserves more attention in future issues of the ENTSO-E TYNDP. RGI offers ENTSO-E its support for this exercise.

Furthermore, RGI recommends initiating an ENTSO-E survey amongst its members to develop on that basis a common understanding of "impact corridors" for transmission line erection projects. That would help defining in a more harmonised way who is to be considered as “affected by a line project” and who is not in order to reduce arbitrariness and to simplify the compensation and the legal procedures.

In this respect we call for and strongly support a better legislation in EU on harmonised and mainstreamed Environmental Impact Assessments on new grid infrastructure which should be part of the upcoming Commission proposal in autumn 2010 and the long-term energy strategy for 2050 deemed to be released in spring 2011. We believe that most of potential interventions against new grids may be overcome if those are put into context of a maximum clean and renewable electricity supply serving the consumers requests for cost-efficiency and power system reliability for any time in the year well into mid of this century.

Since all members of ENTSO-e have validated the content of the TYNDP before its release by ENTSO-e, TSOs members of RGI have not taken part to the preparation of these comments, but fully support them and recognize their relevance

Our date
2010-04-07

Our reference

Administrative officer
Ingrid Lomelde

Your date

Your reference

European Network of Transmission System Operators for Electricity
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Response to the consultation on ENTSO-E's Ten Year Network Development Plan 2010-2020

Statoil ASA welcomes the opportunity to comment on the first ENTSO-E Ten Year Network Development Plan. Statoil is an international oil and gas exploration and production company and the second largest supplier of natural gas to the European Union. Statoil is also gradually expanding its renewable activities by using its offshore competence to develop a profitable business in offshore wind power generation. Statoil is currently constructing the 315MW Sheringham Shoal project in the UK and has, as part of the Forewind consortium, taken a substantial position in the future of offshore wind developments in Europe. Gas and electricity network development plans in Europe are, therefore, of great interest for us.

The initiative taken by ENTSO-E, in anticipation of the implementation in EU Member States of the third legislative package for the IEM, to develop a pilot network development plan and include stakeholders in the following dialogue is most welcome. Statoil recognises the importance of adequately addressing social acceptance issues and to communicate to local communities the Europe-wide benefits of energy infrastructure projects, while at the same time encourage new energy projects to be built. ENTSO-E's proposal to harmonise legal frameworks and set clear deadlines for permitting processes across the EU could contribute to clear communication around the importance of infrastructure developments and also help speed up investment decisions for projects that depend on cross-country grid developments.

As a company with strong positions within both wind and gas generation in Europe Statoil believes in the enhancement of market mechanisms to time- and cost-effectively solve congestion and balancing problems in the grid. Enhancing cross-country market liquidity and further opening up for close-to-real time trading would contribute to an efficient market based solution to these challenges.

Statoil is glad to see that ENTSO-E recognises the necessity for substantial cross-national infrastructure developments in Europe in order to integrate renewable energy projects currently under development, especially in the Baltic and North Sea regions. Statoil aims to become a leading developer of offshore wind in Europe. The ability to deliver renewable energy to integrated markets through sufficiently developed infrastructure is a prerequisite for this goal. We fully agree with ENTSO-E that the development of a strong, comprehensive offshore grid in the North Sea will be important to integrate wind power in a balanced way while also strengthening the market ties between the countries and providing for security of supply. Statoil does however believe that it is in the combination of wind power integration and gas power capacity that this region will find the ultimate balance between a low carbon fuel mix, stability in the energy transmission and security of energy supply. We believe that gas is an abundant, flexible, and low carbon back up source that can effectively contribute to balancing the intermittency of wind power. Developing a strong offshore grid in the region is therefore important, but can only be successful if complemented by a further integration of energy markets where trading and balancing mechanisms are used to optimise energy flows. This is especially true as differing types of energy generation may develop to dominate specific markets.

The development of large scale offshore wind power in the North Sea will become a reality in just 3-5 years. Unless a coherent plan for grid infrastructure developments is developed within this timeframe a North Sea grid may develop without an overarching strategy. It is important that this work is advanced in order for developers to adjust to these plans when deciding whether to pursue options in this area.

Statoil would be happy to share some of our perspectives on the expected developments of European energy markets if this could be of interest for future ENTSO-E scenarios.

Kind regards
Statoil ASA

Trine Ulla
Head of Market and Regulatory Affairs

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The European Association of the Electricity Transmission and Distribution Equipment and Services Industry

11 April 2010

T&D Europe contribution to open consultation on the ENTSO-E Ten Years Network Development Plan (TYNDP)

Introduction

T&D Europe (www.tdeurope.eu) is the European Association of the Electricity Transmission & Distribution Equipment and Services Industry, which members are the European National Associations representing the interests of the electricity transmission and distribution equipments manufacturing and derived solutions. The companies represented by T&D Europe account for a production worth over € 25 billion EUR, and employ over 200,000 people in Europe.

T&D Europe highly acknowledges the efforts of ENTSO-E contributing to the development of the future transmission grids in Europe. The TYNDP is a significant approach in terms of suggesting grid re-enforcement and extension aiming for more efficient power supply in Europe.

T&D Europe has carefully analysed ENTSO-E's Ten Years Network Development Plan (TYNDP) which was published for public consultation in March 2010, and would like to offer its following comments and remarks.

Comments to the Plan

Comments during Stakeholder Workshop on March 19th, that T&D Europe feels should be highlighted:

On the 19th of March 2010 a stakeholder workshop was held in Brussels by ENTSO-E to present the TYNDP and to collect stakeholder's comments. The following comments have been stated by presentation and during discussions.

Main observations:

- The "bottom-up" approach is not giving an optimal solution:
  - bottom-up planning approach gives a result based on the aggregation of regional trends developed by regional groups within ENTSO-E
  - additionally a "top-down" planning approach is necessary, which defines a European-wide plan based on European targets → alignment of national and European ten-year development plans
  - today top-down approach is not possible, as only few national ten-year plans are existing; national TYNDP are necessary for a combined approach
  - projects are a combination of European planning results and regional planning results → a coherence between national and European plans is not given

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- complete network and market model has to be developed to ensure consistent planning results
- only standard technology solutions are considered to strengthen/extend the network, no other options (e.g. storage) to minimize of investment costs

Further comments:

- ENTSO-E plan is not binding as per EU regulation
- national regulators have to agree with proposed projects
- licensing process should be accelerated/simplified at least for urgent projects
- it is necessary to push the project today → urgency of realizing projects
- prioritization of projects is missing
- no monitoring of progress of project implementation
- financing of projects is not secured – possible solutions:
  - regulator support for urgent projects
  - EC support for new technologies
  - support by TEN-E program for Pan-European projects

Comments by T&D Europe to the TYNDP

- the plan does not consider a vision or consistent strategy for the future European network (e.g. a plan for 2050)
- proposed projects are mostly addressing rather local issues (e.g. increasing cross-border capacities)
- all land connections are realized as standard 400kV AC overhead lines,
- transmission voltages > 400kV are not considered
- all cable projects are submarine connections (AC or DC)
- Only very few new technologies are considered, e.g.
  - HVDC / VSC (Voltage source converter technology)
  - FACTS (SVC, TCSC)
  - PST (phase shifting transformer)
- Important new technologies are not mentioned/considered, e.g.
  - GIL (Gas Insulated Lines)
  - large storage plants connected to HV network
- only a short chapter with rough overview over new technologies is presented,
- super grid and DC grid issues are underrepresented,

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- A convincing vision for the future EU-transmission grid is not included in the plan.

Conclusion:

- T&D Europe, representing the European Transmission and Distribution Equipment Manufacturers, is ready to support ENTSO-E by providing innovative ideas and technology solutions that may promote the efficient development of the transmission grid.

- T&D Europe is recommending a clear roadmap and timelines for Europe to be developed under the guidance of the EU commission to develop the transmission-grid of the future.

- Furthermore, allocation of power plants / bulk renewable generation plants as well as the role of decentralized generation sites should be defined much clearer to ensure planning and successful project development.

- A jointly developed master plan could be the framework that will integrate all grid participants including grid operators, generation companies, trading companies, system and product manufacturers, regulators and consumers. It will also stimulate investments and prioritize project activities across EU countries.

- Finally, the acceleration of project development and approval needs to be addressed clearly stating the obstacles to be removed. T&D Europe is ready to support the process by own initiatives and communication.

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Q1. The pilot project of the TYNDP presents factual data about the transmission projects of importance for the European power system over the next 10 years. On the other hand, there is no information provided about the corresponding evolution of the Net Transfer Capacities between countries or control zones. Nevertheless, these values are of prime importance for the stakeholders of the European transmission system (utilities, market places…).

Can ENTSO-E confirm that the evolution of the Net Transfer Capacities that will be made available to the market when taking into account the future transmission projects will be included in the future releases of the TYNDP?

Q2. When developing new generation projects, developers are willing to take into account the existing capacity of the transmission system and its evolution according to the TYNDP. Nevertheless, neither the identification of the regions in Europe where it is possible to connect new generating units without leading to grid issues, nor the evolution of these regions over the next 10 years are presented in the TYNDP.

Can ENTSO-E indicate if such information will be made available in the future releases of the TYNDP and, if not, how to inform developers of new generation projects about regions that are not expected to be subject to grid congestion issues?

Q3. In this pilot project of the TYNDP, only the bottom-up approach has been used. The TYNDP of the European system is then the aggregation of national plans with no guarantee of coherency at European level (assumptions, methodology,…).

Can ENTSO-E confirm that a top-down approach will be included in the future releases of the TYNDP to consolidate the results obtained from the bottom-up approach and ensure a global vision at European level?

Q4. The current security criterion for operating and developing the transmission system is based on the preventive N-1 criterion (the system must be able to withstand the loss of any of its component without requiring actions following this loss). Preventive N-1 is the main rule while corrective N-1 (the system must be able to withstand the loss of any of its component but automatic corrective actions can be taken following this loss) is the exception. Whereas the reserve margins enforced in the transmission system can be reduced when considering corrective N-1 security criterion instead of preventive N-1 security criterion, such a change allows increasing the transmission capacity of the system without requiring additional transmission elements and the associated investment costs and permitting issues.

Can ENTSO-E indicate if there is a plan to generalize the use of corrective N-1 security criteria when it helps to decrease the needs of new transmission lines?

Q5. As indicated in the TYNDP, generation development scenarios have to be built in close collaboration with the stakeholders to ensure an optimum development of the transmission system.

Can ENTSO-E indicate how will the stakeholders be involved in the process for future releases of the TYNDP? Is an upfront consultation foreseen to identify the needs of power transmission with some specific stakeholders such as European utilities?

Q6. The TYNDP report is listing as a short term challenge the development of a common European power system model and market model.

Do you plan to give access to these models to all stakeholders allowing them contributing more efficiently to the future releases of TYNDP and performing their own strategic studies?

2010-04-09

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Stakeholder consultation: TEN-YEAR NETWORK DEVELOPMENT PLAN 2010-2020

Vattenfall welcomes the opportunity to reply and hereby wishes to declare its view on ENTSO-Es report TEN-YEAR NETWORK DEVELOPMENT PLAN 2010-2020, hereinafter the TYNDP.

Vattenfall commends the ENTSO-E initiative to develop the TYNDP already before legally required to do so. This gives an ample opportunity to develop a well functioning process for transmission network development with adequate stakeholder involvement.

As pointed out by the ENTSO-E this document should be seen as a pilot and thus is far from complete. Vattenfall recognizes this and the comments below should be seen in the light of creating a document, and a process fulfilling the requirements that can be expected from a real European ten-year network development plan.

Vattenfall especially emphasizes the following issues:
For the EU to have a possibility to develop a sustainable energy system – reaching the 202020-targets, improve competitiveness and security of energy supply – adequately developed infrastructure is a prerequisite**.**

- The TYNDP lack a sense of urgency. A fulfilment of the 2020-target on renewables should be the base case. The ENTSO-E must develop an early warning system to ensure that transmission is developed in a pace in line with the expansion of renewables and other drivers.
- The current TYNDP is mainly a compilation of existing plans. Future plans should have a top down approach where fulfilling the 20/20/20 targets must be one of the prerequisites.
- Legislation in member states should go beyond what is said in the directive by requiring that all TSOs at least every two year produce national 10 year plans in a transparent way and with involvement of various stakeholders. In the meantime TSOs in ENTSO-E shall agree to have published national plans
- ENTSO-E is recommended to present an adjusted TYNDP addressing the national 2020 targets on renewable electricity before the end of 2010 and showing the current status (including structural congestions) of the transmission network.
- The planning of transmission systems based on a true regional view is an extremely complicated task. Issues like sharing benefits and costs as well as authorization and financing of the lines involves various kinds of stakeholders. A political commitment is also necessary to speed up the building processes, In order to coordinate the work and secure also a top-down approach Vattenfall suggest that the Commission appoint a high level coordinator to promote and speed up the

development of the transmission grids in regional areas of particular importance as e.g. northern Europe

General comments

The European Union has goals for the development of the Internal Electricity Market (IEM) and ambitious goals for the expansion of renewables. This means for example far-reaching goals for building new capacity using new sites, and in many cases putting stress on existing infrastructure in new ways. Even if the first TYNDP is a pilot it is urgent that it directly addresses the challenges the 202020-goals put upon the system.

Top down approach
Currently the TYNDP mainly is a combination of the different plans. It is very important that ENTSO-E develops a more integrated and pan-European vision and is able to determine which investments are essential from a European perspective; also when they don't seem to be cost-efficient from a national perspective. There is a great need to take on a real top-down approach to develop the infrastructure from European perspective to limit price volatility and to avoid that low cost generation is locked in when there will be huge surplus of generation capacity.

Extra top down guidance from ENTSO-E will be needed to ensure that TSO's are aligned and that important investments in the EU transmission grid are realized in due time. Therefore the TYNDP should come up with a clear set of actions, which is currently lacking in the report. Only in that way TSO's will be able to adequately anticipate on needed investments.

The planning of the transmission system from a truly regional perspective is a complicated task. There are many steps to take before a new line is in place: planning, authorization procedures, sharing of costs and benefits (e g the ITC concept), financing, resources etc. Many various stakeholders are engaged on both national and regional level. In order to proceed, a regional political commitment is necessary. Vattenfall suggest that the EU Commission should appoint a high level coordinator whose task should be to establish a consensus and a common vision in order to promote the development of transmission grids. A first area to focus on could be the Nordic countries and the surrounding markets, as there is a risk that huge quantities of CO_2 neutral electricity are locked in the Nordic market if new interconnectors are not established fast enough.

Lack of urgency
It is not clear to Vattenfall what *new* actions proposed in the TYNDP that emanates from the *new* challenges, or if these issues has been addressed in planning new transmission capacity at all.

The assumed share of 25.5 percent renewable electricity is significantly lower than the approximately 34 percent that the European Commission assumes. A fulfilment of the 2020-target on renewables should be the base case. The ENTSO-E must develop an early warning system to ensure that transmission is developed in a pace in line with the expansion of renewables and other drivers.

ENTSO-E is recommended to present an adjusted TYNDP addressing the national 2020 targets on renewable electricity before the end of 2010 and with this as a reference showing the current status (including structural congestions) of the transmission network.

Licensing and concessions
One of the main obstacles to build new transmission capacity seems to be licensing and concession issues. Nimby and Banana[1] phenomena are prevalent, and government agencies may be understaffed and lacking resources to process applications at a sufficient pace. Thus the political intent of changing the energy system must be followed by political action accommodating the processes leading to necessary increases in transmission capacity. Vattenfall have two suggestions regarding this. First, the transmission network development will be one of the key prerequisites to reach a long-run sustainable competitive and secure internal electricity market. Thus Vattenfall urge the Commission and the Regulators to identify "success stories" in the Member States that could be duplicated or used as good examples. Secondly, or in parallel, the regulators must be given the resources and the task to process applications for increased transmission capacity at the required pace.

Increased transparency on congestions and needed investments
It should clearly be a part of the ten-year development plan to map the current status of operations. Along with information on future congestions a thorough understanding of the current network is a prerequisite for evaluating proposed reinforcements. The TYNDP leaves the reader guessing what the project will mean for future congestions and utilization of the transmission grid. Alas, Vattenfall lack a consistent reporting from the TSOs on the current use of the transmission grid, where bottlenecks are located, the amount of time that certain areas are congested, and the reasons for the congestion. Also, the TSOs' views on the magnitude of remaining bottlenecks after the projects are implemented are extremely difficult to assess from the information given. Further the significance of the included projects and possible insignificance of projects not included is heavily dependent on the assumptions on future investments in generation and consumption. For example, how the TSOs perceive the localization of wind power in the Northern region will inevitably have consequences for the forecast of needed transmission investment. Hence, the report must comprise detailed tables on the assumed demand and generation development in the relevant areas.

The TYNDP includes an impressive long list of infrastructure projects. ENTSO-E clearly notes that the realization can take up to 20 years. Hence it should be clearly stated how much the annual social cost of not having a project implemented is. This should clarify some of the issues related to for example choice of technology (a priori, underground HVDC cables would for environmental and NIMBY-reasons seemingly go through a faster process than overhead AC-lines. *ceteris paribus*)

It is also important to note that the transmission part of the total investments in the European electricity grid is only around 10 %. This means that there is room for "extra" investments in transmission, or investments based on more or less fact-based speculations,

[1] Not In My Backyard, Build absolutely Nothing Anywhere Near Anyone

in order to secure the full use of the more costly investments in generation and distribution and avoid a welfare loss. This is an aspect that the regulators have to take into consideration when deciding on the incentives for the TSOs to invest

Next to the scenario building that has been done, the report should include a clear list with urgently needed investments that should be carried out over the course of the next 5 to 10 years. This list has to be incorporated and updated for every TYNDP, so that progress can be easily monitored. For that purpose it has to be extremely clear which lines that are or will be congested, so that specific actions can be taken.

Stakeholder involvement
It is clearly the intention of ENTSO-E to initiate a stakeholder dialogue. However, this dialogue needs to take place in several dimensions. First, there should be an in-depth discussion on the assumptions made bottom-up in each control area. Secondly, the regional fora need to check the consistency of the methods and plans in the regions, involving stakeholders in this process as well. Finally, there needs to be a top-down discussion on European level. It is preferable that the stakeholders are involved in assessing the assumptions as well as discussing the model results.

Within the same line of argument above, the TSOs should clearly use the same forecasts for the future development as the member state as it is active in. This means that if the regulatory authority or other competent authority within a member state publishes a forecast of the future electricity demand and generation, the TSO should with only few exceptions be obliged to use the official forecasts. The report should explain if and why assumptions and forecasts used in the TYNDP differ from other published forecasts e.g. member states or regulators. Any differences and implications thereof must be transparently discussed.

Compatibility between the national, regional and Community-wide TYNDP
Vattenfall perceives that intentions in the third directive have not been clearly stated in the actual directive. The major share of the TSOs in the EU have the status as “ownership unbundled TSOs”, which imply that they are not according to the directive 2009/72/EC legally required to develop a national TYNDP in a transparent manner and with the involvement of various stakeholders. Hence, legislation in member states should go beyond what is said in the directive by requiring of the TSOs that national plans is produced at least every two year also in member states with ownership unbundled TSOs. Until such legislation is in place TSOs in ENTSO-E should agree and commit to develop and publish 10 year national plans.

Vattenfall understands that the time frame for this first TYNDP has set harsh constraints on what can be done. However, the European IEM needs a European view on transmission development. It is this view that needs to be contrasted with the individual TSOs plans. Thus the current bottom-up approach is not sufficient to find a cost efficient future grid structure that meets political goals and the market’s needs.

Detailed comments

The specific comments follow the chapters in the TYNDP.

Chapter 2

The current infrastructure forms the basis for evaluations of future developments. It is necessary for market actors to see a thorough description of the network and how it is has been utilized during the last years, e.g. the five preceding years. The description should be extended to include interconnections as well as transmission usage and congestions within every TSO control area. The statistics should show the frequency of internal congestions measured in number of hours separately presented per month and preferably also per transmission line. The congestions should further be separately presented based on the procedure used to alleviate the congestion, redispatch or counter trade and reductions of interconnection capacity.

ENTSO-E presents in a promising manner benefits of transmission vis-à-vis generation in qualitative terms. Evaluations on the need for transmission investments should be based on the underlying grid and not be restricted to follow control area borders. Hence internal constraints/bottlenecks within control areas constitute decisive variables to be included in the assessment; such modelling would reveal the true congestions within the ENTSO-E network

To underline the need for enhanced transparency which Vattenfall ask for in this reply Vattenfall have looked into the variation on NTC for the year 2009.Apparently the capacities vary substantially on some borders and Vattenfall believe that the TYNDP could serve the purpose to explain how the future investment in the grid would make better use of the current transmission capacity, thus moving the trade capacities closer to the real capacity of the cross border connections.

ENTSO-E not only has the task to determine where extra physical capacity should be build, but also has a task to indicate how existing capacity can be better used. On several borders not all physical capacity is being made available to the market by TSO's, and ENTSO-E should indicate if (and how) the capacity made available to the market can be increased.

Chapter 4

Even though very few countries according to the TYNDP have released their National Renewable Energy Action Plans how to achieve the 2020-goals Vattenfall presume that assessments done by ENTSO-E must rely on assumptions on national level, i.e. how much additional renewable power to be installed and location of those investments within countries. Obviously this information would be needed to identify needed reinforcements. The considerations on TSO level should be presented. Without this information it is impossible for stakeholders to contribute to, or comment on the underlying assumptions.

It is not a straightforward task to follow the reasoning around the presented graphs. On p.58 the Remaining Capacity as a part of Net Generating Capacity is presented for scenario

B. However, as no table is provided it is difficult to follow the logic, e.g. looking at the figure give the same metric for Sweden and Denmark but according to the text only Denmark seems to be importing for security of supply reasons at the reference points […]" The report lacks a consistent table with generation capacity and consumption within defined grid areas as well as the transmission capacities included in the scenarios. Further, it is neither clear on European, Regional, National nor relevant grid level how the generation mix is assumed to look like in 2020. In addition a transparent presentation on how demand is perceived to develop according to ENTSO-E is lacking except for on the overall ENTSO-E level.

On p.61 the report contains a section on economic consistency and expected running times of each type of generation unit. In the next TYNDP Vattenfall expect information on the simulated generation times for different generation units both with and without proposed reinforcements. This information would clearly show the value from expanding the transmission grid by facilitating higher utilization of low cost generation if supported by sufficient infrastructure.

Chapter 5

The TYNDP include some interesting maps on the investment need. The impact of each category, e.g. demand growth and future generation evacuation, on the need for transmission investments is not clear. Transparency could be enhanced by including a list detailing each type. In this presentation the inclusion of the estimated amount of insufficient transmission capacity should be the main contribution. The other categories are also important to include so to motivate the foreseen transmission needs. Vattenfall use some of the information on p.80 concerning changing power flow patterns in Germany to highlight these concerns "[…] whereas older units are decommissioned all over Germany, most of new generation units are built in the North; load recession is noticeable in the North East, but demand rises in the Southern part of the country; all in all, distance is increasing between generation (e.g. from North and Baltic Sea shores and waters) and load centres (or balancing equipment like pump storage plants in the German low mountain range or in the Alps), which the surplus in the North has to be transported to." Without a clear description on the network as it currently stands, transmission capacities, actual usage and the frequency of congestions the maps say little on the future needs. In addition the numbers on e.g. how much wind is assumed to be integrated offshore along the coastline and onshore-in Northeastern and Western parts of Germany is important information for concluding on necessary reinforcements. Further, it is not clear to what extent projects in appendix 1 are included in the assessment of future needs, i.e. are transmission projects expected to be commissioned before 2020 included as a precondition in the long term assessment or not?

On, p 89 the following paragraph is included. "Besides the large-scale RES integration, the realization of the Internal Energy Market (IEM) also includes open grid access and trading which especially increases cross-border exchanges. Those exchanges, if permitted, could endanger the security of supply and must therefore be limited due to current grid constraints, resulting in sub-optimality for the European generation economical dispatch. Moreover, the future evolution of the European generation pattern will lead to a change in exchanges leading to new grid constraints. These future constraints should become more

and more volatile as deep wind penetration in the North Sea Region should give rise to more and more variable flows across the grid." This gives the impression that moving congestions to the border is an acceptable congestion management method. Hopefully this is a misunderstanding and that moving congestions to the border and limiting trade is not the purpose. The 20-20-20 goals are challenging and put pressure on the system. Hence the importance of managing congestions where they appear as stipulated in the Cross-Border Regulation (1228/2003) become increasingly important. Vattenfall expect that congestions are managed where they physically appear thus revealing to the market the locations within the current network where reinforcements are needed.

Chapter 6
According to p. 95 "All investment needs identified in Chapter 5 are being addressed by TSOs." How these investments meet the demand for transmission with a future share of renewable electricity exceeding 25.5 % is not transparently explained.

Further, the TYNDP should include a proper sensitivity analysis that reveals how the proposed investments are affected by varying the underlying assumptions.

Chapter 7
The figure on p.127 could serve as a model to ensure that assumptions and calculations are transparently described.

Chapter 8
It is commendable that ENTSO-E highlights the importance of not limiting the socio-economic analysis to the national level or as ENTSO-E puts it: *The benefit framework should also be able to present the relative economics of a project from a variety of perspectives –consumer, producer, and transmission owner, and on a societal or regional basis. (p.139).* Vattenfall look forward to future TYNDP reports that includes the distribution of benefits among stakeholders from specific transmission investments.

As lack of proper cross-border financing solutions is potentially a very large obstacle to future transmission investments of European interest, Vattenfall suggest that a description on how the project is financed is added as information along the presentation on distribution of costs and benefits. This will increase transparency with regards to whether or not the outlook for financing has been used as informal selection criteria. Realizing some of the projects demand regulatory support.

Appendix 1 table of projects
To allow for comparison between projects and how they evolve over time, the table would benefit from a standardized description of where the boundary lies for considering a project to be e.g. planned or under consideration. The table should also include information on how far the project has come within current phase and with estimated time needed to reach the next phase. In the next TYNDP Vattenfall expects a progress report on these projects elaborating on changes of progress status. Any changes in the expected commissioning should be transparently shown and motivated.

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With kind regards

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