

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

## Roadmap to 2012

Sebastien Lepy  
Convener TYNDP WG

2<sup>nd</sup> ENTSO-E Workshop with Stakeholders on “2020 Scenario”

Sebastien Lepy | 10 January 2011

# Towards the TYNDP package 2012 at a glance

1. TYNDP in Regulation
2. ENTSO-E vision
3. Feedback about pilot TYNDP 2010
4. TYNDP elaboration process
5. The proposed TYNDP package for 2012
  - Including SOAF & 6 Regional Investment Plans (RgIP)
  - Main indicators
  - RgIP and TYNDP reports' structure
6. Schedule

# The TYNDP in Regulation

- A non-binding plan, updated every 2 years
  - Regulators to check consistency with National DP
- A vision for the future European EHV grid
  - “Derived from reasonable needs of system users”
  - A generation adequacy outlook (5/15 years)
  - A modelling of integrated networks
    - Assessment of most probable power flow patterns, investment gaps and investment projects
  - A review of barriers to increase capacities

# ENTSO-E target for TYNDPs

- A common reference ...
  - Summing up the most accurate information regarding the European EHV grid development concerns
  - An in-depth consultation with all European stakeholders and support for a monitoring process
- ... meeting eventually all expectations
  - EU objectives (SoS, RES integration, IEM...)
  - Regulation compliant, and
  - Updated and improved every 2 years
- A basis for all stakeholders for their projects

# Feedback from pilot TYNDP 2010

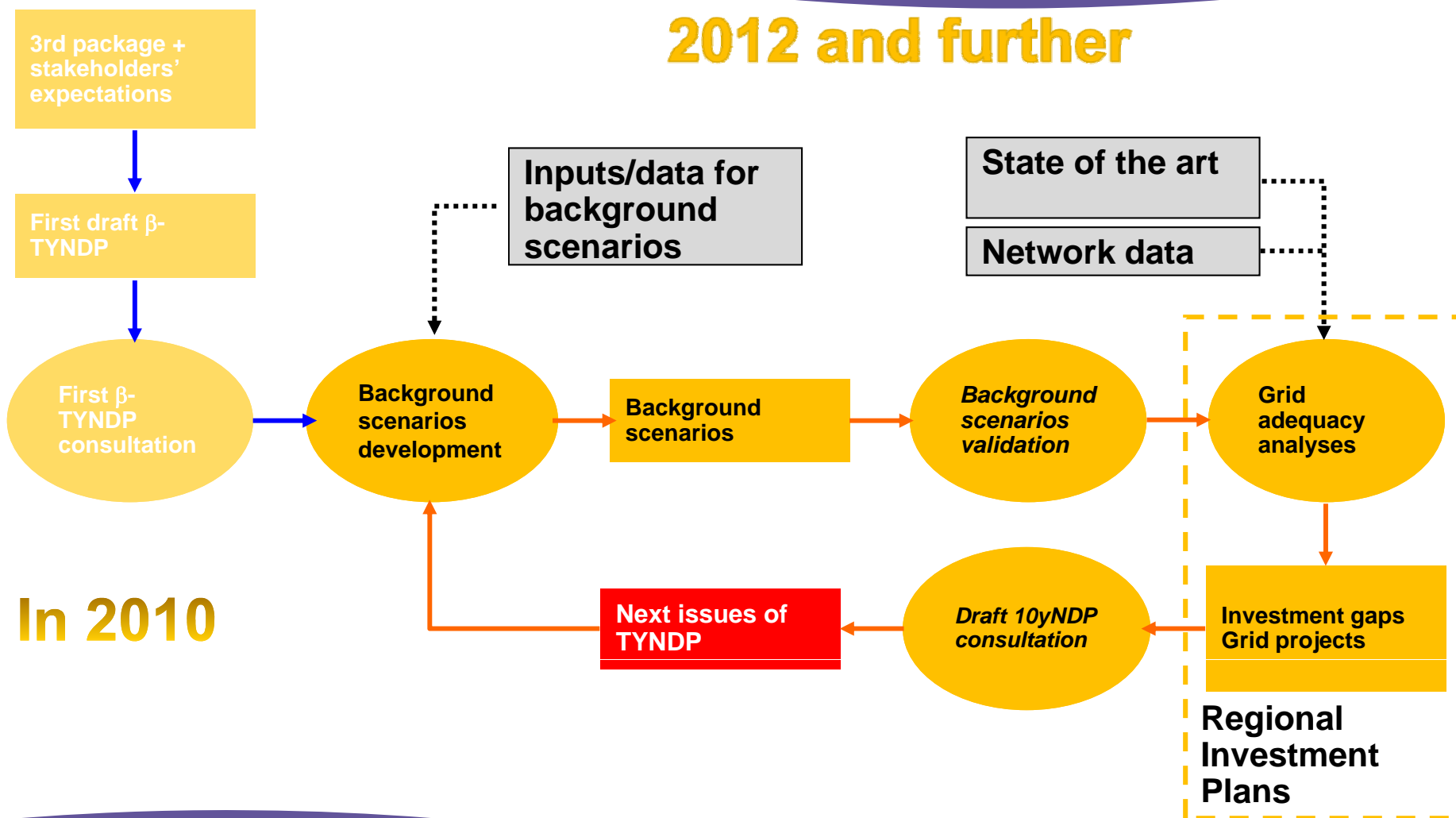
- Acknowledgement
  - Available, quite comprehensive
- Sense of urgency
  - TYNDP 2010 anticipated EC 2009/714' entry into force
- Still, great expectations for the next issue
  - 2020 perspective
  - Assess congestion & projects benefits
  - More synthetic perspectives
    - E.g. project corridors...

## Guidance for TYNDP

- EC's Energy Infrastructure Package
  - EC communication 17<sup>th</sup> November
- ERGEG's opinion on TYNDP 2010
  - Released 7<sup>th</sup> December

# RgIP & TYNDP 2012 – Elaboration process

## 2012 and further



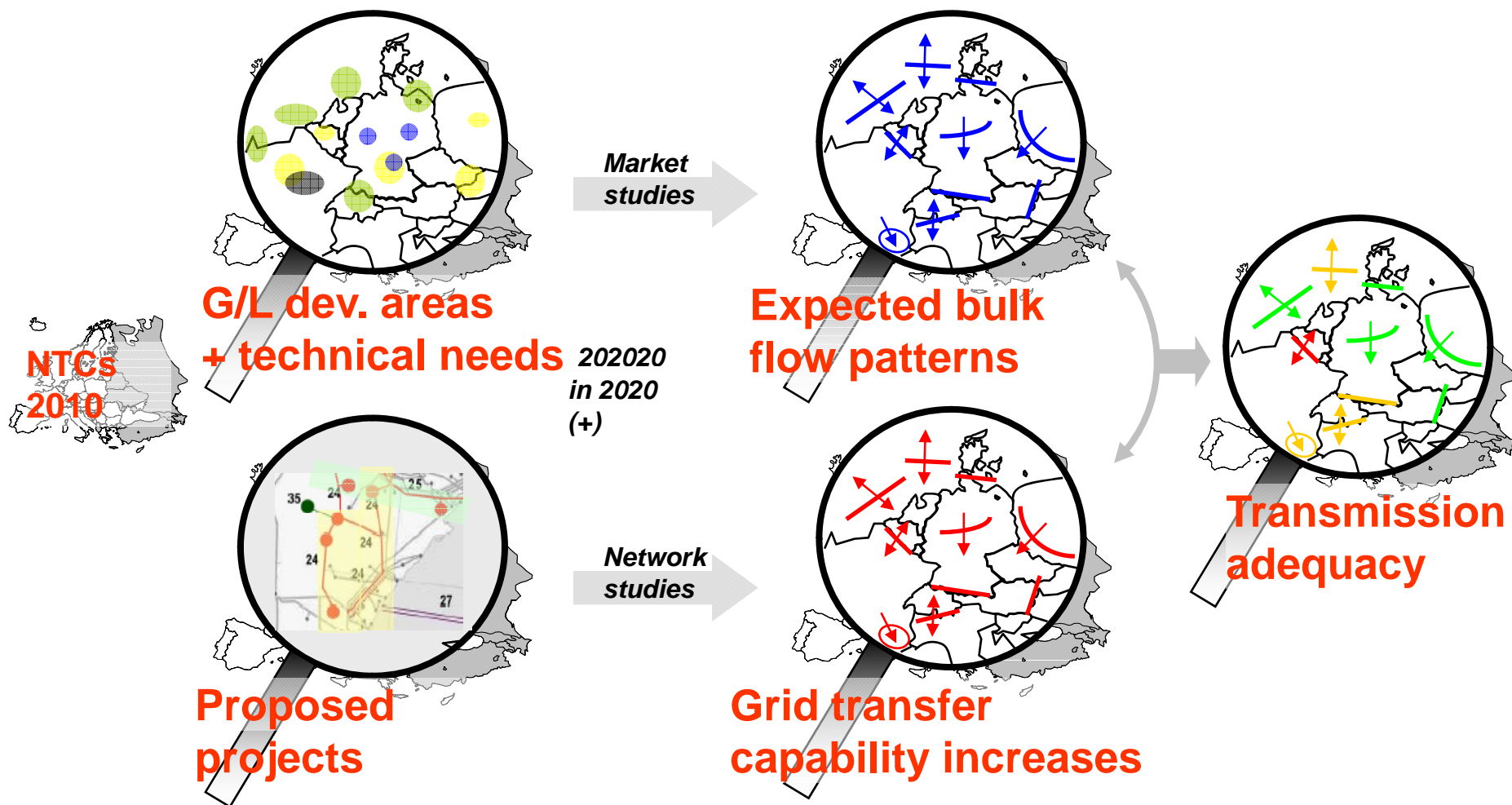


## 8 documents

- 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



# RgIP & TYNDP 2012 – Ensuring an adequate grid transfer capability

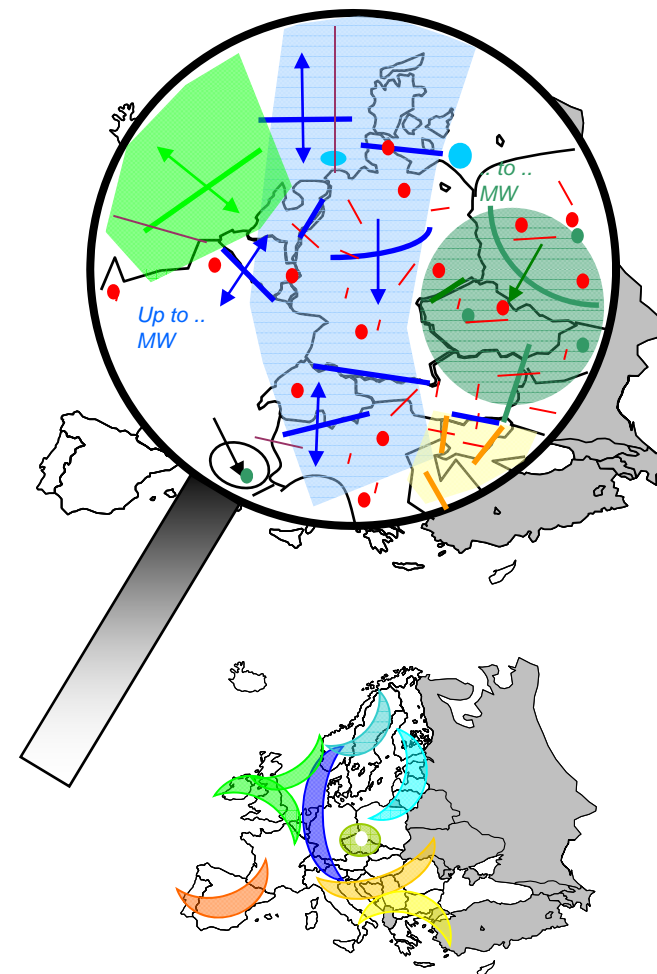


# From TYNDP 2010 to TYNDP 2012 projects?

- 500 projects in TYNDP 2010
  - The sole level of detail in tyndp10
  - ... helping increasing grid transfer capability of...

Grid Transfer Capability

- ... # 100 boundaries /  $\Delta$ GTC
  - the main level of detail in tyndp12
    - clustering the tyndp10 projects
- # 10 corridors/concerns?
  - 1 boundary possibly contributing to 1 concern (or more, or none)



# 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

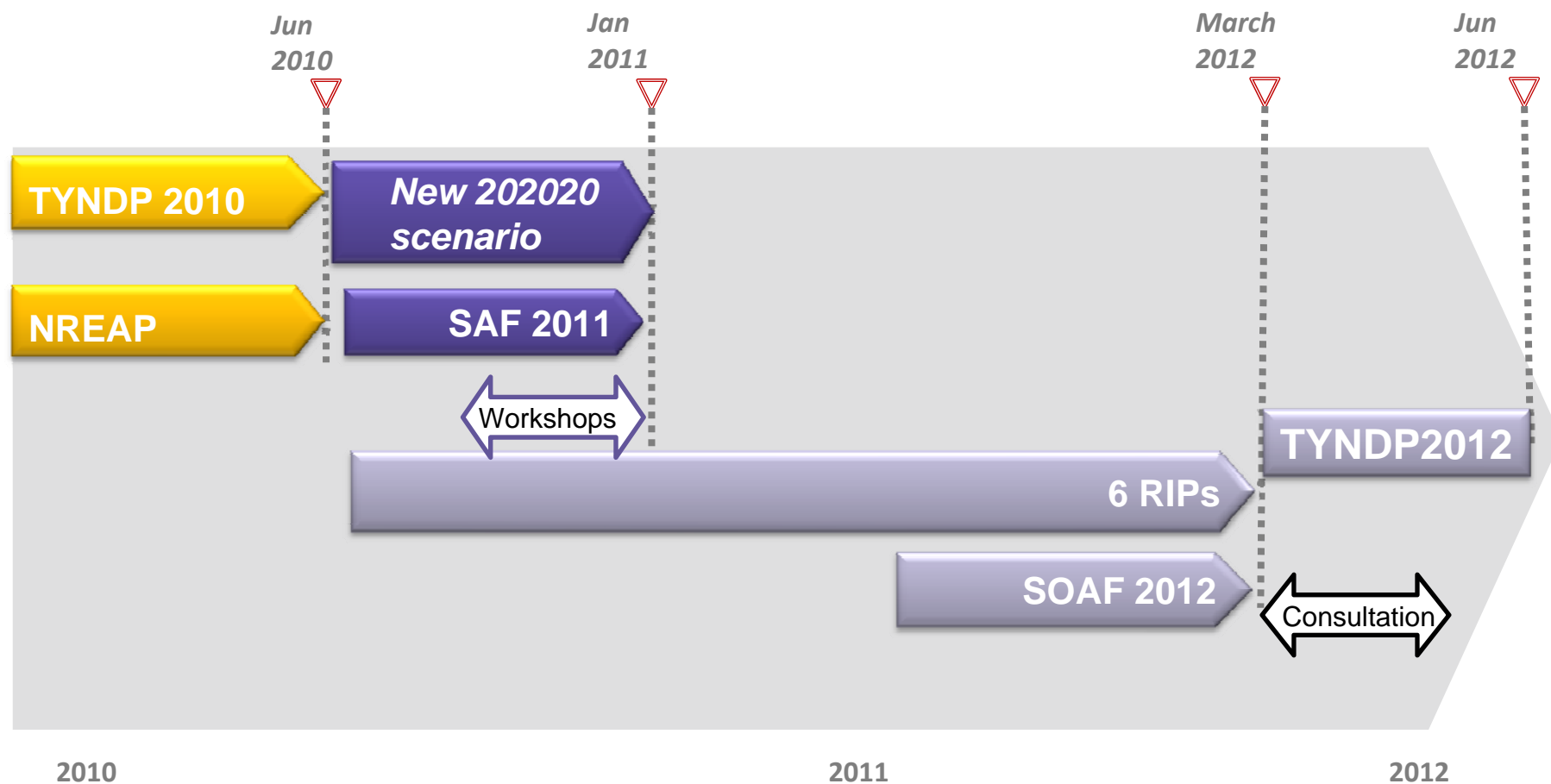
Aggregated results

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)

# RgIP & TYNDP 2012 – External deliverables





# Back-up

# Definitions – Projects of European significance

- *A Project of European significance is...*

If the same additional GTC across a given boundary requires several EHV investments, they must be all merged as one single project as they contribute to the same main benefit.

- ... 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 km<sup>2</sup> of generation (new and/or existing); or
  - securing for >-2-year load growth for an area > 3 TWh/yr.

EC Reg. 2010/617 on notification of infrastructures

EC 2009/72



- A *Grid Transfer Capability (GTC)*
  - ... across a particular boundary,
  - is an assessment of the amount of power in MW that the grid can transfer across that boundary over a given period of time
    - GTC value (or range) always relates to 1 particular boundary in 1 direction of power flows across it in a given period of time

The assessment accounts for thermal rating of lines, operational voltage, current and stability limits, security rules – e.g. N-1 – and all typical load and generation dispatch for the period (e.g. Winter 2020).



- ***A Boundary is***

- A grid section
  - at international borders, or within a country, or any combination of those (e.g. exports from PL to DE+CZ+SK),
- ...across which *it appears relevant for TSOs* to assess and publish grid transfer capability values.
- A boundary is hence oriented,
  - i.e. refers to a specific direction of power flows... and is defined on a case by case basis
  - partially or totally separating one part of the grid from another;

In order to auction capacity, to advertise the possibility of new generation connection upstream, or to communicate on securing load growth for a several years downstream.

for an international border A-B, one boundary A>B and another boundary B>A can be defined. The PL>DE+CZ+SK is a boundary; CZ>PL is another)



# Illustration of additional “grid transfer capability” enabled by projects across a “boundary”

