



European Union Agency for the Cooperation
of Energy Regulators

Intraday markets: state of play & future evolutions

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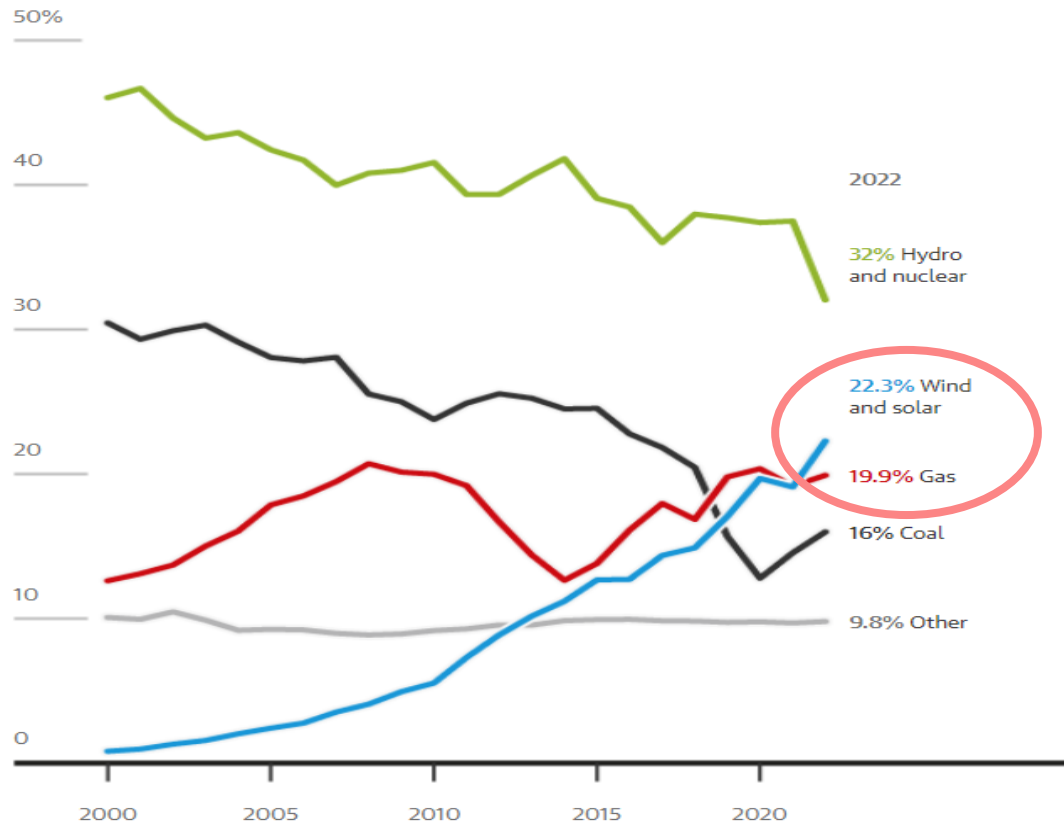
Webinar on 'Leveraging the pan-EU Intraday Auctions Market'

online, 12 March 2024

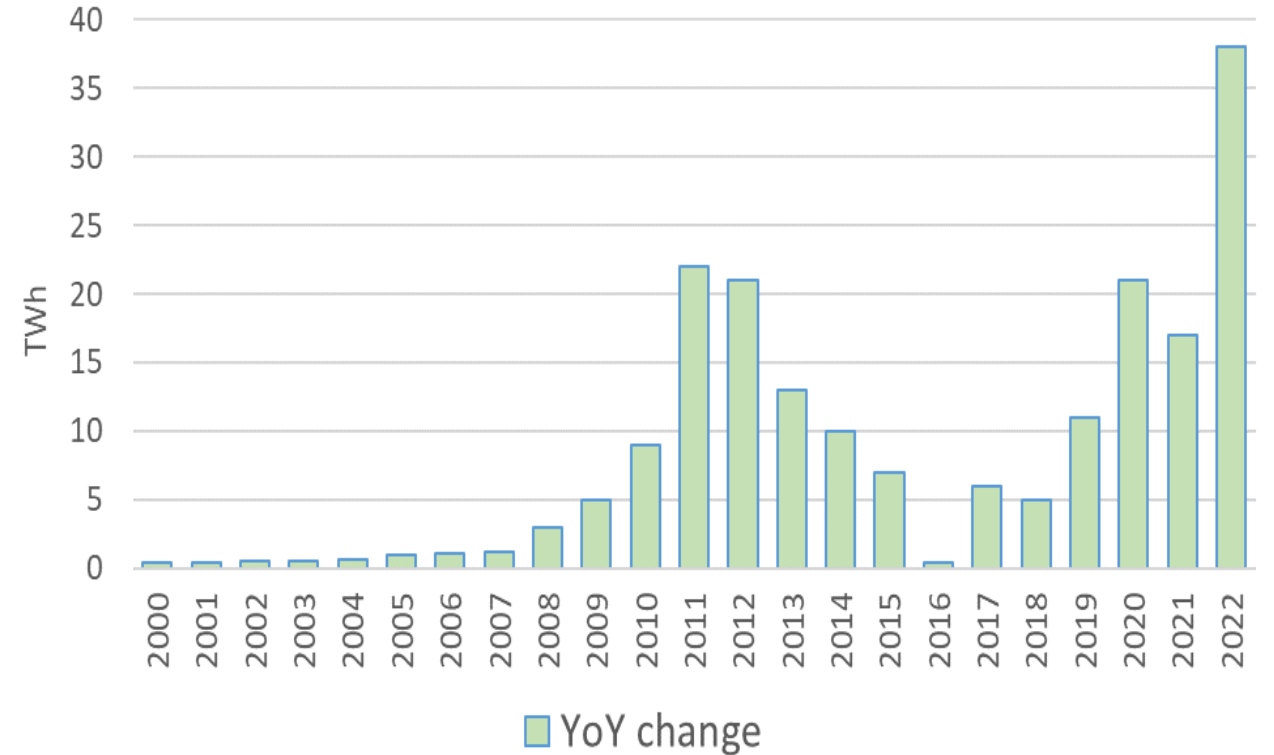
Europe's energy markets: state of play

Accelerating electricity new-build (esp. low-lead time)

Share of EU power generation per technology – 2022 (%)



Annual change in solar electricity generation – 2000 – 2022 (TWh)



For the first time in the EU, wind and solar generation produced more electricity in 2022 than gas. New solar capacity additions - a particularly low-lead time generation source - doubled in 2022 compared to the year before.

Despite the crisis, some progress



June 2022: a decisive milestone with the go-live of Core Flow-based market coupling.



Day ahead and Intraday markets are now fully coupled with a Pan-European platform for the allocation of cross-border capacities.



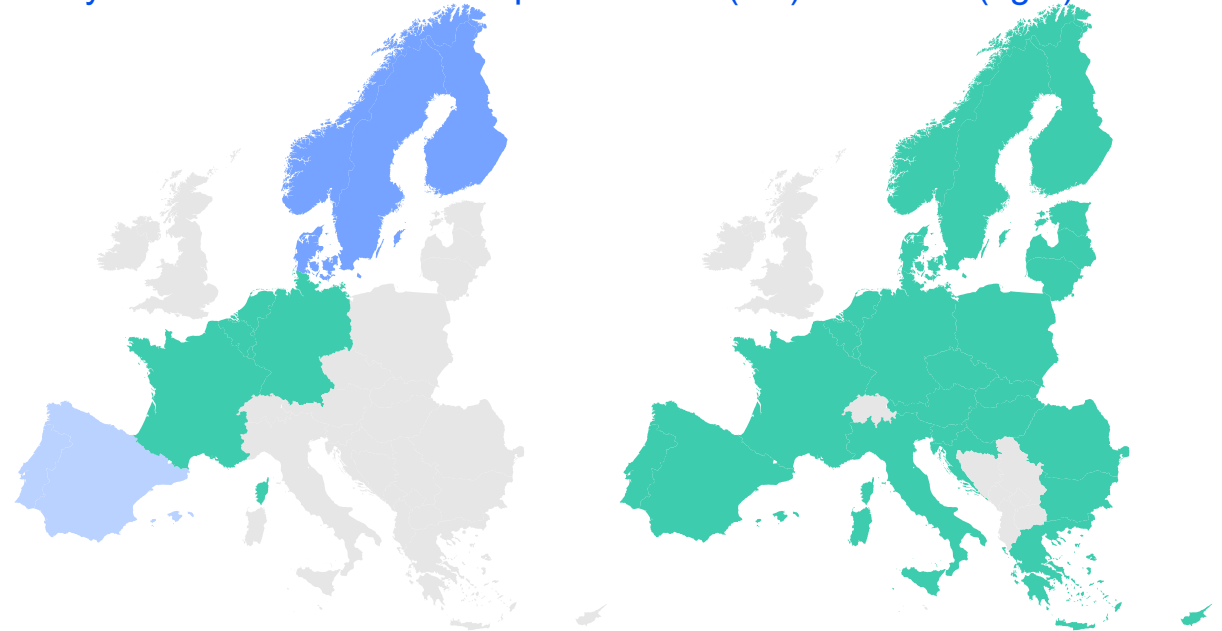
4 Pan-European balancing allocation platforms (IGCC, TERRE, MARI PICASSO) have also been established.

➤ *still need to be deployed across Europe.*



The real challenge in market integration: ensuring cross-zonal capacity where and when needed.

EU day ahead market areas coupled in 2010 (left) and 2022 (right)

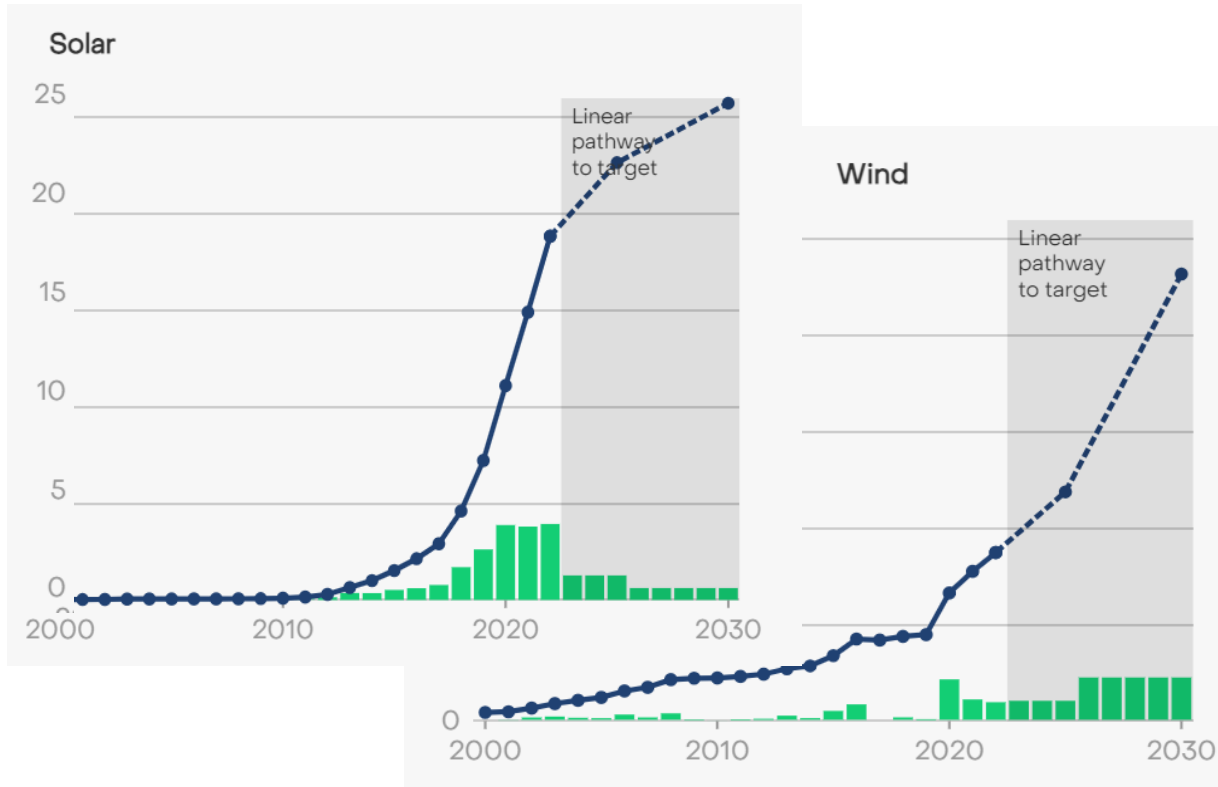


TSOs operational on European balancing platforms - 2022

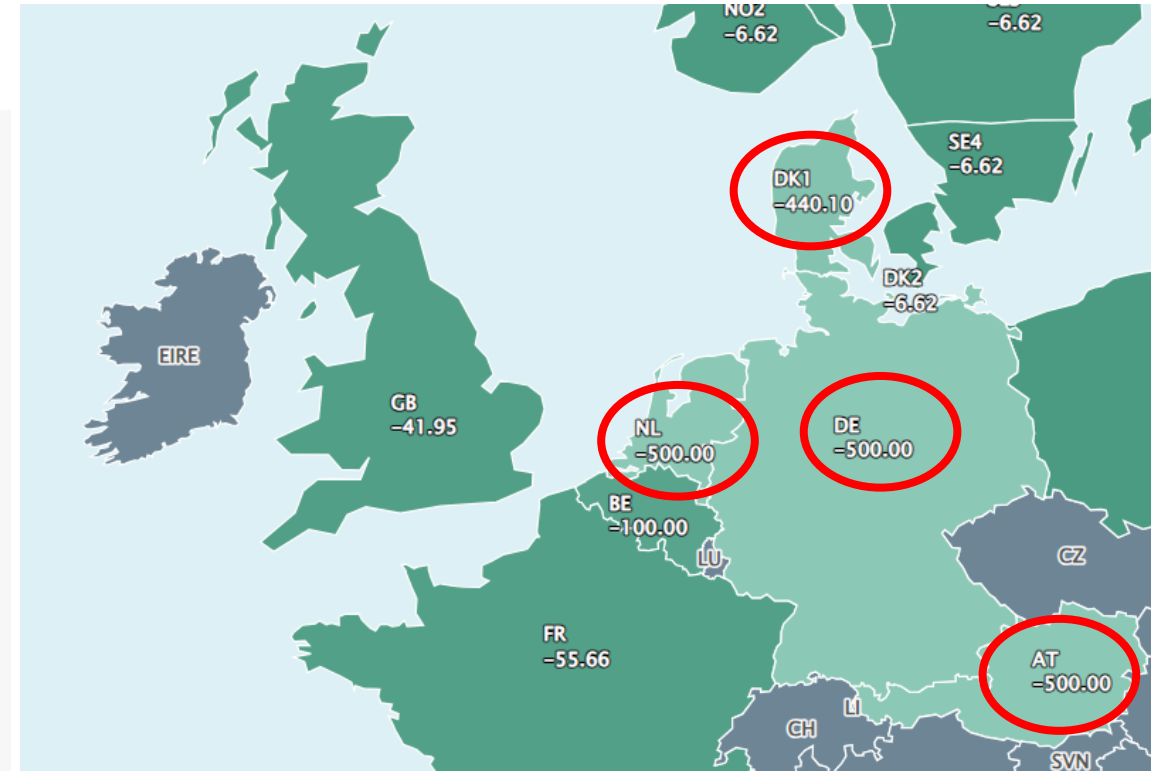
Platform	PICASSO	MARI	TERRE	IGCC
Operational members (TSOs)	7	6	6	21
Operational members (Member states)	AT, CZ, DE, IT	AT, CZ, DE	CH, CZ, ES, FR, IT, PT	AT, BE, HR, CZ, FR, DE, GR, HU, IT, NL, PL, PT, RO, SL, SI, ES, CH

As variable renewables grow, focus turns to system responsiveness

Example: Wind & solar capacity targets, Netherlands (GW)*



Day-Ahead Price, North West Europe (EUR/MWh)**



Many national energy and climate plans (NECPs) indicate intermittent generation will grow exponentially. Yet, negative wholesale prices are becoming more prevalent, indicating a need to enhance overall system responsiveness (whether for deployment or operational decisions or facilitating demand response).

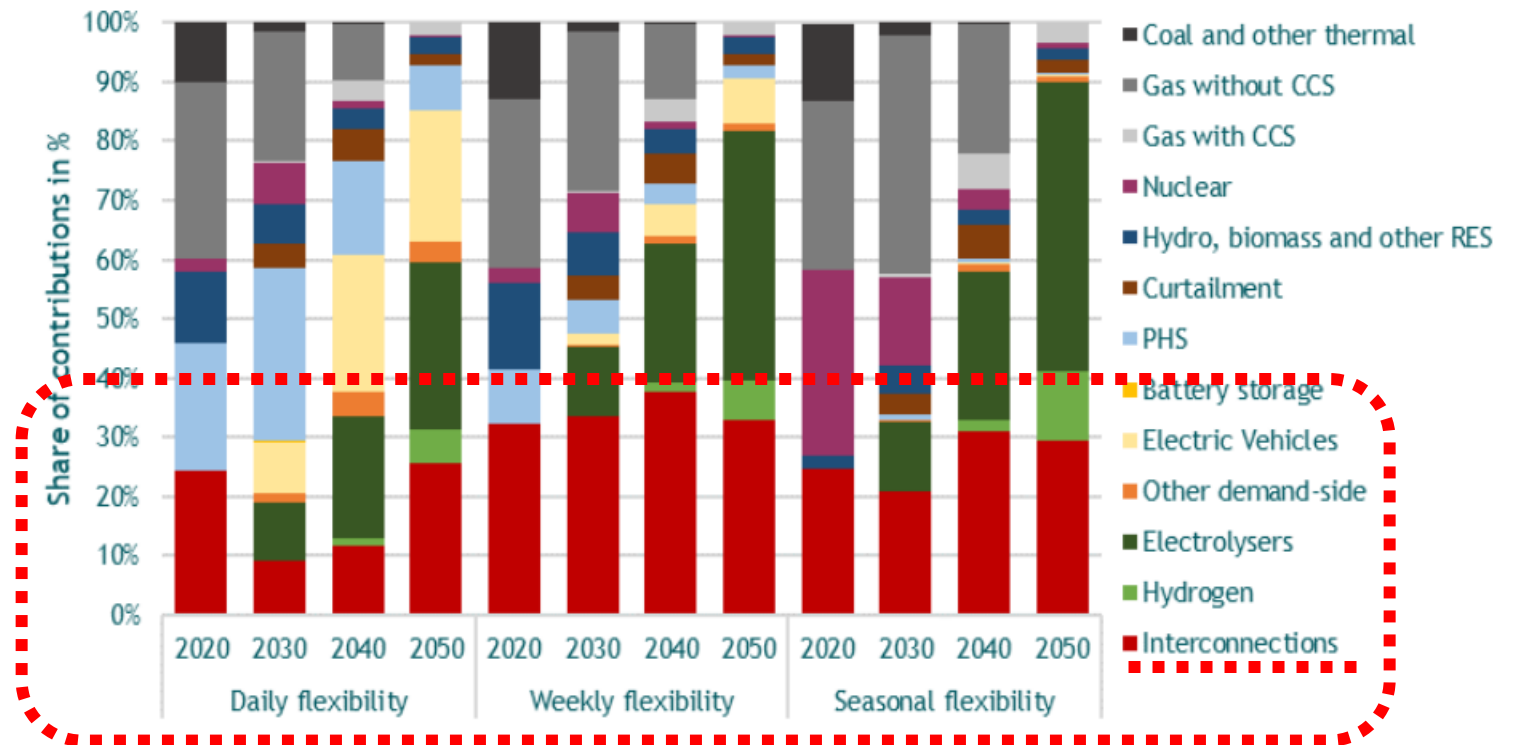
* Source: EMBER, [Live NECP tracker](#)

** Source: Nordpool website <https://www.nordpoolgroup.com/en/maps/#/nordic>, Day-ahead prices 02/07/2023 14.00-15.00h


Future flexibility needs point to the role of interconnectors



Share of technologies providing system flexibility in the Pentalateral countries for daily, weekly and seasonal timeframes



- As coal and then conventional gas plants are increasingly phased out, flexibility portfolios will transform, gradually relying more on cross-border exchanges, storage, demand-side response and low-carbon technologies.
- Interconnections can play a key role, especially in the intraday timeframe through IDAs and short MTUs

70% 

of interconnection capacity is key to achieving the ambitious political goals for vast offshore renewables (300 GW by 2050, 15 times higher than today) that will benefit the EU.

The 70% target, mandatory in all MSs by 2026, will become increasingly difficult and costly to reach. Progress towards the 70% target is unlikely to happen without tough trade-offs.



Maximising current grid capacity for trading with neighbours + adding new capacity = prerequisites for vast renewable regional hub ambitions



Nine European countries meet in Ostend to increase wind energy in the North Sea

Nine European countries have come together to accelerate the decarbonization of the continent by increasing their North Sea wind power capacity tenfold, with a target of 120 GW in 2030 and 300 GW in 2050, requiring colossal investments and significant political and industrial coordination.

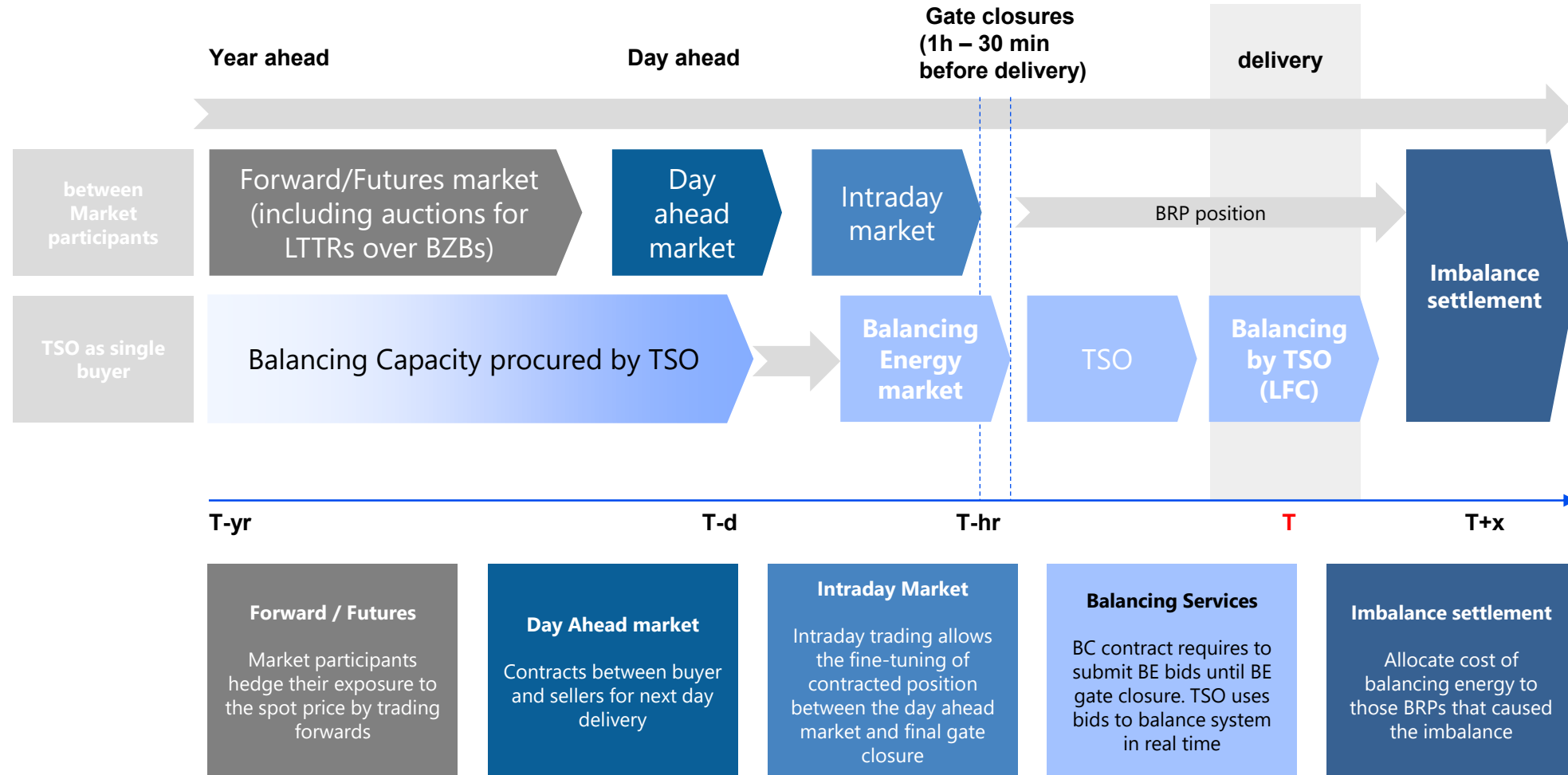


TSOs are required to make 70% of interconnection capacity available for electricity trade with neighbours. But ACER's monitoring finds that the 70% target (mandatory for all by 2026) is still far off. Multiple tools exist to lift internal and cross-zonal constraints to reach the 70%.

* Source: ACER report: Cross-zonal capacities and the 70% margin available for cross-zonal electricity trade (MACZT) – 2023 Market Monitoring Report, July 2023.

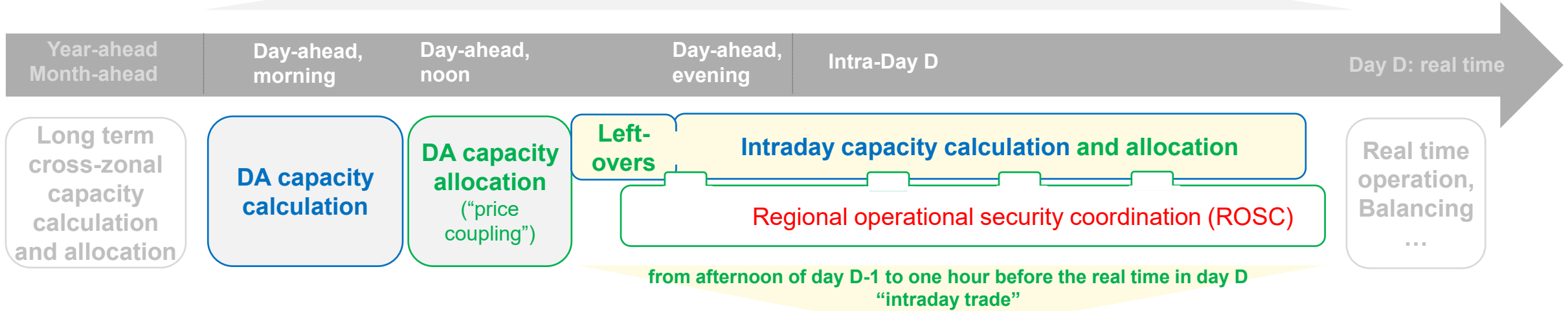
Electricity Market Integration: Focus on Intraday

Electricity market at glance: focus on intraday



Short-term European cross-zonal electricity market

- calculate capacities
- allocate capacities
- ensure security



Day-ahead market: an auction held the day before the delivery of electricity

- Most commonly “implicit” auction (trading electricity and transmission capacity together)
- Market coupling, i.e. “Single-day Ahead Coupling” (SDAC)

Intraday market: producers & consumers adjusting their positions

- continuous market, with possible complementary auctions
- Intraday trading is possible until a moment in time called the intraday gate closure time (GCT).
- After GCT, final positions of market players are nominated.

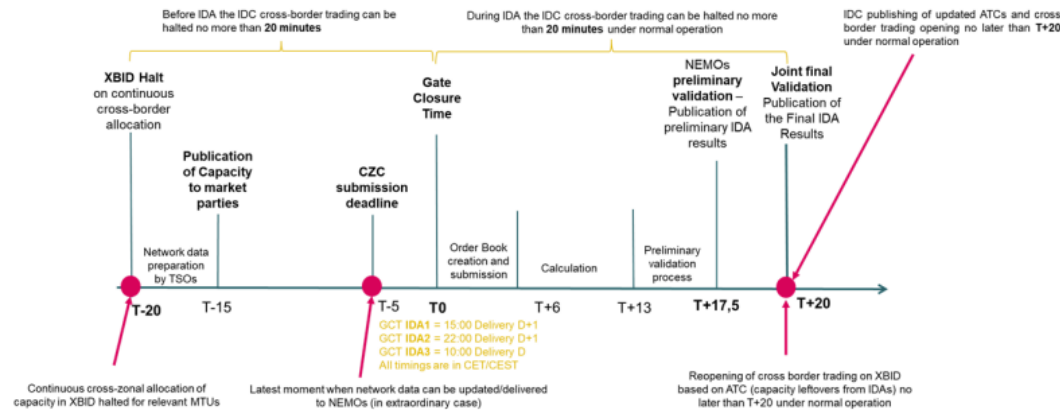
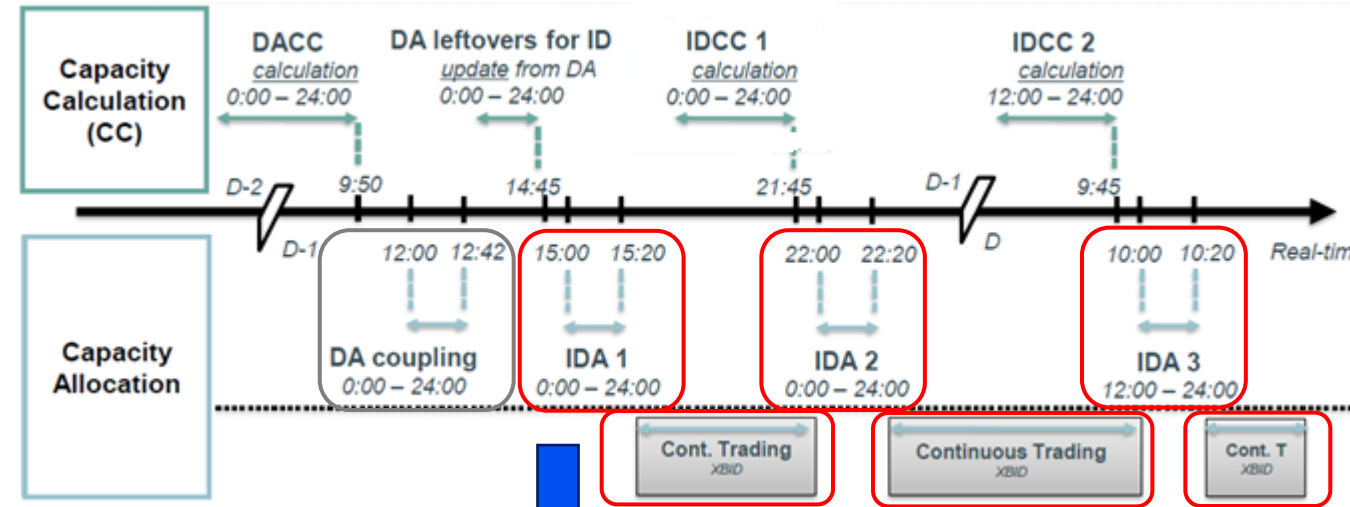
• Network security is handled in parallel with DA and ID trade: Regional Operational Security Coordination (ROSC)

Near real-time, supply and demand is balanced through the balancing mechanism

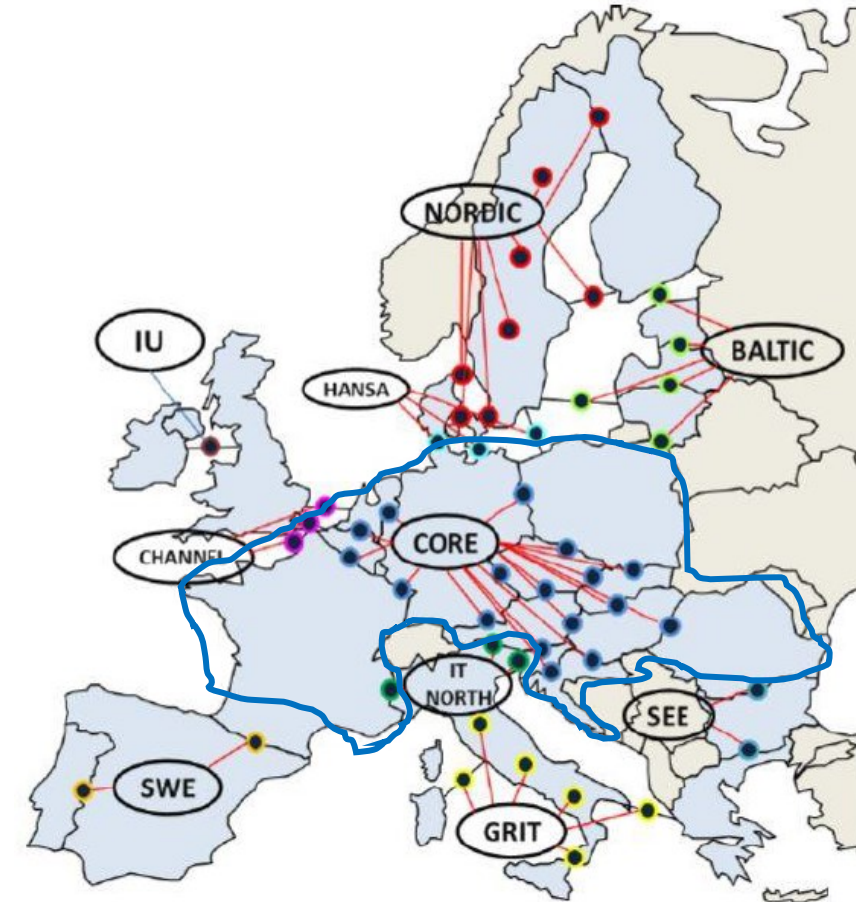
Intraday allocation – (typical) phases

some implemented, some not yet (auctions)

- D-1 at 12h: Day ahead (DA) coupling
- D-1 at 15h: IDA1; first “intraday” auction: using leftovers of CZC
- until D-1 at 22h: Continuous trading (for all 24 hours of day D)
- D-1 at 22h: IDA2; second “intraday” auction (for all hours 00-24 of day D)
- until D at 10h: Continuous trading (for remaining hours of day D)
- D at 10h: IDA3; third intraday auction (for hours 12-24 of day D)
- until end of D: Continuous trading (for remaining hours of day D)



- Cross-zonal transmission capacity is currently calculated by the TSOs, with more or less simplified network representation
 - Simple: Border-wise Net Transfer Capacity (NTC) approach
- Closer to network reality: Flow-based approach
 - Flow-based approach:
 - applied in Core Capacity Calculation Region at Day-ahead
 - under preparation for long-term and intraday in Core
 - under preparation for Nordic region
- Current IDAs will be based on ATC extraction of Flowbased CC
- Next step for Intraday to also to introduce Flow based allocation for both continuous trading and IDAs for both Core and Nordic regions





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