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Key enablers of Europe's power sector transformation seen from a regulatory perspective

EU-China Energy Cooperation Platform – workshop '*From Black to Green Power*' on 19 August 2021

Christian Zinglersen, ACER Director

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Agenda

- **Regulatory enablers: A high-level overview**
- **Main elements underpinning enhanced power market integration in Europe**
- **Challenges up ahead**

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High-level overview

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Power market integration more recently (1/3).

- "While the internal market has often been considered as an instrument to keep prices for consumers in check and set efficient investment signals for investors, it has become clear in recent years that it is **also of key importance for delivering on the EU's ambitious climate targets**. …"
- "The integration of 27 national energy systems into one EU-wide market is crucial for efficient decarbonisation, as it will **allow renewable energy to be traded across borders, benefiting from diversity and complementarity** of the generation potential in the different EU regions. …"
- "Crossborder markets can **save significant CO2 emissions from fossil backup generation** which would be necessary in fragmented national energy systems. Well-connected markets **also improve security of supply** …"

Note: The European Commission's *State of the Energy Union* report of 14 October 2020 (annex on progress report on the internal energy market), COM(2020) 950 final. LINK.

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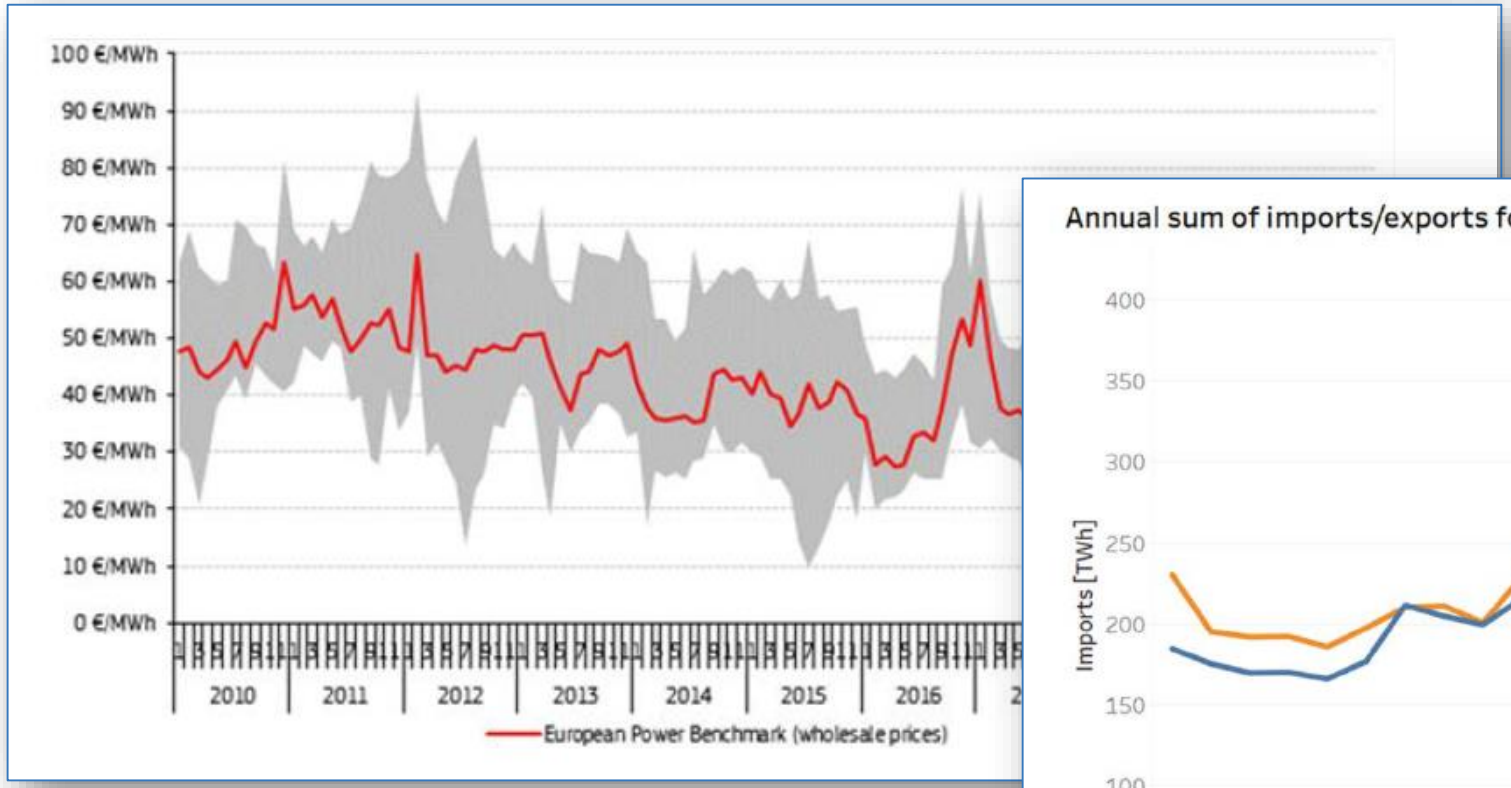
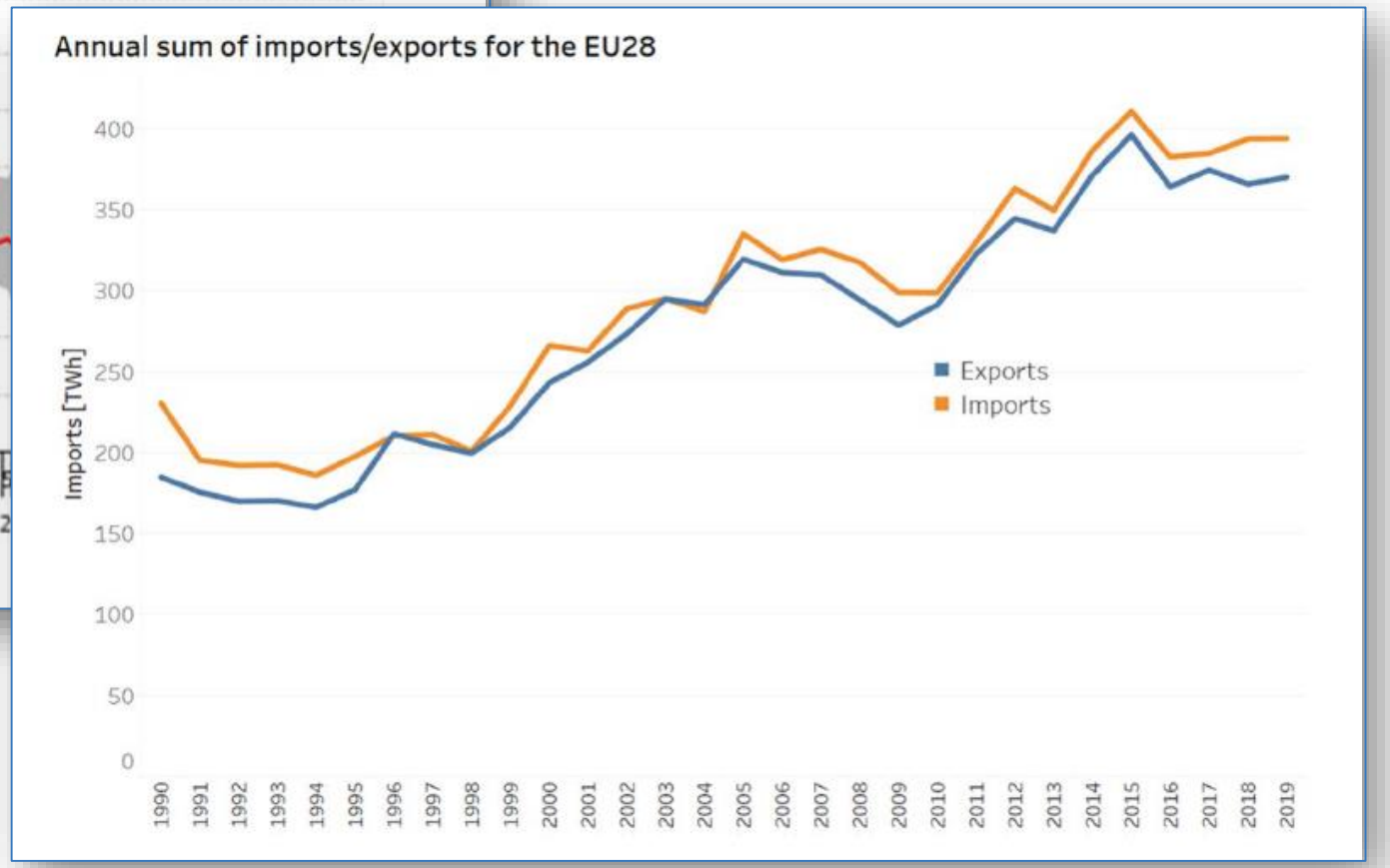
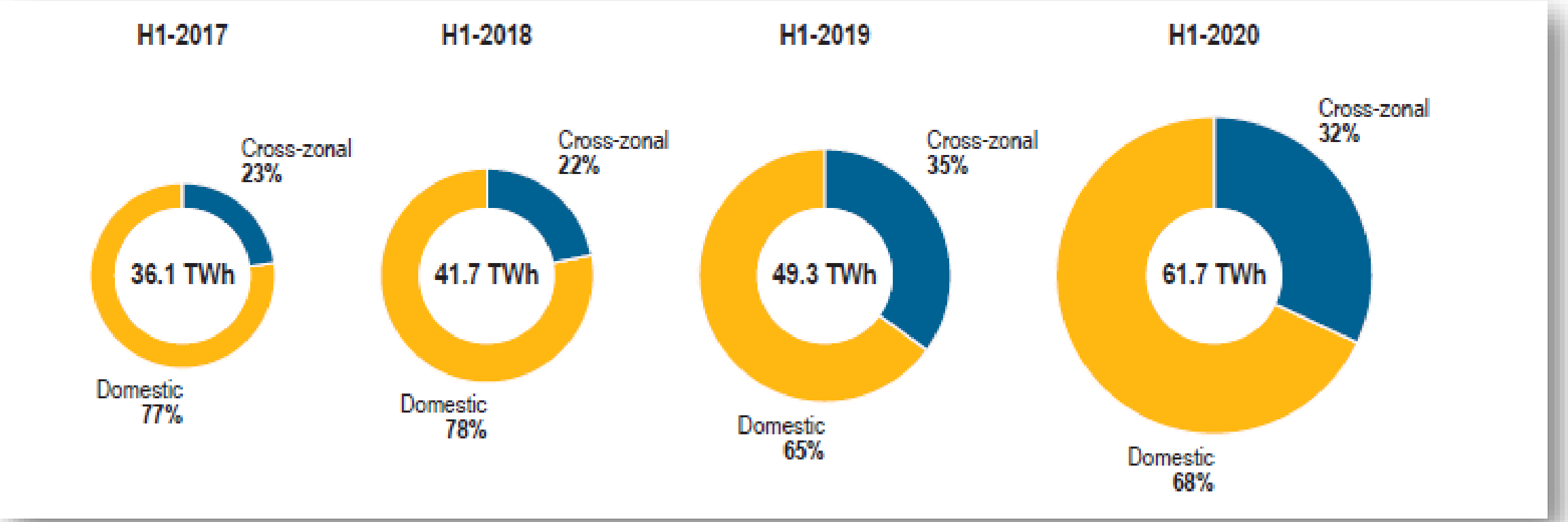
Power market integration more recently (2/3).





Note: The European Commission's *State of the Energy Union* report of 14 October 2020 (Progress report in annex on the internal energy market), COM(2020) 950 final. LINK.

Power market integration more recently (3/3).

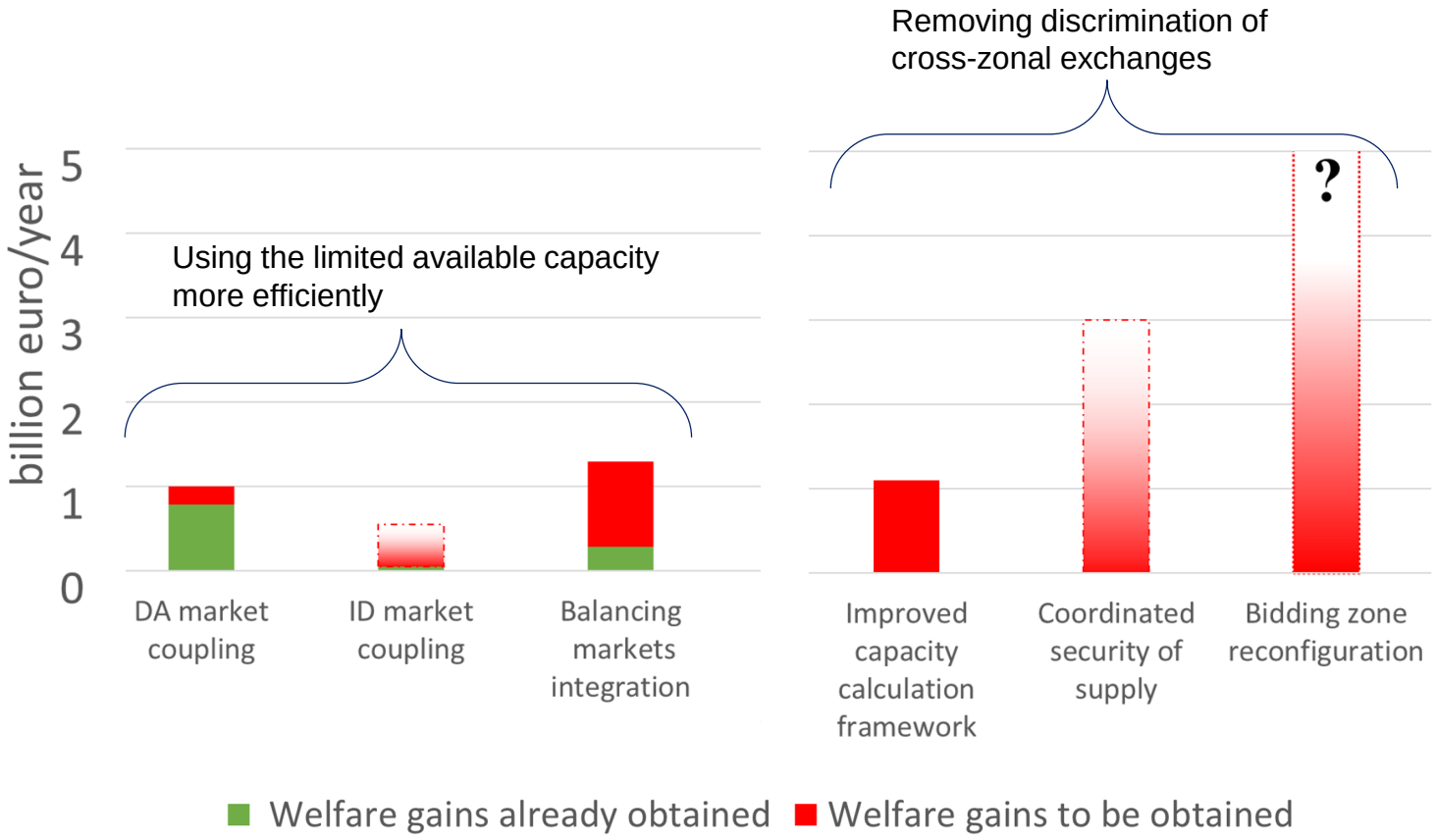


Intraday-traded volumes through single intraday coupling H1 2017 - H1 2020

Note: NEMOs and ACER calculations.

Assessing the potential benefits.

Social welfare* benefits already obtained and to be obtained from various actions intended to increase EU market integration



Note: *Gross benefits. The fading color for some categories reflect that the welfare gains are based on third party estimations and/or subject to considerable uncertainty. Source: ENTSO-E, NRAs, NEMOs, Vulcanus and ACER calculations.

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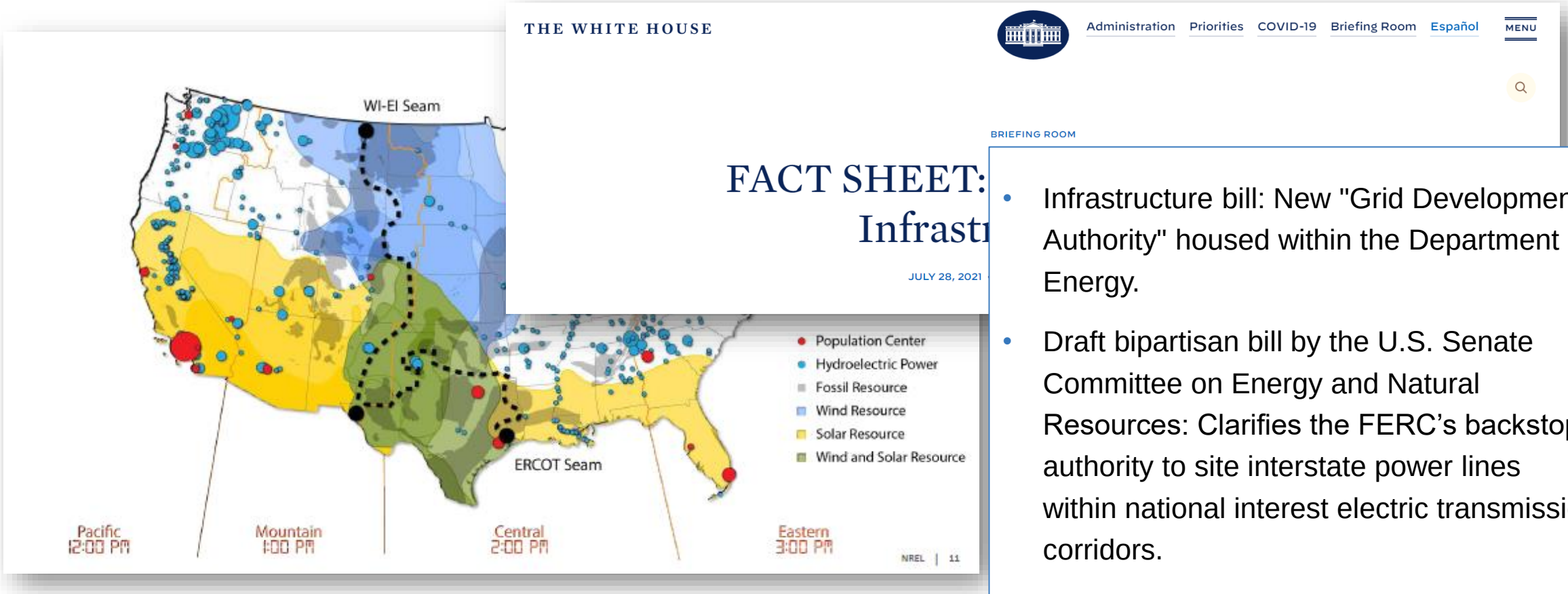
By way of comparison …



"… indicating significant value to increasing the transmission capacity between the interconnections under the cases considered, realized through sharing generation resources and flexibility across regions."

- Infrastructure bill: New "Grid Development Authority" housed within the Department of Energy.
- Draft bipartisan bill by the U.S. Senate Committee on Energy and Natural Resources: Clarifies the FERC's backstop authority to site interstate power lines within national interest electric transmission corridors.
- Same draft Senate Committee bill: Directs FERC to increase the effectiveness of interregional transmission planning.

Note: Interconnection map and quote is from NREL: *'The Value of Increased HVDC Capacity Between Eastern and Western U.S. Grids: The Interconnections Seam Study Preprint'*. October 2020. LINK. Infrastructure planning elements are from White House fact sheet (LINK) and S&P Global article (LINK), both of 28 July 2021.

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The role & governance of ACER.

- **Supporting the integration of the national energy markets in the EU** (by common network and market rules at the EU level developed with national regulators). Primarily directed towards transmission system operators and power exchanges.
- **Advising the EU Institutions on trans-European energy infrastructure issues**, whilst monitoring the work of the European Networks of Transmission System Operators (ENTSO-E for electricity); issuing opinions on EU-wide network development plans (TYNDP), ensuring alignment with EU priorities.
- Monitoring the well-functioning and transparency of the energy market, **deterring market manipulation and abusive behaviour**.
- **Governance: Regulatory oversight** function is shared with national regulators. **Decision-making** within ACER is collaborative and joint (formal decisions requiring 2/3 majority of national regulators). **Decentralised enforcement** model, ie. at national level.

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A ‘full regulatory plate’ the last couple of years.

Electricity Balancing

ACER Decision 01-2020 on the Methodology for pricing balancing energy

ACER Decision 02-2020 on the Implementation framework for aFRR Platform

ACER Decision 03-2020 on the Implementation framework for

ACER Decision 04-2020 on the Implementation framework for

ACER Decision 16-2020 methodology for classifying activation purposes of balancing energy bids

ACER Decision 17-2020 on the common settlement rules applicable to all intended exchanges of energy

ACER Decision 11-2020 ACER Decision on standard products for balancing capacity (SPBC)

ACER Decision 12-2020 on a co-optimised allocation process of cross-zonal capacity (CO CASA)

ACER Decision 19-2020 on the common harmonised procurement

ACER Decision 20-2020 on the Nordic exemption to the

ACER Decision 21-2020 on the amendment of the Nordic CCR market-based allocation process

ACER Decision 22-2020 on the Nordic market-based allocation process of cross-zonal capacity

ACER Decision 18-2020 on the amendment of the plain

EB EU balancing platforms

EU principles & Nordic aFRR Balancing Capacity Markets

Imbalance Settlement

Adequacy & CRMs

ACER Decision 07-2020 on regional electricity crisis scenarios methodology

ACER Decision 08-2020 on the short-term and seasonal adequacy assessments methodology

ACER Decision 24-2020 on the methodology for the European resource adequacy assessment (ERAA)

ACER Decision 23-2020 on the methodology for calculating the value of lost load, the cost of new entry and the reliability standard (VOLL)

ACER Decision 36-2020 on Cross-Border Participation in Capacity Mechanisms

Short term, seasonal & European adequacy assessments

VOLL, CONE, RS

XB participation in CMs

CACM - FCA

ACER Decision 04-2020 on Algorithm methodology

ACER Decision 05-2020 on the Products

ACER Decision 37-2020 on the Products That Can Be Taken Into Account in the Single Day-Ahead Coupling

ACER Decision 06-2020 on extension Hansa LT CCM

ACER Decision No 25-2020 on the methodology for sharing firmness and remuneration costs of long-term transmission rights

ACER Decision 27-2020 on Rejecting the Baltic Capacity Calculation Region TSOs’ Proposal for the Long-Term Capacity Calculation Methodology

ACER Decision 32-2020 on the Methodology for Splitting Long-Term Cross-Zonal Capacity for South-East Europe Region

ACER Decision 29-2020 on the Methodology and Assumptions that Are to Be Used in the Bidding Zone Review Process and Alternative Bidding Zone Configurations to Be Considered

SC algorithm

FCA FRC & LT CCM

BZR methodology

System Operation

ACER Decision 10-2020 on the definition of System Operation Regions

ACER Decision 13-2020 on the Methodology for Reaching an Agreement on the Proposal for Additional Properties for FCR

ACER Decision 14-2020 on extension Hansa RDCT coordination

ACER Decision 15-2020 on extension Hansa RDCT cost sharing

ACER Decision 30-2020 on the Core CCR TSO’s Methodology for Cost Sharing of Redispatching and Countertrading

ACER Decision 31-2020 on the South East Europe CCR Methodology for Cost Sharing of Redispatching and Countertrading

ACER Decision 33-2020 on the Methodology for Regional Operational Security Coordination for the Core Capacity Calculation Region

ACER Decision 34-2020 on the Methodology for Regional Operational Security Coordination for the South-East Europe Capacity Calculation Region

ACER Decision 35-2020 on the Methodology for Coordinated Redispatching and Countertrading for the Core Capacity Calculation Region

System Operation Regions

Regional RD & CT + cost sharing

Note: The vast majority of ACER decisions taken in 2020 were within electricity, spanning all areas.

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Main elements

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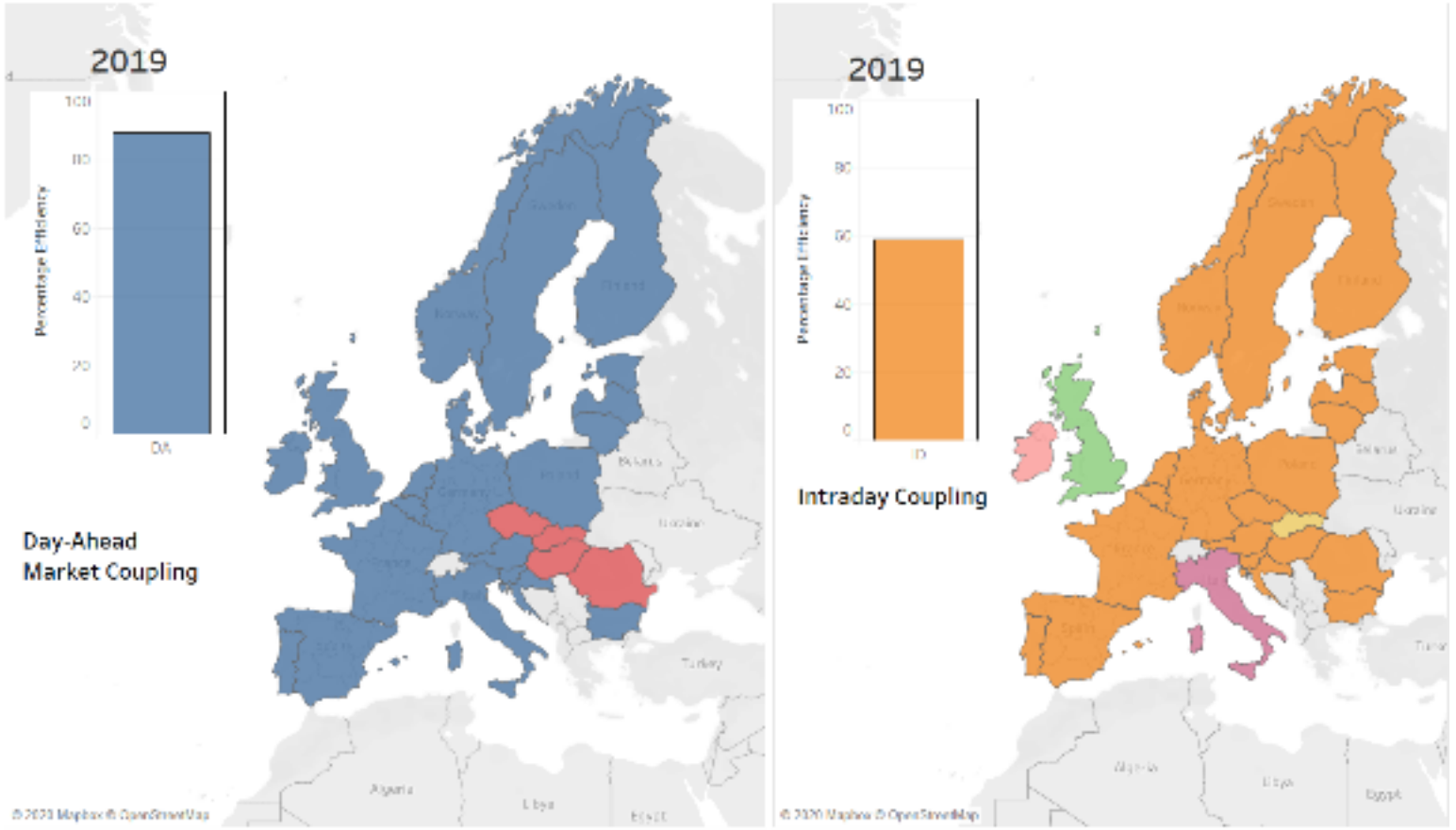
Market coupling a success story so far.



Implementation of day-ahead and intraday market coupling 2019 and the level of efficient use of capacity over time

Note: Notwithstanding the broader success story, some key projects to complete market coupling are facing considerable delays (e.g. flow-based market coupling in Central Europe or the integration of the various market coupling projects into a single EU one).

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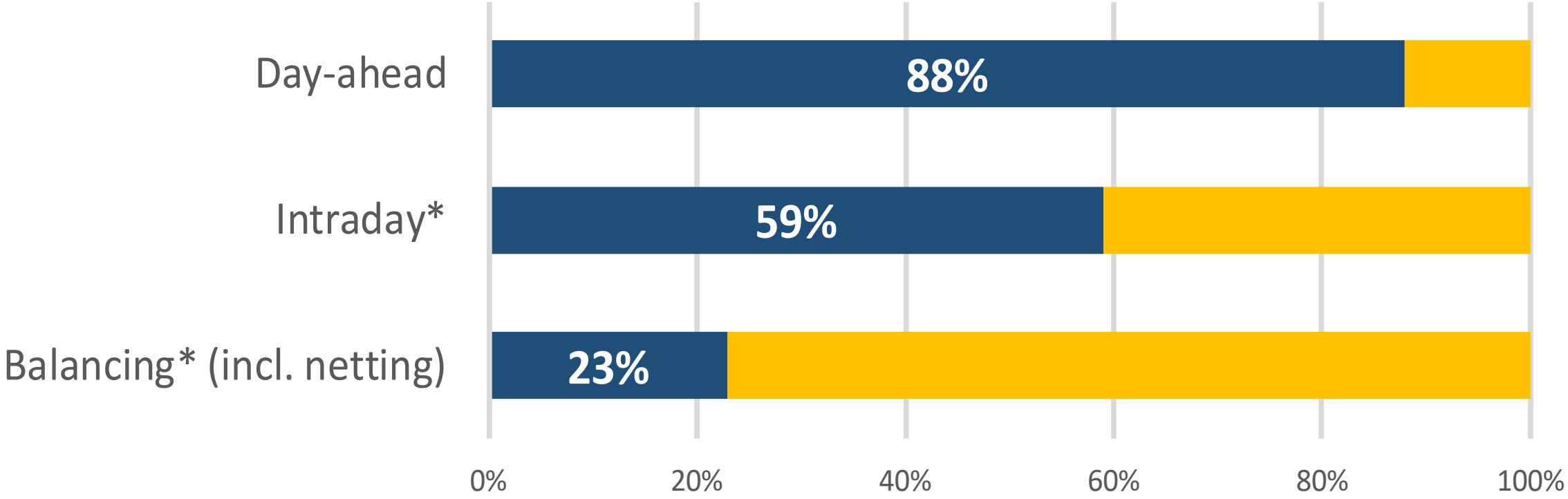
Utilisation of what is made available for trade.



Efficient use of interconnectors in the different timeframes in 2019 (%)

Note: ENTSO-E transparency platform and ACER calculations. (* Intraday and balancing values are based on a selection of EU borders).

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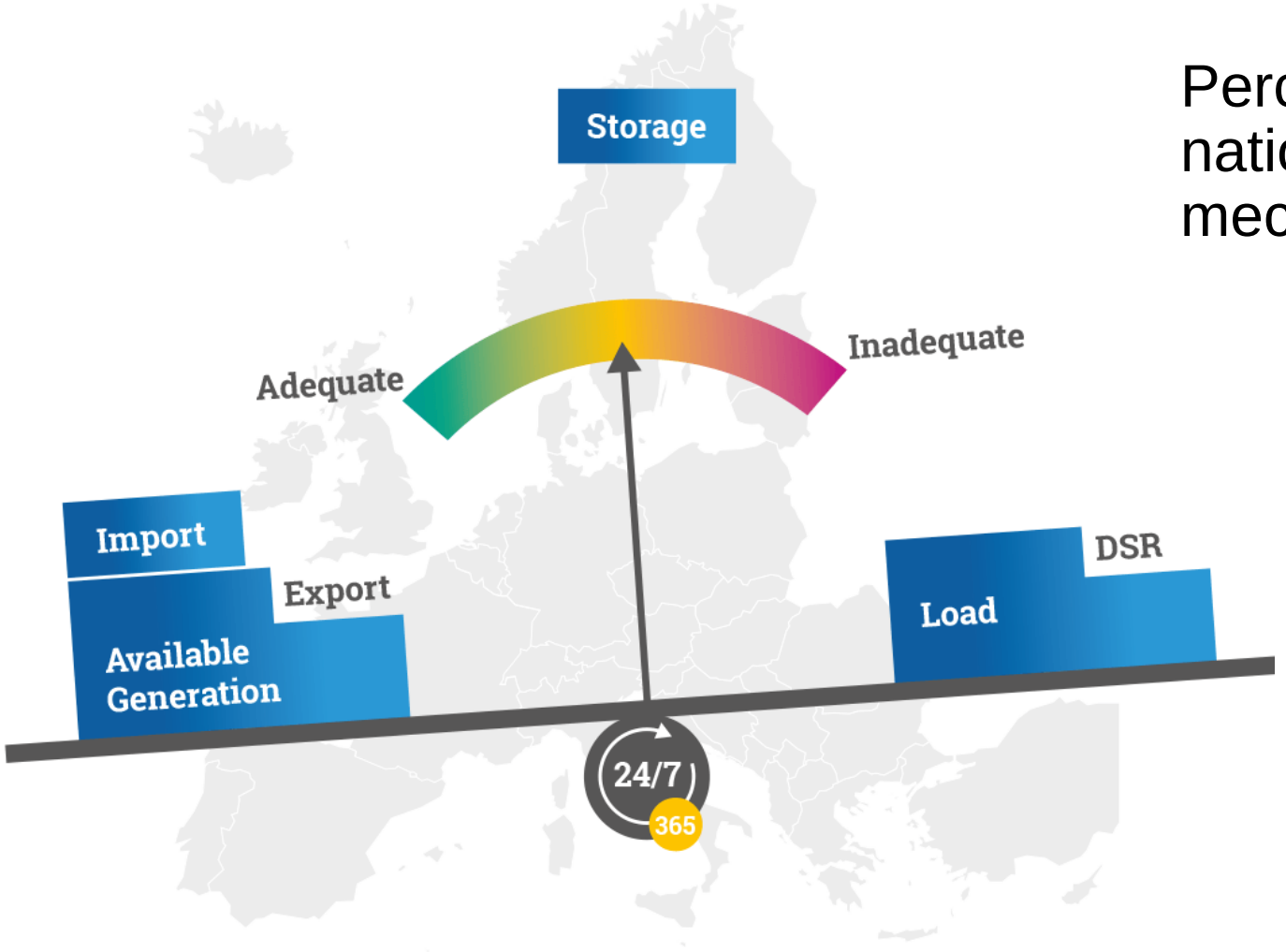
Resource adequacy: '*By yourself*' or '*in it together*'?



Perceived need for national capacity mechanisms

Note: Figure on resource adequacy is taken from ENTSO-E. Capacity mechanism overview is from ACER (2019) based on NRAs and ENTSO-E data. (MAF: Mid-Term Adequacy Forecast conducted by ENTSO-E)

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System security: The value of integration (1/2).

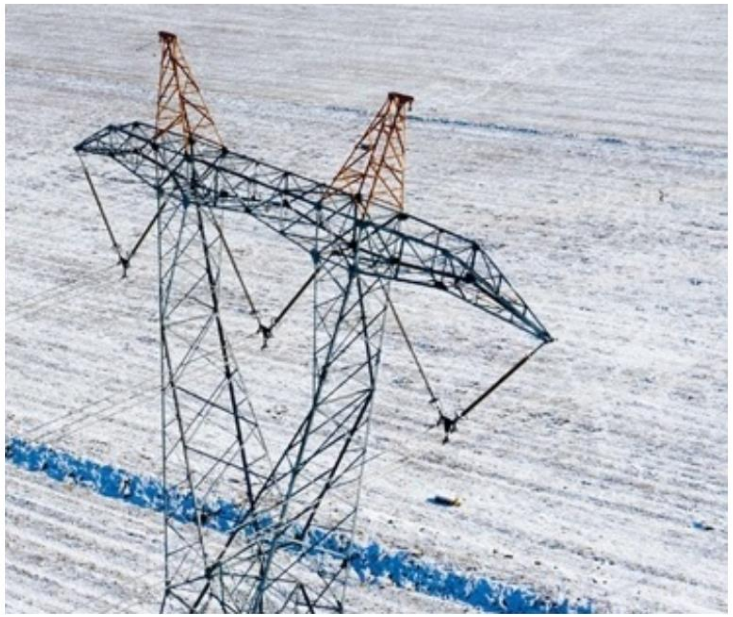
Millions without power and 21 dead as ferocious winter weather sweeps US

▲ Houston on Monday. The storm left behind record-setting cold temperatures with wind-chill warnings from the US-Canada border to the US-Mexico border. Photograph: Reginald Mathalone/NurPhoto/Rex/Shutterstock

ACER > MEDIA > NEWS

Continental Europe electricity system separation incident of 8 January 2021: Next steps

26.02.2021



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System security: The value of integration (2/2).

» Continental Europe Synchronous Are
Separation on 08 January 2021

ICS Investigation Expert Panel » Final Report » 15 July 20
Main Report

The January 8 electricity system separation in Europe was significant, having the potential to create serious damage, had it not been managed.

The facts about what happened during the incident reveal something fundamental about Europe's energy market integration efforts: an ambitious energy transition trajectory, underpinned by the 'Fit-for-55' package, (policies adopted last week to slash emissions by at least 55 per cent by 2030), is likely to rely on *further* integration of energy markets across Europe, not *less*, making energy market integration the unsung hero of Europe's transition efforts.

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Why Europe needs to come together to pull off its green transition

Plus, what to look for this US earnings season and which Olympics was the most sustainable?

likely to rely on further integration of energy markets across Europe © Bloomberg

obs and **Amanda Chu** JULY 22 2021

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Note: The Investigation Expert Panel's report of 15 July 2021 is available via the joint ACER-ENTSO-E press release issued the same day, see LINK. Commentary by the ACER Director in the Financial Times *Energy Source* of 22 July 2021, see LINK.

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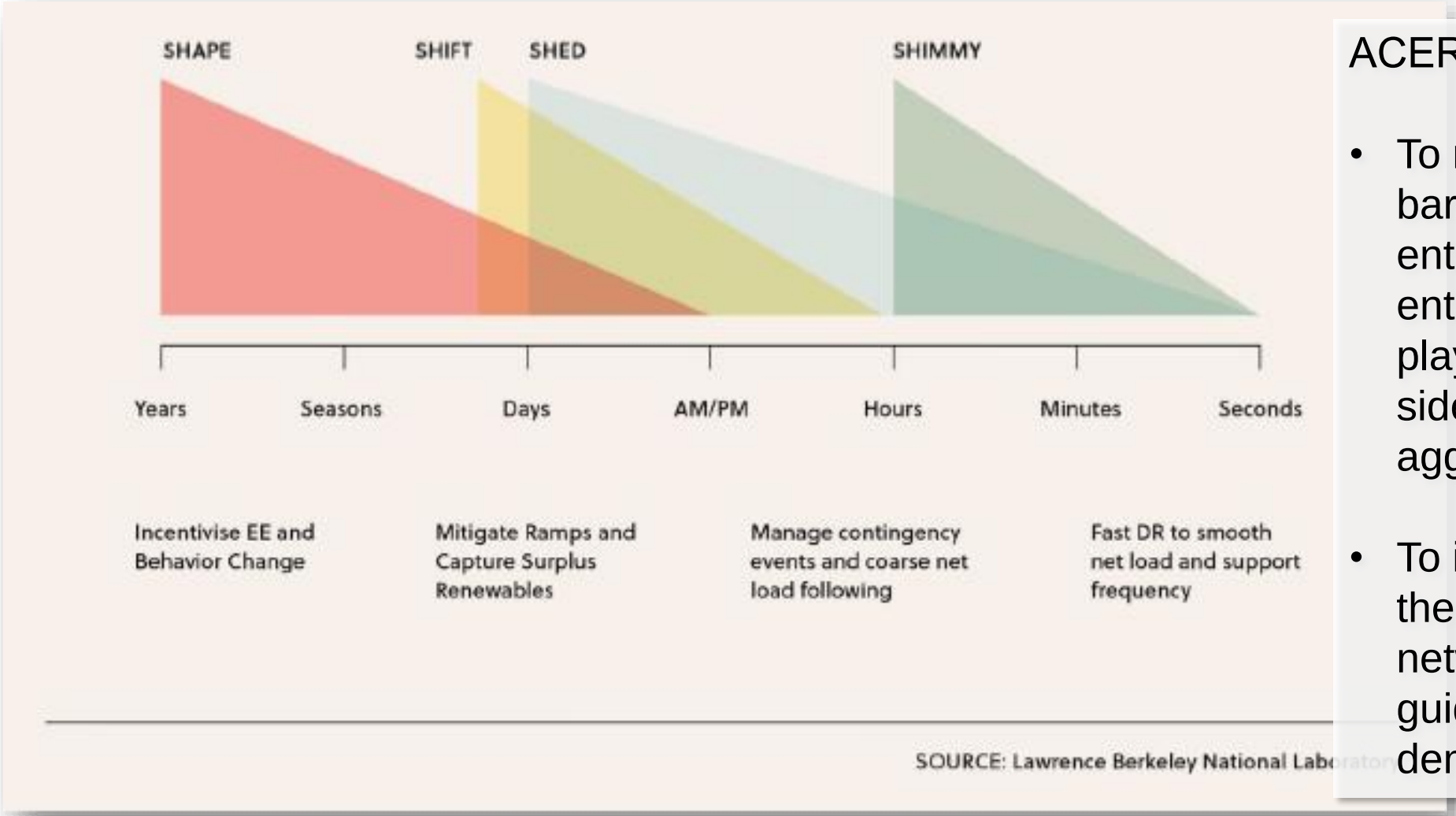
‘Flexibility’ becoming ever more crucial.



ACER’s role is, inter alia:

- To monitor and assess barriers to market entry, including for new entrants and small players (e.g. demand side response and aggregators)
- To initiate changes to the current set of network codes and guidelines to enhance demand side flexibility.

Note: Figure from Zsuzsanna Pató of the Regulatory Assistance Project in *Foresight*, December 2020. LINK.

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REMIT: Countering manipulation, keeping faith in markets.

1
EU-wide market surveillance

2.5bn
transactions reported per year

630
delivery points or zones

>15k
registered market participants

127
suspicious transaction reports

9
alert types

117
reporting entities

29
NRAs

1000
alerts shared with NRAs

165k
triggered alerts

7
initial assessments notified

49m
€ in fines by NRAs

EU monitoring coverage 2020

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Challenges up ahead

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Starting with a few broader perspectives …

*”Without **robust policy action**, the energy system of 2030 will be more akin to that of 2020 than a reflection of what is needed to achieve climate neutrality by 2050 …”* (The European Commission’s Energy System Integration Strategy, 8 July 2020)

*"Energy will increasingly become **a cross-border business** and cooperation across the borders of organisations and countries is the key to a successful energy transition …”* (Manon van Beek, CEO of TenneT, 15 December 2020)

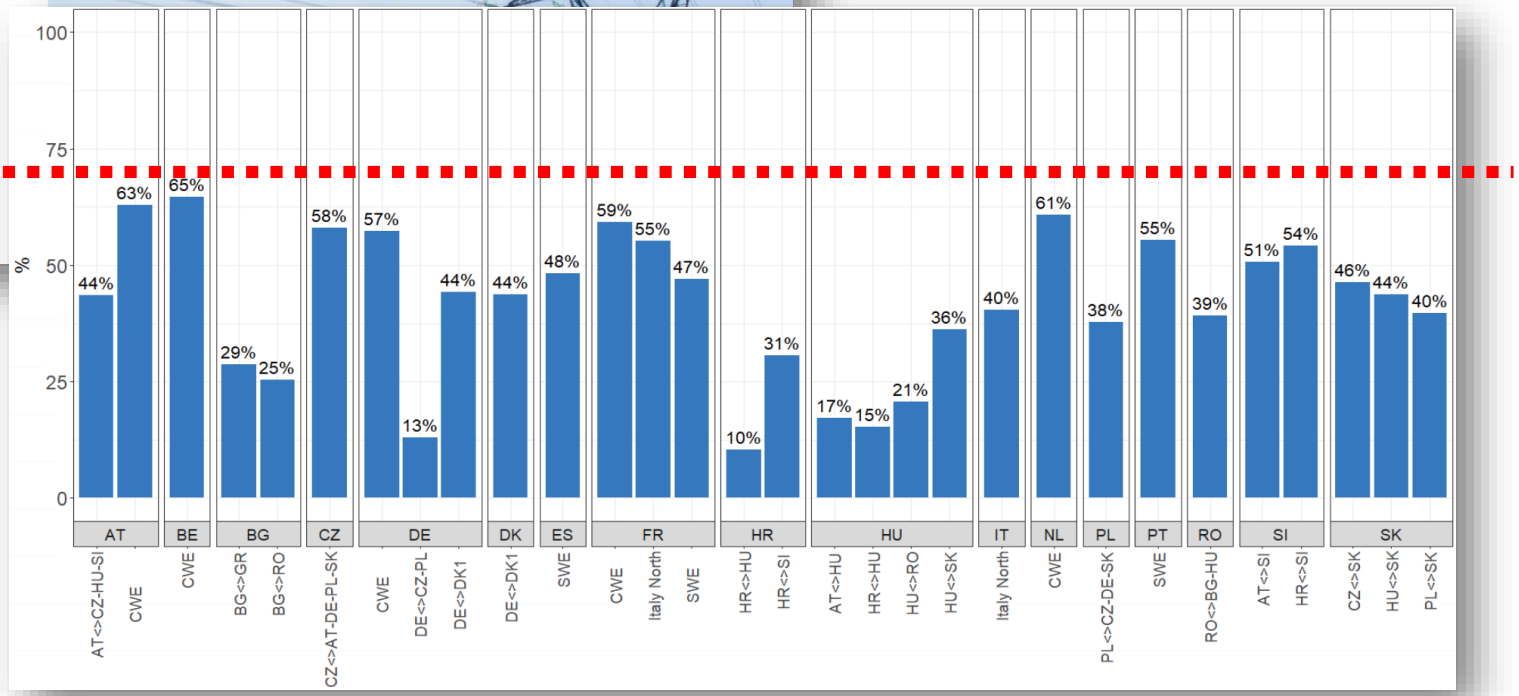
*“Only through **the build-up of a truly European framework** and by integrating national attempts, we will manage this successfully…”* (Open letter of 8 July 2021 to the European Commission from various MEPs and industry CEOs)

Note: The European Commission’s Energy System Integration Strategy, see LINK. Quote from Manon van Beek, CEO of TenneT, see LINK. Open letter of 8 July 2021, see LINK.

Work remains on trade (per availability margins).

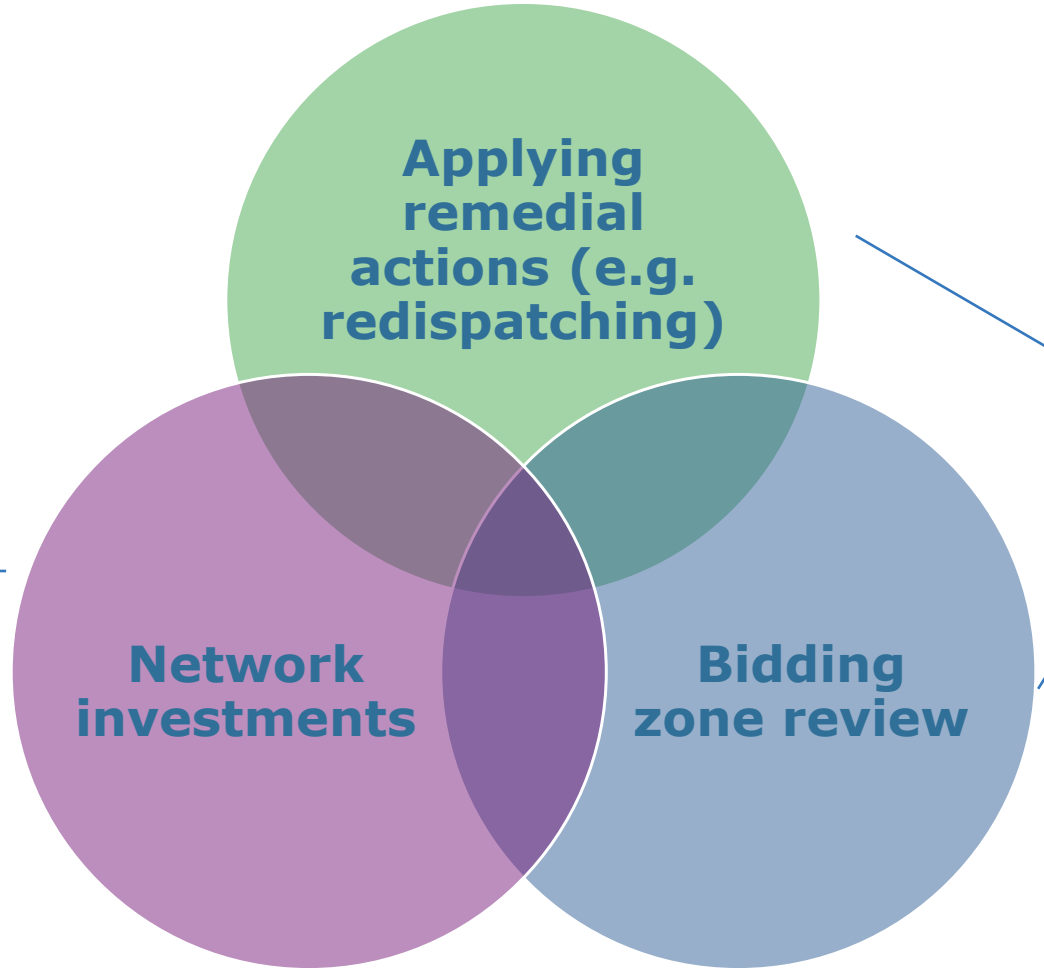
2.6.2021

ACER releases its second 70% target report on the minimum margin available for cross-zonal electricity trade in the EU



Average relative MACZT (margin available for cross-zonal trade) on elements where the minimum 70% target is not reached

Multiple routes to meet 70% availability target.



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ACER report on Projects of Common Interest (PCI)

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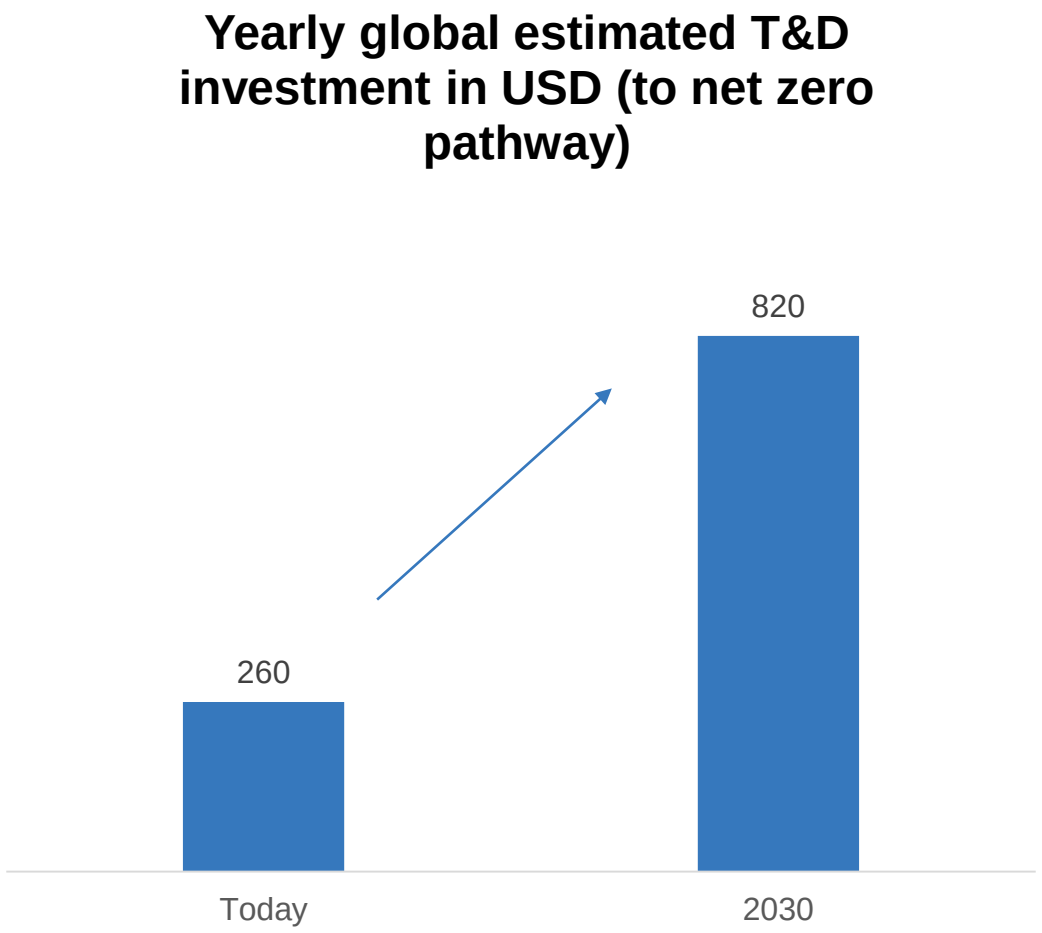
ACER decisions on various key methodologies in 2020 (implementation pending)

Note: In addition, in the short-medium term, Member States may also apply transitory measures (derogations or action plans).

Scaling up infrastructure remains a challenge.



- **Already today, delays remain a recurrent feature.**
- **For Electricity Projects of Common Interest, ACER reports show e.g. permit granting accounts for more than 40% of delays.**

Note: IEA's 'Net Zero By 2050' report of 18 May 2021 (LINK). ACER's PCI Monitoring report of 1 June 2021 (LINK).

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Even more under a vision of ‘shared resources’.

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Time perhaps to consider new approaches?

New electricity transmission connection to Sweden is progressing – Energy authorities issued a decision on the project's cost allocation

The joint project of the transmission system operator Fingrid Oyj and the Swedish TSO Svenska kraftnät for a third cross-border electricity line between the countries was issued a decision on cost allocation by the energy authorities. The transmission line, scheduled to be completed in 2025, will even out the price differences between the countries and improve the sufficiency of electricity.

The proposal was based on a cost-benefit analysis, according to which Finland will benefit the most from the project. According to the decision, Fingrid Oyj is responsible for the investments in the cross-border transmission link project that take place in Finland in full and for 80% of the transmission line investments on the Swedish side of the border. A decision on cost allocation by the energy authorities is a prerequisite for EU funding.

Note: Press release by Fingrid of 6 April 2020 (LINK).

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Kick-starting a nascent hydrogen market ...

Here, taking lessons from early gas market integration efforts across Europe.

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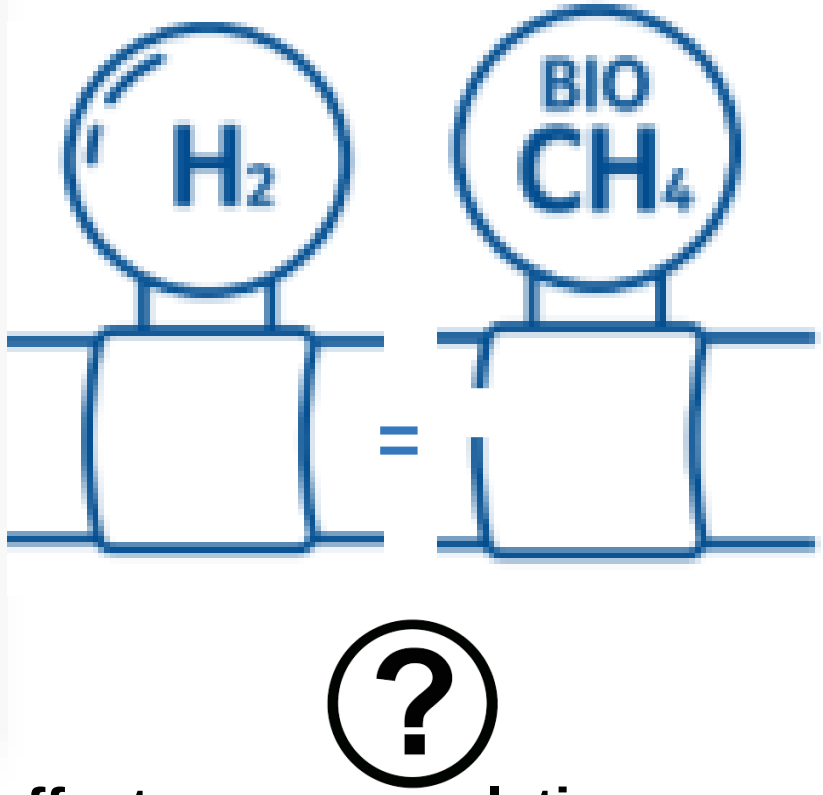
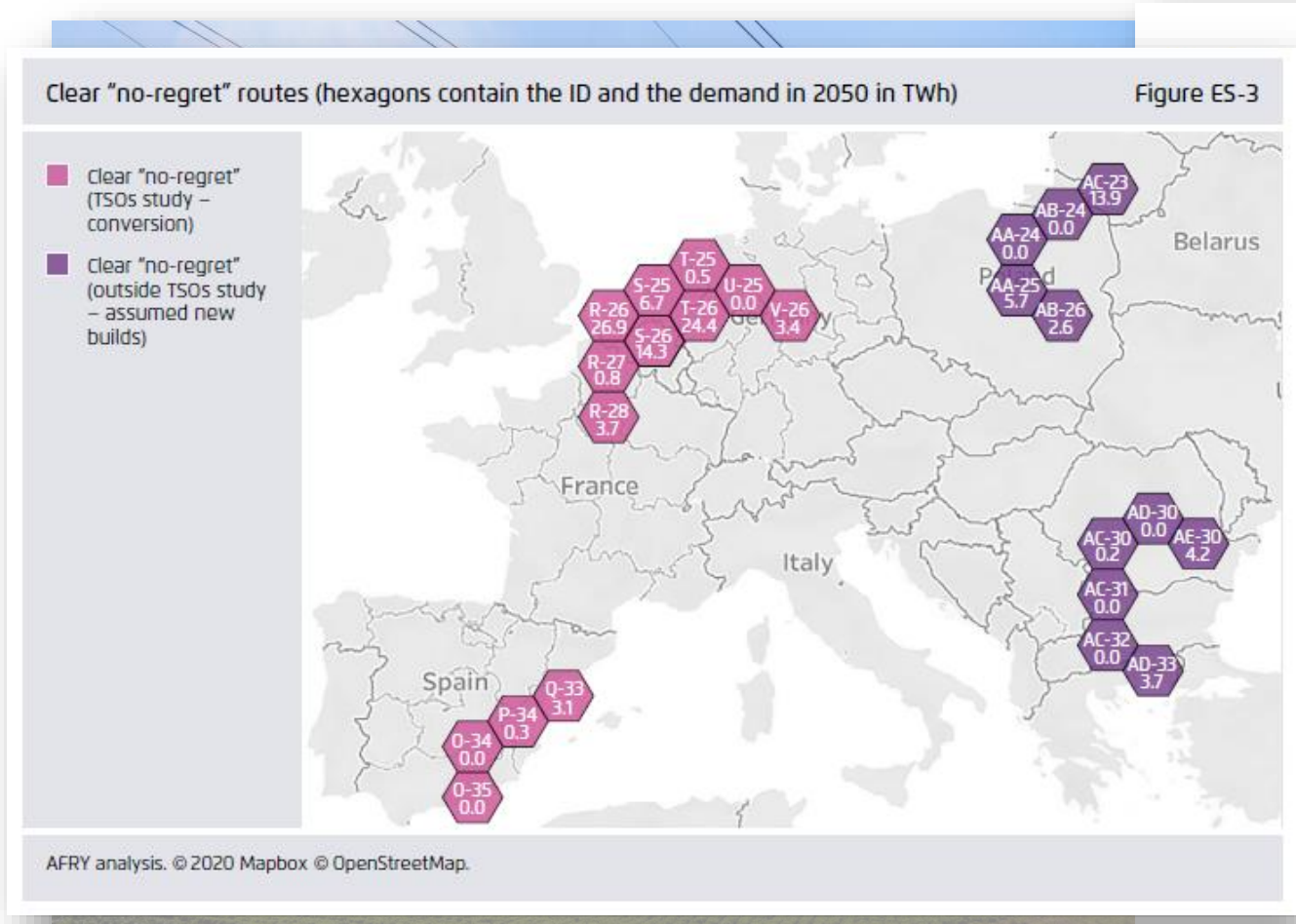
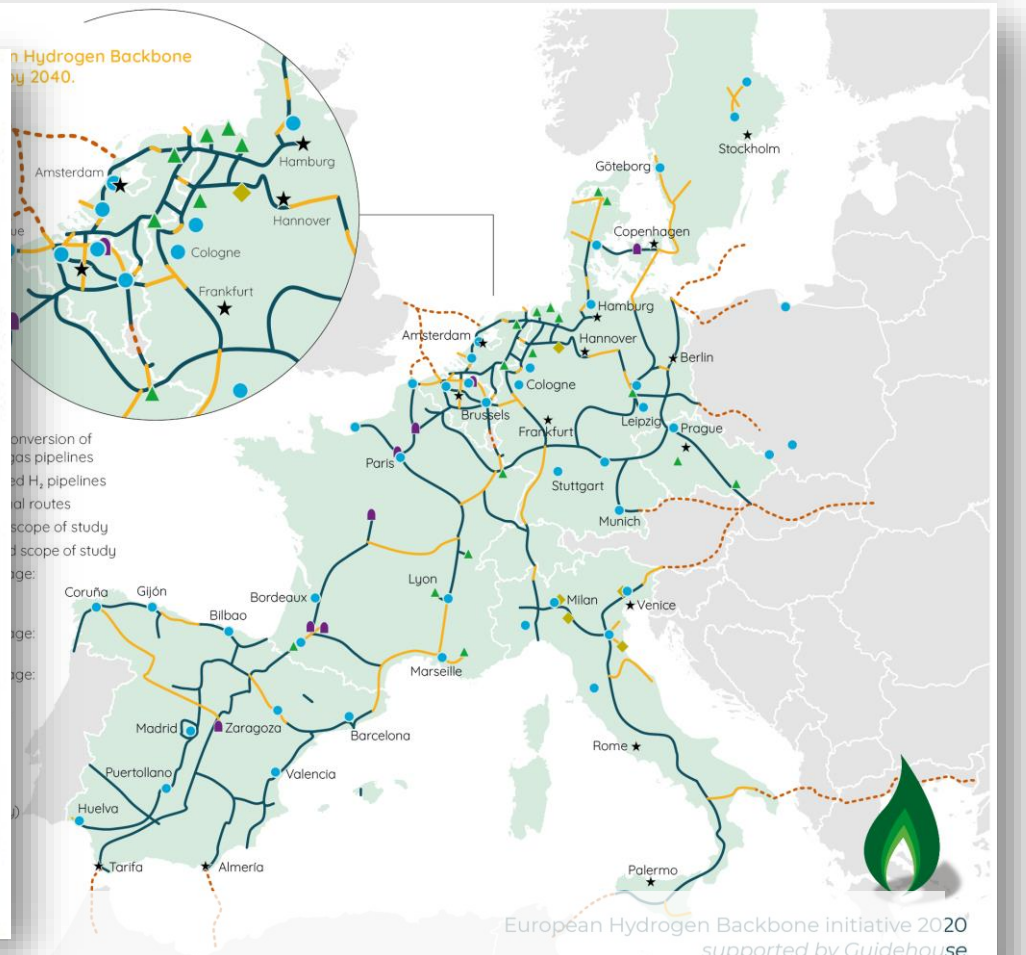
… whilst careful to avoid over-regulation.



Whilst early intervention may avoid unwanted lock-in effects, over-regulation may risk halting developments.

Planning (and interests) becoming more complex.





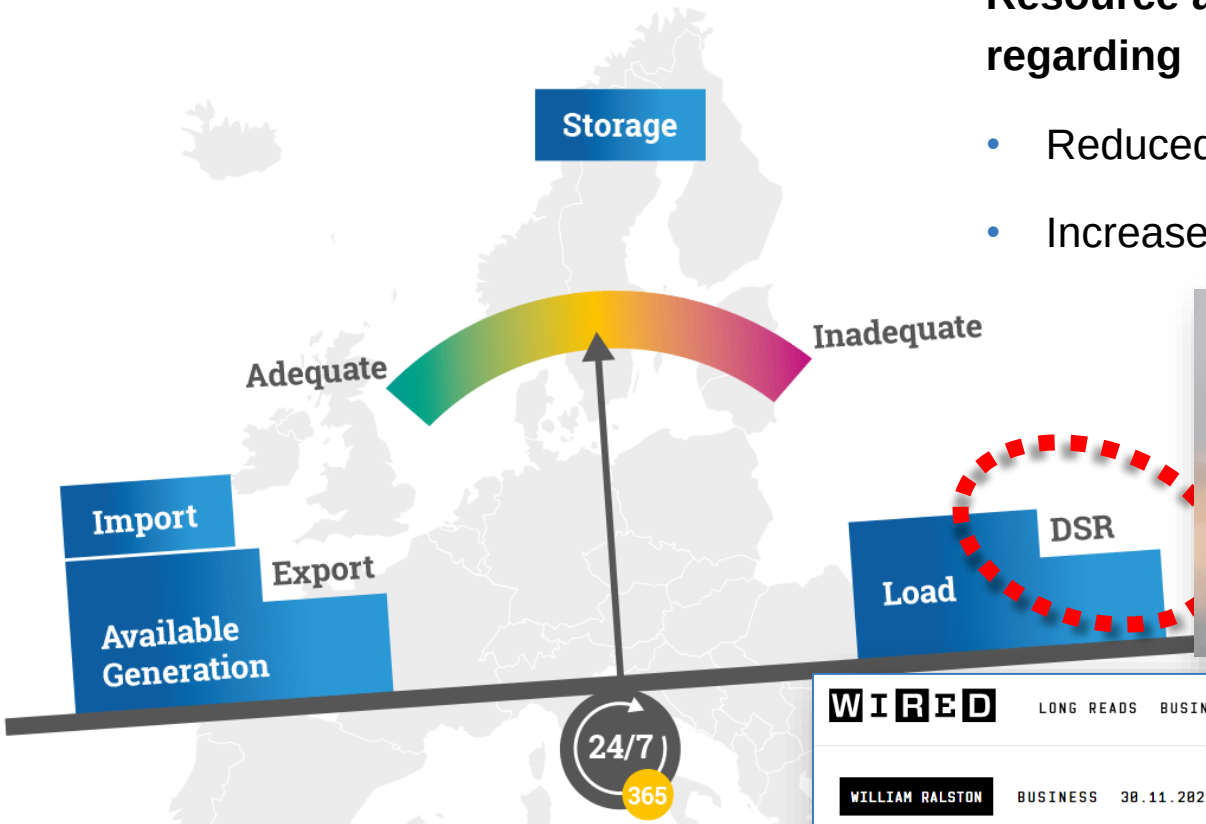
The role of 'electrons vs. molecules' a case in point.

Note: ACER report of 16 July 2021: *'Repurposing existing gas infrastructure to pure hydrogen: ACER finds divergent visions of the future'* (LINK). The map to the left is a study (*No-regret hydrogen*) by AFRY for Agora, the map to the right a study (*European Hydrogen Backbone*) by Guidehouse.

Digitalisation = unleashing demand side response?

Resource adequacy studies may highlight the benefits of DSR regarding

- Reduced need for investment (in network, generation or storage)
- Increased resilience to extreme events



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WILLIAM RALSTON BUSINESS 30.11.2020 06:00 AM

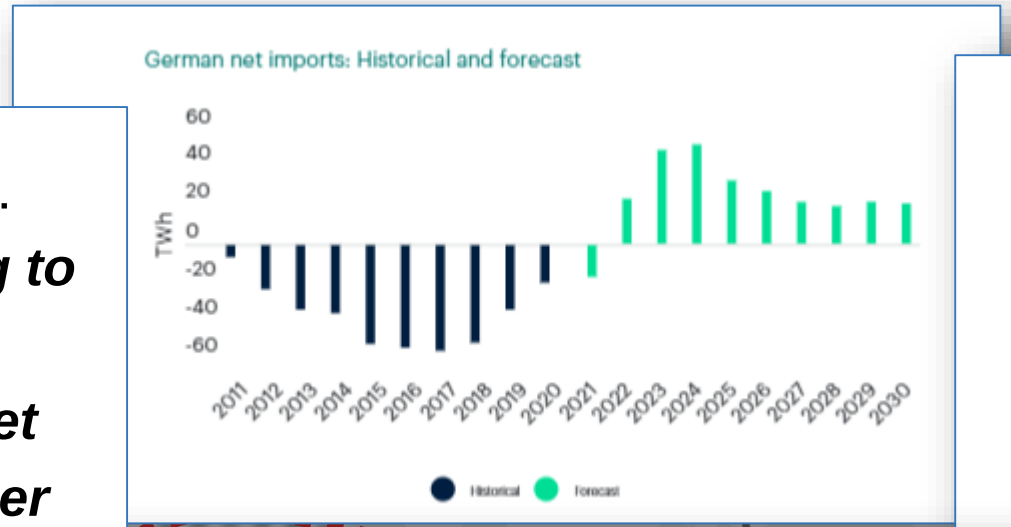
How Shenzhen turned all its 16,000 buses fully electric

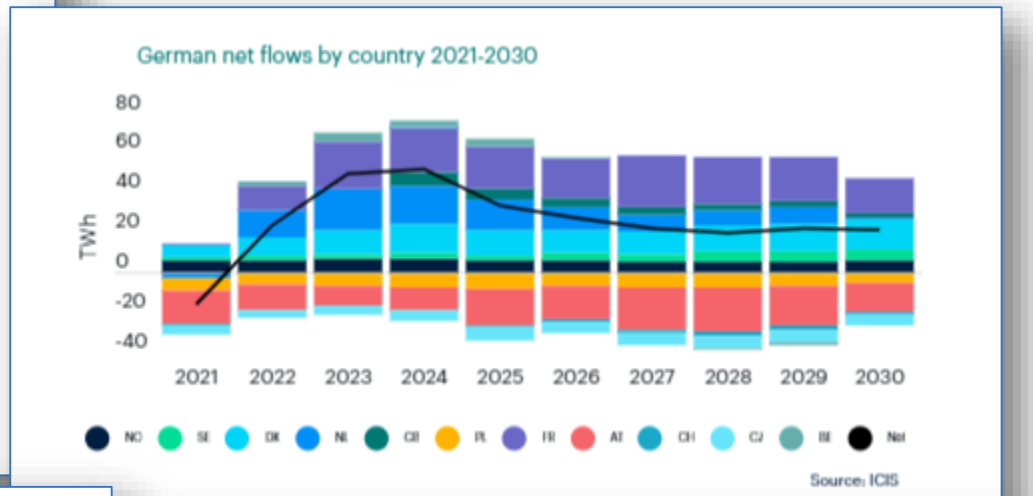
E-buses could be the future of environmentally-friendly public transport, but the upfront costs and charging infrastructure are holding back adoption

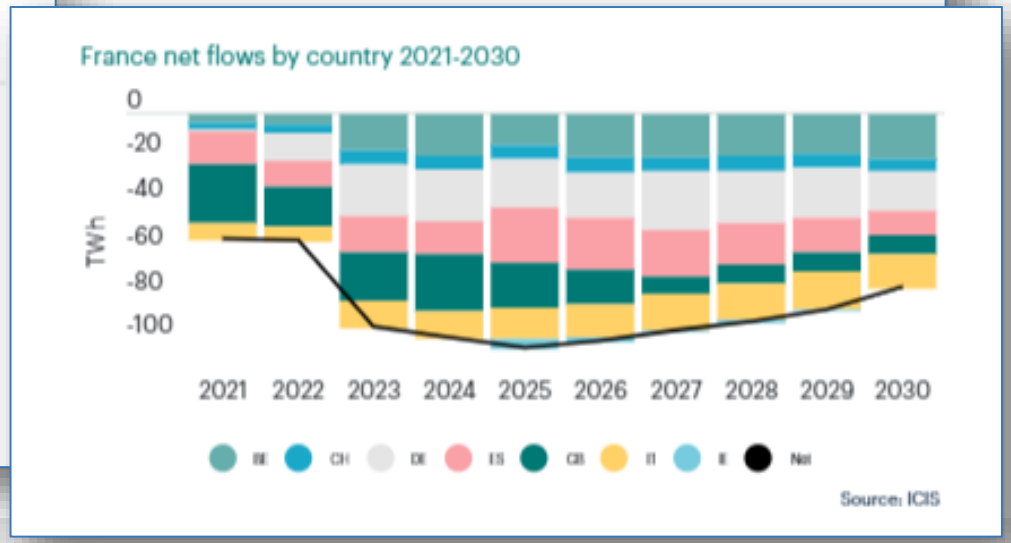
Note: Figure is taken from ENTSO-E. Article from *Wired* of 30 November 2020 (LINK).

To close on a more political note: Truly '*in it together*'?

A recent study: "… *shows* ***a doubling to ten countries changing their net importer / exporter status****, and nine countries seeing a change in net imports / exports of more than 8 TWh …"*







Note: Figure is taken from ENTSO-E. Graphs and quote are from an ICIS study (Independent Commodity Intelligence Services) of March 2021 entitled *'France to become the powerhouse of Europe: An analysis of European net physical flows to 2030*', see LINK.

Thank you for your attention.
Looking forward to the discussion.

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ACER's approach & 'DNA'.

- Energy transition at scale & speed: '*All hands on deck*' (when & where efficient).
- Sound principles still hold true:
  - Cost-efficient & effective.
  - Open to innovation (technology & business wise).
  - Avoiding incumbent bias.
- Markets a key driver. Regulation a key enabler.
- Building on an evolving Internal Energy Market.