EU energy markets, future competitiveness & a few energy transition ‘truths’

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Some fundamentals today and for the immediate years ahead
A gas supply shock of unprecedented scale fuelled the energy crisis in 2022. An additional shock, this time in electricity generation, added stress to European energy markets, especially during Q3 and Q4 2022. An improved energy demand-supply balance facilitated the decrease of EU energy prices across 2023.
A combination of enhanced LNG supply, gas infrastructure investments (mostly in LNG regasification) and sharply reduced gas consumption has brought a new gas supply-demand balance.

Source: ACER calculation based ENTSOG TP, THE, Enagas, and GIE and Platts. Note: Preliminary and estimated data for 2023 utilized in the creation of the figure.
Still, price expectations remain higher than pre-crisis

Although gas and power futures’ prices have substantially dropped in the last months, they remain 50% above recent historical average. The resilience of EU demand and the global competition for LNG resources are important factors for EU gas and power price formation going forward.

Source: ACER based on ICE Endex and European Energy Exchange (EEX)
Note: EEX Power and TTF gas average prices are shown for comparison and are based on the front-month products traded in the period 2017-2021 (i.e., they are not future prices for delivery in 2023-2024).
For electricity, volatility is likely here to stay

The recently agreed EU electricity market design reform seeks to manage volatility by improving means of longer-term contracting, better functioning forward markets, enhanced consumer protection etc.

Source: ACER calculations based on ENTSO-E data.
Note: One occurrence of negative pricing corresponds to one hour during which prices are negative.
EU gas – and hence also wholesale power – prices will be more exposed to global LNG competition and thus face higher volatility going forward. Given current LNG market tightness for the next couple of years, unexpected events, such as outages, can have outsized impacts, adding tension to global LNG supply and hence to EU gas prices.

Source: ACER estimations based on Platts data (January 2024).
If Europe wants to fundamentally dissolve the implications of global gas price differentials not least vis-à-vis North America, the answer is to get significantly out of gas. Currently, that would seem a rather long-term proposition. Hence, attention shifts to other competitive advantage factors, given continuous subsidisation of energy input factors is likely to prove fiscally extremely challenging.
The EU’s competitive advantage in energy – really? If so, where & how?
First, unprecedented energy market integration

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

Gas flows between Germany and Belgium, 2018 – Q3 2023 (TWh/month)

Integrated markets showed high levels of resilience during the recent energy crisis enabling e.g. the integration of renewables, ensuring security of supply, facilitating needed changes in gas flows, mitigating price volatility and providing flexibility to the system.

Source: ACER based on NEMOs’ simulations. Volatility was estimated by using the standard deviation of day-ahead wholesale prices. The standard deviation was calculated per bidding zone for the whole year, then averaged out across the EU.

See: ACER’s Final Assessment of the EU Wholesale Electricity Market Design, April 2022.
With potential for further competitive advantage

“Sharing renewable resources among well-interconnected Member States enhances the certainty of availability.”

Source: ACER-EEA: ‘Flexibility solutions to support a decarbonised and secure EU electricity system’, October 2023. The Economist, 1 January and 13 November 2023, respectively.
However, risk of market fragmentation is real
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Overview of German cross-border tariffs, including the new neutrality charge – December 2023 – (EUR/MWh and % the new levy represents) – yearly capacity product

Source: Argus media, S&P Global.
Second, digital, distributed & participatory = the future
With governments needing to factor in ‘the full picture’

Supporting the roll-out of digitally enabling infrastructure

The rollout of smart meters in Europe (EU-27 + Norway)

13 SUCCESSFUL
4 PROGRESSING
6 BARELY STARTED
5 NO SMART METERS

Consumers need smart meters to provide demand response.

Interventions to pursue policy objective A, B or C ...

Raising barriers to demand response, new technologies or participation of all assets?

Implying some ‘do’s’ and some ‘don’ts’ …
To close, a few broader (in)convenient truths for the road ahead
Energy transition will be driven by demand
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**What does COP28 need to do to keep 1.5 °C within reach?** These are the IEA’s five criteria for success:

1. Triple global renewable power capacity
2. Double the rate of energy efficiency improvements
3. Commitments by the fossil fuel industry, and oil and gas companies in particular, to align activities with the Paris Agreement, starting by cutting methane emissions from operations by 75%
4. Establish large-scale financing mechanisms to triple clean energy investment in emerging and developing economies
5. Commit to measures that ensure an orderly decline in the use of fossil fuels, including an end to new approvals of unabated coal-fired power plants
‘The stone age did not end because we ran out of stones …’: Targeting the structural demand drivers of that which we wish to rely less on.

‘Put your money where the demand should be’: Focus support on solutions lowering demand and/or shifting demand towards more desirable supply sources.

‘Get ready for the bumpy ride ahead’: Enhance analytical preparedness to improve the management of future shocks (aka. anticipate, navigate, mitigate).
Second, redistribution will need to take centre stage

The global backlash against climate policies has begun

Cost, convenience and conspiracy-mongering undercut support for greenery
Third, ‘putting all your eggs …’ vs. navigating uncertainty
Third, ‘putting all your eggs …’ vs. navigating uncertainty

Source: ACER report of 16 July 2021: ‘Repurposing existing gas infrastructure to pure hydrogen: ACER finds divergent visions of the future’. 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.
Finally, diversify vs. self-sufficient ~ careful what you wish for.

Foregoing the benefits of (sufficiently diversified) trade is likely to challenge the affordability and thus the overall viability of an ambitious energy transition pathway.

Thank you for your attention. Looking forward to the discussion.
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, 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.
Back-up
Contributors to improved gas supply-demand balance

Russian (pipeline) supply drop has been largely offset by rising LNG imports to the EU and reduced gas demand. Yet, select Member States in South-East Europe where long-term contracts are maintained are still highly exposed to risks of full disruption of Russian supply.

Source: ACER estimations based on ENTSOG TP, Eurostat, Platts and Bruegel data.
Electricity saw more renewables and nuclear in 2023

Renewable and nuclear power generation has risen in 2023 (for nuclear, from its historical low in 2022), whilst total EU power demand is expected to remain low. As a result, coal & gas fired generation sizeably dropped in 2023.

Source: EMBER European Electricity Review 2023. Note: Other include bioenergy, other renewables, other fossil fuels and net imports.
Wholesale electricity prices peaked, but emergency measures mitigated the increase in retail prices.

**Targeted measures:** Less than a quarter (23%) of costs associated with emergency measures were targeted.

**Attention needed going forward:** Household electricity prices drop at a slower rate than the wholesale prices.

Reduction of retail prices was achieved, though at high costs.

Source: VaasaETT.