ACER’s Preliminary Assessment of Europe’s high energy prices and the current wholesale electricity market design

Main energy price drivers, outlook and key market characteristics

TTE Council Meeting
Brussels – 2 December 2021

Christian Zinglersen, Director at ACER
Agenda

- Energy price developments: Main factors & impact across Europe
- Outlook for the next five – six months.
- Policy considerations:
  - Short-term relief
  - Price volatility and its effects
  - Market design considerations
  - Broader transition pathways
European Commission’s ‘Toolbox’ Communication of 13 October tasks ACER with:

- studying the benefits and drawbacks of the existing electricity market design & proposing recommendations for assessment by the European Commission by April 2022;

- undertaking a preliminary assessment of the situation in the electricity market & reporting by mid-November.
What a difference a year makes …

Whereas, in 2020 the mild winter and COVID-19 containment measures …

… in 2021, electricity wholesale prices rose to unprecedented heights …

… contributed to an annual drop in EU electricity demand (4.1 %) and prices (32 % on average across the EU) …

Source: ACER calculations based on ENTSO-E data.
Strong global demand for LNG. Tight supply.

Global competition for LNG supplies leading to less LNG arrivals in the EU (the global ‘swing market’ for LNG).

Source: Reuters and ACER calculation.
Contributing factors for the EU specifically

**ADDITIONAL FACTORS:**

- Coal and carbon price increase
- Weather (e.g. hot summer)
- Lower renewable generation (wind, hydro)
- Steady pipeline supply affected by maintenance and lessening investment in new production

**CHANGE IN SUPPLY TO THE EU MARKET: 2019 vs 2021 in bcm**

With similar demand compared to 2019, the EU has in 2021 net approx. 10% less gas supplied at its disposal. So far the gap has been picked up by gas storage.
Impacts more uniform for gas than for power

GAS FRONT MONTH CONTRACTS FROM JANUARY – NOVEMBER 2021 (EUR/MWh)

AVERAGE ELECTRICITY PRICES FOR BIDDING ZONES IN EUROPE: OCTOBER 2021 (EUR/MWH)

Source: Reuters and ACER calculation (for gas); ACER calculation based on ENTSO-E (for electricity).
Drivers of power price differentials

COUNTRIES AND THEIR EXPOSURE TO HIGH ELECTRICITY PRICES IN SEPTEMBER 2021

AVERAGE DAY-AHEAD ELECTRICITY PRICES (EUR/MWh) AND AVERAGE GAS GENERATION AS A PERCENTAGE OF ELECTRICITY DEMAND IN EUROPE (%): SEPTEMBER 2021

<table>
<thead>
<tr>
<th>Group</th>
<th>Main characteristics of the Member States pertaining to the group</th>
<th>Average day-ahead prices (EUR/MWh)</th>
<th>Electricity demand covered with gas (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>Highly gas-dependent and/or limited interconnected countries</td>
<td>167</td>
<td>34</td>
</tr>
<tr>
<td>Group 2</td>
<td>Moderately gas-dependent and/or well interconnected countries</td>
<td>132</td>
<td>14</td>
</tr>
<tr>
<td>Group 3</td>
<td>Limited gas-dependent countries</td>
<td>89</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: ACER calculation based on ENTSO-E data.
GAS

Tight market conditions expected to relax in spring

MARKET EXPECTATIONS MOST LIKELY DIRECTED TOWARDS:

- Global LNG supply constraints easing up
- Possibly increasing Russian flows
- Expected demand decrease
- Larger renewable energy production

ELECTRICITY

Winter season remains a key variable for gas demand. Currently, gas stocks are at a 5-year low, with stock withdrawals significantly above average.

Source: Platts, Reuters, ACER calculation (Platts forwards price assessments are on monthly granularity only for the next three months)
Select policy considerations
Policy considerations (1/4): Short-term relief

AVERAGE ELECTRICITY BILL BREAKDOWN

POSSIBLE MEASURES:

- Adapting taxes & levies etc.
- Social security measures (outside energy)
- The dilemma: Maintaining price signals to drive desired behaviour (e.g. further efficiency, new investment etc.) whilst protecting the most vulnerable from sudden impacts

Source: Eurostat, Band DC: 2,500–5,000 kWh (household electricity consumption) (May 2021)
Policy considerations (2/4): Price volatility

Volatility is here to stay. The ‘new business model’. Cushioning impacts for vulnerable consumers.

Source: IEA’s ‘Net Zero By 2050’ report of 18 May 2021 (LINK). Notification update is from Ofgem, the UK energy regulator.
Policy considerations (3/4): Market design

**PAY-AS-CLEAR**

- **100 GW**
  - Gas 70€
- **80 GW**
  - Coal 55€
- **60 GW**
  - Hydro 15€
- **40 GW**
  - Wind ~0€
- **20 GW**
  - Solar ~0€

Producers bid true costs and get the market clearing price.

If the demand is 100 GW, the market clears at 70€

If the demand is 80 GW, the market clears at 55€

**BREAKDOWN OF COSTS FOR CONVENTIONAL AND RENEWABLE GENERATION TECHNOLOGIES**

- **Conventional generation (coal and gas)**
  - Investment costs: 26.0%
  - O&M plus fuel costs: 74.0%

- **Renewables (wind & solar)**
  - Investment costs: 77.0%
  - O&M plus fuel costs: 23.0%

The ‘pay-as-clear’ electricity market model: Incentives to bid marginal costs, not more. Designed to recuperate capitals costs above marginal costs.

Source: ACER and ACER based on IEA
Policy considerations (3/4): Market design

OTHER APPROACHES RECENTLY RAISED, E.G. THE NOTION OF ‘DECOUPLING’ BIDS AND THE RESPECTIVE CLEARING PRICE AND/OR INTRODUCING PRICE CEILINGS PER PARTICULAR TECHNOLOGIES.
Current market model underpinning European energy market integration has brought significant benefit. Continued and strengthened efforts could deliver more than 300 billion euros over the next decade.
Policy considerations (4/4): Managed transitions

- Focus on supply and demand
- Short-term and longer-term
- Affordability = acceptability. At the same time, cost-reflective pricing is needed to drive behaviour (e.g. greater efficiency) and incentivise new investment
- Role of government and regulatory supervision and monitoring likely to increase
Thank you for the opportunity. 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.
Gas & electricity price correlation is not new

ELECTRICITY DAY-AHEAD PRICES DISTRIBUTION COMPared TO THE COST OF PRODUCING ELECTRICITY WITH GAS IN EUROPE (2010 – 2021) (EUR/MWh)

- Annual average cost of producing electricity from gas

Source: ACER calculations based on ENTSO-E and Platts data.
Gas markets have evolved for the better

The move towards more spot pricing rather than long-term contracting has yielded substantial benefits over the last decade. Going forward, hub-based pricing seems a more natural corollary of Europe’s changing electricity system.

Source: International Energy Agency (IEA)
Winter season a key variable for gas demand

- Winter accounts for 65% of yearly demand, due to cold weather
- Storage withdrawals cover approximately 25% of winter gas consumption
- Across winter 2021, gas demand was +7% higher than for the 2014-2020 average:
  - Underground storages were depleted by 65 percentage points
  - Currently, stocks are at approx. 70%

*Notional scenarios compare highest and lowest monthly consumption in 7 years average vs winter 2020/2021 demand

1 Storages' withdrawal capacities are partly reduced as stocks lessen. See expanded considerations in the ENTSOG Winter 2021-2022 Supply Outlook
A look at certain market behaviours

COMPARISON OF EU NATURAL GAS IMPORT FROM RUSSIAN ORIGIN:
2016 – October 2021, bcm/month

Given the global price drivers, it is unlikely that any specific market trading behaviour would be responsible for current record prices. ACER’s market surveillance efforts under REMIT, alongside those of national regulators, have so far not revealed systematic manipulative behaviour or insider trading. Surveillance is ongoing.

Pipeline imports have kept steady, not responding to surging demand. Certain physical constraints in/for Russia. Discussions on possible tactical considerations.

Source: ACER calculation based on ENTSOG data. REMIT stands for ‘Regulation on Wholesale Energy Market Integrity and Transparency; for further information, see ACER website at LINK.
Policy considerations (2/4): Price volatility

Electricity leads the way to net zero

In our net zero pathway, renewables make up nearly 90% of electricity generation in 2050, propelled largely by solar PV and wind.