

European Resource Adequacy Assessment

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What is ERAA?

Mandated by the 2019 Clean Energy Package, the European Resource Adequacy Assessment (ERAA) is ENTSO-E's annual assessment of the risks to EU security of electricity supply.

In case of adequacy issue Member States:

- should address regulatory distortions
- can apply for **capacity mechanisms**

When applying capacity mechanisms Member States shall have:

- RS indicating the necessary level of security of supply of the Member State in a transparent manner.
- **adequacy concern based on European resource adequacy assessment.**



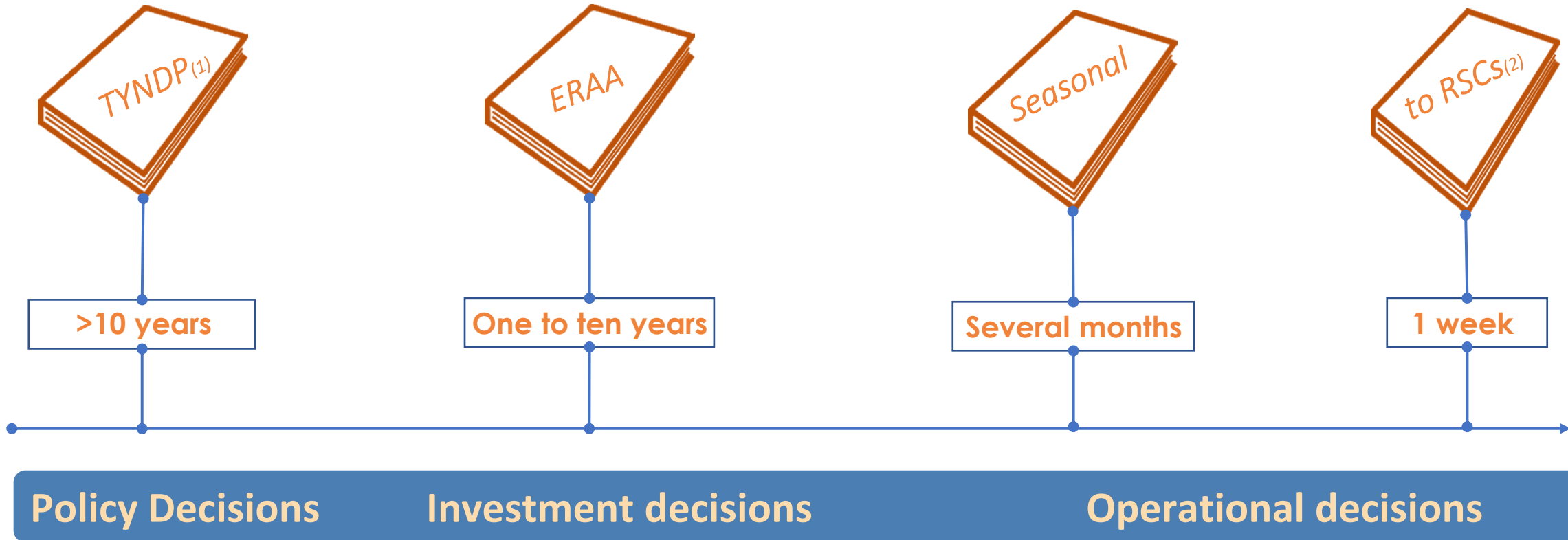
CONE/VOLL/RS
Member States



ERAA
ENTSO-E

- Economic Viability Assessment
- Flow-Based market coupling
- 10 years ahead
- Sectoral integration

Different risks addressed with different timeframes



(1) Ten-Year Network Development Plan
(2) Regional Security Coordinator

The ERAA Process

TSO Data and NECP

PEMMDB
Net Generation Capacities

Market Coupling
Net Transfer Capacities
Flow-Based

PECD
Capacity Factors

Hydro Database

Temperature profiles

DEMAND
Native demand forecasts

Economic Viability Assessment (EVA)

Input

- Policy technologies (RES, Nuclear and Hydrogen)
- CAPEX
- WACC and risk premium
- Fixed and variable costs
- Commodity prices
- Expansion potentials
- Market price caps

Model

- 10 years horizon
- Stochastic approach
- Selection of climate years and weights

Result

Capacity likely to stay/leave/enter the market

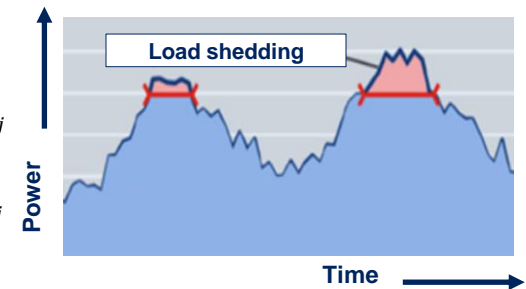
Economic Dispatch Model

- N years of interdependent climate data
- N random draws for unplanned outages
- $M \times N$ Monte Carlo sample years

Adequacy Metrics

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

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



- Resources designed to cope with real-time scarcity events are not part of the available capacity.
- Out-of-the-market measures, e.g., strategic reserves, are not in scope.