

Affordable energy – Unlock the potential of decentralised, dispatchable power

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The Clean Industrial Deal and the Affordable Energy Action plan aim at decarbonising the energy system and European industry while keeping prices competitive. They have the right ambitions but fail at picking the right tools.

The Draghi and Letta reports sounded the alarm on energy prices. Since the Russian invasion of Ukraine, gas prices in the EU are between three to five times the prices in the US, while electricity prices are two to three times those in China. Prices are also more volatile than in other world regions. Achieving lower prices is necessary but will not be simple. It will require a system view that makes use of all available technologies and energy carriers.

We therefore welcome the recognition that molecule-based generation is here to stay. Indeed, dispatchable power solutions contribute to energy security and to the balancing of supply and demand in different timeframes. Deployed only where needed and running when needed, they reduce the need for grid investments and contribute to keeping prices in check in moments of extreme scarcity. In this paper, we provide first indications on how to better unlock their potential.

Our recommendations

- 1 Take a system approach to energy costs
- 2 Untap the potential of flexible smart generation
- 3 Support decentralised efficient solutions
- 4 Build on existing infrastructure
- 5 Work towards competitive gas prices

Low and stable prices – our solutions

1 Take a system approach to energy costs

As correctly stated in the Draghi report, policy decisions should as such not solely be based on the levelized cost of electricity (LCOE) or marginal generation costs. Indeed, projects and investments should systematically contribute to energy system integration and be evaluated by looking at the overall system cost associated with the decarbonisation of the economy and its different needs.

We encourage the Commission to look at all policy initiatives through an energy system integration lens, that is, taking into account at least all electricity and heat needs and all available energy sources, including molecules. To practically implement a system cost approach in the power sector, approaches such as the **Levelized Cost of Load Coverage (LCOLC)** recently [proposed by a group of German scholars](#) should be gradually integrated into policymaking and project planning.

Our proposals

- **Electrification and Grids Action Plan:** take a global approach to system development and investments.
- **White paper on deeper electricity market integration:** examine innovative approaches such as the Levelized Cost of Load Coverage (LCOLC).

2 Untap the potential of flexible smart generation

While it is essential to develop demand-side response and other short-term flexibility, investments in firm and flexible power also help to lower system costs. A recent [study](#) finds that that combining balancing power plants with renewables and energy storage offers the most viable and cost-effective pathway to accelerate decarbonisation and achieve net zero, and could help reduce the total cost of future power systems by as much as 42%, approximately EUR 65 trillion.

In the last decades, most support to decarbonising the electricity supply has gone to investments in new renewable generation. The next step towards full decarbonisation will require promoting generation where and when it is needed. This can be achieved through **capacity payments**, increased **locational signals**, by giving **preferential grid access to grid supporting technologies** or by **rewarding flexibility through lower grid tariffs**.

Our proposals

- **Revised state aid framework:** make sure capacity payments support solutions that cover flexibility in all timeframes, allow for locational signals.
- **Tariff methodologies for network charges:** reward upward and downward flexibility.
- **Grid Package:** reduce permitting for grid supporting technologies.

3 Support decentralised efficient solutions

Around two-thirds of the grid investments will need to happen in distribution grids and rising grid costs will mostly impact distribution-connected consumers. At the same time, to integrate new demand such as EVs and heat-pumps and distributed generation, flexible generation will be needed closer to the consumer.

Smaller, decentralised power plants such as combined-heat-and power plants not only offer cost-efficiency but contribute to demand response and significantly enhance energy security during “extreme events”. Their fuel-efficiency makes them the best option to use locally produced renewable

and low-carbon molecules (biogas, hydrogen, etc.). By **supporting power grids locally** decentralised flexible generation helps alleviate the cost burden associated to voltage issues and redispatch.

Our proposals

- **Revised state aid framework:** non-fossil flexibility support schemes need to support all decarbonised flexible solutions, including biogas combined-heat-and power
- **New rules on demand response:** unlock the potential of all distributed generation
- **Promoting remuneration of flexibility in retail contracts:** make the participation of small, distributed generation and combined-heat-and power attractive

4 Build on existing infrastructure

A system where supply and demand are not balanced will always be more expensive than one where the system can provide enough energy to cover the uncompressible demand (ie demand that cannot be shifted in time). The current gas infrastructure plays an essential role in covering seasonal heating needs and, in the future, can be used to store molecules to be used in times of low wind and PV supply. Repurposing and re-using existing gas infrastructure for the use of renewable molecules and carbon can be a [cost-efficient alternative](#) to developing new power grids.

A thorough **cost-benefits analysis** should therefore be carried out before decommissioning existing infrastructure, especially in the gas sector. Following a recent [recommendation](#) by the energy regulatory agency ACER, an **integrated (multi-sectoral) planning** approach that considers complementarities between energy carriers should help lower grid investment needs.

Our proposal

- **Grid Package:** consider all types of energy grids and carriers

5 Work towards competitive gas prices

Gas power is required for different reasons, and we welcome that the European Commission has recognised this. Molecules provide electricity and power when no other renewable sources are available and thus avoid that prices reach extreme scarcity peaks. Gas power also acts as a price benchmark that keeps prices foreseeably in check. Without molecules as a price-setting technology, price volatility and extreme prices risk increasing, not decreasing (see [analysis from BCG](#)).

Ensuring well-functioning gas markets is therefore essential. In the long run, what will make a difference is investing in renewable molecules sourced from a large number of different producers and areas to distribute risks and avoid excessive geopolitical dependence. Publishing the low-carbon hydrogen delegated and simplifying the criteria for renewable hydrogen is therefore essential.

Our proposals

- **Energy Security:** ensure coordinated and flexible gas storage refilling targets and move towards decarbonised gases
- **Hydrogen:** set the criteria for low-carbon hydrogen as soon as possible and simplify the criteria for renewable hydrogen

Power prices – useful facts and data

- Only **55%** of households' and small firms' bills electricity bills accounted for electricity generation costs in 2023 (Source: [Electricity tariffs dashboard](#) by Bruegel)
- Electricity grid costs could nearly **double** by 2050 and **2/3** of grid investments will need to happen at distribution level (Source: [ACER](#))
- Gas power sets wholesale electricity prices in less than **40%** of the times (Source: [Zakeri et al.](#))
- More than **300 TWh** of seasonal and inter-annual flexibility will be needed in 2050 – equal to Italy's current yearly power consumption (Source: [JRC](#))
- Not having power generation capacity meet demand could lead to prices beyond **7000 EUR/MWh** (Lowest *Value of Lost Load* as reported by [ACER](#))

Moving forward

The decarbonisation of power generation with renewable gases will contribute to more stable and affordable prices and therefore needs to be supported.

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Taking a system approach to planning and to costs, building on existing infrastructure and working towards stable gas prices should be the basis for affordable energy costs going forward. Actively promoting non-wire grid solutions, dispatchable power and valuing incremental innovations are the quickest path towards a competitive and decarbonised economy.

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