Avenues for reform of the electricity market

Informal Ministerial meeting in Prague on 11 – 12 October 2022
Czech Council Presidency of the EU
Christian Zinglersen, ACER Director
• What to make of our energy challenges next year?
• ‘Getting it right’ for the next 10-15 years:
  • The *when*: Effects of a reform likely to kick-in by when
  • The *what*: Key elements to tackle
• Early lessons for energy transition policies going forward
• A final word on what to avoid …
Challenges facing us next year(s)
Europe | Shiver for longer

Europe’s next energy crunch

The winter of 2023 could be worse than 2022

Source: The Economist, 29 September 2022
Current gas storage ‘success’ has come with a price

After significantly higher injections than in 2021, EU gas storages are on track to be filled to capacity by the start of the heating season (+90%) but reportedly at eight times historical costs (est. 50 billion euros).

Source: GIE, Reuters
Notes: (1) EU 27; (2) compared with average imports in corresponding months between 2019 and 2021
Hence, gas storage faces challenges next winter

Scenario for winter 2022-2023 - EU + UK - bcm/winter

Scenario for winter 2023-2024 - EU + UK - bcm/winter

A season of if's: Europe might face demand curtailments in winter 2023/2024 if gas storages are fully depleted during winter 2022/2023 and/or not sufficiently replenished in summer 2023; if Russian supplies fully halt; if larger volumes of LNG are diverted to Asia; and/or if gas demand rises (due to e.g. cold weather or demand reduction targets not being met).

Source: Estimates; ACER based on Timera and ENTSOG

* Stocks can't be fully depleted by end-winter for operational reasons
LNG capacity remains tight in the coming years

The EU will compete for extra volumes with Asia which will see growing demand, partly for overall economic growth, partly for lowering coal usage.

Source: IEA Gas Quarterly Report Q2 2022
With one particular ‘demand variable’ standing out

- China’s COVID-driven demand decline in LNG volumes is currently being absorbed by Europe while US LNG supply continues to grow.
- This raises questions as to when China’s LNG demand may turn back towards normal growth rates.

Source: Shell interpretation of Kpler and customs data
Implications for reform of the electricity market: Effects to kick-in by when?
Judging from experience, implementation takes time

### Examples

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**Using existing governance & entities**

approx. 3 - 6 years

**Establishing new governance & entities**

approx. 4 - 8 years

*Note: Includes transposition into national law*
By way of example, the UK’s electricity market review

An overview of elements in the UK’s ongoing electricity market review (REMA)

- Thorough consultation and analysis process stretching well into 2023
- Multiple options for review across various dimensions
- Sequence of consultation, analysis of input, further consultation, then analysis etc.
- Ending with a full delivery plan and overseeing implementation (from the mid-2020s)

Implications for reform of the electricity market: ‘Getting it right’ for the next 10-15 years
A spectrum of reform options to consider

**Structurally reforming short-term markets**
- Splitting the market per generation type (dispatchable vs. not dispatchable, etc.)
- Improving locational price signals (nodal pricing, local markets)

**Introducing government-driven mechanisms**
- Specific mechanisms to drive investments in renewables and/or flexibility: CRMs, CfDs, support for PPAs.
- Insurance mechanisms: Affordability options to protect consumers, two-sided options to protect both consumers and producers

**‘Average pricing’ via different mechanisms**

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In the current high price setting, many proposals aim at strong investment signals for new-build; more (cost-based) average pricing; less price volatility; thereby also tackling the impact e.g. of gas generation prices on consumers. There are several options for achieving the desired objectives.
### Key questions to be posed towards such options

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<td>Investment signals (incl. for CAPEX-intensive technologies)?</td>
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One element: Investment signals & inframarginal revenue

How a contract for difference (CfD) works

“… In some Member States, the revenues obtained by some generators are already capped by way of State measures such as … two-way contracts for difference. These generators do not benefit from increased revenues resulting from the recent spike of electricity prices. Therefore, existing producers subject to that type of State measure … should be excluded from the application of the cap …”

Another element: Zero-marginal cost & ‘missing money’

More of a discussion some years ago, the challenge of potentially ‘missing money’ & ‘revenue cannibalisation’ is countered by the enhanced uptake of storage and electrolysis, adding revenue streams by ‘shifting’ generation across time frames.

However, instituting price limits may hamper investment incentives for such technologies, thus inadvertently bringing back past discussions on ‘missing money’ & ‘revenue cannibalisation’.
Early lessons for energy transition policies up ahead
It’s the supply. No, it’s the demand. No, it’s the ...
One-sided focus on the supply-side has risks

Oil prices rise in a net zero emissions scenario driven by supply policies vs. decline when driven by demand policies (US dollars a barrel)

Focusing on supply-side restrictive measures as opposed to (also) focusing on demand-side measures may bring strong upward pressure on prices. Also, targets do not constitute results. Recent history holds lessons.

Source: IMF World Economic Outlook, April 2022
The EU holds advantages; will they be leveraged?

“... whilst increased energy independence vis-à-vis (particular) third-countries is a policy objective of growing importance, realising this may well depend on enhanced energy inter-dependence amongst EU Member States.”

Further strengthening a ‘shared resources’ model across the EU requires investment; in infrastructure, rules, institutions and governance. Importantly, it also requires political investment in the ‘comfort levels’ of being more (inter-)dependent on other Member States for one’s energy needs.

Source: ACER's Final Assessment of the EU Wholesale Electricity Market Design, April 2022
A final word on what to avoid
The gas supply picture has changed dramatically

After the latest reduction in Gazprom exports, Russian pipeline supply represents an estimated 9-10% of EU daily gas imports.

Source: ENTSOG – for interactive version of graph go to https://gasdashboard.entsog.eu/#map-flows
Revealing diverging vulnerabilities across Member States

Natural gas flow changes – first half of 2021 vs first half of 2022

Source: Bruegel policy brief: “A grand bargain to steer through the European Union’s energy crisis”, September 2022
Tackling similar vulnerabilities for electricity flows (1/2)

- France, one of the biggest EU exporters of power over the last years, became a significant net importer in 2022.
- This ‘export-to-import’ swing of 56TWh is as big as the total demand of Belgium during the same period.

‘In view of the great uncertainties regarding decisions taken in neighbouring countries, balancing the electricity system in France will necessarily rely on very strong cooperation with neighbouring countries.’

Source: ENTSO-E TP. Quote is from RTE’s Winter Outlook.
* Note: Includes months of January – September for all years
Making cross-border electricity capacity available for trade (per also the so-called ‘70% target’) will be vitally important for many Member States. This also includes Member States that are predominant electricity exporters over the year.

* Covers all months for 2021 and January – September for 2022
Note: Without MT, CY, IE
Thank you for your attention.
Looking forward to the discussion.
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, deterring 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.
So far, ‘gas demand flexibility’ came from industry

Industry and power generation each account for roughly one third of total EU gas demand. Industrial demand has dropped by 30% since August 2022, while gas demand power generation has risen by 8% year-to-date. The recent electricity demand reduction targets, if realised, are likely to counter the latter. Record high prices are forcing energy intensive industrial users to limit, stop or outsource production.

Source: For industrial demand - IEA analysis based on data from BNetzA, National Grid, GRTGaz, Fluxys and Snam. September drop is an estimate in the absence of data for some Member States. For gas demand for power generation - ACER analysis based on ENTSO-E (September gas-fired generation dropped Year-on-Year as a result of recovering wind power generation).
Addressing the mismatch in electricity supply & demand

Uptick in EU coal and gas power needed to cover huge drop in nuclear and hydro

Year-on-year change in EU-27 electricity generation by fuel type for January - August 2022 (terawatt hours)

- Favourable solar conditions over much of Europe. Despite low wind output over the summer, overall high wind yields in 2022 (compared to unusually low wind output in 2021).
- Coal increase per gas-to-coal switching. Production impacted by fuel supply logistics (e.g. Rhine) and plant closures.
- Lower availability of nuclear plants for technical and drought related reasons.
- Drought impacting overall hydro production.

Source: Ember
Other includes bioenergy, other renewables and other fossil fuels
Limited capacities on new supply routes have resulted in TSOs collecting unprecedented congestion rents. ACER estimates that congestion rents* have reached 3.4 billion euros between January and September 2022 - in the whole of 2021 they amounted to 55 million euros.

Source: ACER based on PRISMA, RBP and GSA

*Gas transportation congestion rent calculation is based on auction time (i.e. 2022) not product delivery time (i.e. includes products for delivery beyond 2022)
‘Gas driving electricity prices …’ is not the full story

Despite record-high gas prices, gas-fired power generation has increased year-on-year due e.g. to low hydro and nuclear availability issues.

Source: ACER based on ENTSOE
So cyclically, new LNG investment will be coming - right?

Upstream oil and gas investment is changing, with only the spending by Middle East national energy companies above pre-pandemic levels. This raises the question whether past ‘cyclical dynamics’ still apply.

Source: IEA’s World Energy Investment Report, June 2022
Existing and potential Russian gas exports to Asia vs Russian export to EU + UK

Russia expected to prioritise new export capacity, in particular towards China. This will involve significant investment and price concessions. Volumes are highly unlikely to make up for current EU + UK exports.

Source: Eurostat Energy database; Centre for Strategic and International Studies (May, 2022); IEA: Energy Fact Sheet: Why does Russian oil and gas matter?
Investment in ‘new solutions’; yes, but it takes time

Comparison of the REPowerEU Plan installed electrolysis capacity target with capacity of EU projects in the pipeline, 2030

European low-carbon hydrogen capacity additions