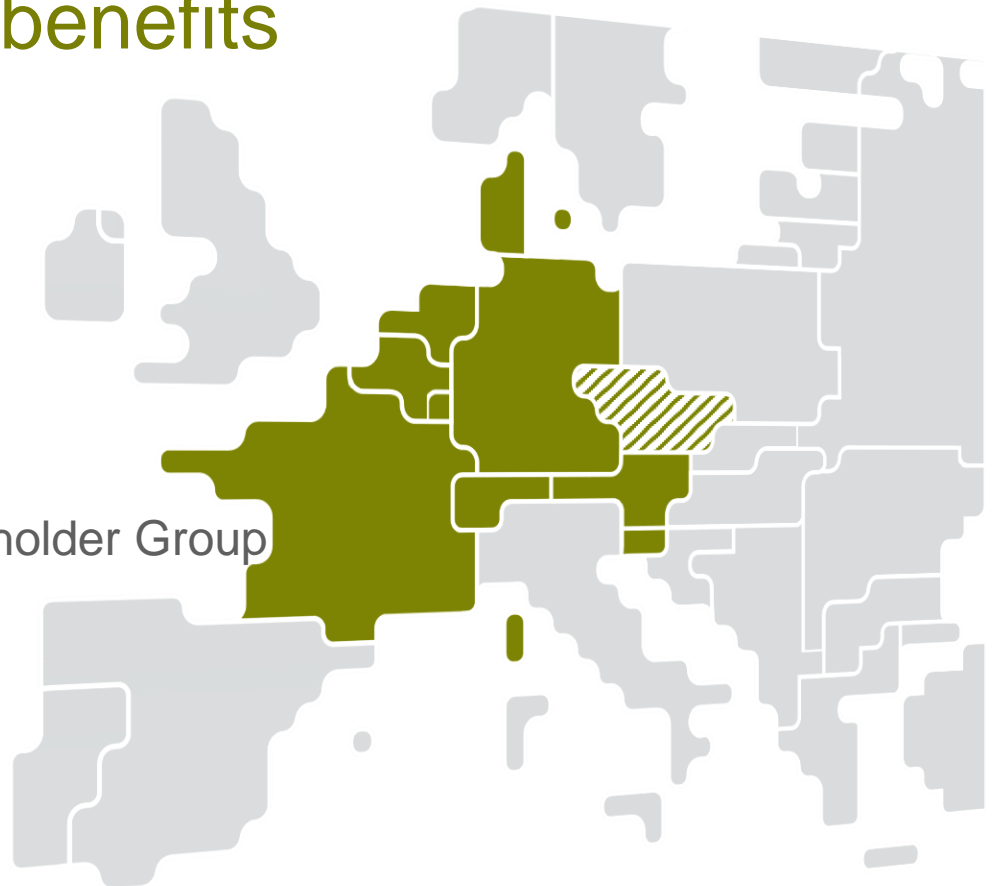




FCR Cooperation Experience and benefits

12 May 2022

Electricity Balancing Stakeholder Group



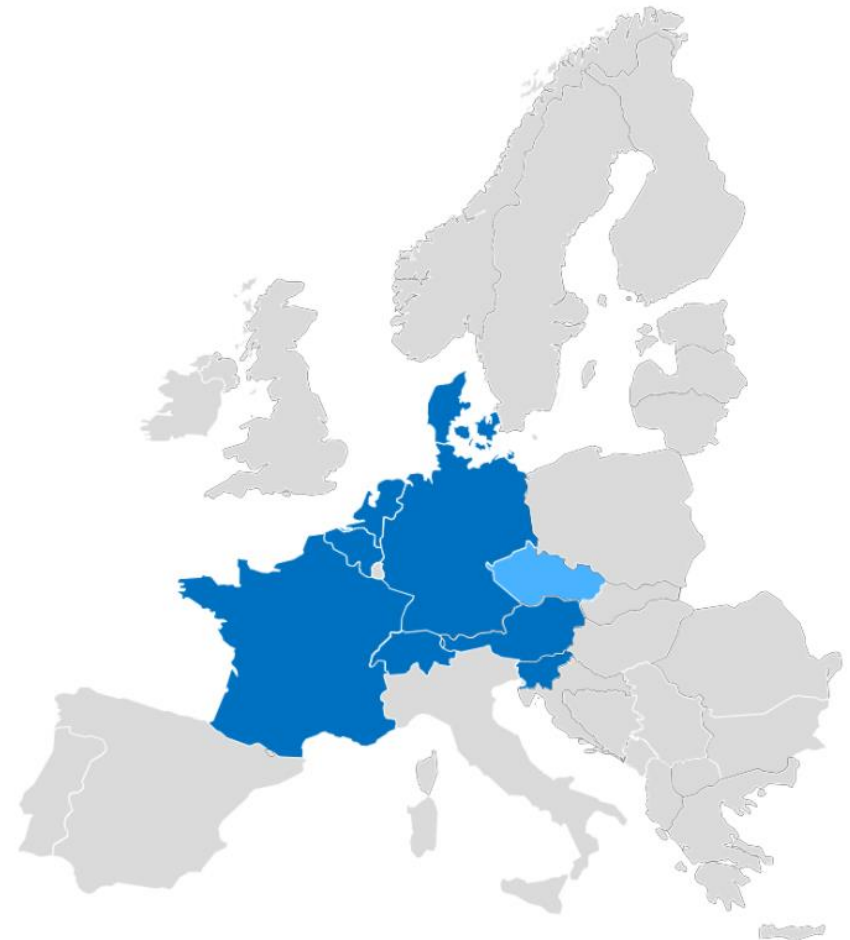


SUBJECT	
1	The Goals of FCR Cooperation
2	Road to current FCR Cooperation
3	Characteristics of FCR Cooperation
4	Experience from the market
5	Benefits for stakeholders and future developments



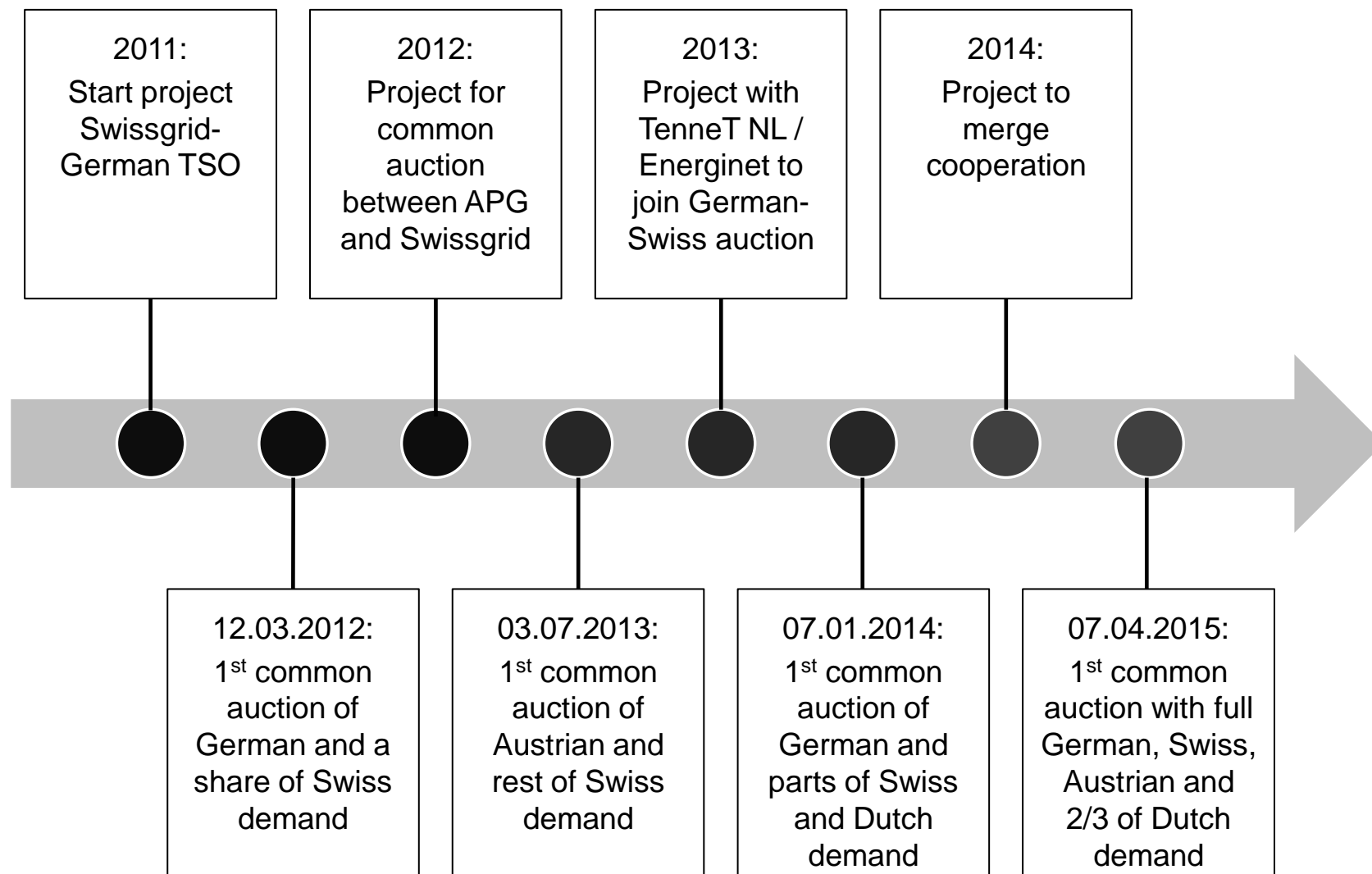
Goals FCR Cooperation

- In accordance with the objectives of the EB Regulation, a common market for procurement and exchange of FCR (FCR Cooperation) aims to integrate balancing markets to
 - foster effective competition
 - non-discrimination and level playing field
 - transparency
 - new entrants and
 - increase liquidity, while
 - preventing undue distortions.
- These objectives must be met in consideration of **secure grid operation** and **security of supply**.



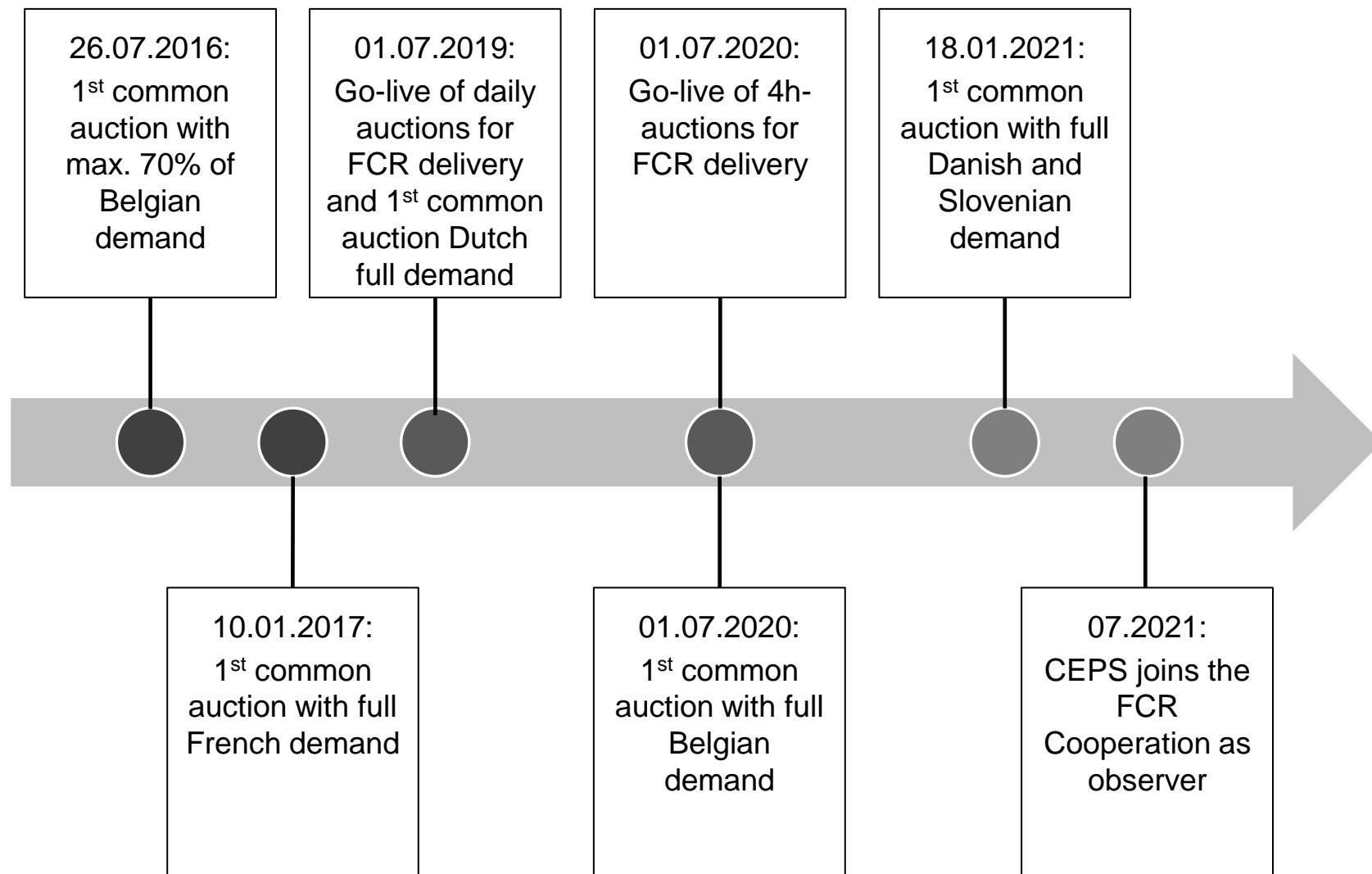
2. Road to current FCR Cooperation

History of the project – 1/2



2. Road to current FCR Cooperation

History of the project – 2/2



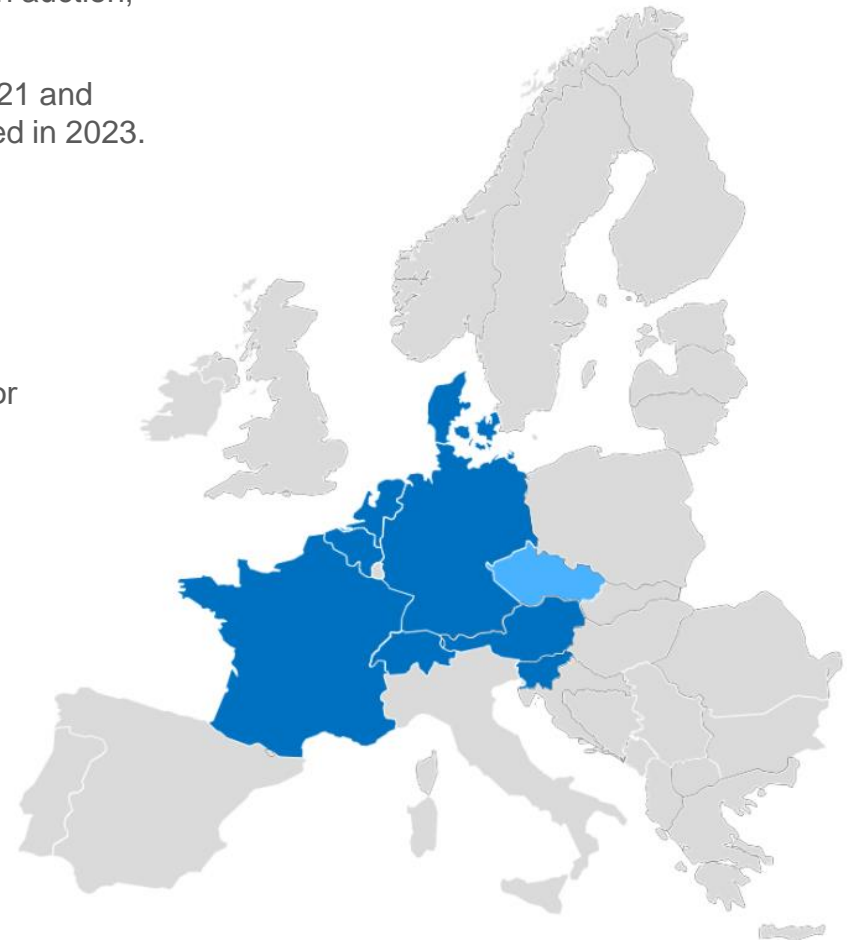
2. Road to current FCR Cooperation

Overview of the FCR Cooperation



Current FCR Cooperation

- In accordance with the objectives of the EB regulation, the FCR cooperation, a voluntary common market for procurement and exchange of FCR capacities, currently involves 11 TSOs from 8 countries.
- The common demand of 1.42 GW for 2022 is procured in a common auction, which is almost half of the Continental Europe demand of FCR.
- The latest accessions include Denmark and Slovenia in January 2021 and CEPS as observer in July 2021. Further coupling of CEPS is planned in 2023.
- Further important milestones include
 - FCR TSOs' proposal for common & harmonized rules in 2018 for
 - Bid design,
 - Auction Allocation Algorithm,
 - TSO-TSO and TSO-BSP settlement.
 - Go-live of daily products in July 2019.
 - Go-live of 4h-products in July 2020.



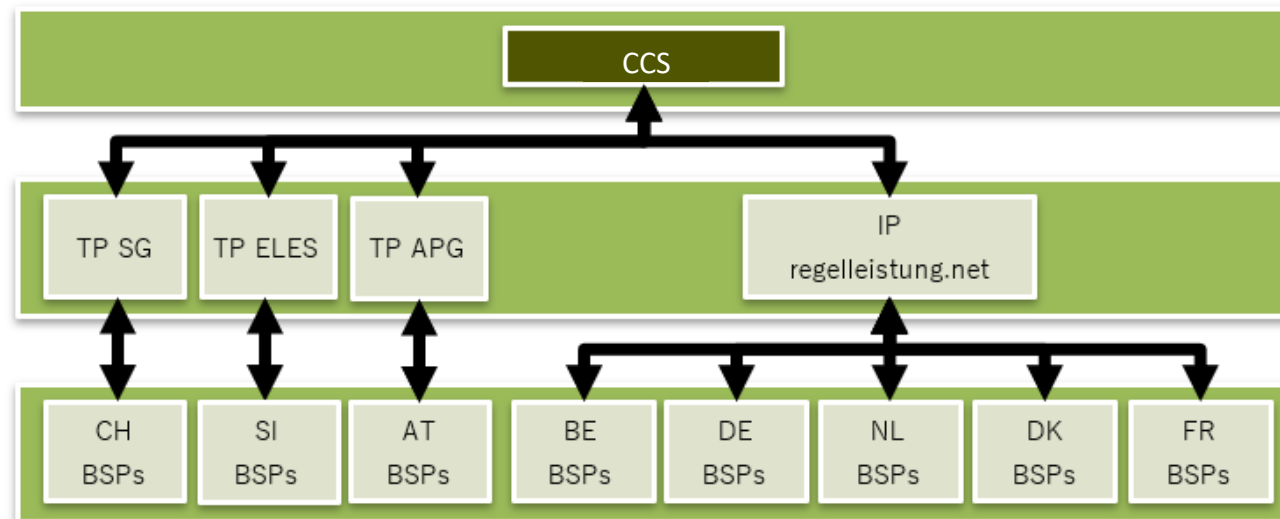
3. Characteristics of FCR Cooperation

System layout and operational responsibilities – 1/2



Systems / Layer according to functionality:

- Central clearing system (CCS)
- Bidding on national/regional auction systems
- Interface from TSOs to suppliers



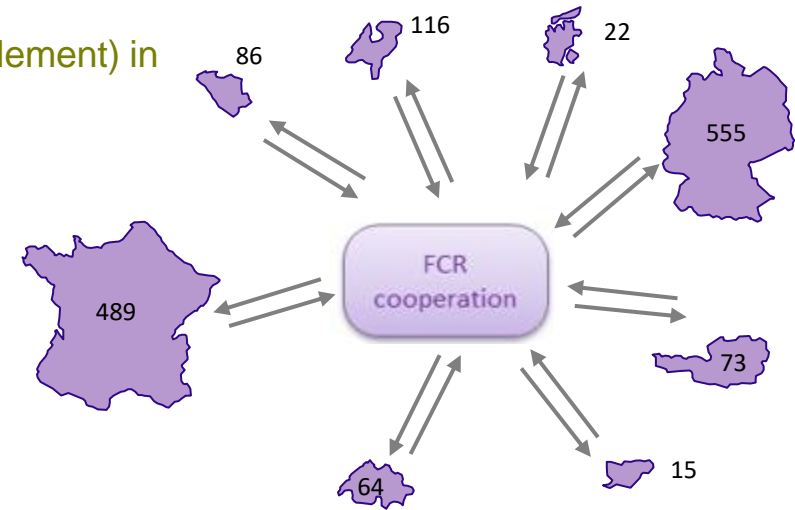
- The CCS is a separate module with full flexibility
- Easy adaption of principles and extension
- No dependencies from interfaces with market participants

3. Characteristics of FCR Cooperation

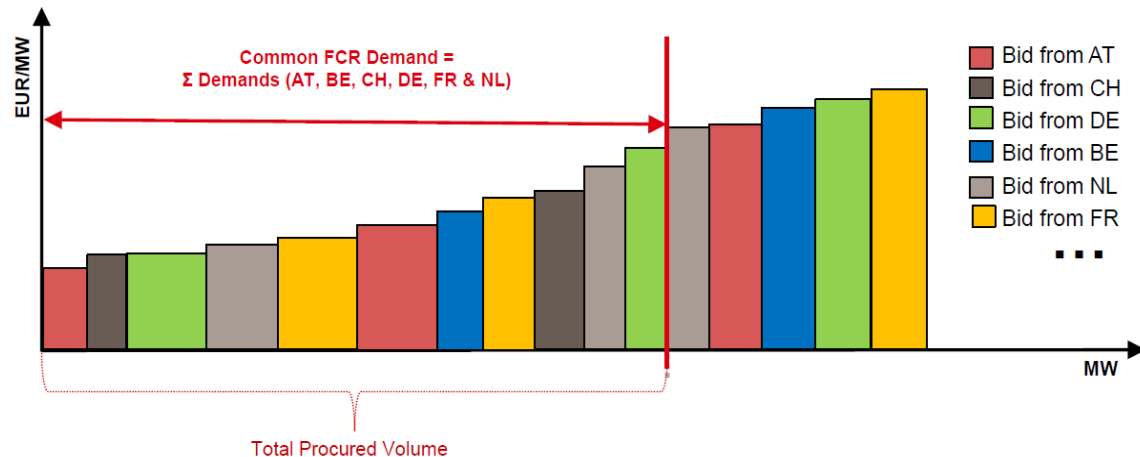
System layout and operational responsibilities – 2/2



- TSOs operate their national / regional auction systems
- Sole responsibilities for BSPs (contracting, controlling and settlement) in its Control Area by the respective connecting TSO
- Overall demand = sum of TSO demand
- Bids selected through a common algorithm
- Overall demand of 1420 MW



Values for 2022



Country	FCR demand in FCR Cooperation (MW)	Core share (MW)	Export limit (MW)
Austria	73	22	100
Germany	555	167	166
France	489	147	146
Switzerland	64	20	100
Belgium	86	26	100
Netherlands	116	35	100
West Denmark	22	7	6
Slovenia	15	0	100

3. Characteristics of FCR Cooperation

Market characteristics



FCR Procurement	
	July 2020 onwards
Auctions timing	Daily D-1 auctions and publication time at D-1 09:00 CET.
Product	Six 4-hour-products per day (Beginning at 00:00 o'clock), symmetrical
Bids	The Auction Allocation Algorithm allows divisible bids together with indivisible bids in all participating TSOs.
	Indivisible bids have a maximum bid size of 25 MW.
	Exclusive bids are not allowed in the FCR procurement.
	The minimum bid size is 1 MW and the bid resolution is 1 MW too (the result of dividing a bid should be a whole number) in the FCR procurement.
TSO-BSP settlement	The TSO-BSP settlement will be based on pay-as-clear (marginal pricing).
TSO-TSO settlement	The compensation between TSOs for imported or exported volumes is first calculated using the cross-border marginal price
	Each importing TSO country has to pay to the exporting TSOs countries the CBMP for the imported volume of FCR. Similarly, the exporting TSOs countries will receive the CBMP for the amount of the volumes they export.

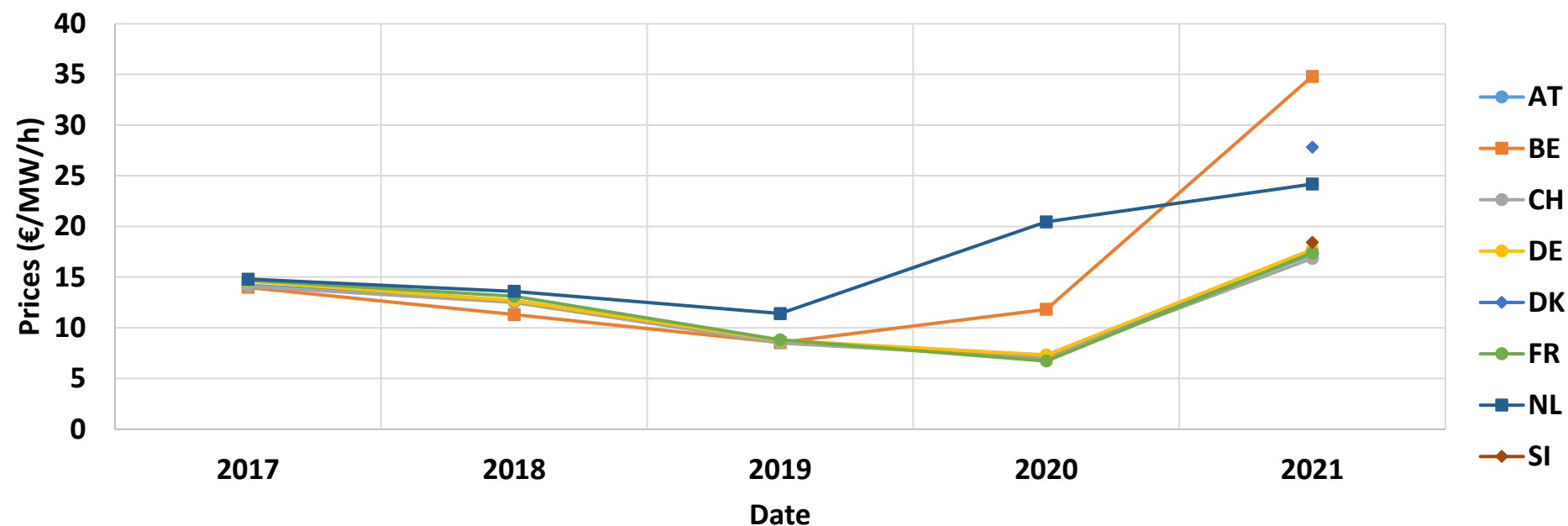
4. Market developments and KPIs



Market developments: Annual prices for 2017-2021

- The analysis shows a significant decrease of the prices between 2017 and 2020, except for Belgium and the Netherlands, where the transition to marginal pricing (in 2019) seems to have broken the downward trend over the past years.
- The overall downward trend until 2020 can be linked to the accession of new entrants in the market, associated with the increased competition due to the exchange of FCR capacities. The evolution of the market design (auctions in D-2/D-1, marginal pricing, etc.) also contributed to the improvement of the conditions for new market participants.
- Whereas for 2021 the prices rose which can be explained due to the overall high energy prices in Europe.

Evolution of the annual prices of the FCR Cooperation



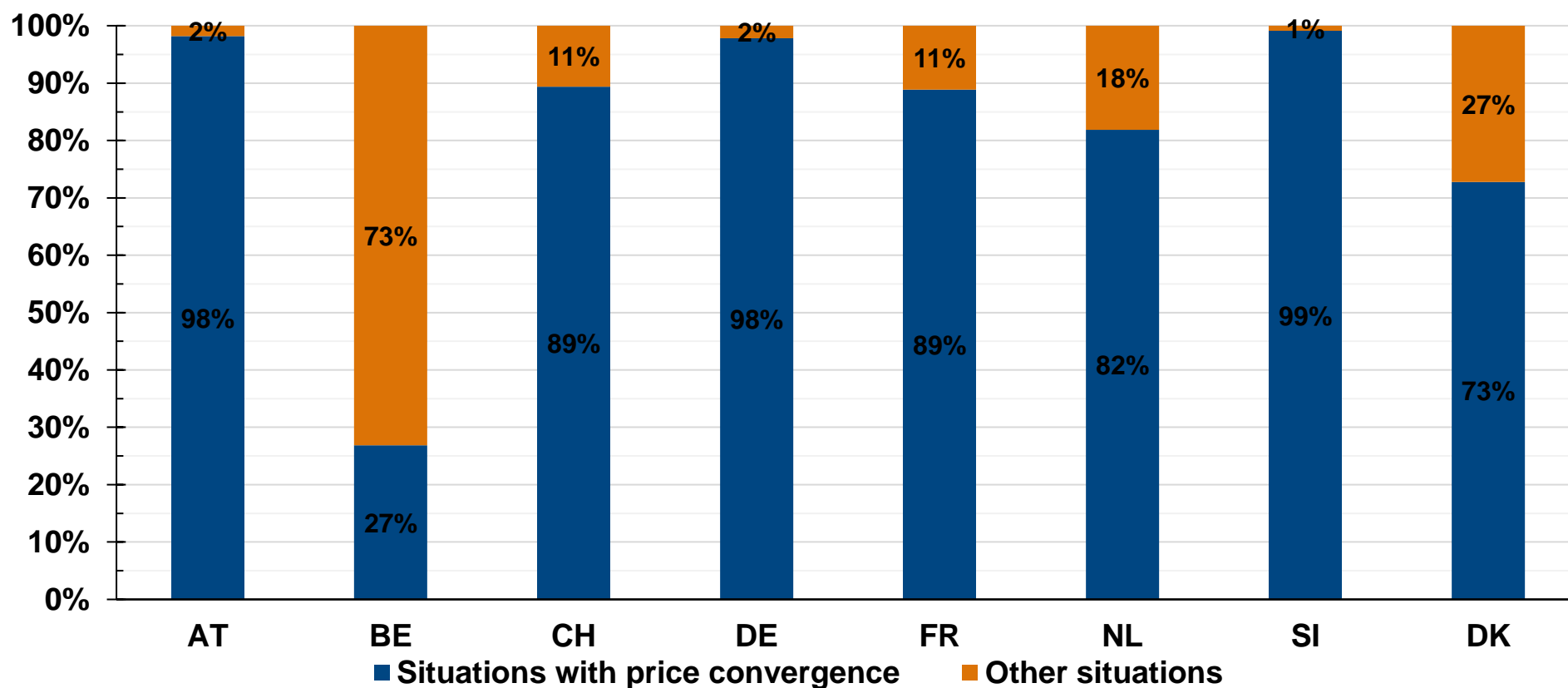
4. Market developments and KPIs



Market developments: Monthly prices and price convergence for 2021

- The analysis shows the monthly price for each country and the level of price convergence of the FCR cooperation for the year 2021.
- Austria, France, Germany, Slovenia, and Switzerland have a (very) high level of convergence of the prices, followed by the Netherlands and Denmark with nearly 90% of price convergence and 73% respectively. Whereas Belgium often reached their import limits and prices then being decoupled from the rest of the cooperation.

Level of Price Coverage (2021)



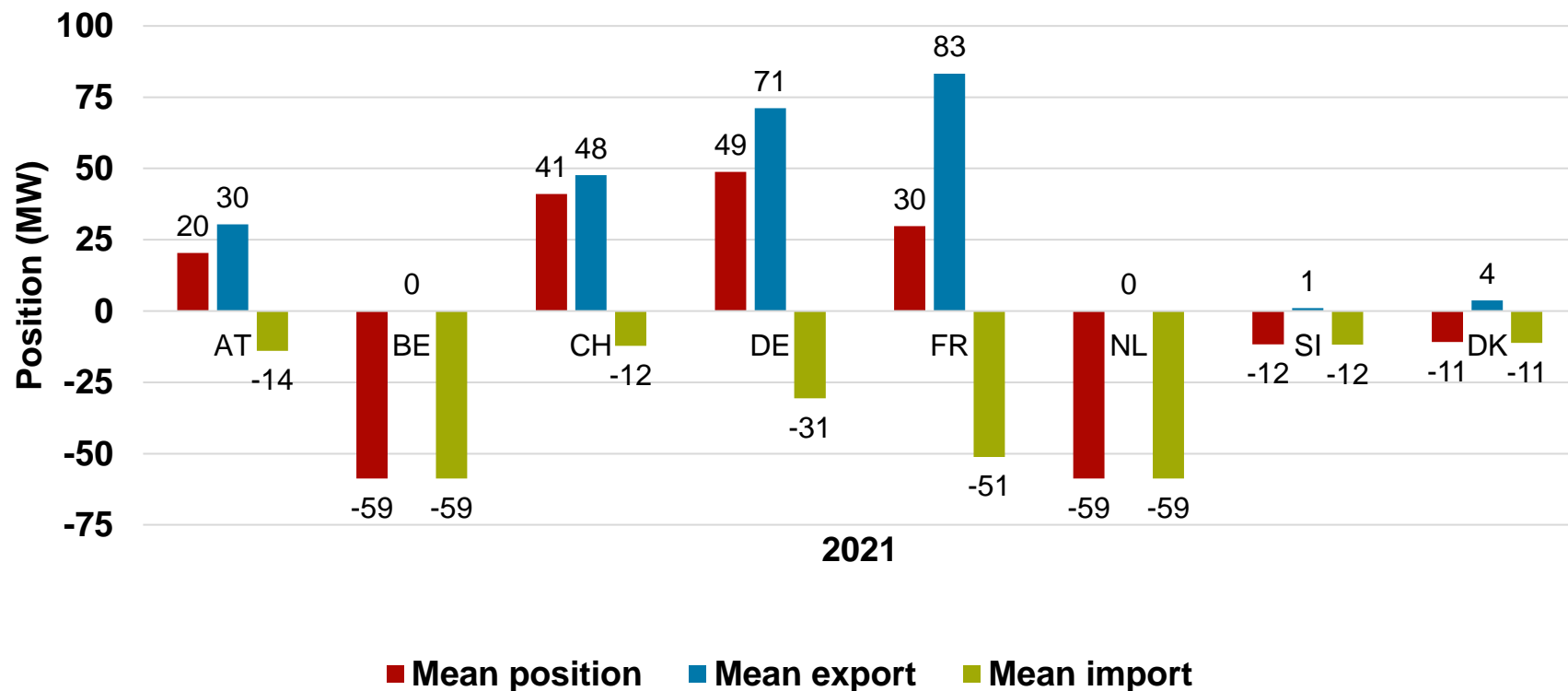
4. Market developments and KPIs



Market developments: Import and Export positions for 2021

- The analysis shows the mean import and export position of each country together with the mean position.
- France, Germany, Switzerland, and Austria were mainly exporting countries whereas Belgium and the Netherlands were mainly importing FCR to fulfil their demand.

Import and export position (MW) of each country



4. Market developments and KPIs

Benefits KPI for 2021



- Both calculations are based on TSO's demands and bids from BSPs for 2021
- BSP profits represent the difference between marginal prices and bids prices.
- Underprocurement occurs in a country in the case that there are insufficient bids to cover the demand for that country.
- The market would react in a situation without coupled markets (Situation A)



	Procurement costs (in million €)	BSP Profits (in million €)	Underprocurement in MW (average per auction)	Impact on Social Welfare (in million €)
Simulation A	704	478	74	
Simulation B	221	179	0	
B-A	-483	-299		184

Note: Based on data from Jan 2021 to Dec 2021; This KPI will be published in the Balancing Report 2022

5. Benefits for stakeholders and future developments



The FCR cooperation as the largest FCR market in Europe indicates the following benefits:

- Socio economic benefit for the participating countries
- Competitive prices
- More liquidity
- Increased robustness of supply of FCR
- Positive influence on security of supply
- Transparency
- Easy entry for new parties
- No discrimination and level playing field
- More harmonized rules over the participating countries which still develops

Potential for future market developments mainly in the area of further harmonization

- Aggregation
- Power measurement location
- Monitoring & Penalties
- Backup requirements (n-1)
- Currently, the focus lies on monitoring, which has been split into monitoring of activation & monitoring of availability, with the former being prioritized.

Thanks a lot for your attention

Questions

