2025

Ausblick Versorgungssicherheit: ERAA 2024 und nächste Schritte

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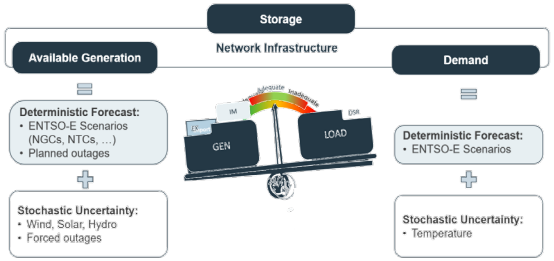
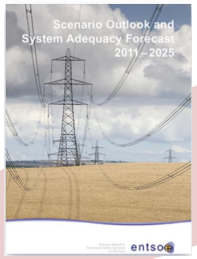
History of pan-European resource adequacy assessments

Adequacy challenges in future scenarios:



- Growing penetration of non-dispatchable RES
- Climate change and extreme climatic events
- Progressive decarbonization of the generation fleet
- Resilience of grid stability and flexibility resources

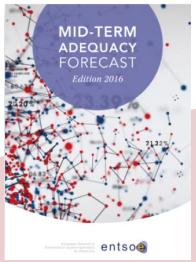


System Outlook & Adequacy Forecast (SO&AF)

Applied **2011 – 2015**

Target Years 2016, 2020, 2025, vision 2030

2 load cases (summer and winter peak) per target year assessed deterministically



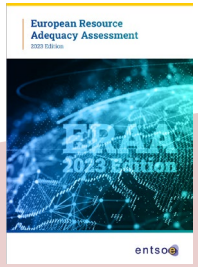
Mid Term Adequacy Forecast (MAF)

Applied **2016 – 2019**

Forecast horizon 10 years ahead

2 target years

First probabilistic calculation with 8760 hours a year



European Resource Adequacy Assessment (ERAA)

Applied since **2021**

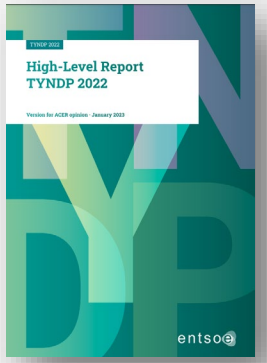
First approved version in 2023
Full probabilistic calculation

Aims to assess t+2 until t+10 in annual resolution (Currently 4 target years assessed)

Subject to Economic Viability Assessment and Flow Based XB-representation

Legislative frame	Regulation (EC) 714/2009	Article 23(3) of Regulation (EC) 2019/943
Methodological frame	ENTSO-E Target Methodology for Adequacy Assessment	ERAA Methodology

Uncertainty

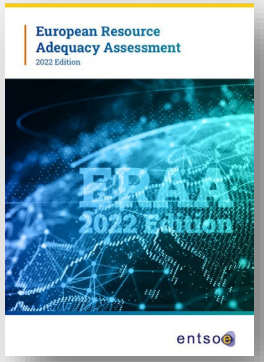


Purpose: Support long-term investment decisions.

Scenarios/Inputs: Builds on national estimates under various long-term assumptions/scenarios.

Uncertainty: Very high.

TYNDP:
10 to 30 years



Purpose: Guide policy-makers' decisions on investments and regulatory interventions.

Scenarios/Inputs: National best estimates. NECPs included to best available extent.

Uncertainty: Moderate until 5th year & higher beyond 5 years.

ERAA:
2 to 10 years

Purpose: Flag short-term risks for system adequacy so that involved stakeholders at national, regional and pan-European level coordinate to ensure security of supply.

Scenarios/Inputs: TSOs' estimates. Target compliant and adequate by design.

Uncertainty: Low.

Seasonal Outlook:
Weeks to months ahead

Time

The framework of ERAA 2024

TSO Data and NECPs

Generation

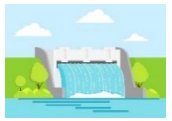
Net Generation Capacities

Market Coupling

Net Transfer Capacities Flow-Based

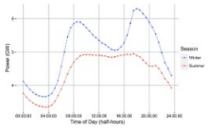
Climate Data

Capacity Factors



Hydro Database

Temperature profiles



DEMAND

Native demand forecasts

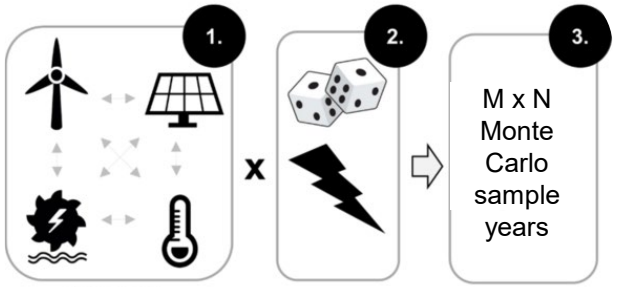
Economic Viability Assessment (EVA)

- Stochastic overall costs minimization

Central Reference Scenario

- Include EVA entry/exit of market capacity

ED Model: Monte Carlo Simulation



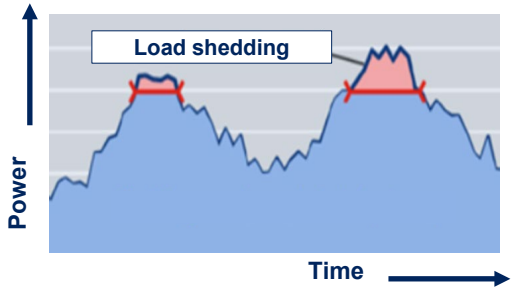
N years of independent climate data

M random draws for unplanned outages

Adequacy Metrics

$$EENS = \frac{1}{M \times N} \sum_j ENS_j$$

$$LOLE = \frac{1}{M \times N} \sum_j LLD_j$$



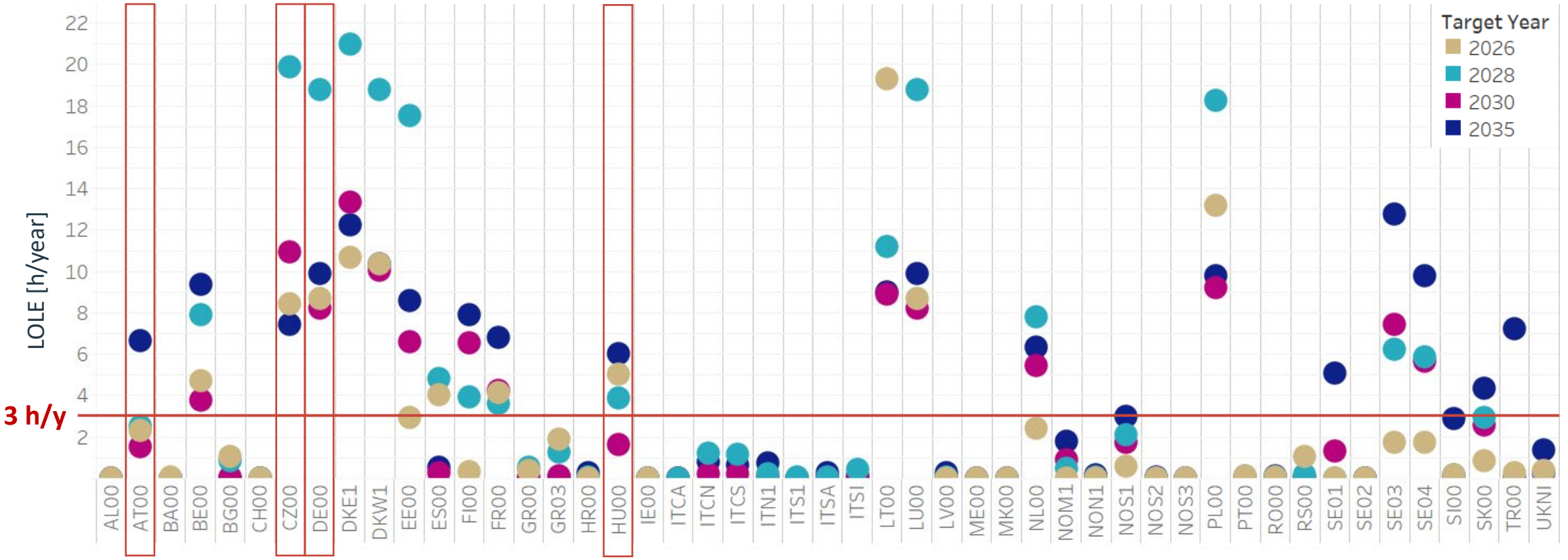
LoLE = Loss Of Load Expectation [hrs/year]:

average number of hours in which the demand exceeds the generation and import capacity in a market area.

EENS = Expected Energy Not Served [GWh/year]:

average energy not supplied when the demand exceeds the generation and import capacity in a market area.

Adequacy results



- Red line of **3 h LOLE/year** highlighted as representative threshold for **range of Reliability Standards** of several Member States
- Austria retrieves **average values close to 3 hours of LOLE in the short term, with a mild decrease for pivotal year 2030,** followed by a raise **above 6h in 2035,** driven by high electrification (demand growth) and decarbonization in the whole Europe.
- **P95 values** need to be monitored as Austria sees values of **13, 18, 16, 42 hours from 2026 to 2035**, showing that the **adequacy risk is increasing in comparison to the ERAA 2023 edition.**
- Scarcity is a regional phenomenon and often simultaneous: some neighbors e.g. **DE and CZ** show **high adequacy risk**, thus calling for close national monitoring and regional cooperation.

Key takeaways of ERAA 2024

Additional supporting mechanisms must be promoted where necessary to enable the transition while maintaining system security.

Significant volumes of fossil-fuelled capacity are likely to become economically non-viable by 2030. The right incentives and/or targeted intervention to avoid adequacy risks. Such incentives includes long-term market mechanisms, providing efficient price signals.

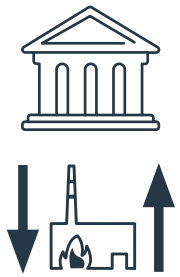
Renewable generation capacity is expected to expand over the coming years based on national policy targets and TSO estimates. However, due to the intermittency of RES, the capacity will not be sufficient to compensate for the expected decline in dispatchable thermal generation and the growing electrification by 2035.

To ensure electricity security and meet climate objectives, Europe must accelerate the deployment of flexibility solutions and infrastructure, including cross-border electricity transmission network to direct RES electricity where it is most needed, as well as storage and other sources of flexibility, while safeguarding security of supply.

While the ERAA is one instrument to inform EU MSs and NRAs about the level of security of supply and serves as the basis for decisions on different market design options, NRAAs can provide complementary, more detailed picture on national specificities and local sensitivities for identifying resource adequacy concerns.

What's next

APG intensifies the monitoring of generation and transmission adequacy beyond ERAA to ensure reliable and secure supply of electricity in Austria, engaging with all key national stakeholders



Government program in the context of ElWG

- ❖ „Ensuring secure supply of electricity after expiration of the current Grid Reserve regime“
- ❖ „Developing a power plant strategy to maintain security of supply“

Power Act in preparation

- ❑ Definition of a Reliability Standard in Austria
  - According to Article 25(2) of Reg. (EU) 2019/43 and VOLL/CONE/RS methodology
- ❑ Preparation for a National Resource Adequacy Assessment
  - Detailed assessment for Austria based on the established ERAA methodology
- ❑ Flexibility Needs Assessment in alignment and cooperation with DSOs
  - According to Article 19e of the (EU) 2019/943 and new FNA methodology