



European Union Agency for the Cooperation
of Energy Regulators

Unlocking flexibility: No-regret actions to remove barriers to demand response

WindEurope Annual Event - Copenhagen, 9 April 2025

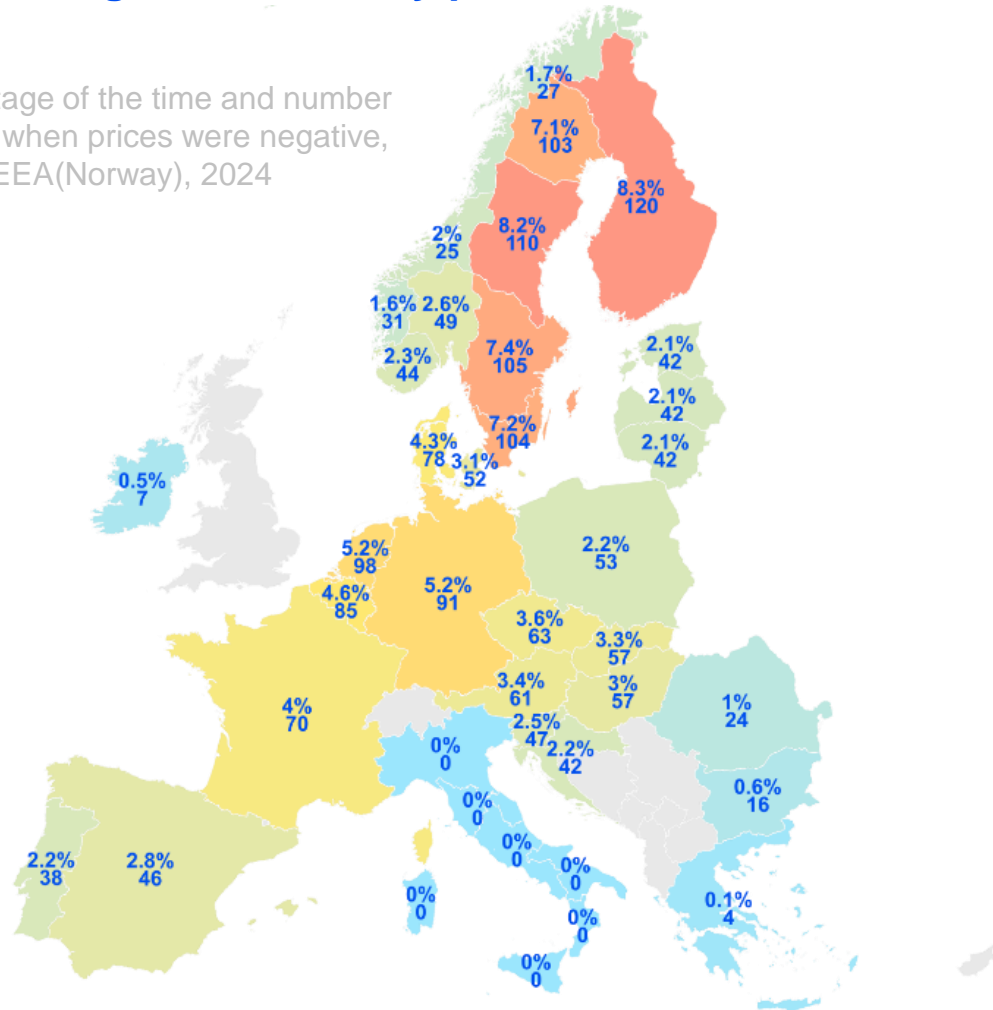
Christian Zinglensen, *ACER Director*

**What we are seeing ... a few 'dots' or
more of a 'pattern'?**

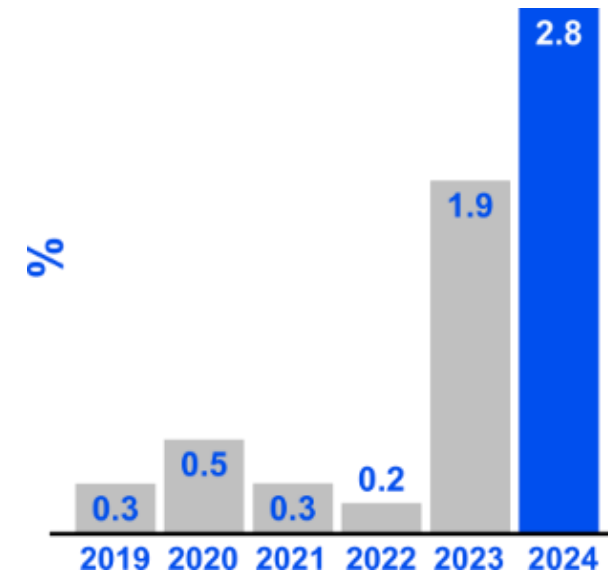
In 2024, negative and very-low electricity prices increased

Surge in negative electricity prices across the EU in 2023 intensifies further in 2024

Percentage of the time and number of days when prices were negative, EU-27/EEA(Norway), 2024



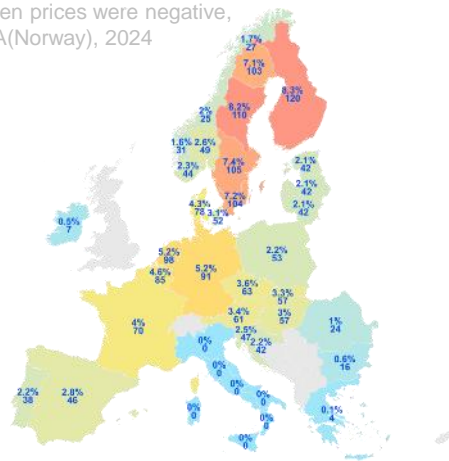
Annual percentage of the time when prices were negative, EU-27/EEA(Norway), 2019-2024 (%)



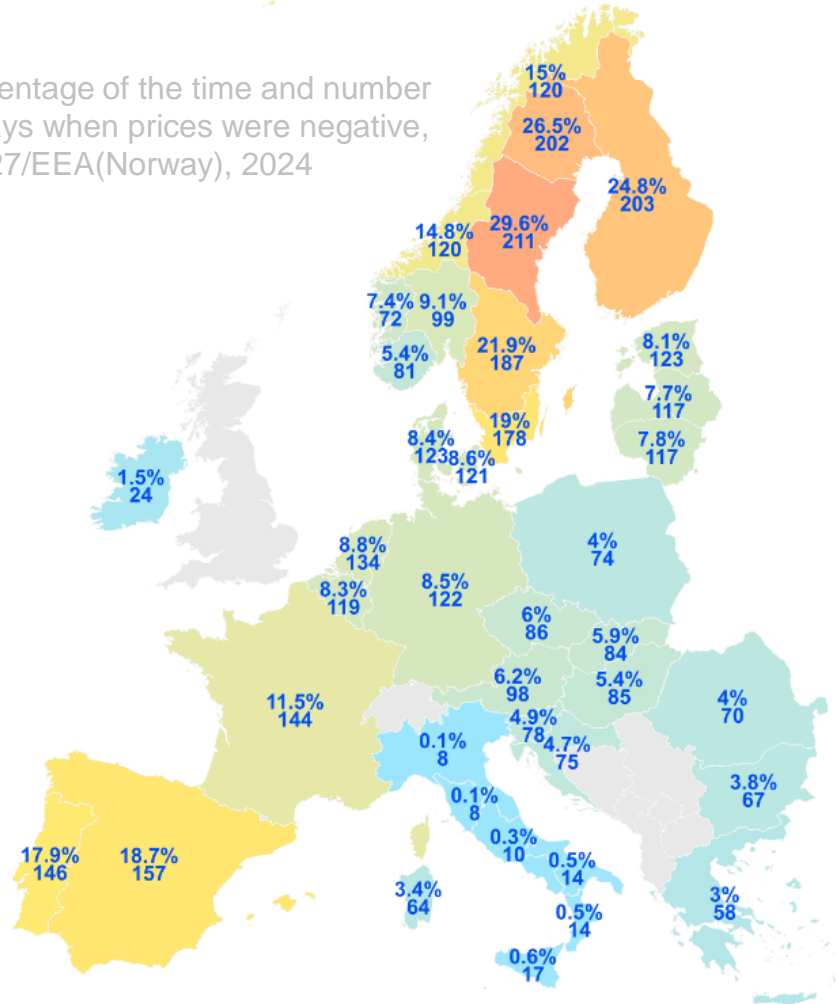
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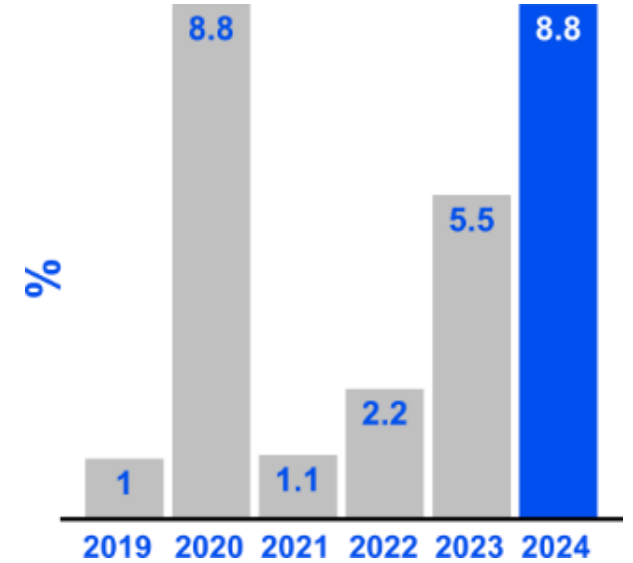
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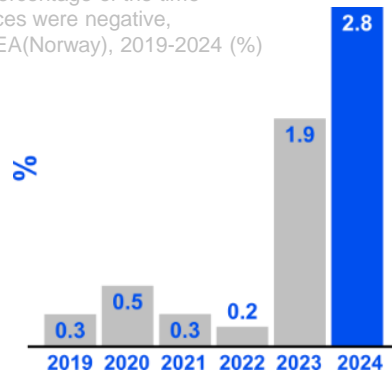
Percentage of the time and number of days when prices were negative, EU-27/EEA(Norway), 2024



Annual percentage of the time when prices were <5EUR/MWh, EU-27/EEA (Norway), 2019-2024 (%)

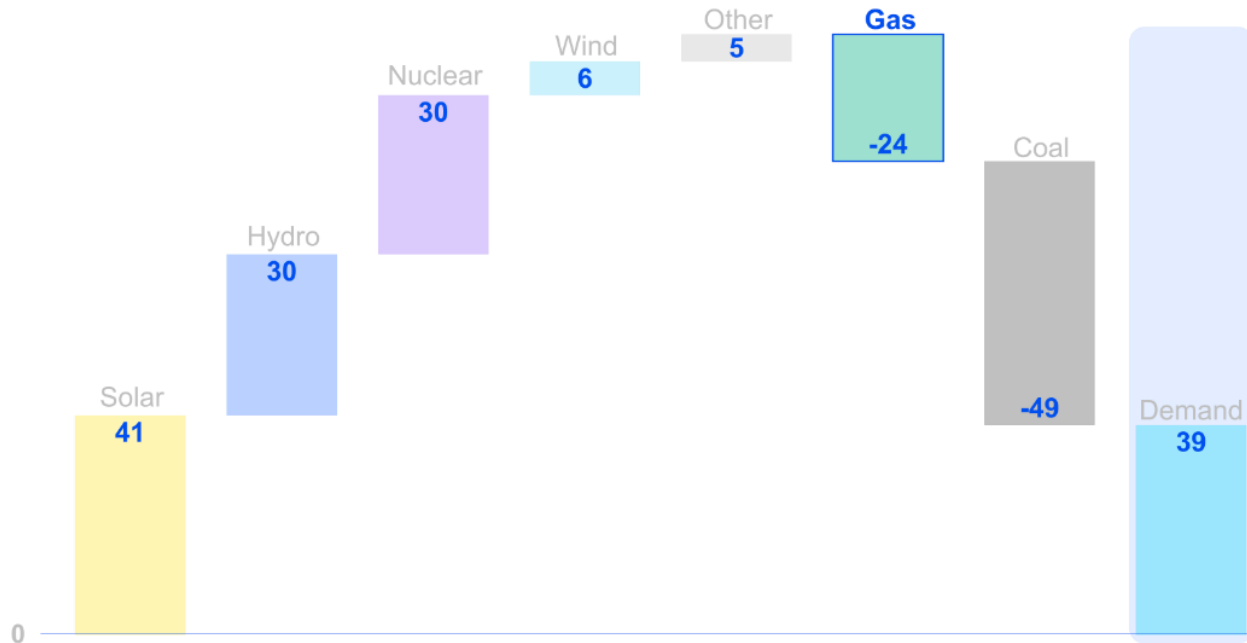


Annual percentage of the time when prices were negative, EU-27/EEA(Norway), 2019-2024 (%)



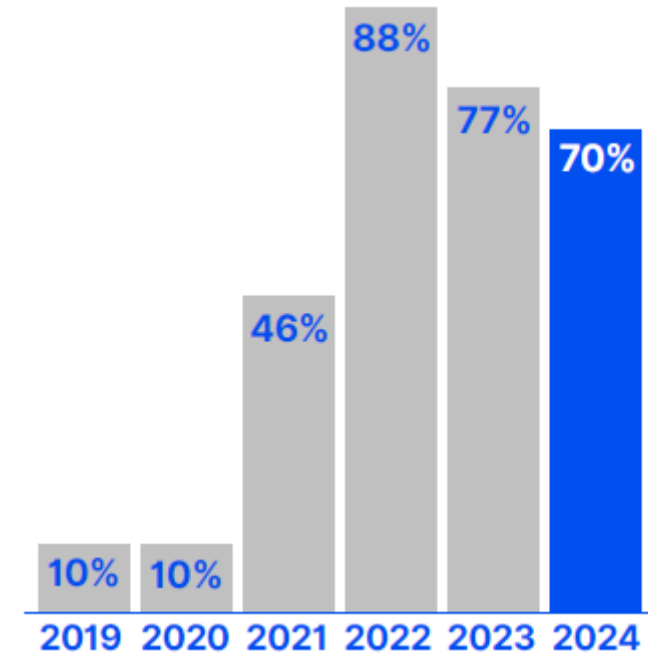
A changing electricity mix with more renewables ...

Year-on-year changes for the main generation technologies, 2024 (TWh)



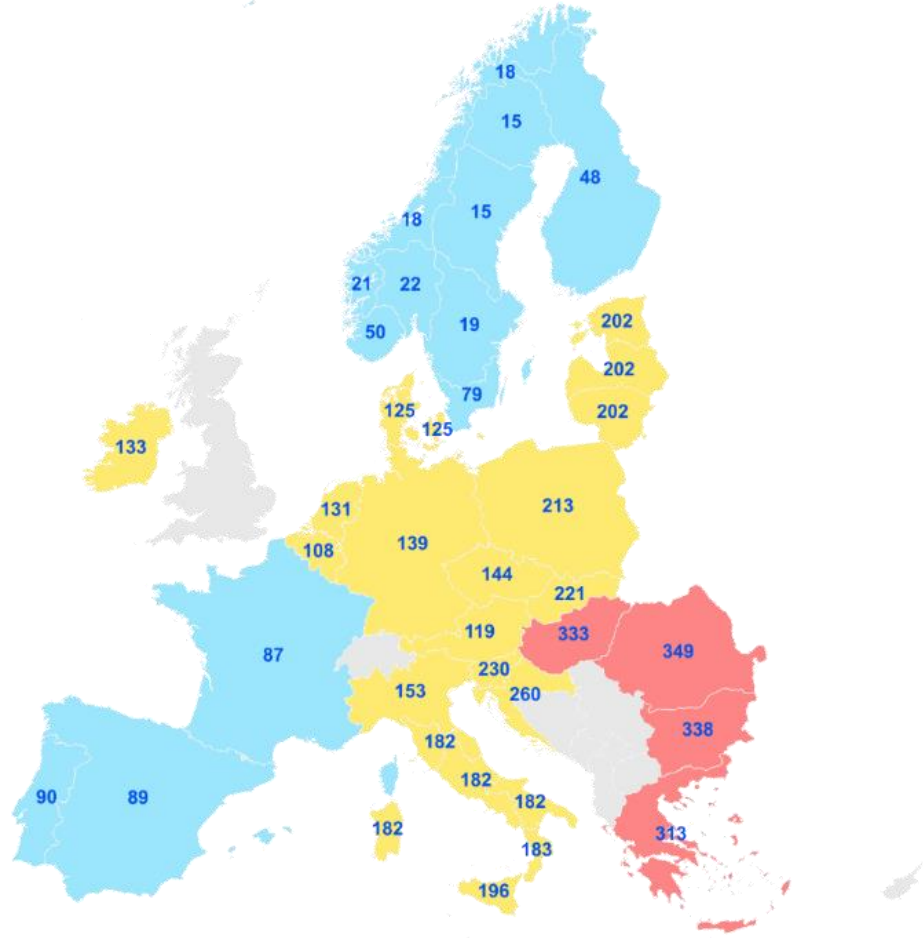
... is likely to bring extended volatility

Volatility as expressed by the annual percentage days when the electricity price varies over 50 EUR/MWh in a day

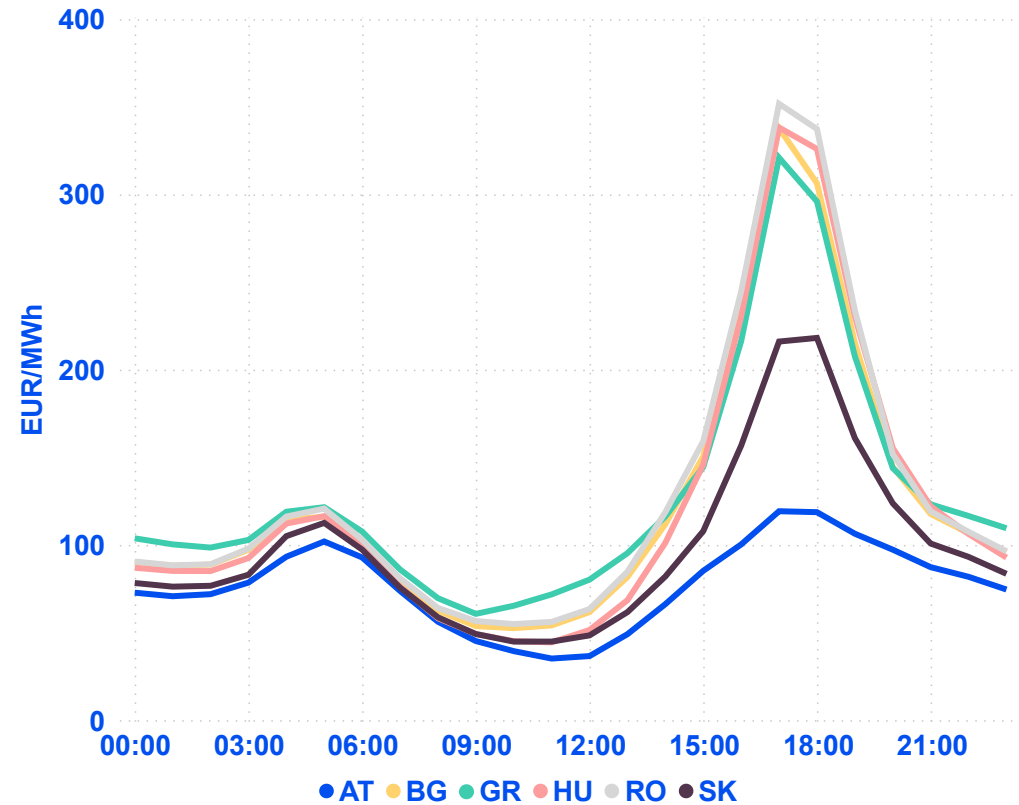


Developments last summer hold lessons

Average day-ahead prices, EU-27/EEA(Norway), July to September 2024 at 17:00 UTC (EUR/MWh)

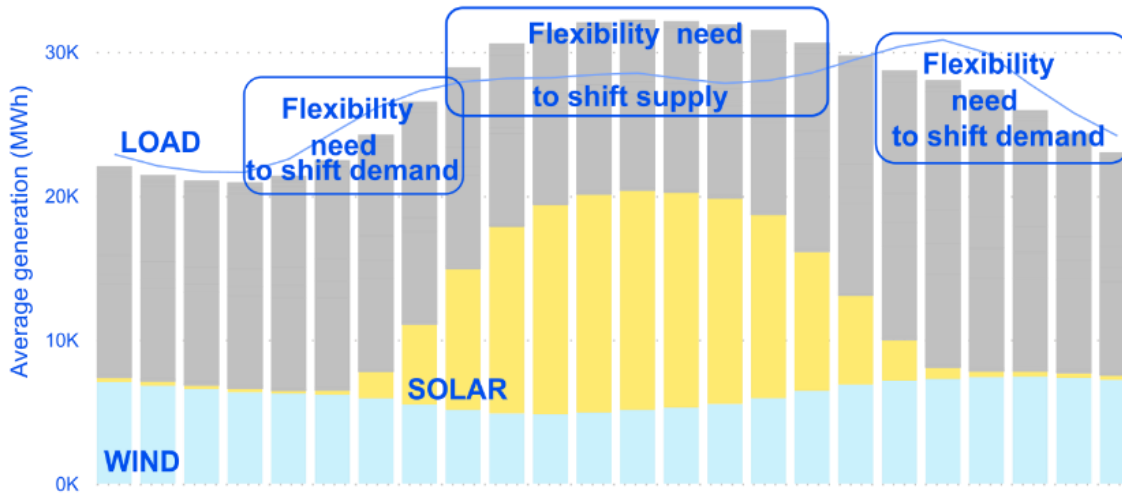


Evolution of average day-ahead prices in select EU bidding zones, July to September 2024 (EUR/MWh)

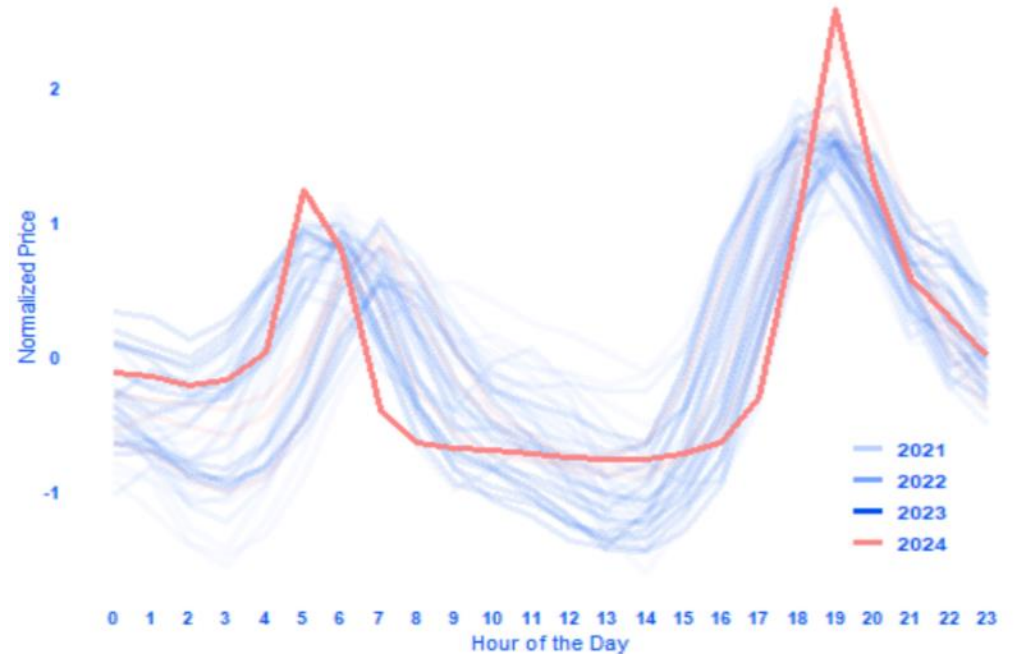


The gap between midday solar oversupply and evening demand is growing

Hourly averages of energy generation in Spain, 2024 (MWh)



Normalized price for 2024-04 - Spain



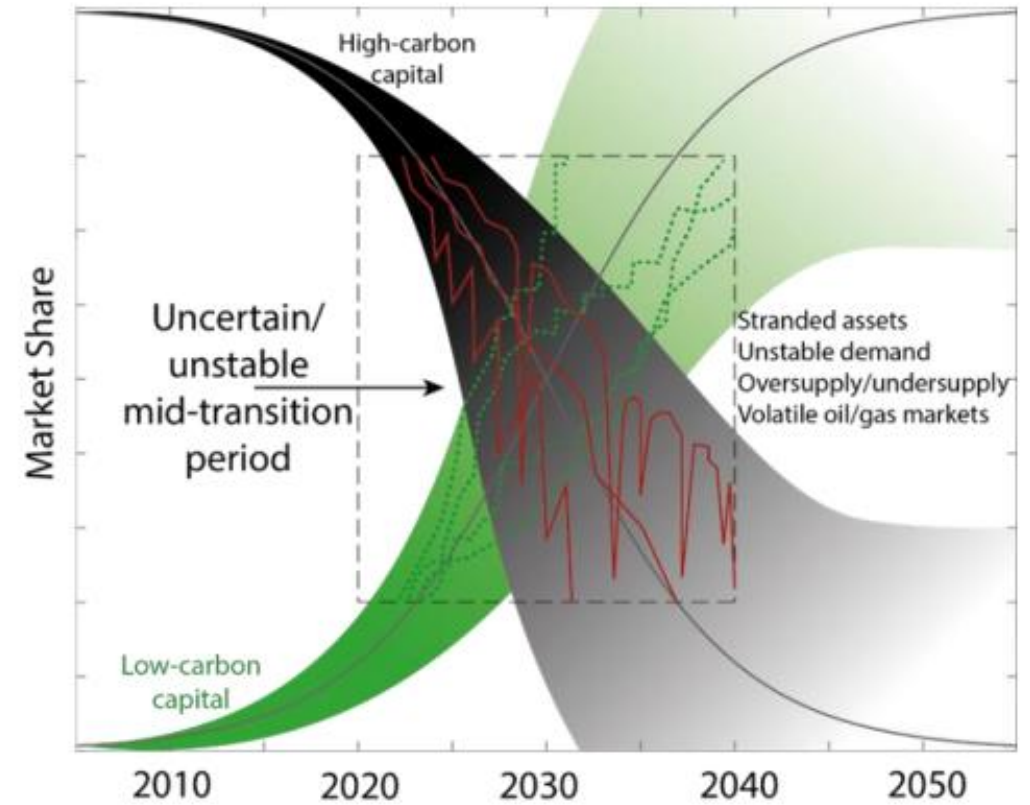
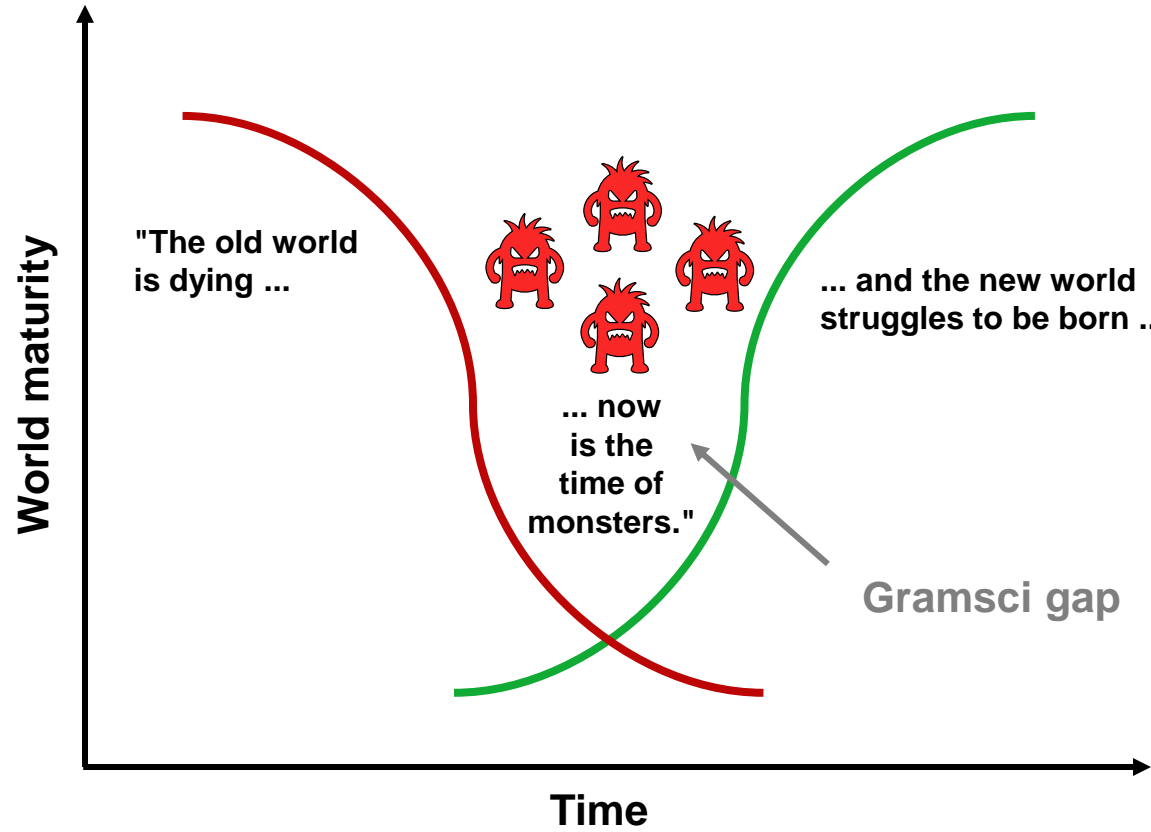
In real time, the gap between midday solar oversupply and evening demand is growing. Solutions exist to manage this gap, e.g. access to demand-side response¹, battery deployment, and cross-border trade through interconnections². For longer-term flexibility, the role of gas storage remains central.

Note 1: See the [ACER report on unlocking flexibility and no-regret actions to remove barriers to demand response](#), April 2025.

Note 2: See the [ACER report on capacities for cross-zonal electricity trade and congestion management](#), July 2024.

Source (right): ACER.

A new era ~ a difficult mid-transition period?

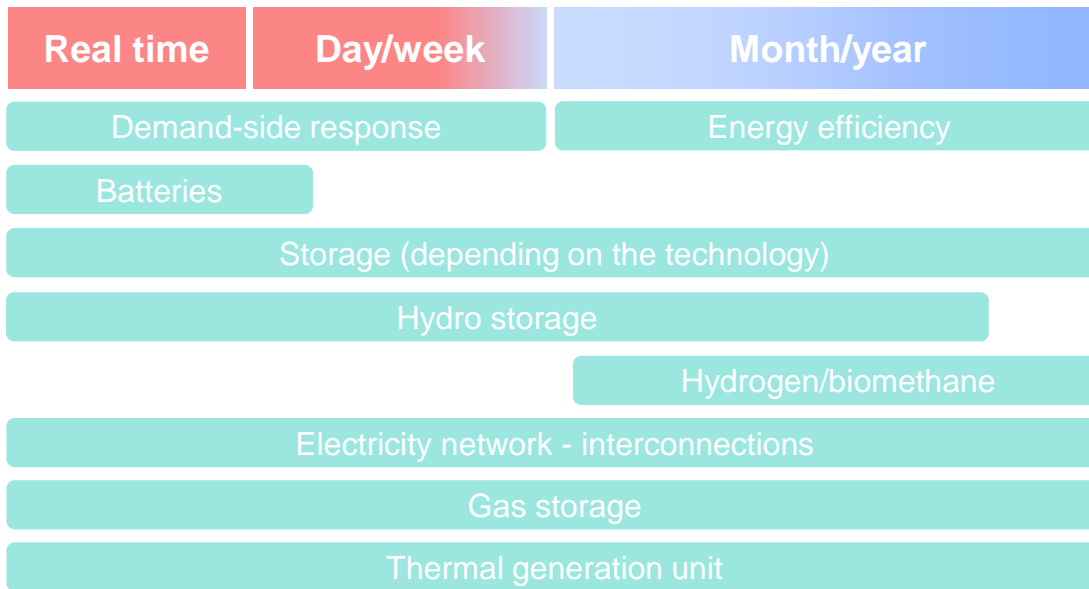


**As we navigate this new era (or ‘gap’),
flexibility becomes ‘*name of the game*’**

Unlocking our flexibility potential will be key

Different technology solutions can offer flexibility

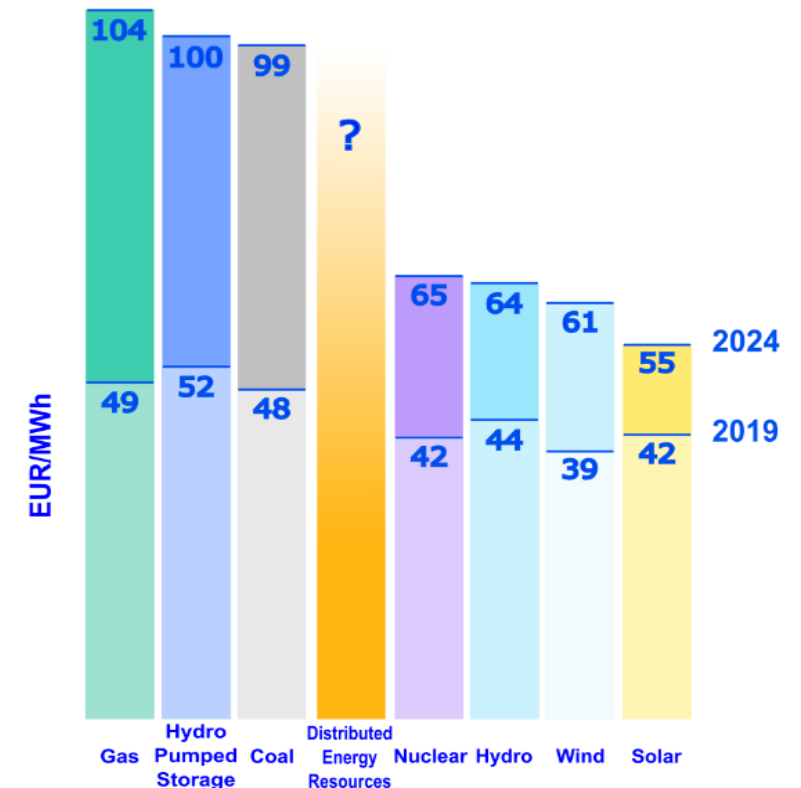
Flexibility services provided by various technologies, sorted according to their duration



Leveraging flexibility from distributed energy resources such as rooftop solar, battery storage, electric vehicles are crucial to managing grid congestions and price fluctuations.

Current market conditions support the deployment of flexibility solutions

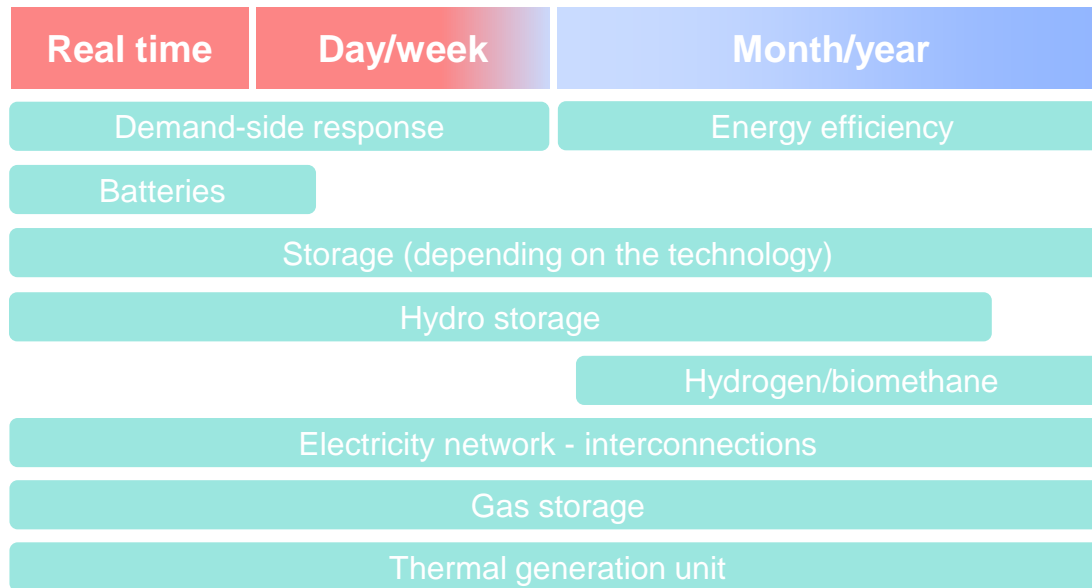
Average value of electricity by production type*, EU-27/EEA (Norway), 2024 (EUR/MWh)



Unlocking our flexibility potential will be key

Different technology solutions can offer flexibility

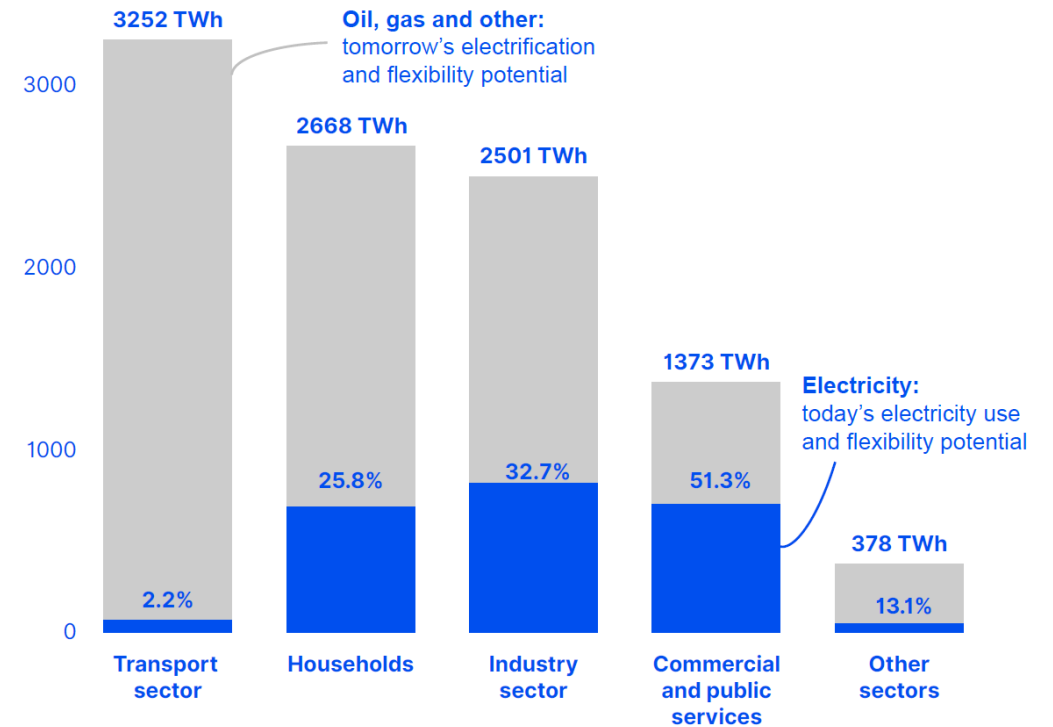
Flexibility services provided by various technologies, sorted according to their duration



Leveraging flexibility from distributed energy resources such as rooftop solar, battery storage, electric vehicles are crucial to managing grid congestions and price fluctuations.

More potential expected to come with further electrification

Energy and electricity usage for different categories of consumers, 2023 (TWh)



ACER proposes 12 actions to unlock flexibility



Action 1

Recognise the new actors: clarify responsibilities for emerging market players in national laws



Action 2

Facilitate market entry: remove obstacles to market access



Action 3

Let aggregators play their role: remove legal obstacles for aggregators



Action 4

Kick-start the smart revolution: deploy smart meters and ICT services to enable consumers' smart responses



Action 5

Optimise the energy cost component of electricity bills: offer time-differentiated retail contracts to enable alternative flexible offers



Action 6

Optimise the network component of electricity bills: incentivise the uptake of time-of-use tariffs



Action 7

Give an extra push: implement measures to enhance consumers' participation in demand response



Action 8

Transform balancing practices: shift from non-market-based to market-based balancing



Action 9

Lower barriers to provide balancing services: simplify the prequalification process



Action 10

Share balancing services across EU borders: ensure balancing products and market structures meet EU requirements



Action 11













Cut through red tape: ease administrative burdens and simplify processes for new entrants and small actors



Action 12

Think outside the wires: encourage non-wire solutions as alternatives to traditional grid investments

ACER proposes 12 actions to unlock flexibility

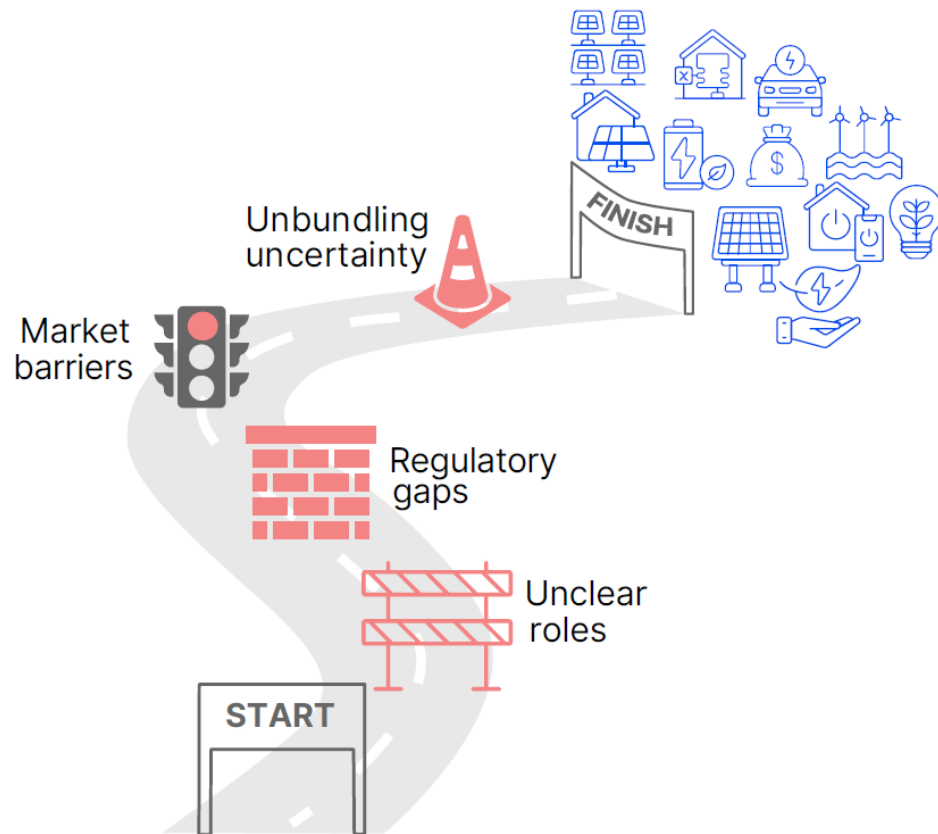
- | | | | | | |
|---|-----------------|---|---|------------------|--|
|  | Action 1 | Recognise the new actors: clarify responsibilities for emerging market players in national laws |  | Action 7 | Give an extra push: implement measures to enhance consumers' participation in demand response |
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***“As for the future,
your task is not to foresee it,
but to enable it.”***

Antoine de Saint Exupery

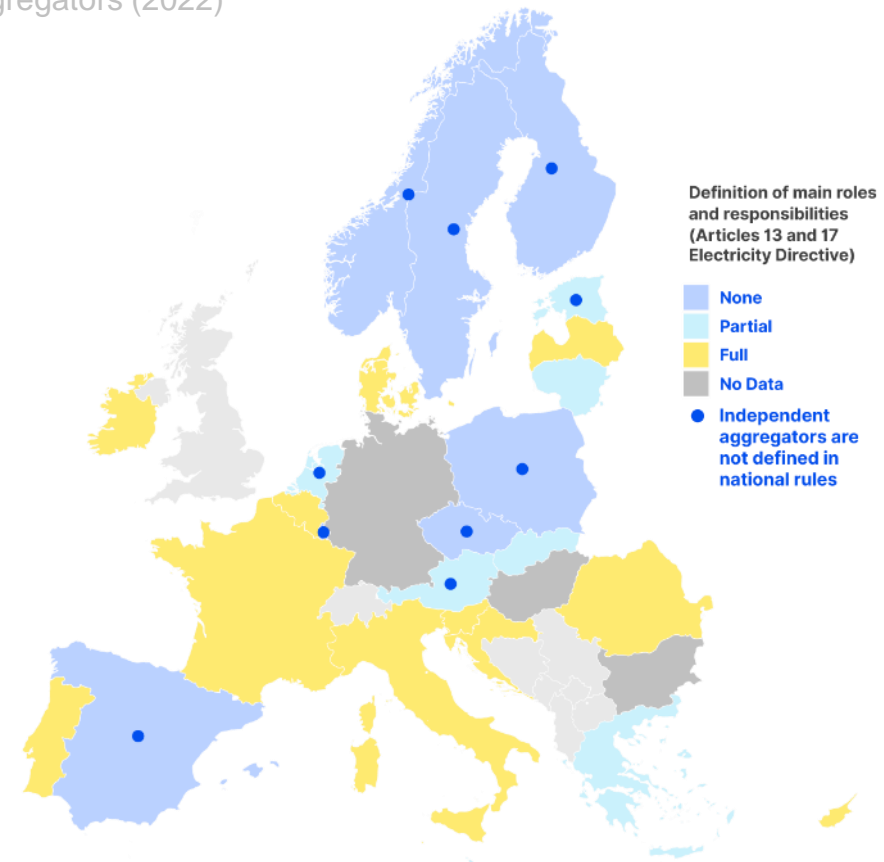
Lift legal and regulatory hurdles

Restrictive regulations and legal barriers deter market entry for distributed energy resources



Undefined roles and responsibilities for aggregators hampers their flexibility offers

Overview of Member States having defined roles and responsibilities for aggregators (2022)

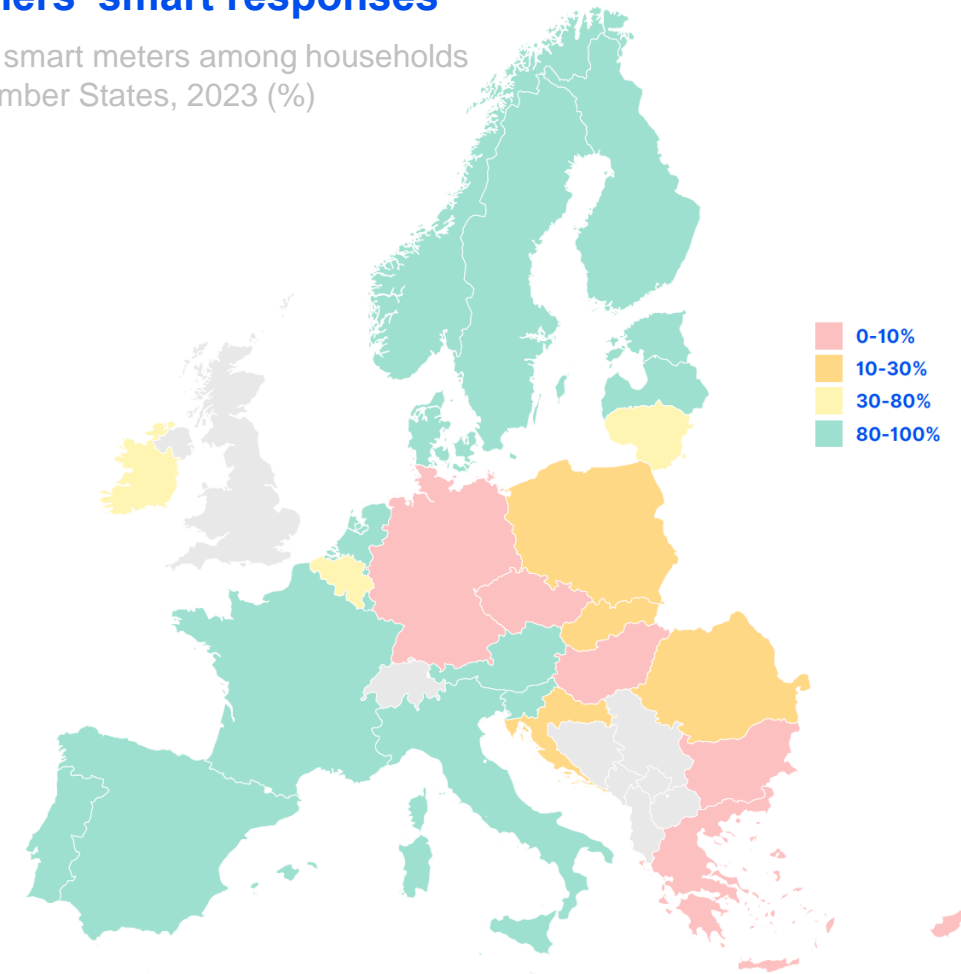


Steps towards effective smart meter deployment



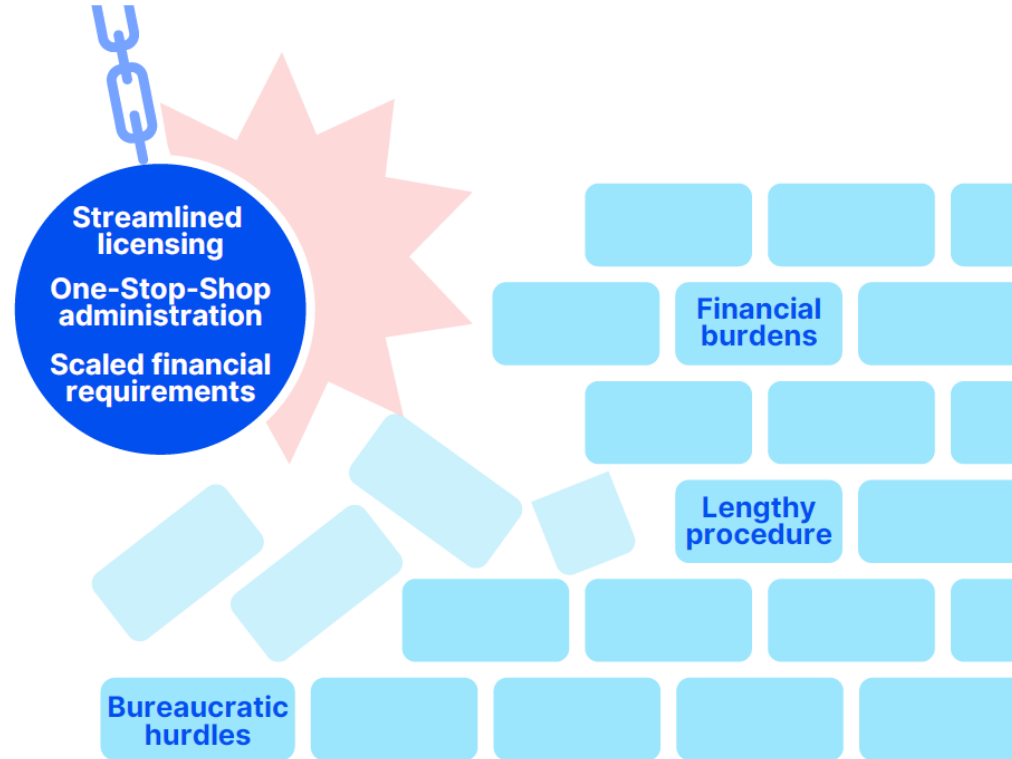
Deploy smart meters and ICT services to enable consumers' smart responses

Roll-out of smart meters among households across Member States, 2023 (%)

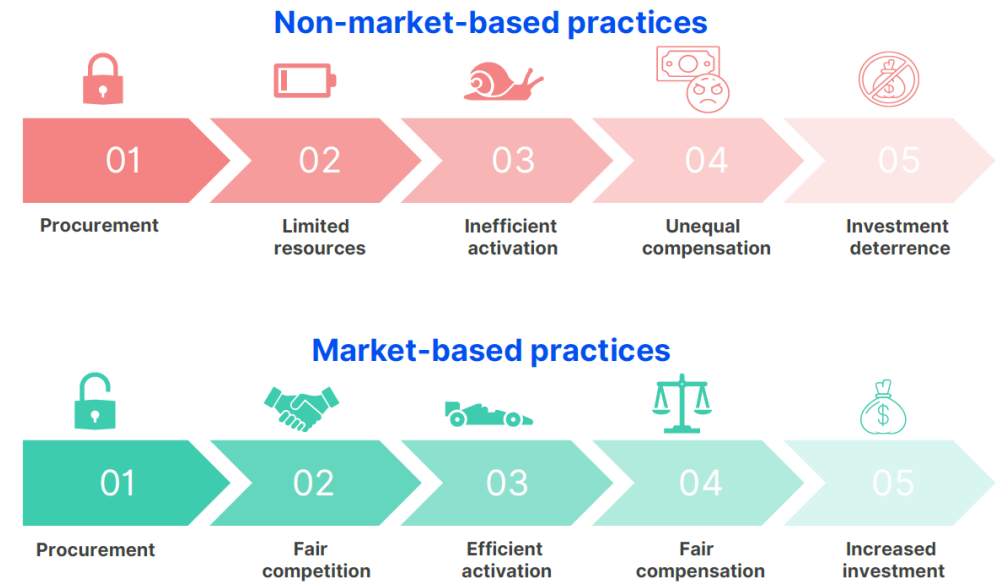


Break administrative and non-market-based hurdles

Discriminatory treatment and long waiting time for grid connection persist across Member States

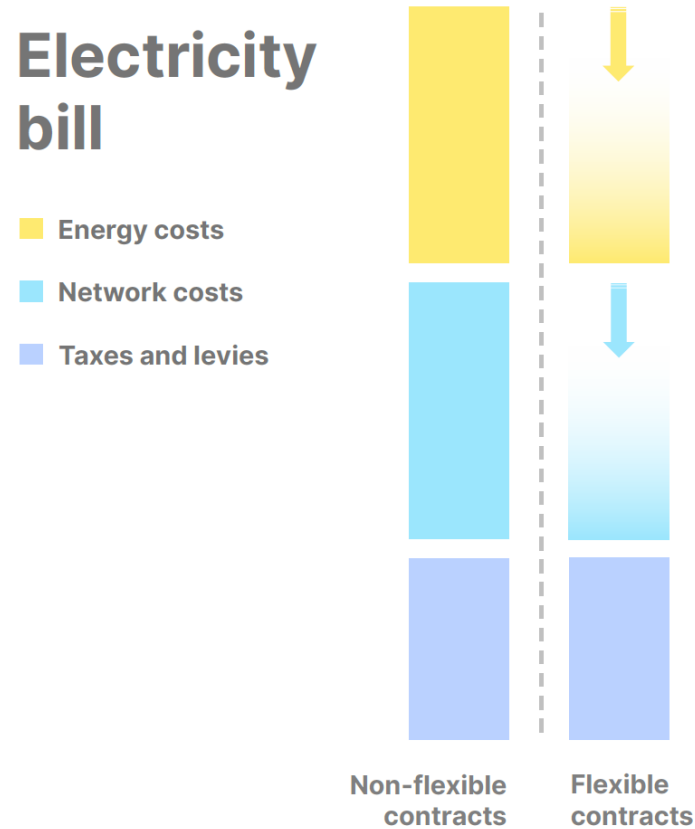


Non-market-based procurement for system operation deters investment in flexible solutions



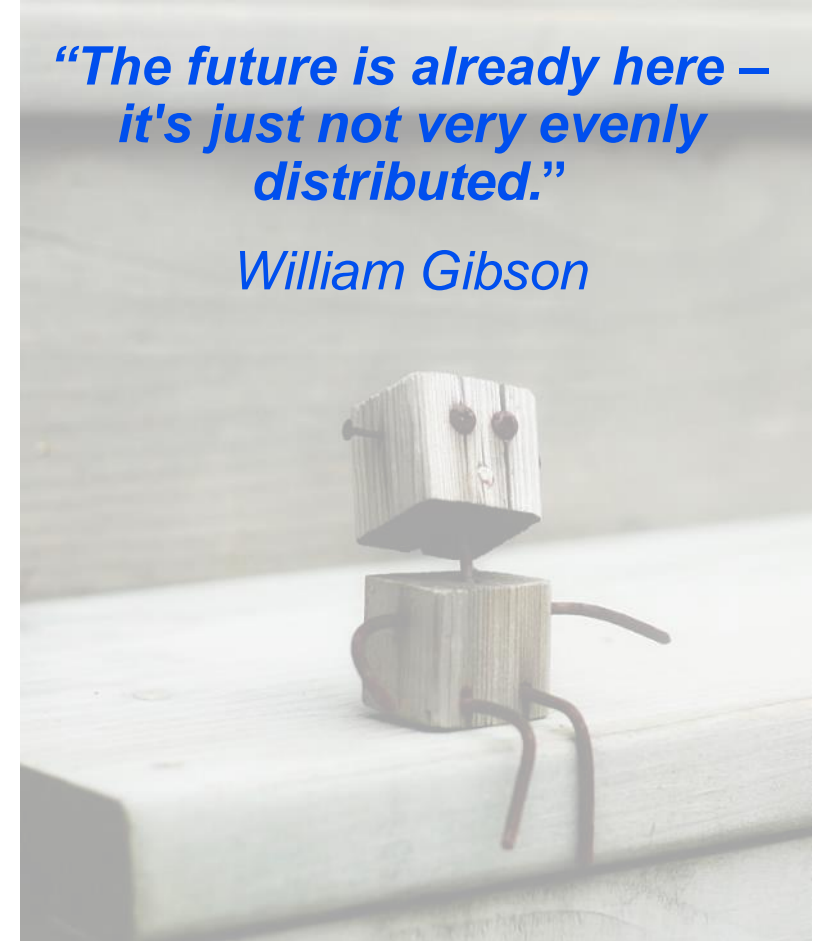
Engage consumers to offer flexibility

Consumers actively contributing to demand response can reduce their electricity bills, achieving savings for all consumers



*“The future is already here –
it's just not very evenly
distributed.”*

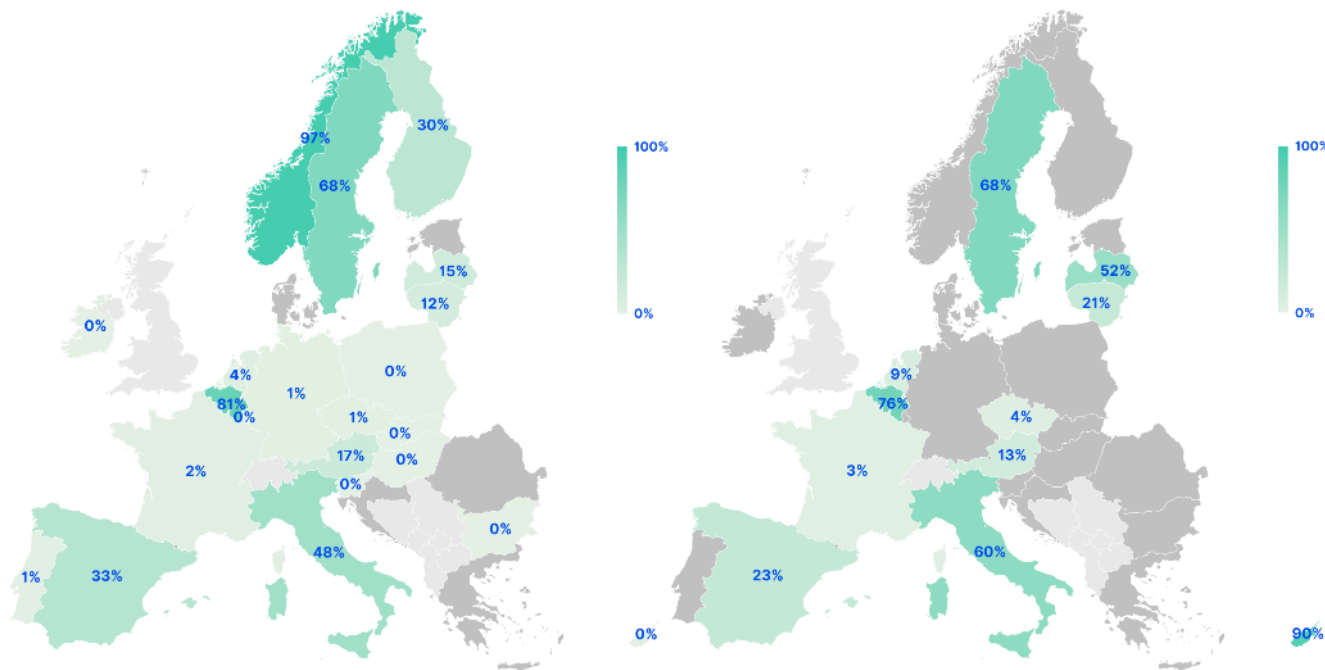
William Gibson



The energy cost is important.

Consumers need price signals in their electricity bills to provide demand response

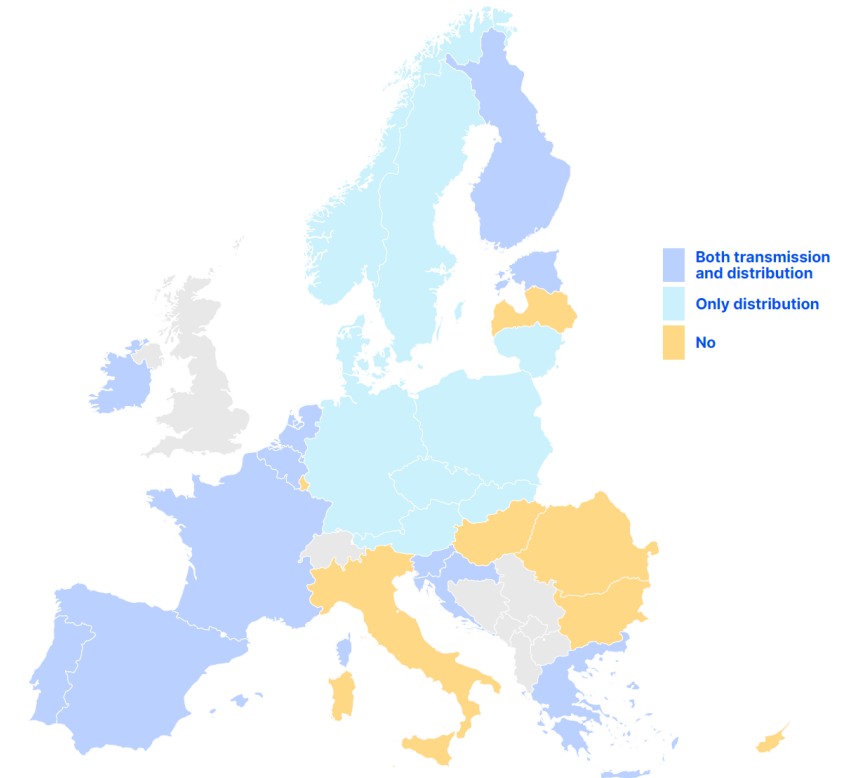
Share of households (left) and non-households (rights) with dynamic electricity price contracts, 2023



Grid tariffs play a role, too.

Flexibility needs make flat grid tariffs costly, pushing Time of Use forward ...

Time of Use tariffs in Europe, 2023

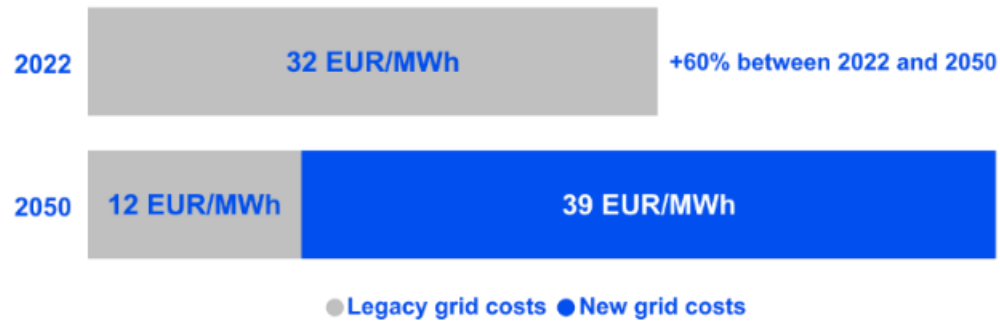


Encourage alternatives to traditional grid investments

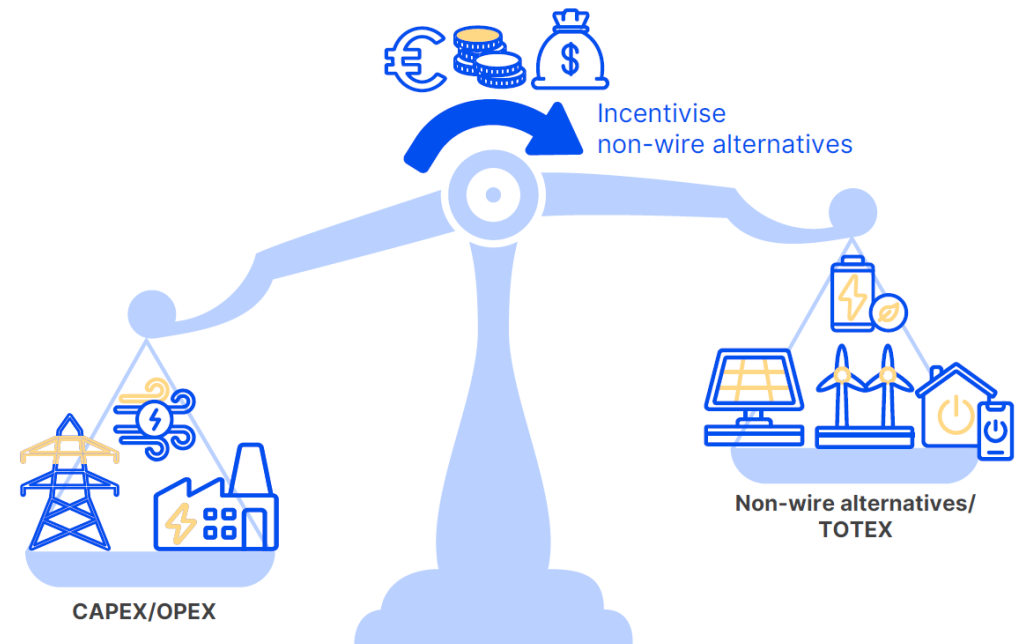
“Think outside the wires.”

Grid costs are expected to increase considerably by 2050

Evolution of total grid costs (EUR/MWh)




Balance investments in grid expansion with a more efficient use of the existing grid capacity





Grid congestions are expected to cause further bottlenecks in the future, particularly at the distribution level to accommodate growing shares of rooftop solar, battery storage, heat pumps and others.


Interested? For further reading, see ...




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Action 1 Recognise the new actors: clarify responsibilities for emerging market players in national laws
- 

Action 2 Facilitate market entry: remove obstacles to market access
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- **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 energy markets to ensure that they function well, **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.
- Headquartered in Ljubljana, Slovenia. **Engaged across the EU**.