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Long-term security of Supply : France's cross border capacity market

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Introduction

France security of supply is assured with a capacity market. This capacity market takes into account cross border capacities, including German ones

Interconnections with neighbouring grids are essential for France's security of supply and is a key subject in adequacy studies published by RTE



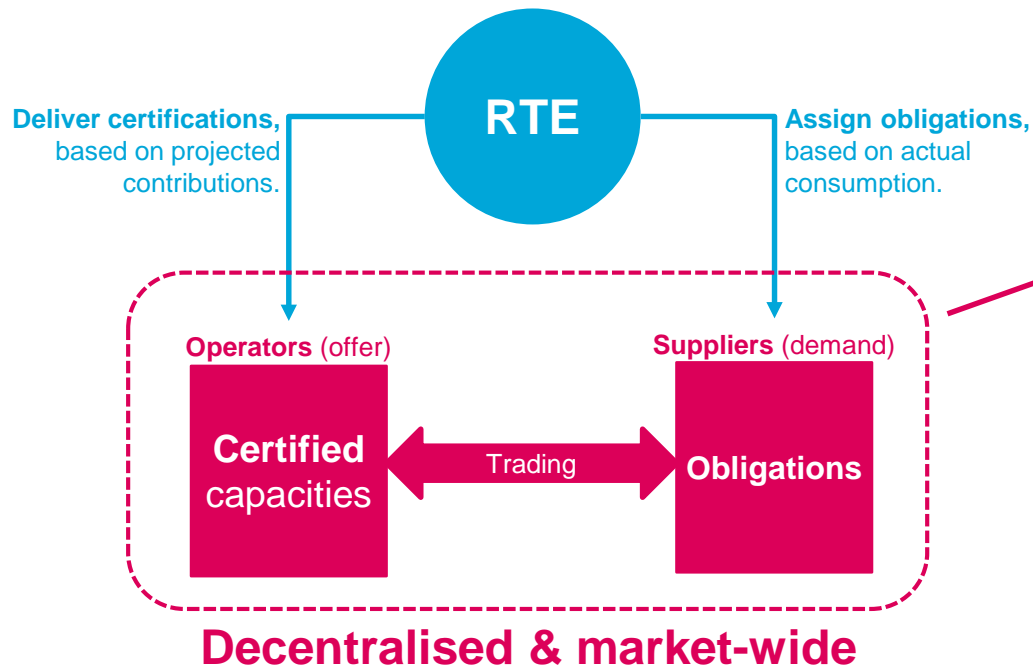
Securing France SoS





French Capacity Market overview

Architecture



- The mechanism is a form of “insurance”, rewarding operator contributions during peak periods.
- Starting 4 years in advance, the market delivery period is aligned on a calendar year.
- Factors and interconnection contributions are annually refined, based on Adequacy Forecast Report data.

French Capacity Market overview

Key features

Market based

“BRP-like” market design
(individual forecast & hedging, organized & OTC market, imbalance settlement)

No administrative capacity target

Transparency (underlyings & trades)

No distortions

Market wide (all capacities participate)

Technology neutral (generation, DSR, RES,...)

Cross border contributions included (valued from 2019)

SoS oriented

Forward looking (market starts 4 years ahead, 1 year product)

Certification = individual contribution to SoS

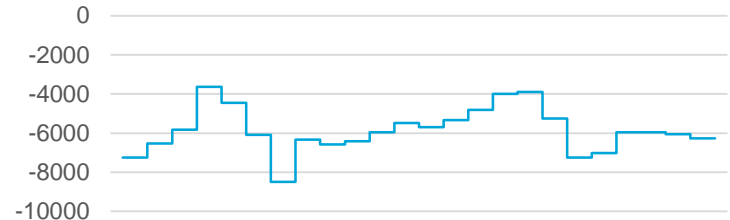
Capacity Obligation = individual contribution to adequacy risk

2019 saw a major change in accounting for XB contributions



Cross border contributions are needed for French security of supply during stress days (PP2) or high consumption days (PP1).

An example : France net import in MW 21/11/18 (PP2 day)



Decree and new set of rules updated the way cross border contribution is taken into account

- For years 2017 and 2018 cross border contribution was considered using a **mark-down for suppliers : Implicit cross border contribution**
- From year 2019 **EU countries cross border contributions are explicitly** taken into account with a contribution for each neighbouring country based on the **expected imports in case of security of supply crisis** in France

Two complementary models for explicit XB participation

Interim Model Simplified procedure

- Interconnectors directly receive capacity certificates.
- Interconnector operator may rebalance its position (= give back capacity certificates) *ex ante* if interconnector is not available,
- Interconnector availability controlled against NTC:
 - Normal capacity imbalance settlement applies for negative imbalances
 - Positive imbalances are not accounted for

Target Model In-depth procedure

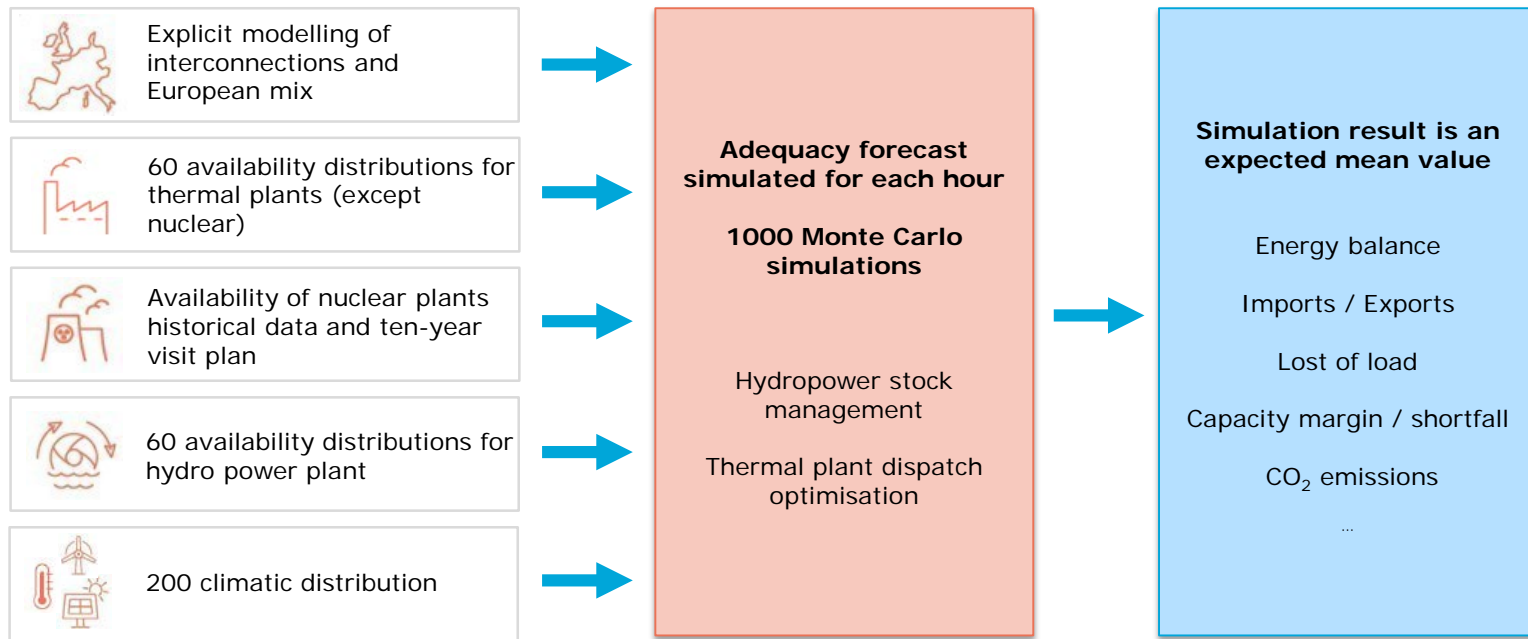
- Cross border capacities are certified
- Supported by a TSO-TSO cooperation agreement
- Access Tickets to the capacity market are allocated by RTE up to the border contribution
- Capacities may decrease their participations and release Access Tickets,
- Cross border capacities imbalances are settled exactly as for French capacities
- Opportunity of **additional revenues for capacity providers**



Calculating cross-border contribution

Adequacy forecast

A probabilistic modelling incorporating risks weighing on the electrical system



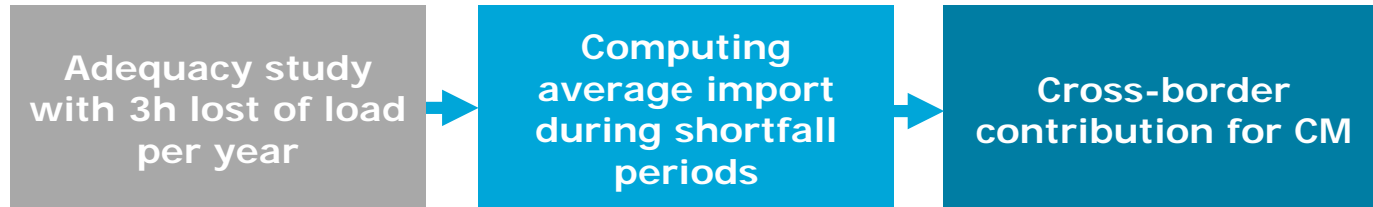
Cross border contribution

Determining the XB contribution in the CM

Study directly derived from the adequacy forecast published by RTE

Cross border contribution is determined using **available margin and capacities** in the neighbouring country when France is at a shortfall situation as well as **interconnection capacities** between the two countries.

- Generation mix evolution has a first order impact on contribution level
- Countries with shortfall simultaneous with France have a smaller contribution all other factors being equal.



Cross border contribution

Approved cross border contribution

	2019	2020	2021	2022	2023
Belgium	272	400	400	200	100
Germany	1733	1700	1500	1300	1100
Spain	1969	2200	2200	2200	2200
Italy	959	900	1100	900	700
England	1386	1500	2100	2500	2400
TOTAL in MW	6319	6700	7300	7100	6500

Cross border contribution

General and Germany hypothesis



18 countries
explicitly modelled

- Adequacy forecast is based on a **probabilistic study** with 1000 scenario modelled
- Generation mix evolution based on **data collected by ENTSO-E** (MAF 2018)
- ENTSO-E study points (2020 and 2025) are extrapolated taking into account **uncertainty on (de)commissioning**
- Hypothesis are adjusted with **local studies** (BE, GB) or **direct exchanges** with RTE counterparts (DE)



Germany

- Decommissioning of nuclear generation
- Important coal and lignite phase out partly offset by gas power plant commissioning
- Resulting in a diminishing contribution over the study period

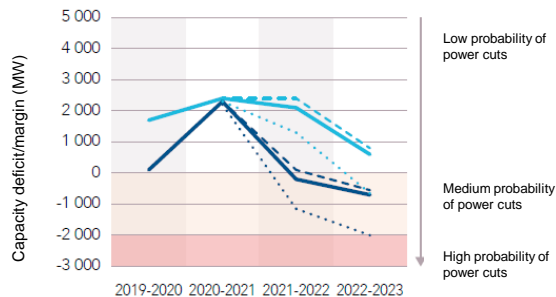


Interconnection commissioning and evolution foreign mix have a direct impact on France SoS

Adequacy forecast studies GE coal decommissioning scenarios

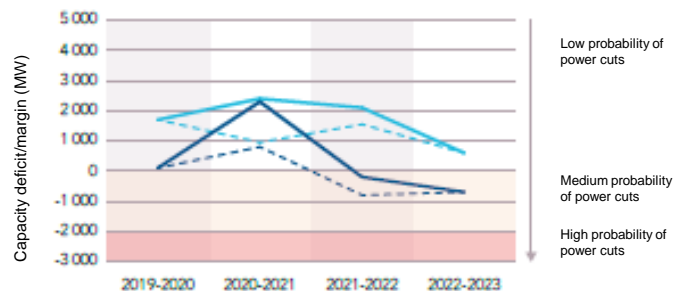
New interconnection commissioning scenarios

Évolution des marges



- 10-Y visits delayed by 2 months and progressive decommissioning in GE (base case)
- Planned 10-Y visits and progressive decommissioning in GE
- 10-Y visits delayed by 2 months and faster decommissioning in GE
- Planned 10-Y visits and faster decommissioning in GE

Évolution des marges



- 10-Y visits delayed by 2 months and planned I/C commissioning (base case)
- Planned 10-Y visits and planned I/C commissioning
- 10-Y visits delayed by 2 months and delayed I/C commissioning
- Planned 10-Y visits and delayed I/C commissioning



Conclusion





Conclusions – A glimpse at the CEP

- The Clean Energy Package is about to be approved. Electricity Regulation articles 18 to 21 create a new framework for capacity mechanisms in Europe.
- On the one hand, the Clean Energy Package creates a whole set of additional requirements, delays and procedures for Member States willing to ensure their security of supply by implementing a capacity mechanism.
- On the other hand, the Clean Energy Package also features building blocks of what could become a European capacity market : common rules drafted by ENTSOE, a European registry of capacities,...
- Innovative design features such as explicit cross border participation create opportunities for bottom-up initiatives to develop the European dimension of capacity markets

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