



European Union Agency for the Cooperation
of Energy Regulators

Challenges to achieving a digitalised and integrated internal energy market

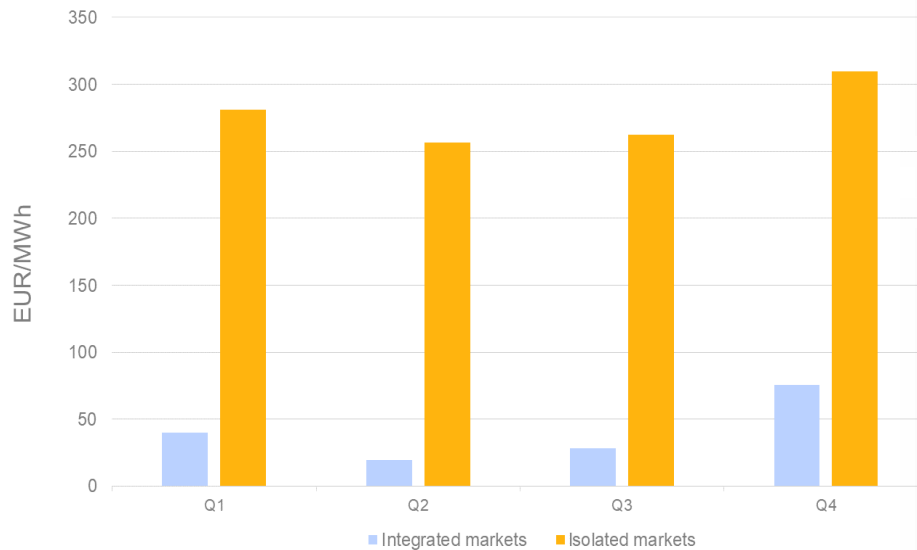
*Interconnections, demand side response
and storage*

Informal Ministerial Meeting – Council Presidency of Spain
Valladolid, Spain, 12 July 2023

Christian Zinglensen, *ACER Director*

Interconnections: The energy crisis carries lessons

Price volatility in integrated and isolated electricity markets in the EU, 2021 (EUR/MWh)



Every EU country adopted emergency measures to mitigate the energy crisis. In total, EU Member States spent up to

€ 646 BILLION

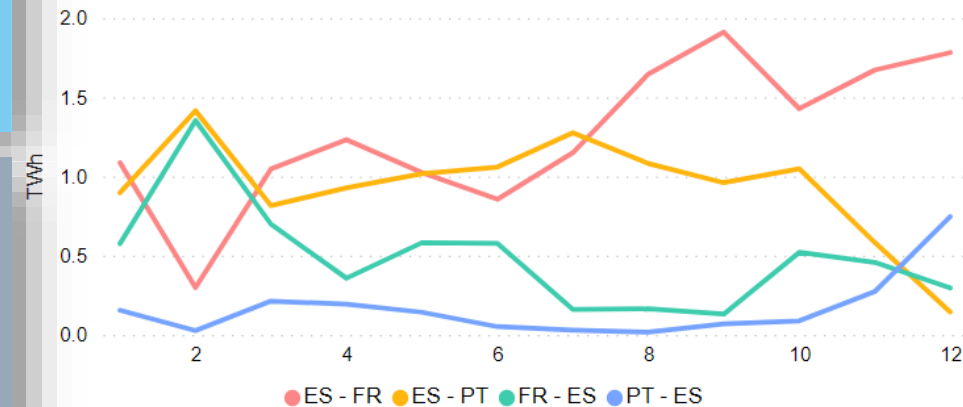


on emergency measures in 2022, based on the Bruegel dataset.

Sufficient capacity for cross-border trading ensures the resilience of the energy system during crises, supporting efficient energy flows.




Evolution of total monthly commercial exchange on the borders of Spain, 2022 (TWh)



Europe’s integrated electricity market proved resilient during the crisis, bringing multiple benefits – e.g. enabling renewables, ensuring security of supply, mitigating price volatility and providing flexibility.

* Source: Upcoming ACER report: Assessment of emergency measures affecting electricity markets – 2023 Market Monitoring Report, July 2023.

Interconnections: Its ‘70% corollary’ with much at stake

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



Malta and 8 EU countries agree to collaborate in acknowledging the Mediterranean as green energy hub

Thursday, 18 May 2023, 17:03 Last update: about 1 day ago

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.



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

Negative prices: indicators trying to ‘tell us something’

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



John Doe, place unknown



High/low wholesale prices send signals to generators (*where to invest / when to produce*), to traders (*where to trade*), to consumers (*if/when to consume*).
Consistently low or high prices call for attention - and require system responsiveness all around.

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

Investment & deployment



- Merchant vs. state support (if the latter, assess e.g. realistic target deployment, risk-allocation and system planning)
- Locational signals will increasingly become key (e.g. grid connection charges)

Operations



- If under support schemes, assess proper dispatch incentives (per also current 'smart CfDs' debate)
- Cost-reflective grid charging gains in importance (e.g. injection charges reflecting true costs to the system)

'Telling us something' ... on demand side flexibility?

Overview of barriers to new entrants and small actors per Member State (2020)



Barrier	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK
Restrictive requirements in prequalification and/or the design of products for balancing	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK
Lack of a proper legal framework to enable new entrants and small players	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK
Restrictive requirements to participate in capacity mechanisms and interruptibility schemes	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK
Limited competitive pressure in the retail market	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK
End-user price interventions	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK
Limited incentive to contract dynamic retail prices	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK
Insufficient information provided by system operators	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK

 High (0-0.2)
 Moderate (0.2-0.4)
 Light (0.4-0.6)
 Not restrictive (>0.6)
 NA
 NAP

Price volatility (incl. negative wholesale prices) should send clear signals to activate demand response. But multiple barriers persist, e.g. difficulties to access markets; lack of national rules; and (too) cushioned retail prices. Upcoming EU-wide Network Code on Demand Response is likely to play a beneficial, albeit supplementary role.

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



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Annex



- **Supporting the integration of energy markets in the EU** (by common rules at EU level). Primarily directed towards transmission system operators and power exchanges.
- **Contributing to efficient trans-European energy infrastructure**, ensuring alignment with EU priorities.
- Monitoring the well-functioning and transparency of energy markets, **detering market manipulation and abusive behaviour**.
- Where necessary, **coordinating cross-national regulatory action**.
- Governance: **Regulatory oversight is shared** with national regulators. **Decision-making** within ACER is collaborative and joint (formal decisions requiring 2/3 majority of national regulators). **Decentralised enforcement** at national level.

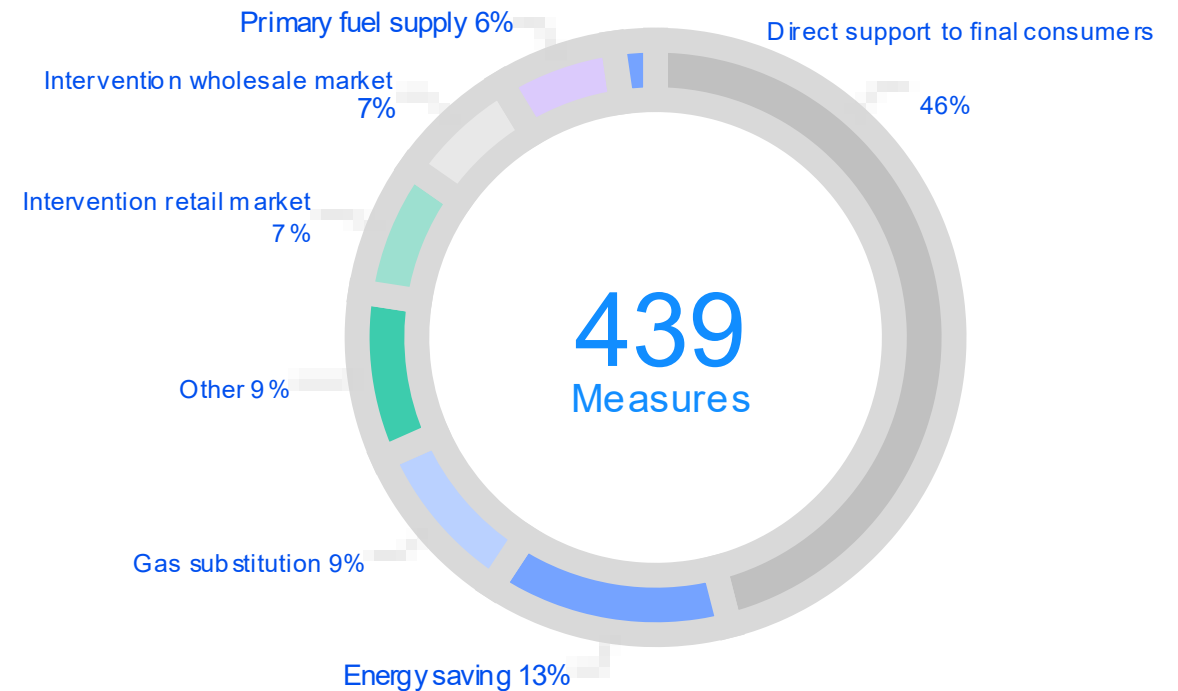
Select new or upcoming ACER reports

Publication	Expected publication
ACER assessment of emergency measures affecting electricity markets* (+ interactive dashboard of 400+ emergency measures adopted by Member States, filtered by type and country; webinar on 06/09)	14 July 2023
ACER Opinion on ENTSOG's Summer Supply Outlook 2023	14 July 2023
ACER Opinion on ENTSOG's draft Ten Year Network Development Plan (TYNDP) 2022	17 July 2023
ACER Opinion on the draft 4th ENTSO-E Guideline for Cost Benefit Analysis of Grid Development Projects	19 July 2023
Cross-zonal capacities and 70% margin available for cross-zonal electricity trade (MACZT)* (and public consultation on the report from 21/07 - 15/09; webinar on 06/09)	21 July 2023
ACER special report addressing congestion in North-West European gas markets	24 July 2023
ACER-CEER report on energy retail and consumer protection* (webinar on 14/09)	5 September 2023
ACER assessment of barriers to demand response and other new entrants and small actors in the electricity sector*	November 2023

* Part of ACER's 2023 Market Monitoring Report series.

- ACER report and interactive database of 439 electricity emergency measures adopted by Member States (MS)
- 33% of measures aimed at security of supply
- 67% aimed at affordability for consumers
 - **Most** as direct support to consumers either as income support or as price support
 - **Only 27%** target **vulnerable** consumers
- Most Member States intervened in the wholesale or retail market functioning
- Lessons from 2022 help policy makers make informed decisions in the future (see infographic on next slide)

Categories of emergency measures



ACER assessment of emergency measures (2/2)

<p>Every EU country adopted emergency measures to mitigate the energy crisis. In total, EU Member States spent up to</p> <p>€ 646 BILLION </p> <p>on emergency measures in 2022, based on the Bruegel dataset.</p>	<p>Overall electricity demand dropped as a reaction to high prices, with variations between Member States, partly due to different emergency measures adopted.</p> 	<p>Wholesale electricity prices peaked due to gas supply scarcity, but emergency measures mitigated the increase in retail prices.</p> 	<p>Household electricity prices show sticky downward trends despite reductions in wholesale electricity prices in 2023. This may warrant a closer look at retailer behaviour and clauses in their energy customer contracts.</p> 	<p>Market integration and non-fossil fuel power generation benefited Member States in terms of security of supply and stabilising prices during the crisis more than would otherwise be the case.</p> 
<p>At national level, Member States face trade-offs in their choice of support measures (e.g. helping affordability, security of supply, efficiency or the energy transition).</p>  <p>Careful consideration of the costs, objectives and the impacts of the measures they choose to adopt is important.</p>	<p>Coordinated efforts across Member States on emergency measures mitigate market fragmentation risk. Unilateral national-level interventions should be avoided. Cross-border coordination ensures network and market resilience.</p> 	<p>Any emergency necessarily calls for trade-offs and compromises; however, some approaches outperform others. There is always merit in adopting energy savings and risk preparedness measures. These no-regret measures offer benefits without risks.</p> 	<p>Measures for support to consumers should be temporary, targeted, and tailored to avoid long term distortionary effects.</p> 	<p>Sufficient capacity for cross-border trading ensures the resilience of the energy system during crises, supporting efficient energy flows.</p> 

*Source: Upcoming ACER report: Assessment of emergency measures affecting electricity markets – 2023 Market Monitoring Report, 14 July 2023.

ACER report on cross-zonal capacities & 70% margin

Maximising the electricity interconnection capacity that is made available for cross-zonal trading with neighbours lies at the heart of the European electricity market. It helps Member States (MSs) mitigate energy price shocks and enhances security of supply.



Interconnections can no longer be seen as a bilateral issue between 2 countries. Delivering on the agreed minimum

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.

But, the capacity available for the cross-zonal trade of electricity remains low across the EU. The minimum 70% target is still far off for most MSs.



Reaching the 70% target requires a determined effort. Each MS's actions (or inactions) impact other MSs and ultimately consumers. Buy-in by TSOs remains a major challenge.



Lifting both internal and cross-zonal constraints is necessary to achieving the 70% target.

OLD BARRIERS PERSIST:

- Loop flows, i.e. internal trades within country A creating electricity flows through country B, thus negatively impacting other MSs;
 - Insufficient and costly remedial actions;
- No mechanism in place for sharing the cost of remedial actions.

The unilateral restrictions of capacity by a TSO can significantly impact market welfare and electricity prices in neighbouring countries, and thus should be used only when strictly necessary and in a transparent manner.



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.



What can MSs and TSOs do to lift the barriers to cross-zonal trading?

- Speed up grid investment;
- Improve bidding zone design to reflect power system's reality;
- Enable the use of all remedial actions (e.g. redispatching, counter-trading, phase shifters);
- Apply flow-based capacity calculation & allocation in meshed regions.



Timely access to correct and complete data is necessary to ensure a comprehensive monitoring of cross-zonal capacities by regulatory authorities and ACER.

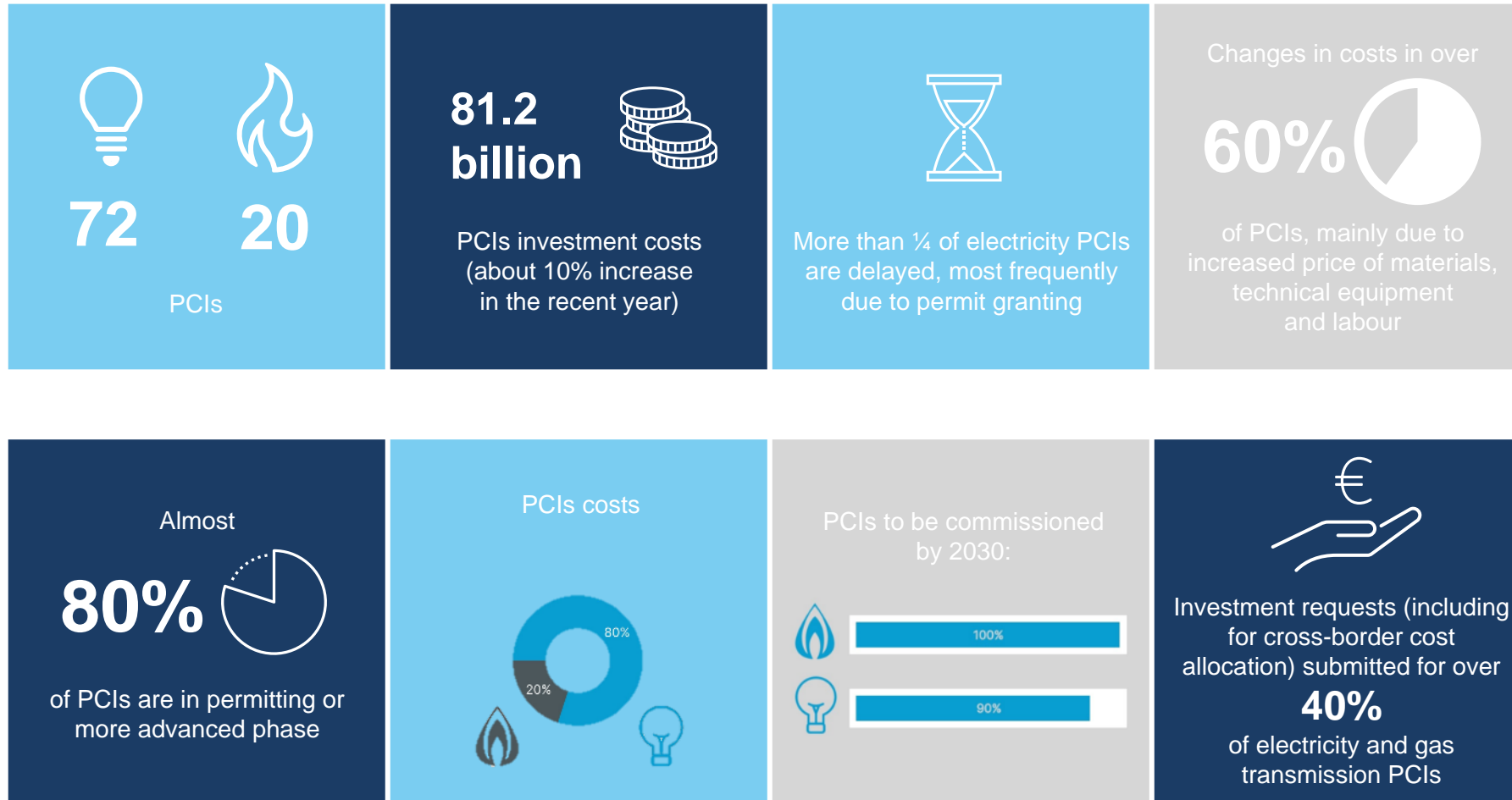


NEXT STEPS

ACER invites stakeholders to input to our summer public consultation (21 July – 15 September), and webinar on 6 September.

ACER will issue a formal opinion to the European Commission and Parliament by the end of 2023.

ACER report on Projects of Common Interest (PCIs)



How to manage volatility? – Contracts for Difference

- Beyond 3 years ahead, forward markets do not necessarily provide a viable solution to hedging needs.
- A CfD guarantees a price floor in return for the government taking excess revenue above a price ceiling.
- ...**BUT**, traditional CfDs contain incentives for the recipient generator not to respond to price signals, hence distorting normal market functioning.
- **ACER suggests for detailed guidance at EU level to be developed, thereby pursuing “smart CfDs”.**

