

ENTSO-E Ten Year Network Development Plan & Regional Investment Plans elaboration

Towards Energy Infrastructure package implementation

XXth September 2011

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Reliable Sustainable Connected

EC Directive 2009/72 and Regulation 2009/714

- National Development Plans
  - Binding
- Regional Investment Plans
- ENTSOE's Ten-Year Network Development Plan
  - A vision for the future European EHV grid
  - A generation adequacy outlook (5/15 years)
  - A modelling of integrated networks
  - *A non-binding plan, updated every 2 years*
  - *National Regulatory Authorities to check consistency with National DP*

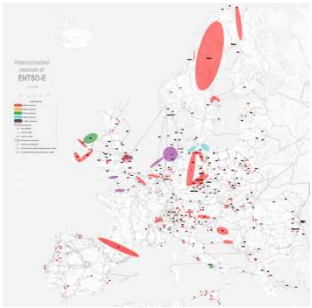
Proactive initiatives of TSOs and ENTSOE

- ENTSOE founded December 2008, fully operational July 2009

↳ 3rd package enforced in March 2011

- Pilot TYNDP in consultation in March 2010
  - To get stakeholders' feedback for the TYNDP 2012
  - To set up organisation framework and methodologies
  - To highlight key challenges for grid development
  - To launch policy debate (financing, permitting) that used to be taboos,

and thus to pave the way for the EIP



↳ Acknowledged by stakeholders
↳ Still, great expectations for TYNDP 2012 issue that ENTSOE duly addresses

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ENTSOE proposals, submitted to consultation and debate

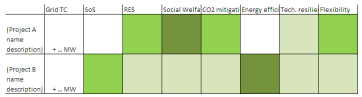
- An organisation framework to elaborate Plans
  - Identification of Europeans regions relevant for grid development
  - A looping elaboration process, constantly improving
  - A public procedure to identify 3rd Party projects
  - Consistent approaches for Regional Investment Plans and TYNDP

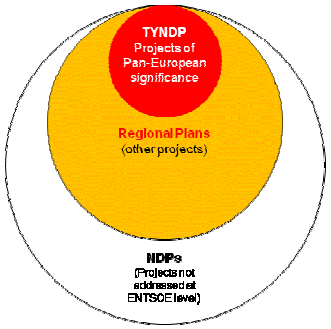




- Bottom-up & top-down scenario development
  - Consulted, complying with EC initiatives and MS positions (NREAPS)

- Methodology for project assessment
  - Explicit definition of projects of pan-European significance
  - Projects identification & standard assessment: Cost Benefit Analysis
  - Basis for future Project of Common Interest selection at Regional level

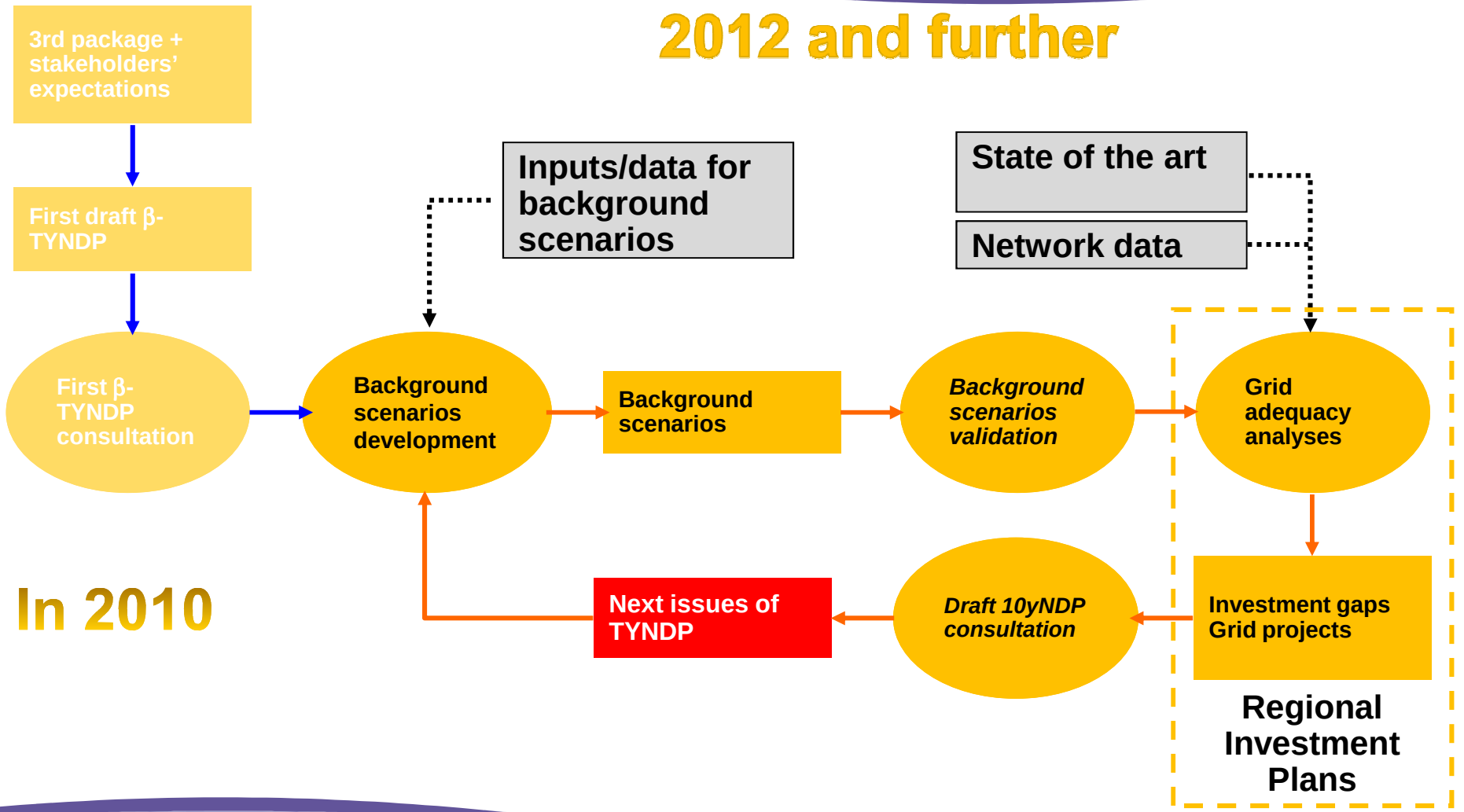




↳ **Many bilateral meetings, external workshops, consultations**
↳ **… with limited feedback**

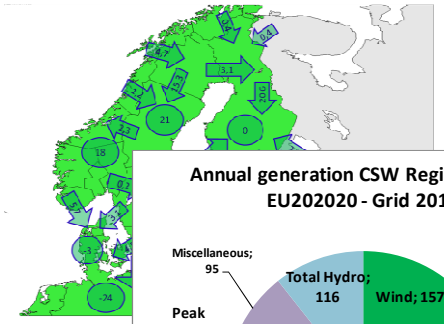
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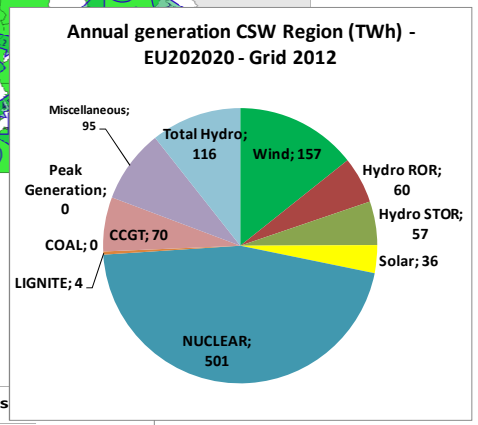
A looping elaboration process, constantly improving

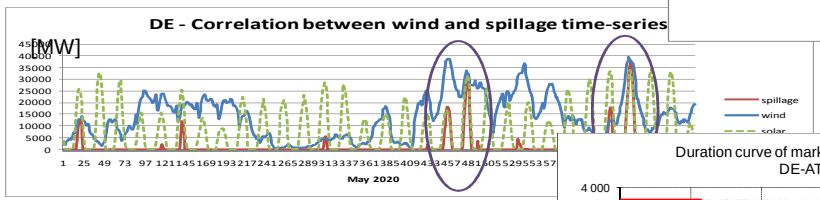


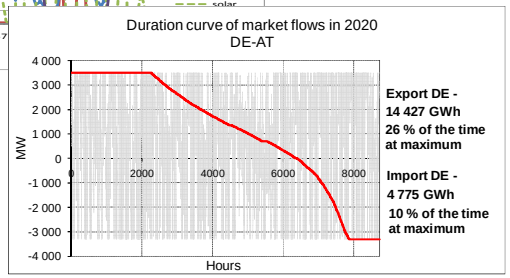
A dense study process all over 2012

- Scenario elaboration & validation
- Market studies
- Network studies
- Project identification & valuation
- Reports compilation









↳ at stake

timely delivery

consistent results

limited resources

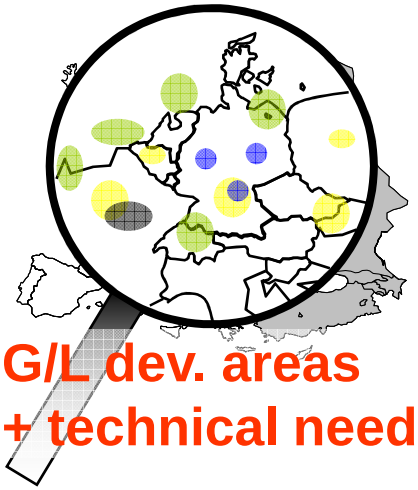
Presently being investigated

↳ *Subject to adaptations &/o changes*

Main deliverables – achieving a proper grid transfer capability

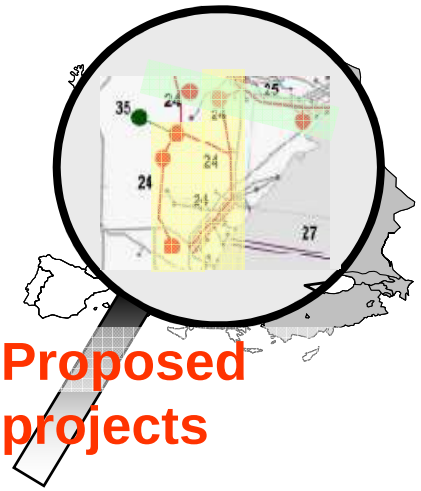


NTCs 2010



G/L dev. areas + technical needs

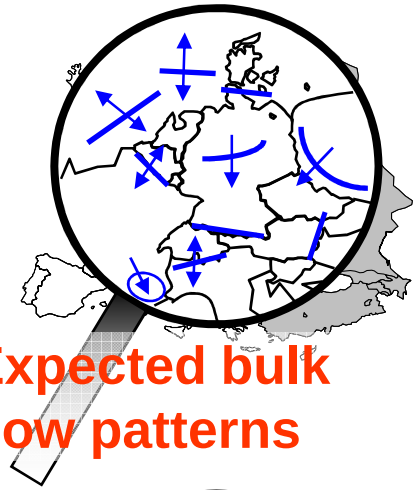
202020 in 2020 (+)



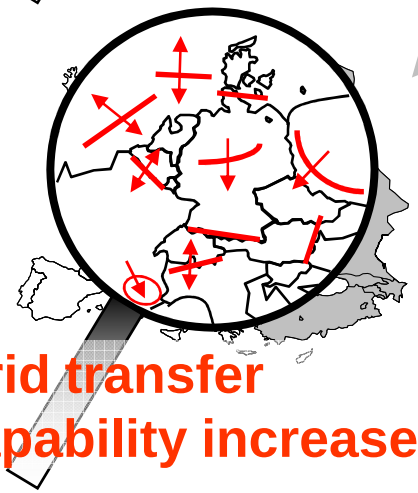
Proposed projects

Market studies

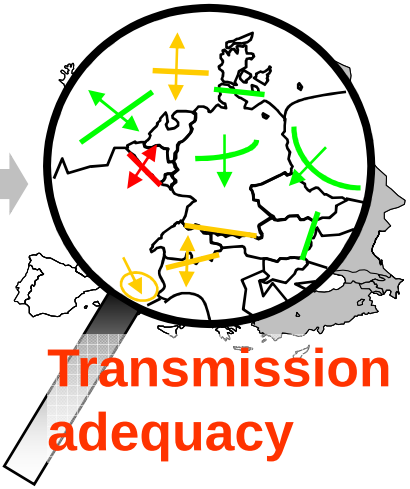
Network studies



Expected bulk flow patterns



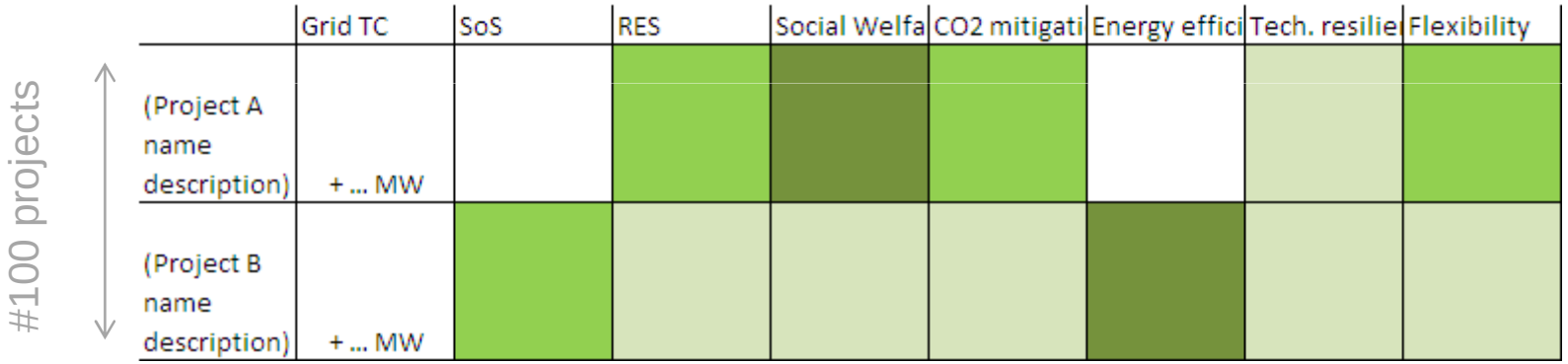
Grid transfer capability increases



Transmission adequacy

Synthetic, standard project assessment in TYNDP … towards PCI identification

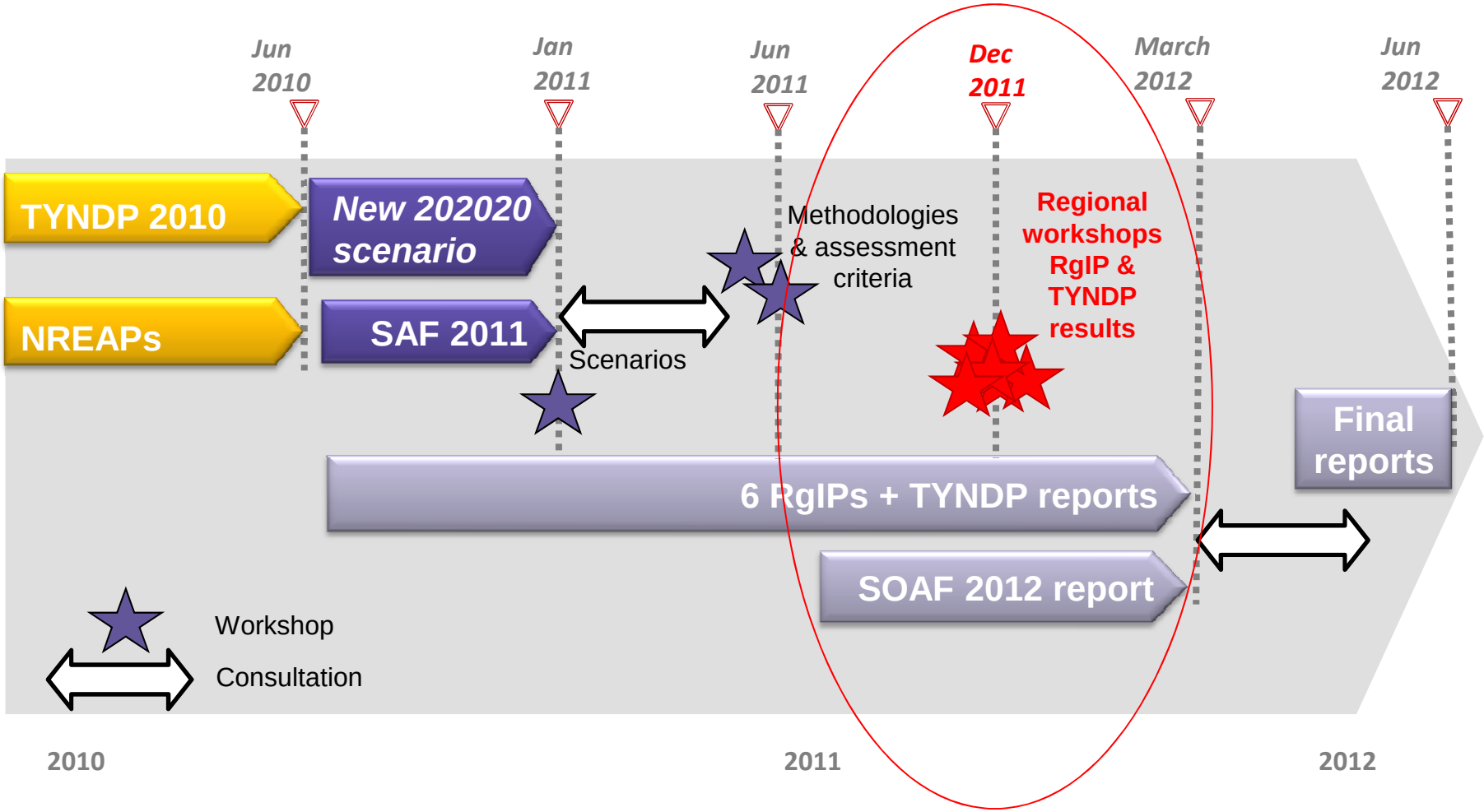
- Synthetic presentation of projects
- A multi-criteria assessment
  - To base EIP project selection at regional level



↳ **Quantified assessments synthetically presented as white-to dark green ranges**

↳ **+ monitoring + commissioning date + social acceptance risk +…**

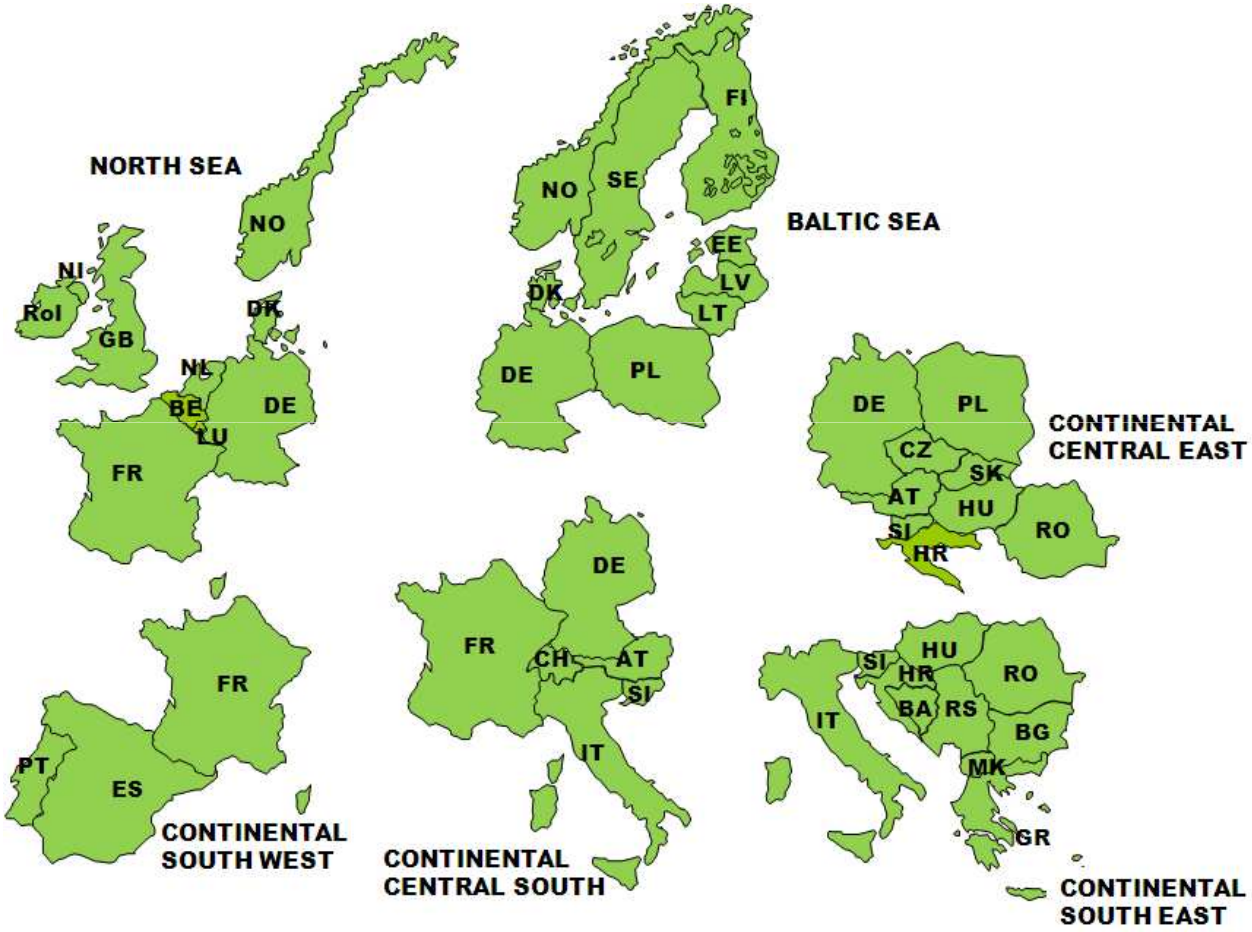
Overall schedule



Appendix

Back-up

ENTSOE Regional Groups



The most appropriate framework for grid development in Europe

Every RG gather countries sharing the same common concerns

Overlaping, in order to ensure overall consistency

The 2012 *package*



8 documents

- About 50p each, complementing each other

- Scenario outlook & adequacy forecast report (SOAF)

- 6x Regional Investment Plans reports
  - Detailed grid development issues, reg. level
- 10-year Network Development Plan report
  - Synthetic compilation, pan-European level

A top-down, open and constantly improving process

- ENTSOE SDC Working Groups

  supply common framework and bases

  - Methodologies (definitions, planning standards...)
  - Data (scenarios, market data, power system models...)

WG TYNDP,
WG EPS,
WG NMD,
WG SAMM

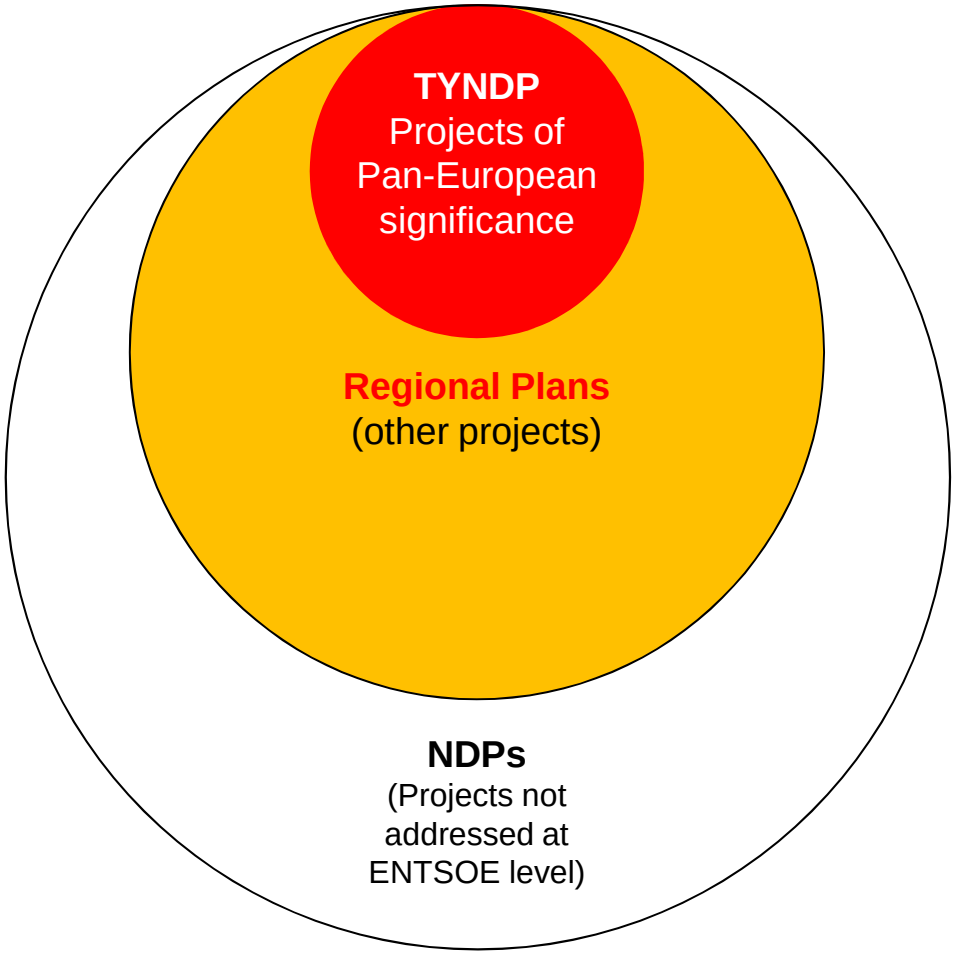
- ENTSOE SDC Regional Groups

  perform jointly regional analyses

  - TSO experts, sharing views and building jointly solutions

- An open and constantly improving process
  - Internal and stakeholders' workshops and WGs to share concerns & jointly develop more and more harmonised methodologies
  - Efficiency rather than perfection

Projects of Pan-European significance



- Definition of projects of pan-European significance
  - Meeting the 3 EU energy targets
    - RES, SoS, IEM
  - Voltage & capacity thresholds
- From TSOs... or 3rd parties
  - See the non-discriminatory procedure
- ↳ TYNDP = basis for EIP projects selection

Projects of European significance – Definitions

- A *Project of European significance* is…
  - … a set of EHV assets (with at least one part in Europe);
  - … all contributing to a same grid transfer capability increase across a grid boundary, valuated in MW;
  - … matching the following thresholds:
    - main equipment > 220 kV for OHL AC and > 150 kV else
    - Grid Transfer Capability Increase either
      - enabling > 500 MW of additional NTC; or
      - enabling or securing output of > 1 GW/1000 km² of generation (new and/or existing); or
      - securing for > 10-year load growth for an area > 3 TWh/yr.

EC Reg. 2010/617 on notification of infrastructures

EC 2009/72

3rd parties projects in the Plans 1/2 – criteria

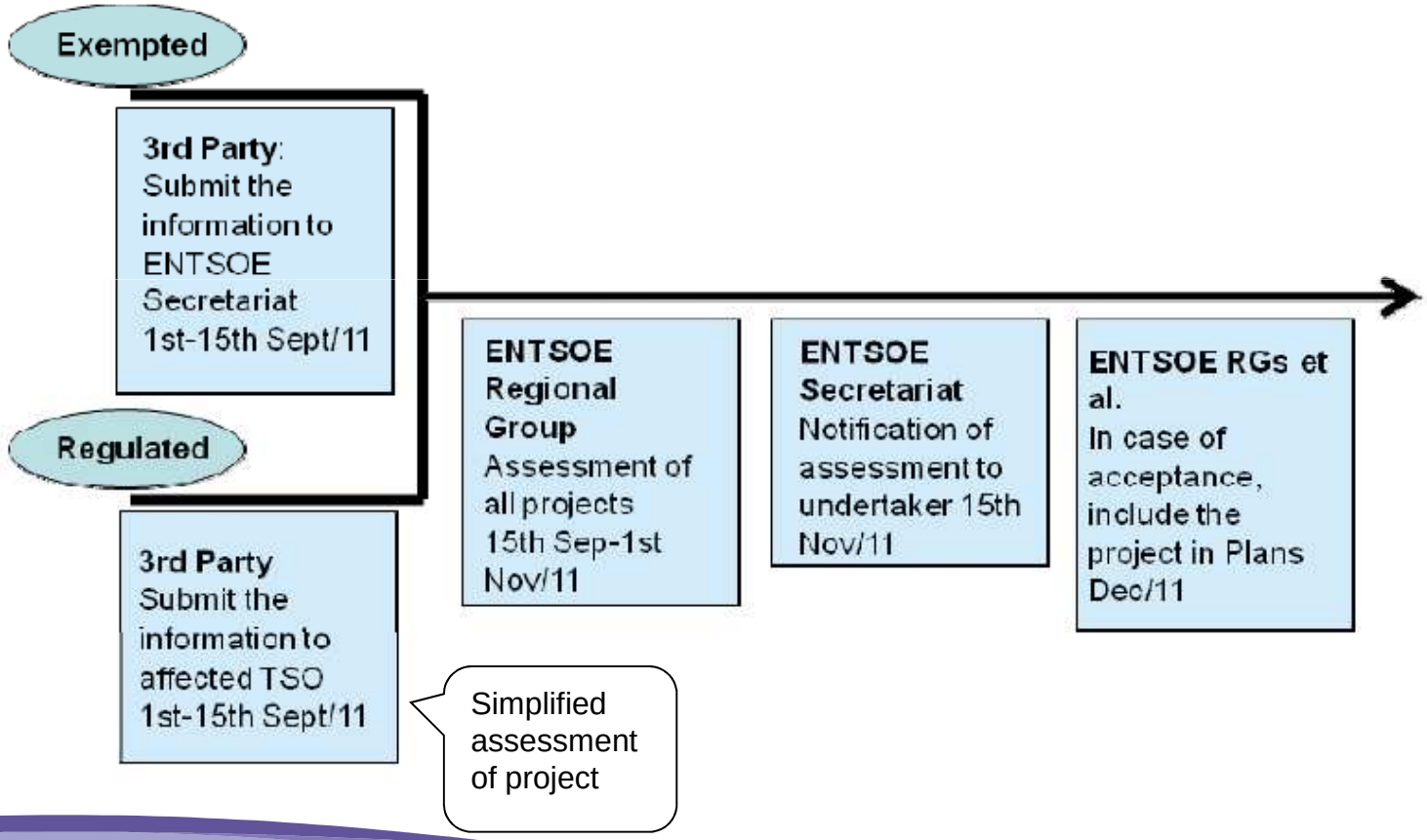
https://www.entsoe.eu/fileadmin/user_upload/_library/SDC/TYNDP/2012/3rd_parties_projects_guidance.pdf

- A non-discriminatory process
- Technical criteria
  - The project meets the definition of a project of pan-European significance
- Legal & regulatory criteria
  - The developer has been granted the operation license by relevant authorities

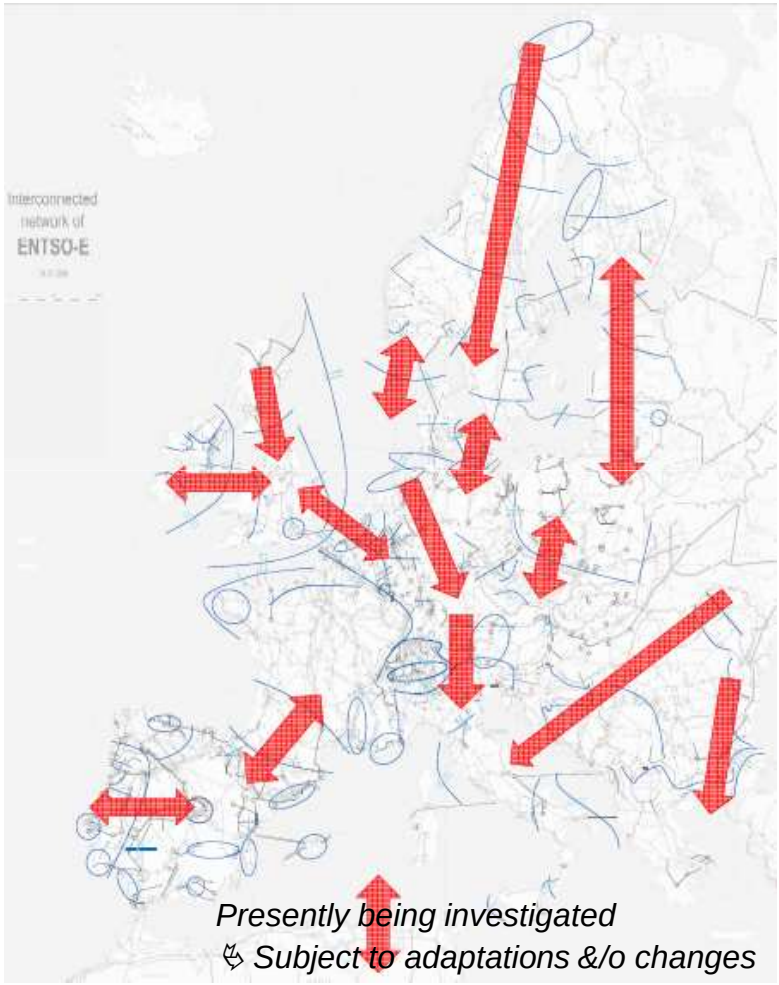
3rd parties projects in the Plans 2/2 – schedule & process

https://www.entsoe.eu/fileadmin/user_upload/_library/SDC/TYNDP/2012/3rd_parties_projects_guidance.pdf

- Schedule & process



Anticipation of development concerns by 2020



Presently being investigated
Subject to adaptations &/o changes

- 5-6 main development concerns
  - North-South power flows
    - RES (North Seas, South to EU)
    - Load in Italy, South Germany
  - Better integration of Baltic states, British islands, Iberian peninsula
  - East-West flows in S-E Europe
- Probably about 100 projects
  - Increasing the grid transfer capability on specific locations
  - Clustering about 500 investments

RgIP & TYNDP 2012 – The reports' structure



Regional Investment Plan

1. **Executive summary**
2. **Introduction**
3. **Assess TYNDP 2010** (reg. focus)
   (+ details / project in appendix)
4. **Specific RG methodologies**
5. **Scenarios** (regional focus)
6. **Investment needs**
   Present situation (NTC 2010), G/L dev. & tech. needs + Results of market studies (expected reg. p. flows maps)
7. **Investments projects**
   of European significance (& others if relevant) mid-term, long-term Economic assessment (opt.)
8. **Transmission adequacy** (map)
9. **Environmental assessment**
   (optional, some macro-indicators)
10. **Resilience assessment**
11. **Conclusion**

+ Appendices (incl. table of projects)

Common methodologies

Aggregated results

Pan-European consistency checks

Ten Year Development Plan

1. **Executive summary**
2. **Introduction**
3. **Assessment of TYNDP 2010**
4. **Methodology**
5. **Scenarios** (synthesis from SAF)
6. **Investment needs** (synthesis)
   pan-E NTC 2010, G/L dev. & technical needs + expected power flow maps
7. **Investments projects** (synth.)
   of European significance only MT/LT
8. **Transmission adequacy** (pan-E map)
9. **Environmental assessment**
   (optional, macro-indicators)
10. **Resilience assessment**
11. **Conclusion**

+ Appendices (incl. table of projects)

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