

TYNDP and Regional Investment Plans workshop results summary

Scope: This document provides the results of the ENTSO-E's 6 regional workshops on the Ten Year Network Development Plan and the Regional Investment Plans which took place from 29 November till 15 December 2011¹.

The **aim** of these **workshops** was to introduce and discuss TYNDP and Regional Investment Plans development process and the assessment of regional projects of pan-European relevance as follows:

- TYNDP & Regional Investment Plans development processes;
- Main challenges and specifics for grid development in the regions;
- Identification and assessment of all candidate projects of European relevance;
- Preliminary results of the Regional Investment Plans under the TYNDP
- Anticipation of Energy Infrastructure Package implementation

The target **audience** for this workshop was in particular top-officers of national ministries in charge of the energy sector and National Regulatory Authorities; any other interested stakeholders were welcome to attend. In total, around 300 participants have been present in the ENTSO-E's regional workshops.

A **summary of the discussions** held during the workshops are presented below. The results are grouped in 2 main topics: methodology (market/network studies and results); and general TYNDP&EIP².

A. Methodology and results

1. Assumptions taken in the market and network studies :

1.1. Different tools for the market and network studies in the regions – why?

A: The tools were previously used at the TSO level and created to incorporate the particularities of the specific regions. Also, by using more tools in the regions (were more tools were available), ENTSO-E had the opportunity to verify the reliability of the results.

1.2. Is the same grid and market model used for all the regional groups?

A: All the regional groups have been using a common pan-European set of data for their regional studies. Additionally regional specifics were added by the respective regional group.

¹ The workshops were held as follows:

- Continental South West Region: Madrid, 29 November 2011
- Continental Central East Regional Group: Prague, 5 December 2011
- Continental Central South Region: Stuttgart, 7 December 2011
- Continental South East Region: Zagreb, 12 December 2011, this workshop also covered the Network Code on Grid Connection Requirements for Generators
- Baltic Sea Region: Stockholm, 14 December 2011, this workshop also covered the Network Code on Grid Connection Requirements for Generators
- North Sea Regional Group: Brussels, 15 December 2011

² Draft Energy Infrastructure Package

1.3. Why ENTSO-E considered only two scenarios?

Within the TYNDP 2012 frame, ENTSO-E considered two scenarios (the Best estimate of the TSOs and the EU 2020 (based on the NREAPS³) and one sensitivity analysis (Nuclear phase- out). These scenarios represent possible futures. For each future the whole year has been analysed, which leads to 8760 hourly timestamps. Along with the scenarios and sensitivity analysis a vast amount of possible grid situations was analysed which is expected to be representative for the future.

1.4. The chosen cases for the network market studies- how and why those specific case?

A: The cases that were studied in the networks studies were chosen based on the market results. They reflect in most of the cases the extreme situation that may occur in the future. Each regional group had the freedom to choose the cases they considered relevant for their region, since each region has its own particularity. For more information please see the Regional investment plans (RgIPs)⁴ chapters 4 and 5.

1.5. The must run units – how many and where are they considered in the studies?

A: The number depends on the region and they are taken into consideration in the market and network studies.

1.6. What price of the CO2 was chosen for the scenarios e.g. EU 2020(based on the National Renewable Action Plans)?

A: CO2 price was used as leverage to make the shift between the coal and gas in the merit order. In order to have this shift, one either approximate (guess) different prices for the coal or gas for this specific scenario or one can use CO2 value as leverage. ENTSO-E has chosen to modify the last parameter.

- Notes: - the prices used for the conventional generation come from EIA predictions with the merit order as in scenario B. ENTSO-E has no prediction for the inverse order coming from any other reports.
- the purpose of the scenarios is to cover a large area of uncertainties. Choosing extreme scenarios (EU 2020 was based for the RES part on the NREAPS data) ENTSO-E can determine the flexibility of the projects which must stand different probable futures.

1.7. How did ENTSO-E model the storage in the studies?

A: The storage (pumping) is modeled in each regional group and its input data is based on the particularities of the available tool.

1.8. How did ENTSO-E create the wind correlation curve?

A: This depends on the data available at the regional level. E.g. RG CSW derived the correlation only from one year synchronous profile, but simulated random effects (in Antares – the tool used for the market studies). In the future studies the number of wind profiles may increase.

1.9. How did ENTSO-E model the neighboring countries outside ENTSO-E in the studies?

A: In the market studies it has considered the exchanges between the ENTSO-E and non-ENTSO-E members. In the network studies only Albania was fully modeled (AL is a corresponding member of ENTSO-E). For more information please see the Regional investment plans² chapters 4 and 5.

³ National Renewable Action Plans

⁴ <https://www.entsoe.eu/consultations/>

- 1.10. How was the nuclear phase-out considered in the TSOs analysis?
A: The nuclear phase out was analyzed by each regional group through a nuclear sensitivity analysis. The results are presented in the Regional Group plans².
- 1.11. Why was the scenario B (TSOs best estimate) the base for the sensitivity analysis?
A: This has been chosen due to the fact that in scenario B the nuclear phase-out has the highest impact on the system.
- 1.12. How did ENTSO-E model the DC connections in the model?
A: Inside the RGs model a DC connection was modeled as a commercial transmission capacity, while on the outbound it was modeled as fixed exchange according to the commonly agreed values of the involved TSOs.
- 1.13. How is the Russian market considered in the Baltic assumptions?
A: The Russian market is simplified in the market model- only North West Russia modeled as two areas.
- 1.14. Do you consider EU-Russia border to be only FI-RU border?
A: Russian border with the Baltic States is also considered in the studies. For more information please see the Baltic Sea Regional investment plans² chapters 4 and 5.
- 1.15. Did ENTSO-E include some constrains at the borders in the studies?
A: Yes, the commercial transmission capacities which reflect the physical constrains on the borders. For more information please see the Regional investment plans² chapters 4 and 5.
- 1.16. What prices have been used for the EU 2020 scenario?
A: The fuel prices for the EU 2020 scenarios were taken from the IEA report 2010.
- 1.17. How much nuclear was in Germany without the nuclear shutdown?
A: For the year 2020 in scenarios B (TSOs best estimate) Germany was foreseen with 20GW.

2. Results related questions:

- 2.1. How were the indicators calculated?
A: All the pan-European projects were assessed against 8 indicators, based on a common ENTSO-E methodology. Some indicators can be quantified (as GTC or the socio-economic indicators) others are qualitative and are based on the expertise at the TSO level (e.g. social and environmental indicator). For more information please see the Appendix 1 and 2 of the TYNDP report⁵.
- 2.2. Is the grid cost incorporated in the socio-economic indicator value?
A: The cost of the grid is not incorporated in the socio-economic indicator. The cost of the projects is presented separately in the TYNDP and the regional plan reports as compilation per country/region/ENTSO-E. Please see chapter 7 - TYNDP report².

⁵ TYNDP report. <https://www.entsoe.eu/consultations/document/docdetails.do?uid=0004-e566-3a0d-af87-9e06&>

- 2.3. How was the socio-economic indicator calculated?
A: This indicator represents the savings in generation costs and it was calculated as a difference between the situation with and without the specific project. Please see Appendix 2 - TYNDP report².
- 2.4. What are the assumptions of import from North Africa?
A: RGs CCS and CSW are studying at the moment future increases in capacity between North Africa and Europe.
- 2.5. The profitability on the generation side due to the shift in CO₂ – was it calculated?
A: From the market results we only obtain the saving resulted from the shift in generation production. We do not look at the profitability that generators may have.
- 2.6. Why do the Nordic prices increase with implementation of the future investments?
A: This effect is due to price convergence in the Baltic Sea and North Sea region. This is calculated by comparing the situation with the future investment portfolio in to the situation without the proposed investment portfolio in the regions. Please see the RG NS/ BS reports.⁶

B. General TYNDP/EIP

- 1.1. Are differences between the TYNDP 2010 and 2012 in terms of projects?
A: Most of the projects presented in the TYNDP 2010 are incorporated in the TYDNP 2012. However, due to stricter criteria for the projects of pan-European relevance, some of the projects presented in TYNDP 2010 are presently reflected only in the regional investment plans.
- 1.2. What is the benefit of a project being in the TYNDP?
A: The benefits are highly related to the new Energy Infrastructure Package, which states that all the projects of common interest (PCIs) must stem from TYDNP. All the PCIs will benefit from a faster permitting procedure and in some case from the financial support (either in the form of grants or by using other financial incentives/instruments).
- 1.3. Presently the EC regional initiatives and the ENTSO-E's regional groups do not cover the same areas. Are to be harmonized?
A: At the moment the regional structure of the EC and the one of ENTSO-E do not match 100%. The ENTSO- E established its regional structure based on the regional particularities in terms of electricity infrastructure. Presently this topic is still under discussion.
- 1.4. How to convince the politicians to give permission when they see a negative benefit for the consumers?
A: The common targets established at the EU level (e.g. EU 2020 targets⁷) must have priority for the national politicians.
- 1.5. What is the approach towards municipality compensation?

⁶ <https://www.entsoe.eu/consultations/>

⁷ 20% RES, 20% increase in the efficiency and 20% reduction in greenhouse gases by the year 2020.

A: The TSOs support this approach if this leads to faster implementation of the infrastructure. This approach is already used for many years by most of the ENTSO-E members.

1.6. 3rd party projects: what is the result?

A: All the submitted 3rd party projects submitted in the framework of the ENTSO-E procedure (https://www.entsoe.eu/fileadmin/user_upload/library/SDC/TYNDP/2012/3rd_parties_projects_guidance.pdf) were analyzed.

ENTSO-E received five submissions, analyzed in every relevant Regional Group. The candidate projects however did not demonstrate evidence of a transmission license or an exemption for such license granted by the relevant national regulatory authorities and the EC, in accordance with the TYNDP procedure. The non-discrimination principle (especially with regard to similar projects that may not have applied for inclusion for this reason), makes it inappropriate for these five projects to be incorporated in the table of projects of the TYNDP 2012 package.

The information related to the 3rd party projects can be found in chapter 7 of the regional investment plans reports.

1.7. Could some of the projects be shifted to long term in order to reduce the burden on the consumer?

A: This does not depend on the TSO. Also it must not be forgotten the targets established at the EU level which drives the building of new infrastructure.

1.8. Is the PCI reflecting the ENTSO-E definition of projects of common interest⁸? They only tackle the tie-lines.

A: The PCI's do not only talk of tie - lines between the countries. A PCI, as well as projects of pan-European interest (as defined in the TYNDP) are single/groups of investments which help increasing the transfer capability of the grid on a specific at least one boundary. TYNDP projects can also relate to an internal boundary inside a country, provided it helps SOS, RES or market integration.

1.9. Seems that the DC and underground infrastructure are gaining ground. Do the TSOs prefer cables over overhead lines?

A: As TSOs we do not have inherent preference for either overhead lines or undergrounding. We have responsibility to consider the lifetime cost of projects (ultimately borne by consumers) as well as visual amenity. For each project we therefore consult widely, seeking to develop proposals that meet society's needs. Each project is considered on a case by case basis including a cost-benefit analysis taking into account the environment and the social acceptance to find the right balance.

1.10. Where is the smart infrastructure incorporated in your plans?

A: The transmission infrastructure is already smart. Of course many improvements can be added especially at the border with the distribution system. Also the FACTS, the PSTs, continuous line monitoring, special storage devices, allow us to improve our already acquired capability to react fast to the changes in the system. There are several examples of smart solutions in the projects presented in the TYNDP. For more information on this topic please see appendix 1 and 4 TYNDP³.

1.11. Are any political initiatives to speed up the permitting process?

A: Yes the new Energy Infrastructure Package which, through its new rules, is meant to reduce the permitting process to 3 years.

1.12. Russia involvement in the RG BS - more transparent and opened?

⁸ See appendix 2 TYNDP and Regional Investment Plans: <https://www.entsoe.eu/consultations/>

A: A joint expert group between ENTSO-E and Russian TSO has been created to start discussing issues of common interest.

1.13. Are the projects balanced per areas? Do the countries with the big RES get more infrastructure?

A: The projects of European significance are depicted based on transparent criteria. No specific balance in terms of number of projects are sought between the regional groups. Related to the RES infrastructure: it depends on the location and the capacity of RES integrated.

NOTE: the RES integration may influence not only the infrastructure of the country where it is build but also the countries where this energy is transited through (as shown by the main flows trends).

TYNDP 2012 package next steps:

- 1 March-26 April: TYNDP 2012 package (incorporating the TYNDP report, the 6 RglPs and the SOAF) is open for public consultation. Stakeholders are encouraged to give comments on the TYNDP reports at: <https://www.entsoe.eu/consultations/>.

- 28 March: stakeholders' TYNDP workshop in Brussels - ENTSO-E premises. For further information on the workshop please access: <https://www.entsoe.eu/events/workshops/tyndp-2012-public-consultation/>.

- 30 June: TYNDP package - final version made available on the ENTSO-E website.