



Reliable Sustainable Connected

Securing Resource Adequacy

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Some background: “*once upon a time...*”

Recommendations of Electricity Coordination Group - Adequacy

- Adequacy reports should capture Security of Supply risks to the pan-European power system
- Assessment of the need for flexibility - as it moves towards increased levels of RES-E
- The treatment of electricity interconnection capacities at times of scarcity
- **5 – 10 years** appropriate time horizon for adequacy

ENTSO-Es views

- Fully supports the recommendations of ECG
- Renewables will be key drivers of power system dynamics to be captured by probabilistic methods
- Use of extensive climate data needed
- Modelling of management of transmission in times of scarcity to be improved

...a 2 years old slide!!!

Resource Adequacy Methodology

Market modeling
based on
probabilistics
method

Hourly resolution

**Cross-border
contributions** to a
country's system
adequacy

Assessment about
'need for flexibility'

Demand, renewable
production
variation

**LOLE/ ENS/ RES
curtailments,
capacity factors**



➤ **Common basis for discussions on market design and security of supply at a regional and European level.**

➤ **To be used by MS, on the basis of their national sensitivities and specificities, to guide their decisions on capacity mechanisms, support schemes, and security of supply.**

ENTSO-E Mid-term Adequacy Forecast

- *assessment **security of supply** (=potential load shedding) risks over the next decade*
- ***first pan-European market-based probabilistic modelling techniques***
- ***results benchmarked using 4 software tools***
- *provides **boundary regarding data, assumptions & tool's calibration** for further studies at regional level and national level*





the devil is in the details

Pan-EU Regional National

Extension Pan-European Climate DB



Improve assumptions on Cross-border Capacity



Demand Side Response



Flow-based



Sensitivity of Scenarios - Economic Viability



ENTSO-E's take on Resource Adequacy (IEM Regulation\Ch.IV)

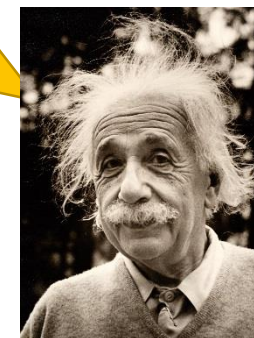
Positive about:

- Need of consistent methodology for resource adequacy assessment
- Acknowledgment of ENTSO-E as best to combine necessary MS and TSO experiences to develop common methodologies
- “Mid-term horizons” paradigm → MAF and TYNDP call for different time horizons

“Make it simple as possible, but not any simpler!!!”

Improvements desired on:

- National & regional assessments still needed to account local specificity (e.g. different SoS standard?), sensitivity and challenge Pan-European assessment
- yearly resolution



Thank you for your attention



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