ACER
European Union Agency for the Cooperation of Energy Regulators

CEER
Council of European Energy Regulators

Rewarding Flexibility: How retail contract choice can help unlock consumer flexibility

2025 Monitoring Report

27 November 2025

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Find us at:

ACER

E press@acer.europa.eu

Trg republike 3

1000 Ljubljana

Slovenia

www.acer.europa.eu

CEER

E brussels@ceer.eu

Cours Saint-Michel 30a/F

BE-1040 Brussels

Belgium

www.ceer.eu

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Executive summary

Contract inflexibility

Inflexible contracts which protect during wholesale price increases, lock consumers out of savings when wholesale prices fall.

Flexibility can improve affordability

A coffee a day is the potential reward for consumers when shifting to a dynamic contract, with regional differences.

Smart meters are a key enabling tool

Smart meter roll-out lags below 30% in six Member States, including three under 10% impeding supplier innovation and in turn consumers' ability to be more flexible.

Broad choice of contracts needed

Consumer choice relies on having retail price offers that span from dynamic contracts to fixed term, fixed price contracts and various flexible contracts in between.

A competitive and resilient energy system will depend not only on new electricity generation and infrastructure, but also on how consumers engage with the energy system

1 **The transition to clean energy** requires significant investment in the electricity system. Without consumers playing a role (often called demand-side response), there is a risk of higher transition costs, particularly related to grid infrastructure and grid operation. However, energy system challenges also create opportunities for consumers: by flexibly adjusting their consumption, they can help balance the system, reduce congestion and defer costly grid reinforcements, saving up to EUR 29.1 billion per year.[1]

2 Part of the solution lies in empowering consumers by giving them access to a broad range of retail contract options, including dynamic and flexible offers, and supporting them with clear information and enabling tools, such as smart meters and comparison tools. Consumers may then choose to contribute flexibility that is needed for a resilient electricity system that delivers competitively priced energy. Other consumers may choose less flexible contracts, such as fixed-term, fixed-price contracts, when that better matches their individual needs and preferences.

System challenges can come with opportunities for consumers

Consumers engaging in flexible behaviours can save money for themselves and the electricity sector.

3 **The transition to a decarbonised energy system** is fundamentally reshaping electricity markets. Electrification of the household and non-household sector is accelerating, while renewable energy production is changing system operation and driving new patterns of volatility. This is reflected in the growing number of low and negative wholesale prices, but also in the growing cost of relieving power grid congestion across Europe. These developments highlight the need for fundamental changes to keep energy affordable for consumers while driving the integration of renewable and low-carbon energy sources.

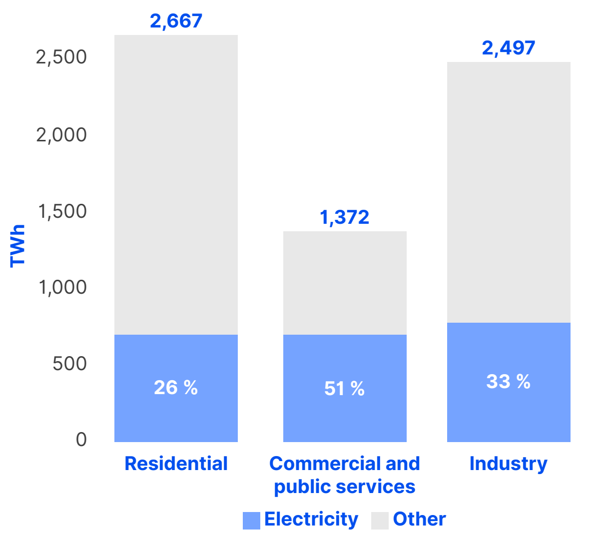
1 Smart Energy Europe, 'The contribution of demand-side flexibility to EU competitiveness and affordability', https://smarten.eu/wp-content/uploads/2025/02/smartEn-position-paper-Affordability-Competitiveness_formatted.pdf.

Consumers need to be enabled to be active participants in the energy transition

4 **Both household and non-household consumers can adjust their consumption** in ways that reduce system stress, lower energy and network costs and enable more renewables. Larger industrial consumers, given their higher electrification rates and consumption profiles, are particularly well positioned to offer demand-side flexibility that benefits both themselves and the wider energy system.

Consumers can play a central role in the progress of the energy transition. But they need the right tools and information to do so.

Share of electricity in final energy demand in the household, industrial and commercial sectors in the EU-27, 2023 (in TWh)



Source: ACER, based on Eurostat data on simplified energy balances (nrg_bal_s).

5 **With the growing number of electric vehicles and heat pumps**, along with households producing their own electricity, the flexibility potential at the household level is also increasing. Consumers can play a central role in the energy transition. But they need the right tools and information to do so. Smart meters are key for consumers' access to information on their consumption and the provision of flexible contracts. Competitive retail markets and improved regulatory monitoring are also necessary to foster innovation and ensure the roll-out of dynamic and other flexible contracts that reward consumers for shifting or adjusting their consumption, thereby enabling them to actively contribute to the energy transition.

Several barriers to demand-side flexibility persist

6 **The deployment of smart meters remains low** in six EU Member States, preventing consumers from engaging in more flexible consumption. On the contract side, flat-price contracts (regulated and market-based) are dominant in most Member States. While they shield consumers from short-term volatility, they lock consumers into higher average bills and leave them unable to benefit from periods of low and negative wholesale prices.

The lack of smart meters and the perpetuation of flat-price contracts can result in structural barriers to flexibility.

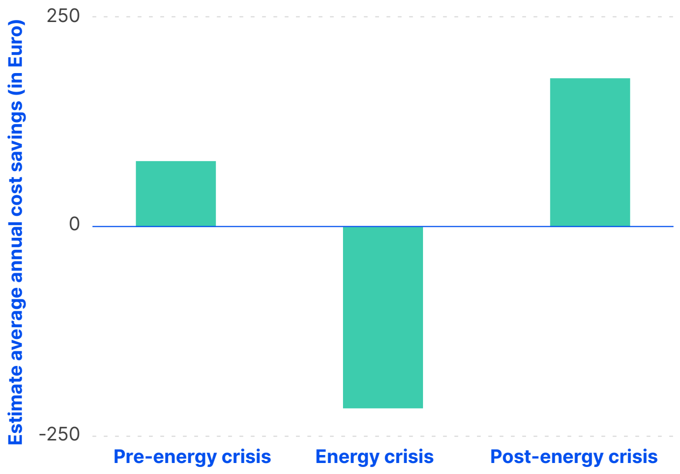
7 Dynamic contracts – while maybe not for everyone – can shift demand, reduce system costs and ultimately lower consumers' bills and costs for the energy sector. Dynamic-price contracts can improve affordability for consumers, but they are not without risk.

See the ACER electricity country sheets

See the ACER gas country sheets

See the ACER retail prices dashboard

Estimated average annual cost savings (electricity energy component) for a 3 000-kWh household from switching to a dynamic electricity contract and adjusting consumption behaviour, by geographical area, before, during and after the 2022 energy crisis



Source: ACER calculations.

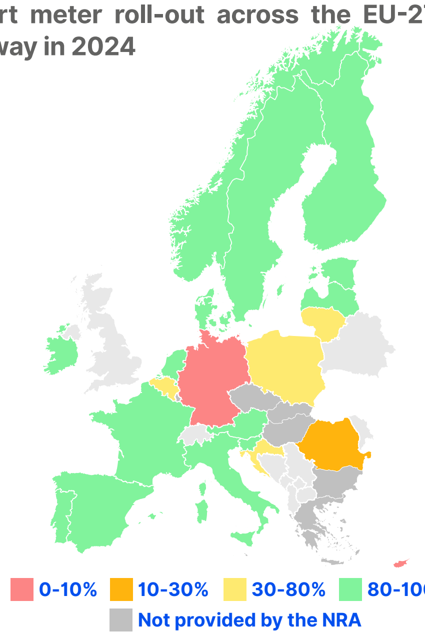
8 The uptake of dynamic and flexible contracts remains low, even where smart meters are deployed. Comparison tools often exclude such offers, limiting consumer choice, while regulatory frameworks still provide too few incentives for system operators to enable demand-side response.

Without smart meters, flexible contracts and clear comparison tools, consumers miss out on savings and the system misses out on flexibility

Dynamic-price contracts can improve affordability for consumers, but they are not without risk.

9 **The lack of smart meters and the continuation of inflexible regulated contracts** can result in structural barriers to flexibility. Several barriers to demand-side flexibility persist.[2] These barriers must be removed if demand-side flexibility is to contribute meaningfully to system stability and cost efficiency. This means completing the smart meter roll-out, ensuring that comparison tools include dynamic offers and updating regulations to incentivise system operators and suppliers to support flexibility. Done right, these measures can give consumers broader choices, lower costs and help stabilise the energy system during the transition.

Smart meter roll-out across the EU-27 and Norway in 2024



Source: ACER, based on data provided by national regulatory authorities (NRAs), 2025.

A range of contract offers for different consumers is needed

10 **Flexibility can only be unlocked if consumers have the right contracts.** Consumers have diverse consumption profiles and preferences, meaning a single approach will not work. Yet many consumers still lack access to options that both provide predictability of prices and reward flexibility. The solution is a broad mix of offers from stable contracts to dynamic and flexible contracts supported by innovation and competition in retail markets. Coupled with targeted protection for the most vulnerable, this approach will build confidence, empower participation and unlock flexibility at scale, ultimately lowering system costs and delivering more affordable bills for all.

Consumers are not a single homogenous group.

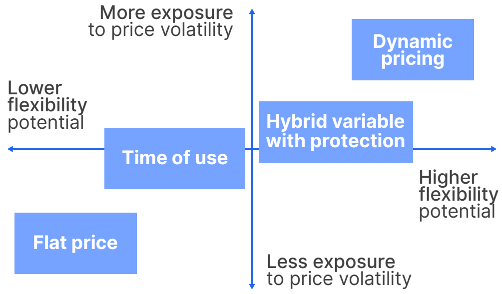
2 See ACER's 2023 report on barriers to demand response.

Protecting consumer rights

11 **Not all consumers can or should be expected to participate equally in energy markets.** Across Europe, a significant share of households unfortunately remains unable to keep their homes adequately warm. Consumer protection should be targeted, for example to households that are unable to keep their home warm by focusing support on improving building efficiency ratings as opposed to providing perpetual bill subsidies.

12 Similarly, incentives for demand response should be provided to all consumers. Identified vulnerable households must be protected from extreme wholesale price fluctuations, and other consumers should still be enabled to provide system flexibility. Untargeted price freezes or broad fiscal interventions may shield consumers in the short term, but they risk dampening incentives for demand response and increasing energy system costs in the long-term.

Level of price exposure and flexibility potential of different contract types



Source: ACER, 2025.

13 More effective approaches include targeted social support, hybrid contract models that balance stability with limited exposure to price signals and safeguards such as automated tools or default alerts that guide consumers towards consuming during lower-price periods. Establishing registers of vulnerable consumers would help Member States deliver protection more precisely while ensuring that flexible households continue to respond to market signals that benefit both consumers and the wider energy system.

Consumer protection should be targeted, for example to households that are unable to keep their homes warm.

Priorities for a way forward

Four action points to pave the way for more consumer participation in the energy transition

1. **Flexibility first – build up retail markets to be a cornerstone of system stability.**
   Retail markets can deliver demand response and contribute to stabilising the system and integrating higher shares of renewables.

2. **Tools and choice – empower consumers with meters and contracts.**
   Smart meters and flexible contracts are essential in providing households and the industry with real choice.

3. **Fit-for-purpose regulation – create frameworks that enable innovation and efficiency.**
   Regulators should design frameworks that open the market to flexible offers, foster innovation and encourage efficient use of the grid.

4. **Targeted protection – shield identified vulnerable consumers without blocking flexibility.**
   Support must shield vulnerable consumers from extreme bill risks, but in a targeted way that still allows the wider system to benefit from flexibility.

1. Electrification, renewables and an evolving energy system

1.1. The power system needs flexibility and consumers play a role

1 The EU energy system is undergoing a profound transformation as it pursues decarbonisation and energy security. Wind capacity is set to double and solar photovoltaic (PV) installations to nearly triple by 2030. Simultaneously, the electrification of end uses accelerates, with heat pumps (HP) to double their annual rate of deployment by 2030[3] and electric vehicle (EV) registrations to rise sharply in response to emission requirements by 2035[4]. At the same time, fossil fuel use is expected to decline in the European Union, with renewable gases gradually replacing imported fossil gases. This shift brings both opportunities and challenges: with variable and unpredictable renewable generation, more price volatility and demand growth, we must manage production, networks and end use differently so electricity is affordable and demand-side flexibility can improve affordability for all consumers.

2 The European Commission's action plan for affordable energy focuses on tackling the structural drivers of high retail prices and shielding consumers during market stress. Regarding flexibility remuneration, the action plan calls for consumers and aggregators to be able to participate directly in electricity markets, so that demand response, automated shifting and behind-the-meter resources are compensated through wholesale, balancing and ancillary-service revenues. At the same time, network tariffs should give signals for shifting use of the system away from peaks.

3 This report pinpoints where signals are still muted (contracts) and sets out concrete fixes. For example, ACER calls for dynamic offers (and other flexible contracts) to be made available to consumers and shown on accredited comparison tools, for interoperable data and automation, and for targeted support for those who need it so that flexibility is remunerated and affordability improves.

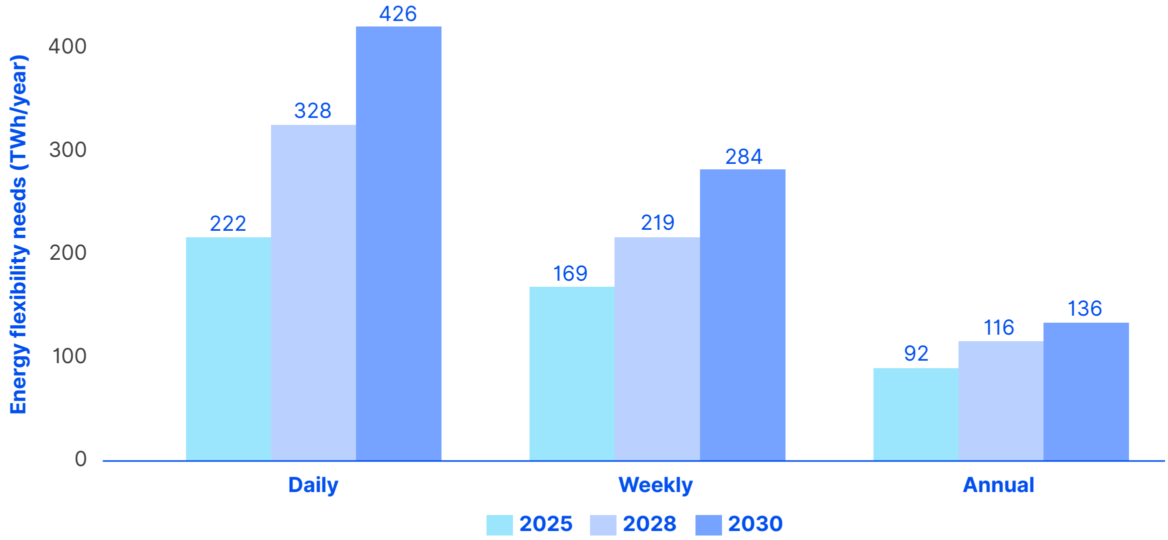
4 At the core of this transition is activating consumers. Engagement by households and businesses contributes to mitigating energy transition costs by adding flexibility and storage to the power system, enhancing the integration of more renewables generation and lowering curtailment costs. Curtailment occurs when available renewable generation cannot be used because the grid is congested or demand is too low. In the evolving power system, the instant matching of demand and supply becomes more challenging, which leads to an increasing need for flexibility. As outlined in ACER's 2024 report on transmission capacities for cross-zonal trade of electricity and congestion management, a decreased need for curtailment mitigates the risk of rising bills, and allows consumers to capture the benefits of cheaper electricity during periods of high renewable output while reducing reliance on more carbon-intensive energy sources. Conversely, if consumer potential is not unlocked, the risk is higher costs for all consumers via increased network reinforcement costs. Unlocking this potential is therefore not a complementary policy measure but a structural necessity for achieving affordability, resilience and efficiency in Europe's retail electricity markets.

3 European Commission, 'REPowerEU – 3 years on', European Commission website, https://energy.ec.europa.eu/topics/markets-and-consumers/actions-and-measures-energy-prices/repowereu-3-years_en.

4 European Commission, 'Cars and vans', European Commission website, https://climate.ec.europa.eu/eu-action/transport-decarbonisation/road-transport/light-duty-vehicles_en.

System flexibility: not just a nice to have if we wish to keep downward pressure on prices

Figure 1: Average daily, weekly and annual energy flexibility needs in 2025, 2028 (projected) and 2030 (projected) (in TWh)



Source: ACER, based on data from the study on system flexibility needs for the energy transition by the European Network of Transmission System Operators for Electricity (ENTSO-E), 2024.

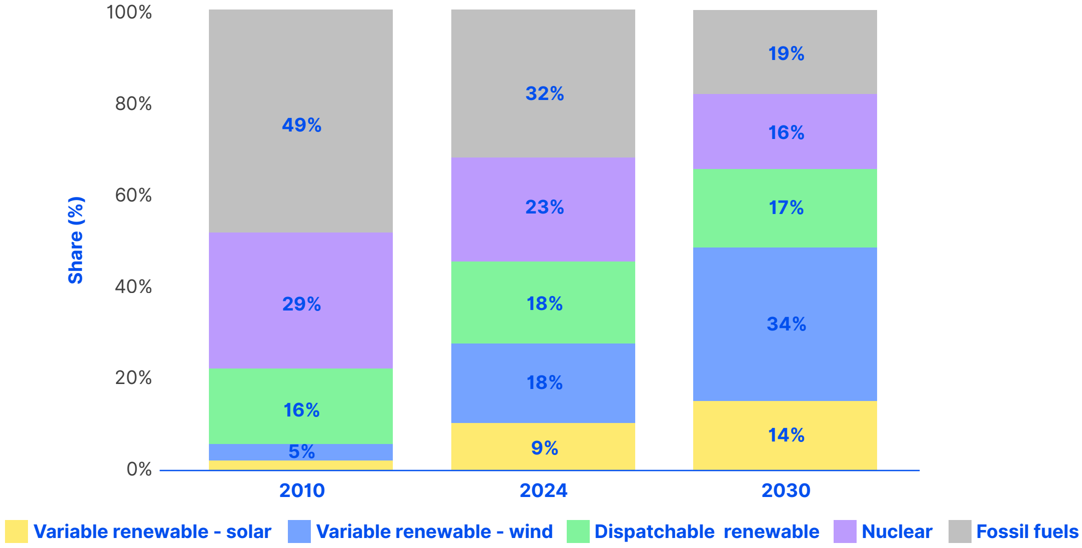
5 The joint European Environment Agency and ACER report on flexibility solutions to support a decarbonised and secure EU electricity system shows the significant increase in variable renewable energy production such as solar and wind, alongside a decrease in nuclear and fossil fuels. While each Member State differs with respect to the level of actual renewable penetration today, the transition to more intermittent renewable generation (from 6 % in 2010 to 48 % by 2030) will entail a shift in flexibility provision from generation to demand, necessitating in turn significant societal and behavioural changes towards more flexible electricity consumption. This change will require new electricity infrastructure and a more efficient use of the current grids to transport greater amounts of electricity, along with significant policy support and more enabling regulatory frameworks.

6 Without demand adapting to renewable output, balancing and curtailment costs rise and flow to consumers. ACER's 2024 monitoring report on electricity infrastructure development stresses the need for additional grid capacity to alleviate bottlenecks, while ACER's 2025 monitoring report on actions to remove barriers to demand response shows that demand response can mitigate price volatility. Without such mitigation, all consumers will face price increases via both the energy component and the network component.

7 ACER's key developments in European electricity and gas markets report underlines that flexibility will be needed across both the short- and long-term horizons, drawing on sources such as interconnectors, storage and dispatchable low-carbon generation. Crucially, unlocking the flexibility of final consumers will be essential to complement these system-level resources.

8 Building on this, ACER's 2025 monitoring report on actions to remove barriers to demand response highlights that future flexibility will come from a broad range of sources. It will draw not only on cross-border interconnectors, large-scale storage and dispatchable low-carbon generation, but also on consumer-side resources such as EVs with smart charging, heat pumps with thermal storage, behind-the-meter batteries, rooftop PV and smart appliances. Activated together at scale, these can reduce renewable curtailment and decrease balancing and grid costs, ultimately benefiting all energy consumers.

Figure 2: Changes in electricity generation sources from 2010 to 2030 (projected) (in %)



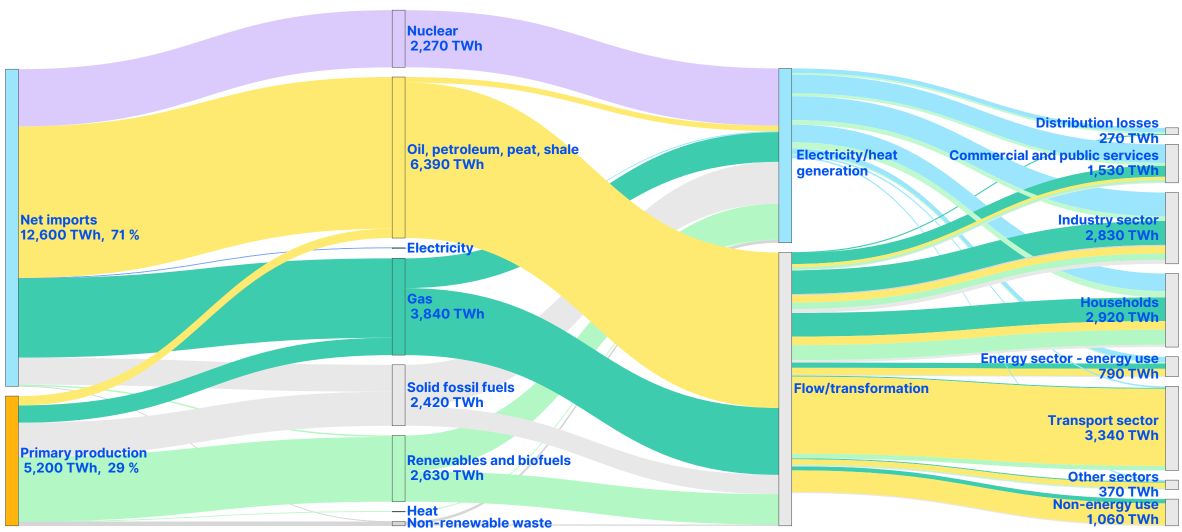
Source: ACER, based on historical data from Ember and 2030 projections from the 2023 European Environment Agency and ACER [report on flexibility solutions to support a decarbonised and secure EU electricity system](#).

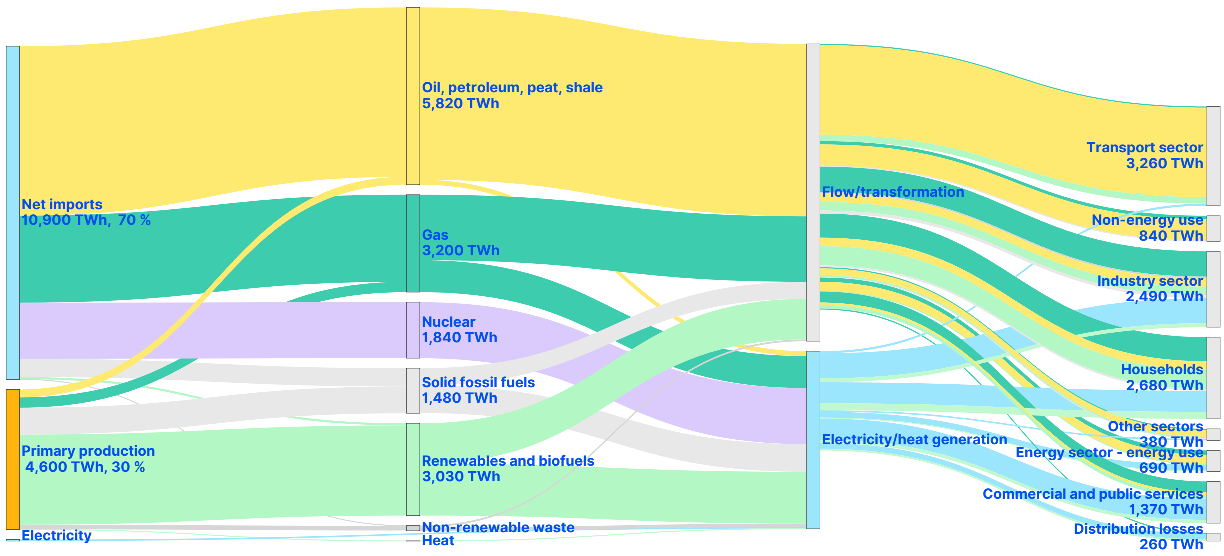
1.1.1. A flexible energy system helps while import dependence remains high

9 Between 2018 and 2023, the EU-27 energy system remained heavily import reliant: net imports were about 10 900 TWh (around 70 % of supply) and primary production about 4 600 TWh (around 30 % of supply). The supply mix continued to be led by oil and gas, with nuclear, renewables and biofuels, and solid fossil fuels making up the remainder.

10 Final energy demand continued to be dominated by transport, followed by households, the industry, and commercial and public services. While policy efforts to expand renewables and improve efficiency are gaining traction, the overall energy balance, as illustrated in Figure 3, remains broadly unchanged. This shows that although progress towards decarbonisation has begun, there is still a long way to go.

Figure 3: EU energy balance by source and final consumption, 2018 (top) and 2023 (bottom)





Source: Eurostat annual data on simplified energy balances (nrg_bal_s).

11 Despite more hours with renewable generation and occasional negative prices, the EU power system still depends on fossil plants for peak and firm flexibility. As ACER's key developments in European electricity and gas markets report notes, 'fossil fuel technologies mainly run during high-price hours', meaning that gas and coal units set prices when the system is tight.

12 Import dependence is not an abstract statistic, it is a direct driver of bill volatility and a risk for energy security. If most of our energy still comes from abroad, Europe remains exposed to geopolitical shocks and global price swings, even as renewables grow. That is why the comparison between 2018 and 2023 in Figure 3 matters: it shows progress but also highlights the size of the remaining gap. In this context, greater demand-side flexibility can reduce exposure to import-related geopolitical risks and price shocks by shifting consumption to periods of stronger domestic generation and by easing peak-driven import needs.

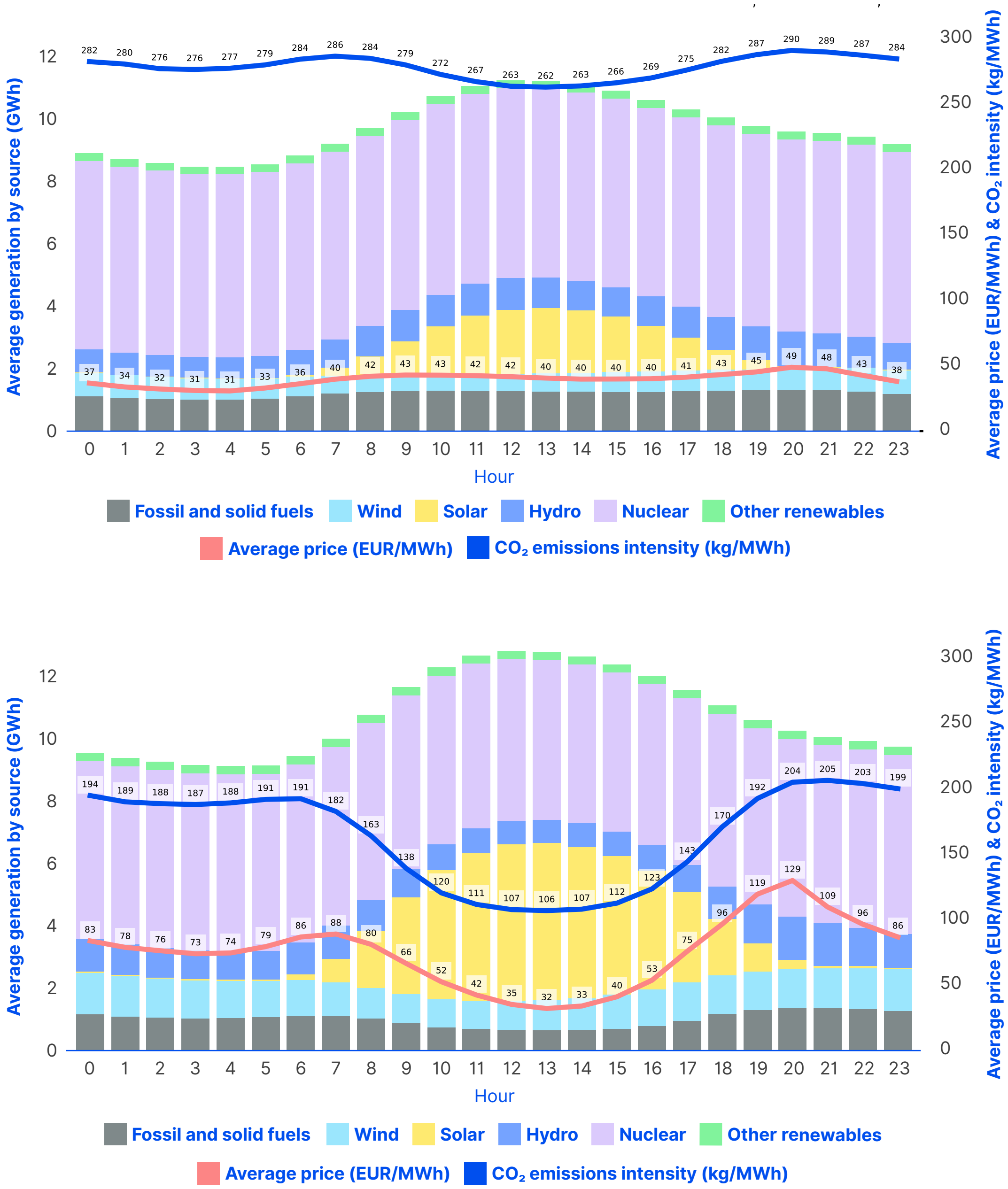
1.1.2. Policy priorities and the need for competitive markets

Policy and the electricity system both call for flexibility

13 The Commission's action plan for affordable energy and the REPowerEU plan set the framework for the transition. Pillar 1 of the action plan ('Lowering energy costs') puts consumer engagement, demand-side participation and smart networks at the centre of affordability and efficiency. The four pillars of the action plan reinforce each other and anchor the retail focus of this report. They prioritise diversification, rapid renewable energy sources deployment and active demand-side participation. Additionally, the Clean Industrial Deal argues that lowering structural energy costs and scaling flexibility are preconditions for industrial competitiveness, urging faster completion of the energy union, accelerated grid investment and retail reforms to enable responsiveness to price signals.

14 Compared with 2015, variable renewables now drive midday low prices and evening price peaks, making price-responsive demand indispensable (see Figure 4). But with most households on flat-price or inflexible regulated flat-price contracts (see Figure 8), midday savings are not available to consumers, dampening the system's own price signal.

Figure 4: Average hourly generation by source (in GWh), day-ahead price (in EUR/MWh) and carbon dioxide (CO_2) emissions intensity (in kg/MWh) for the EU-27 and Norway, August 2015 (top) and August 2025 (bottom) in nominal terms



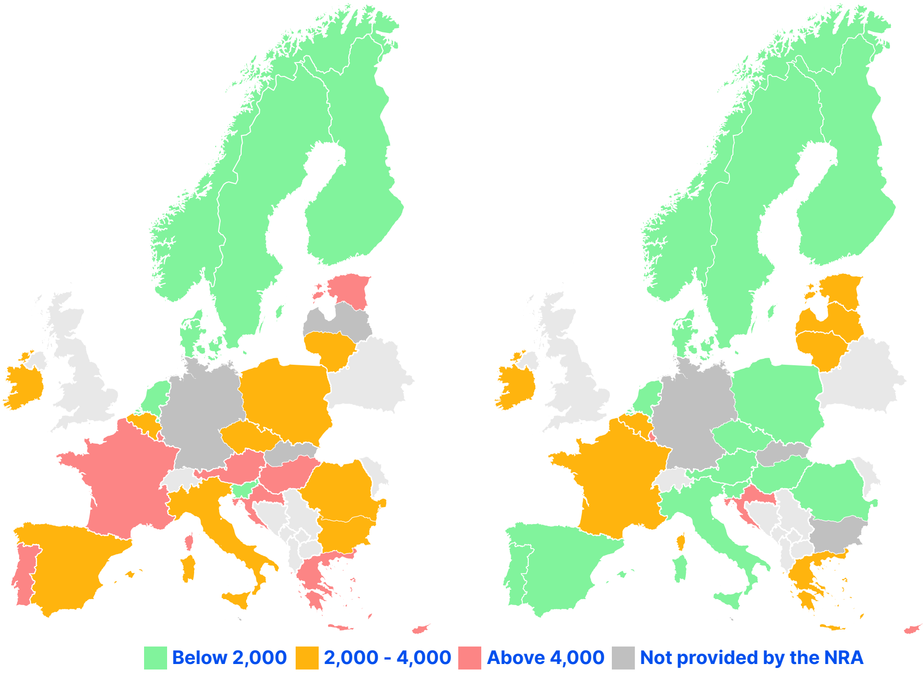
Source: ACER calculations based on generation and pricing data from the ENTSO-E Transparency Platform and Scope 3 emissions data from the Intergovernmental Panel on Climate Change.

15 **How to improve?** Implement time-varying prices, smart billing and alerts into retail offers and complete enabling infrastructure (e.g. smart meters, data access, accredited comparison tools that include dynamic offers). Additionally, support the growing role of aggregators in facilitating greater market participation and align NRA monitoring with ACER's 2025 guidance from the 12 actions from the report on unlocking flexibility.

1.2. When choice is limited, consumers switch off

16 Where retail markets are less concentrated and consumers face more supplier choice, innovative offers (e.g. dynamic or time-of-use (TOU) retail contracts, aggregation, prosumer bundles) are more common. Market concentration, frequently measured using the Herfindahl-Hirschman Index (HHI), varies widely across Member States (see Figure 5). A lower HHI (below 2 000)[5] generally coincides with broader consumer options and faster pass-through of wholesale prices[6], while a higher HHI often correlates with fewer flexible options and slower innovation. As shown in ACER's Retail Electricity and Gas Prices Overview Dashboard, prices in countries with more competitive markets (see Figure 5) have returned to pre-crisis levels faster than those with less competitive markets.

Figure 5: Herfindahl-Hirschman Index for the household (left) and non-household (right) electricity markets, in 2024



Source: ACER, based on data provided by NRAs.

17 According to Eurelectric's 2025 survey assessing the engagement of European residential customers in the energy transition, 78 % of households are not yet actively participating in retail electricity markets, largely due to an awareness gap and persistent affordability concerns. However, less than half of the consumers polled are aware of flexible energy solutions, and many cite upfront costs as the top barrier to investing in electrification technologies such as heat pumps or smart devices. Even environmentally conscious households tend to limit their actions to low-cost measures, like switching to LED (light-emitting diode) lighting, rather than adopting more transformative solutions.

5 The HHI is a common measure of market concentration, calculated as the sum of the squared market shares of all firms. Values below 2 000 indicate moderate concentration, values between 2 000 and 4 000 indicate high concentration and values above 4 000 indicate very high concentration.

6 See Table 10 of ACER's 2024 market monitoring report on energy retail, and ACER's Retail Electricity and Gas Prices Overview Dashboard, which shows household pricing evolution prior to and after the energy crisis.

18 The survey also highlights a call for engagement: flexible contracts tailored to consumer needs could deliver cost savings and greater control, while smart technologies, if supported by trust and transparency, can ease the path to participation. Findings from the 2024 Eurobarometer survey[7] confirm these patterns: affordability is seen as the top priority of EU energy policy, with 53 % of citizens calling for targeted support for households in energy poverty and 50 % highlighting the need for energy savings and enabling self-consumption. While 77 % report having changed their habits to reduce energy consumption, more structural measures such as insulation (49 %), new boilers (27 %) or solar panels (22 %) remain limited, with financial constraints (37 %) and landlord or ownership barriers (36 %) being the main reasons for non-engagement.

19 Switching rates are high (20–25 %) in a few markets (e.g. Spain, Italy, Portugal) but low in many others, often coinciding with concentrated or incumbent-dominated markets[8] (see ACER's 2025 Electricity Country Sheets report, switching indicators) and demonstrating that many consumers may be paying more for their energy than they need to. Additionally, as most households are on inflexible contracts (see Figure 8), midday low-price windows (see Figure 4) do not flow through to consumer bills.

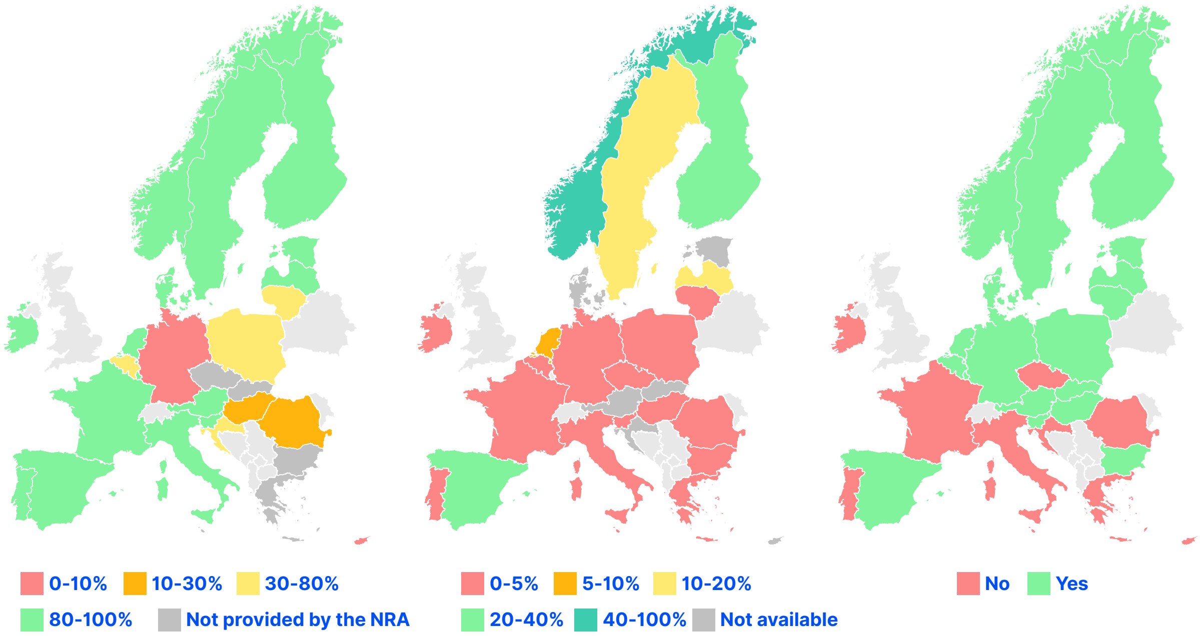
20 With higher variable renewable generation, price dynamics now feature more volatility and more frequent low or negative hours, making demand-side flexibility both valuable and practical. Keeping retail markets open to new stakeholders is fundamental: Actions 1–3 in ACER's report on unlocking flexibility call for recognising aggregators and new suppliers, easing entry and pre-qualification and streamlining participation. However, despite Directive (EU) 2024/1711[9] outlining that consumers are entitled to dynamic-price contracts, consumers in Bulgaria, Greece, France, Hungary, Ireland, Malta and Romania continue to not have access to such contracts. Equally critical are the tools and enablers: smart meters are the prerequisite for dynamic contracts and automation, yet roll-out remains uneven across the EU today (Figure 6, left side). At the same time, not all consumers can compare dynamic-price contracts against regular contracts such as flat-price contracts in comparison tools (Figure 6, right side). Accredited comparison tools should present all market contracts clearly and simply, include dynamic contracts alongside fixed offers (but shown separately) and highlight that real savings come primarily from behavioural change supported by automation.

7 European Commission, 'Special Eurobarometer 555 – European's attitudes towards energy policies', September 2024, https://europa.eu/eurobarometer/surveys/detail/3229.

8 Spain, Italy and Portugal record the highest switching rates across Member States and have moderately competitive markets. The switching rates in countries such as Sweden and Norway are lower with around 9 %. As those markets are more competitive and most consumers are on contracts based on the average spot price, there is less incentive to switch suppliers.

9 Directive (EU) 2024/1711 of the European Parliament and of the Council of 13 June 2024 as regards improving the Union's electricity market design (OJ L, 2024/1711, 26.6.2024, ELI: http://data.europa.eu/eli/dir/2024/1711/oj).

Figure 6: Smart meter roll-out (in %) (left), uptake of market based dynamic-price contracts among households (in %) (middle)[10] and availability of comparison tools that compare dynamic-price contracts (right) across the EU-27 and Norway in 2024[11]



Source: ACER, based on data provided by NRAs.

21 While not all consumers may wish to adapt their consumption behaviour, all consumers need to be provided access to the tools to enable their participation. Regulatory frameworks must drive, and not hinder, the delivery of such flexibility resources. However, with comparison tools omitting dynamic contracts while suppliers in 10 Member States continue to not offer such contracts[12], despite Directive (EU) 2019/944[13], the potential engagement of consumers is limited. Flexible consumers (especially those on dynamic-price contracts) also need automation (e.g. smart thermostats, EV charging), secure access to smart meter data and clear safeguards (e.g. alerts to inform consumers as to when peak and low prices are available).

22 ACER's report on network tariff practices 2025 argues for time-differentiated tariffs for energy and networks to reflect system conditions. Bruegel (2025)[14], on the other hand, recommends recovering fixed costs through flat charges, noting that with greater demand elasticity this approach helps avoid weakening incentives for flexible consumption and electrification. ACER's recent report on unlocking flexibility lists 12 no-regret actions from clarifying roles and easing entry for aggregators (Actions 1–3) to deploying smart meters (Action 4) and enabling time-differentiated energy and network tariffs (Actions 5–6).

10 In Spain, 29 % of consumers are signed up to a regulated dynamic-price contract. See Figure 8.

11 The smart meter data for Hungary refers to both the household and the non-household sectors, as separate data are not collected by the regulatory authority.

12 Bulgaria, Ireland, Greece, France, Cyprus, Hungary, Malta and Romania do not offer dynamic contracts. Czechia, Croatia, Italy and Portugal offer dynamic contracts, but comparison tools omit them. The smart meter roll-out in Czechia and Croatia is well below the intended 80 %, which represents an additional barrier to the uptake of dynamic contracts.

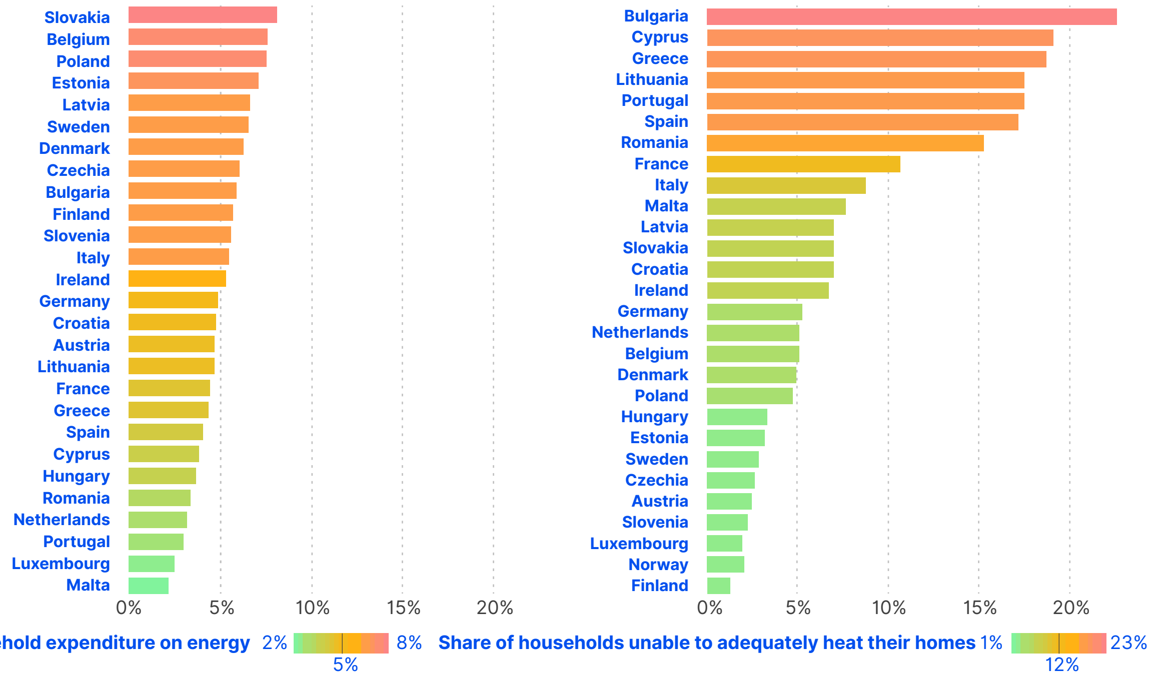
13 Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity (OJ L 158, 14.6.2019, pp. 125–199, ELI: http://data.europa.eu/eli/dir/2019/944/oj).

14 Bruegel, 'Who should be charged? Principles for fair allocation of electricity system costs', 24 April 2025, https://www.bruegel.org/policy-brief/who-should-be-charged-principles-fair-allocation-electricity-system-costs.

Activation and targeted protection beat broad-brush and untargeted support

23 Households in the EU-27 and Norway faced an average annual electricity expenditure of EUR 821[15] in 2024, while 8.1 % of households were still unable to maintain adequate indoor heating[16]. For many consumers, this level of expenditure does not pose a significant challenge; however, the financial burden for vulnerable groups is considerable and is likely to remain so without targeted support. This underscores the critical importance of designing measures that are precisely directed towards those most in need, rather than relying on broad fiscal interventions. Generalised measures deliver only limited protection to vulnerable households while simultaneously weakening incentives for suppliers and consumers to innovate, compete and adapt their behaviour. Member States commonly cite the protection of households from price volatility as the principal justification for public price interventions, which may be applied universally or, more effectively, directed specifically at vulnerable customers.

Figure 7: Household expenditure on energy (energy, gas and other fuels)[17] as a share of total spending (in %) (left) and share of households unable to keep their homes adequately warm (in %) (right) in 2022



Source: ACER, based on Eurostat data on final consumption expenditure of households (nama_10_co3_p3) and inability to keep homes adequately warm (ilc_mdes01).

24 On average, around 60 % of household energy demand is used for space heating and a further 15 % for water heating.[18] With that in mind, well-targeted affordability policies focused on identified vulnerable consumers – through measures such as subsidies for building retrofits, efficient appliances and distributed energy solutions like PV and storage – can enhance long-term affordability. Evidence from Australia shows that building efficiency improvements can reduce household bills by over 80 %.[19]

15 ACER, based on data provided by NRAs, 2025.

16 Calculation based on Eurostat data on inability to keep homes adequately warm (ilc_mdes01).

17 Eurostat, 'Statistics Explained – Glossary:COICOP HICP', https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:COICOP_HICP.

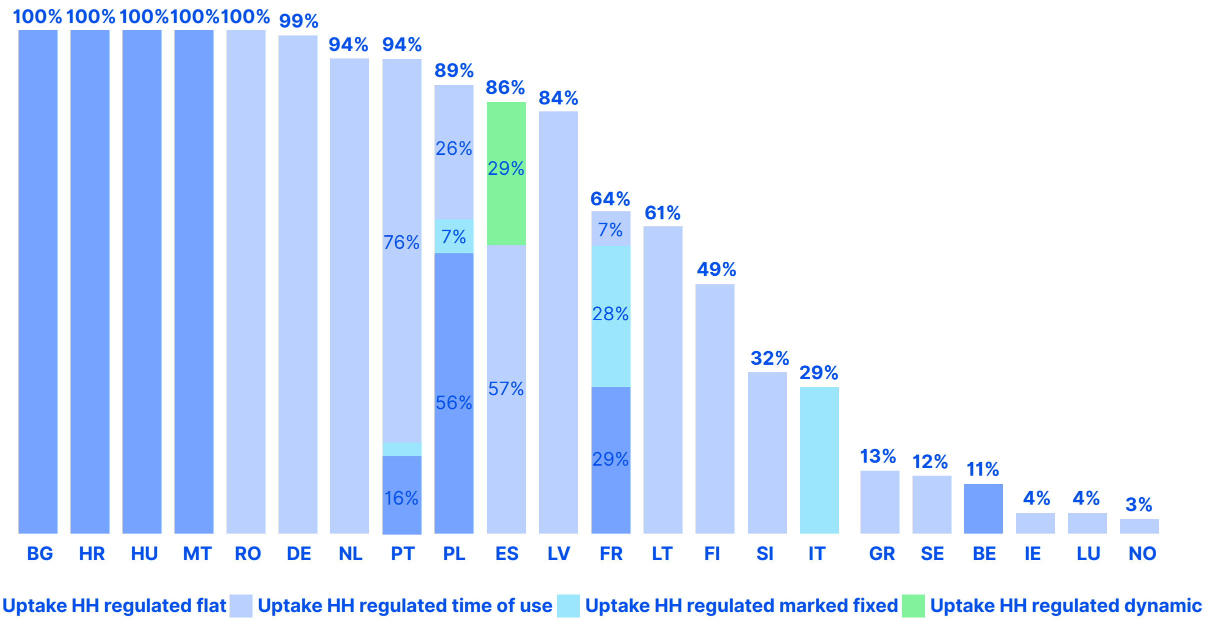
18 See ACER's 2025 gas country sheets for country-by-country data on household energy use.

19 Institute for Energy Economics and Financial Analysis, 'A focus on homes, not power plants, could halve energy bills', July 2025, https://ieefa.org/sites/default/files/2025-07/A%20focus%20on%20homes%2C%20not%20power%20plants%2C%20could%20halve%20energy%20bills_Jul25.pdf.

25 Since the peak of the energy crisis, non-household electricity prices have normalised faster than household prices. In many markets, households on flat-price contracts were shielded from the sharpest increases at the start of the crisis, yet this also meant that subsequent wholesale price declines in 2023 and 2024 passed through more slowly.

26 A large share of EU households, 59 % on average and 100 % in several Member States, remain on regulated or flat-price contracts. While these provide protection from price volatility, they also prevent consumers from benefitting when wholesale prices fall and can dampen the price signal effect[20]. As highlighted in ACER's recent report on unlocking flexibility, the limited availability of time-differentiated retail contracts restricts effective price signals and hampers demand-side response. Beyond this, regulated prices can create a higher cost for society – especially when consumer prices are set below actual costs – as the burden of sustaining such schemes is ultimately borne by all citizens, including those who may not directly benefit. Without reforms to expand more flexible retail products, supported by smart meters, comparison tools, automation and consumer safeguards, households risk continuing to overpay compared to non-households while society as a whole carries the inefficiencies of such arrangements.

Figure 8: Flat-price and regulated contracts as a share of household contracts in a selection of Member States and Norway, in 2024[21]



Source: ACER, based on data provided by NRAs.

Why this matters

27 Not all households can or will actively manage demand. However, if offered and promoted to consumers, flexible contracts and automation could help participating consumers capture midday low-price or low-emissions windows and avoid evening peaks. However, it must be noted that flexible consumption will not be appropriate for all consumers. Such contracts must be paired with targeted protection that eases hardship without dulling the price signals that drive flexibility, making it an attractive option for a larger share of consumers who may be less in need of support. This is especially critical for heating – the largest household end

20 See paragraph 22 of ACER's 2023 report on barriers to demand response.

21 Denmark, Estonia, Cyprus, Austria and Slovakia did not provide data on contract uptake. Czechia records neither regulated flat, time-of-use and dynamic nor market-fixed contracts. See ACER's 2025 electricity country sheets for country-by-country data on contract uptake. 'Market-fixed contracts' refer to contracts that are fixed in price for the duration of the contract.

use. Without competitive pressure, visible flexible contracts and correct time-varying signals, households have no incentive to respond to the midday slack and evening tightness as shown earlier, so the system benefits being offered (lower prices) do not reach consumer bills. In a still import-reliant, fossil-fuel-linked energy system, rising electrification raises exposure to external shocks. Flexibility can mitigate this risk by shifting consumption towards periods of abundant domestic renewables and away from peak periods that rely on imported fossil fuels.

What is needed

1. **Enabling tools and information that consumers can trust.** Complete smart-meter roll-outs and ensure that meters and data use standardised, interoperable protocols and efficient access compliant with the General Data Protection Regulation, so that retailers and aggregators can automate EV charging, heat-pump operation and temperature control reliably.

2. **Correct signals and products.** Implement dynamic or time-differentiated energy and network tariffs, recovering fixed costs from inelastic demand so that flexible loads see and respond to the signal. Ensure accredited comparison tools list dynamic offers and treat flexibility as a consumer value proposition, either through variable pricing or by selling flexibility via aggregators.

3. **Open, competitive markets.** Lower entry barriers and streamline pre-qualification for aggregators and new suppliers; clarify roles and responsibilities for active customers to deepen competition.

4. **Targeted protection, not blanket support.** Under Article 5 of Directive (EU) 2019/944, suppliers should set prices competitively, with vulnerable customers protected through targeted social policies. Any public price intervention should be temporary and narrowly focused. Over time, Member States should reduce the need for such support by improving building efficiency and expanding access to self-generation such as solar PV.

Actions – what to do now

1. **Get the signals right.** Introduce time-differentiated energy and network tariffs to ensure that cost recovery does not weaken price signals, preserving strong incentives for flexible consumers to adjust their consumption in line with system needs.

2. **Improve access to data.** Complete smart-meter deployment and require interoperable, standardised data access for consumers and authorised third parties.

3. **Make flexibility visible.** Ensure that all contract offers, including dynamic and flexible contracts, are included on accredited comparison tools.

4. **Unlock market participation.** Remove barriers for aggregators and new suppliers; simplify pre-qualification and reduce administrative burdens; clarify roles for active customers.

5. **Target support precisely.** Use targeted financial support tied to income and energy-poverty metrics; consider ways to remove the consumer vulnerability where possible via improving building efficiency and/or providing solar PV to reduce the impact of electricity bills.

6. **Energy efficiency first.** Accelerate building upgrades, efficient appliances and heat-pump deployment through automation, so bills fall structurally and flexibility becomes effortless.

2. How retail pricing helps unlock consumer flexibility

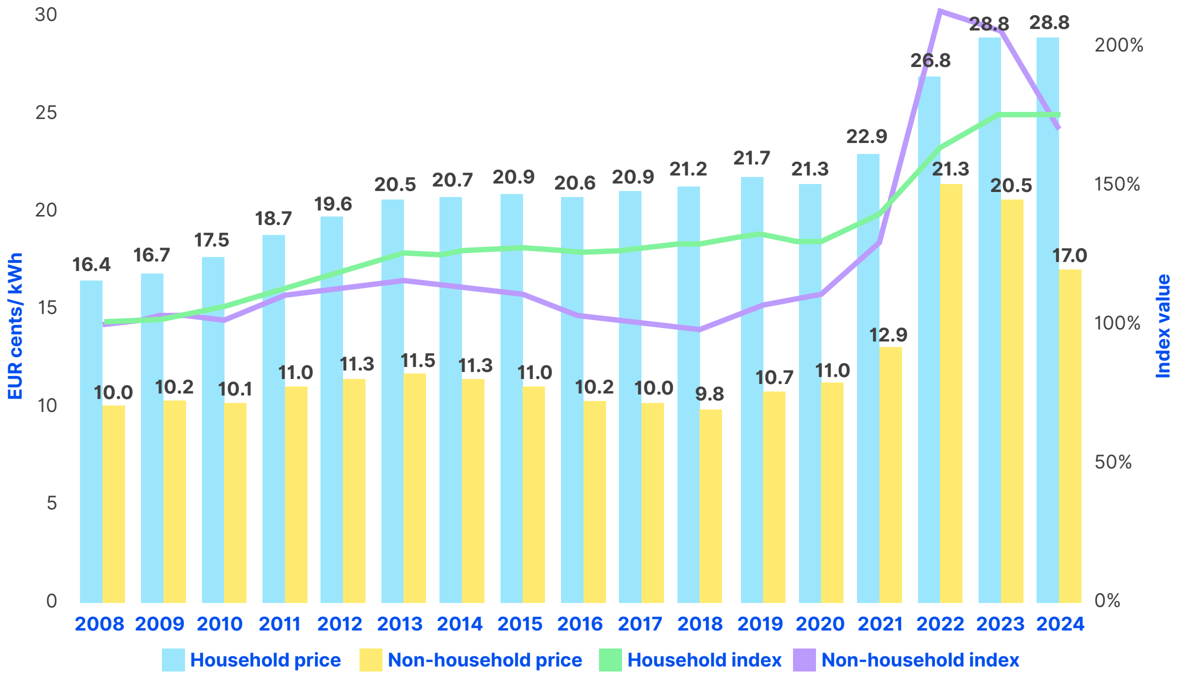
28 This chapter sets out where electricity prices stand and why flexibility can deliver benefits for consumers. It shows that bills eased after the crisis but fell more slowly for households than for non-households; breaks down bills into energy and supply, network charges; and explains why wholesale price declines have not been fully passed through to the energy component of household bills. It highlights growing network cost pressures and why price signals are important for both the network and the energy components. The chapter also shows that wholesale markets are delivering very-low-price hours more often and high-price hours less often.

2.1. Flexibility lost between markets

Households have not captured the full benefits of falling wholesale prices

29 Household bills have not captured the full benefits of falling wholesale prices. After the 2021–2022 shock, prices retreated through 2023–2024, but the adjustment was uneven[22]. Figure 9 shows that non-household prices fell from 21.3 to 17.0 EUR cent/kWh between 2022 and 2024, whereas household prices have steadily increased since 2021, moving from 22.9 to 28.8 EUR cent/kWh, aligned with 2023 prices. The long-run indices in the same figure underline that household prices remain elevated relative to their pre-crisis trend. The household index rose steadily after 2020 and peaked in 2023 at nearly 200 % of its 2008 level, before moderating slightly in 2024. By contrast, the non-household index surged more sharply, exceeding 200 % in 2022–2023, but then fell back closer to pre-crisis levels in 2024.

Figure 9: Trends in final electricity prices for household and industrial consumers in the EU between 2008 and 2024 (EUR cent/kWh and index value; base year 2008 = 100 %)



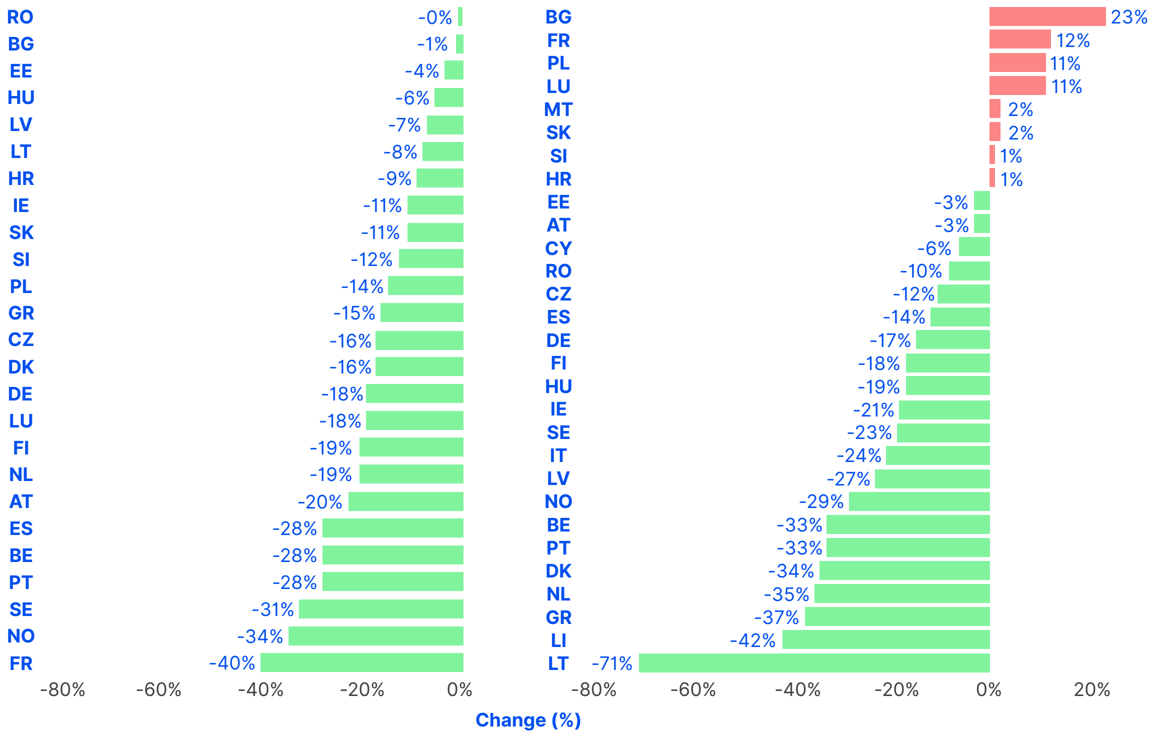
NB: The index change tracks the percentage change in nominal prices since 2008, where the base year equals 100 %.

Source: ACER calculations based on Eurostat data on household electricity consumption (nrg_pc_204), band DC, 2 500–5 000 kWh and industrial electricity consumption (nrg_pc_205), band IE, 20 000–70 000 MWh; updated in July 2024.

22 See ACER's Retail Electricity and Gas Prices Overview Dashboard for detailed insights into the evolution and composition of electricity prices for consumers across Member States and Norway.

30 Some retail markets show slow pass-through of wholesale price changes to households. Figure 10 (left) shows that in general, wholesale prices in 2024 declined, yet Figure 10 (right) indicates that the energy and supply component on household bills did not fall uniformly and even rose in a few markets. Conversely, the contracts that are now locking consumers into higher prices are the same contracts that shielded consumers during the energy crisis.

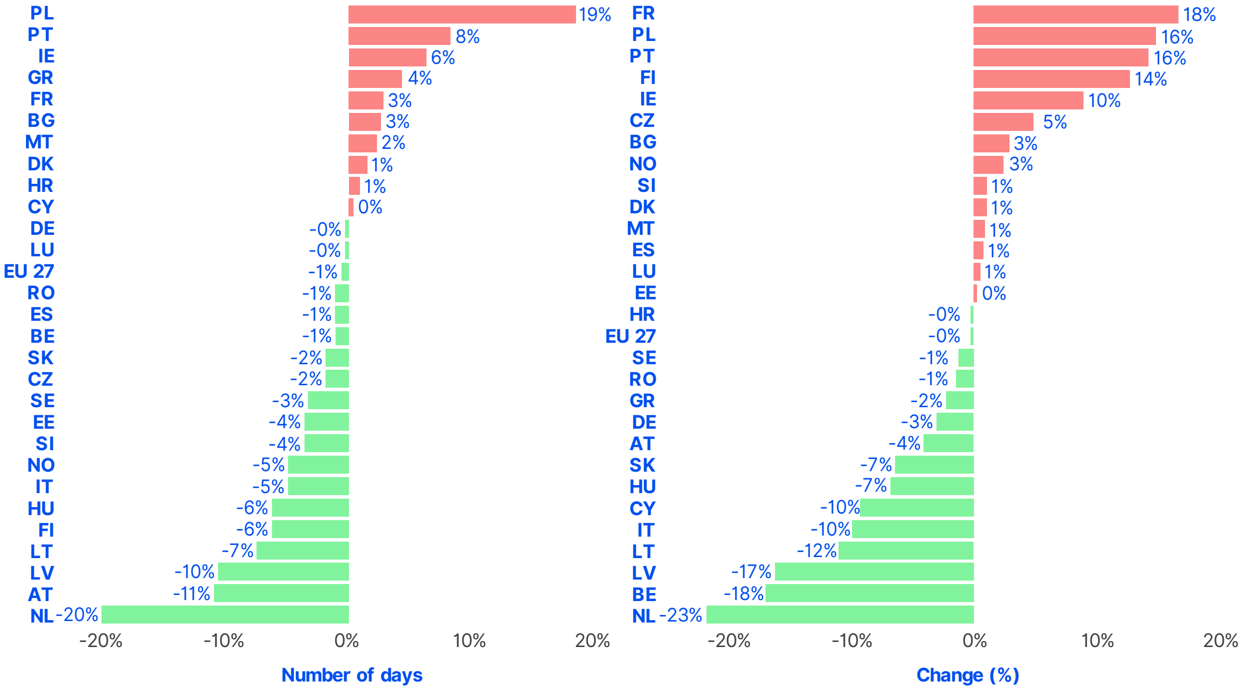
Figure 10: Comparison of the average annual wholesale electricity price (in %) (left) and the energy and supply component for household customers (in %) (right) between 2023 and 2024



Source: ACER calculations based on Eurostat data on household electricity consumption (nrg_pc_204), band DC, 2 500–5 000 kWh; updated in August 2025.

31 Figure 11 (right) also shows that, between 2023 and 2024, several Member States recorded a reduction in household prices (e.g. Belgium, Italy, Latvia, Lithuania and the Netherlands), while in others prices increased (e.g. Ireland, France, Poland, Portugal and Finland). These differences reflect the contract mix (large shares of flat or regulated contracts), supplier hedging cycles, and the weight of taxes, levies and network charges, all of which can blunt or delay the wholesale signal. Stronger competition and a wider range of supplier offers can expand consumer choice, and – when combined with active engagement, such as switching or taking up more flexible contracts – help ensure households capture the benefits of falling wholesale prices.

Figure 11: Change in final household electricity prices between the first and second half of 2024 (in %) (left) and change in final household electricity prices between 2023 and 2024 (in %) (right)



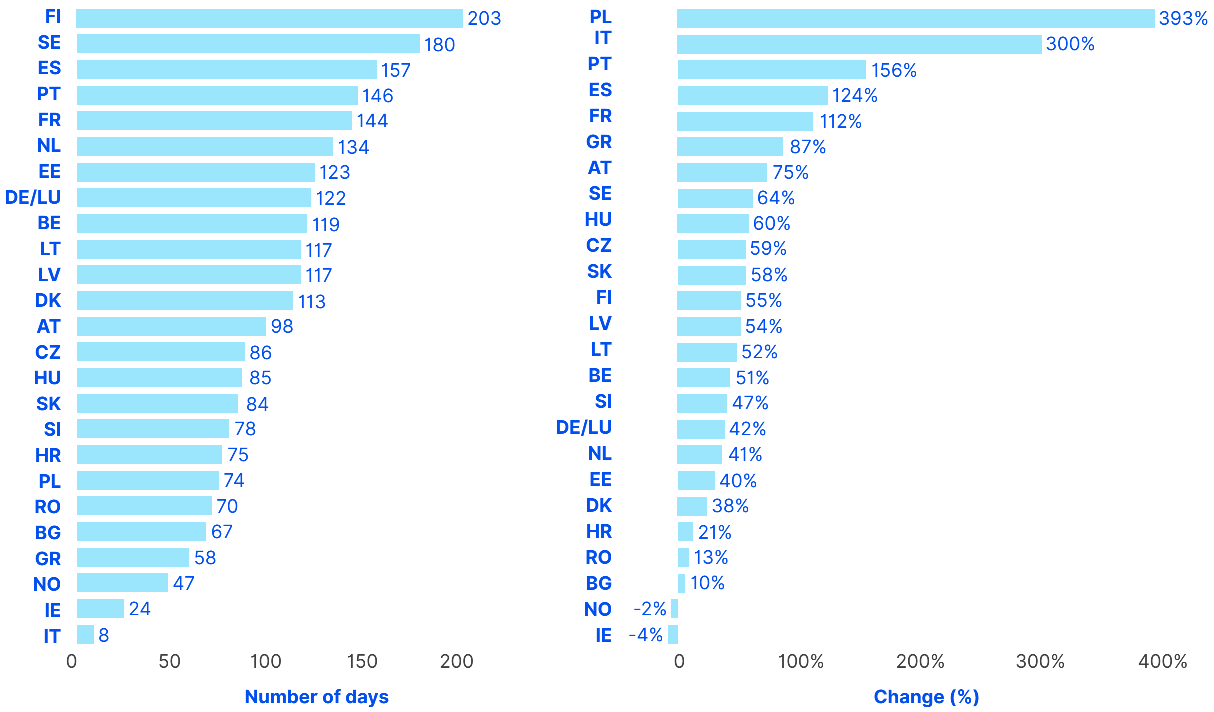
Source: ACER calculations based on Eurostat data on household electricity consumption (nrg_pc_204), band DC, 2 500–5 000 kWh; updated in August 2025.

Wholesale conditions increasingly reward flexible demand, but contract structures and enabling tools prevent households from benefitting

32 While consumer contracts are relatively inflexible (Figure 8), the system now delivers many more very-low-price days (less than EUR 5/MWh) and fewer very-high-price days (above EUR 150/MWh) (Figure 12 and Figure 13), creating clear saving windows and a lower-risk environment for flexible consumption. However, as most households continue to remain on flat contracts, the price signal rarely reaches them, so the benefits that the system and the market are providing are missed. As shown in ACER's 2025 Electricity Country Sheets report, household switching ranges from near 0 % to 25 % (averaging 9 %). However, with most households remaining on flat contracts and rarely switching, price signals seldom reach them, and market benefits are missed.[23] This inertia results in consumers sticking with their default contract even when better options are available to them.

23 See ACER's 2025 electricity country sheets for country-by-country switching data.

Figure 12: Number of days with day-ahead prices below EUR 5/MWh (left) and the percentage change between 2023 and 2024 (in %) (right)[24]

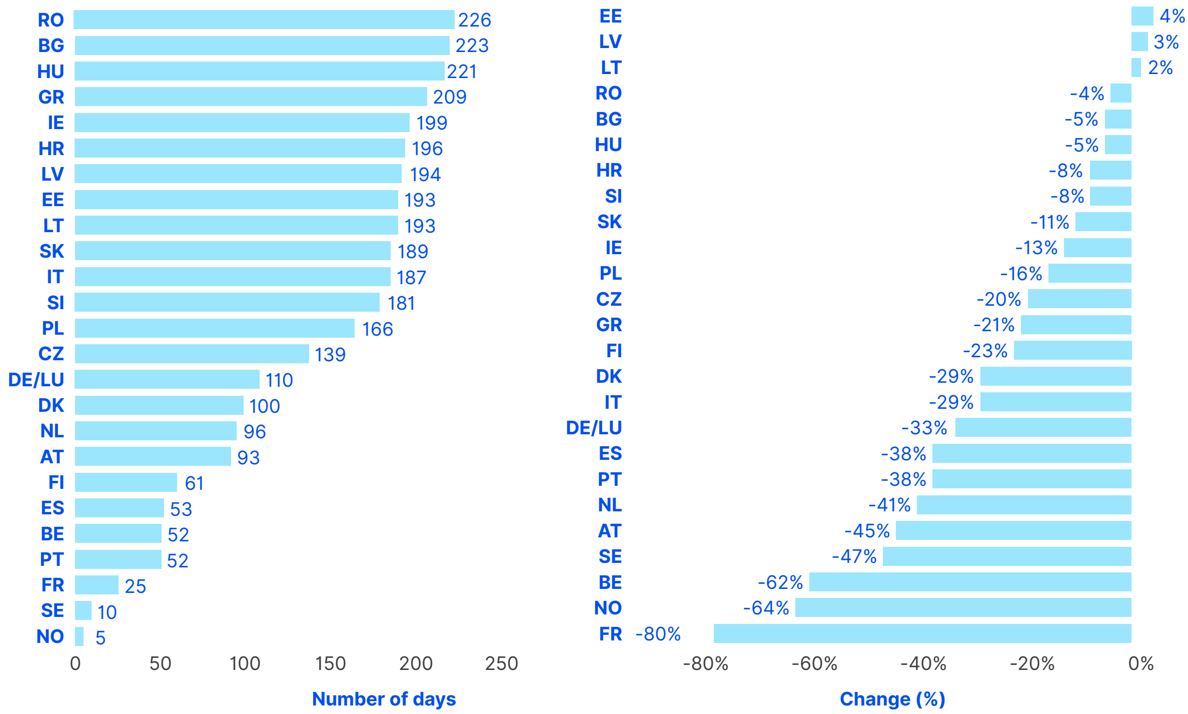


Source: ACER calculations based on generation and pricing data from the ENTSO-E Transparency Platform.

33 Eurelectric's [2025 survey assessing the engagement of European residential customers in the energy transition] highlights low levels of active participation and upfront cost barriers to adopting technologies such as heat pumps, smart devices and automation. Moreover, as outlined in ACER's [2023 report on barriers to demand response], flat and some regulated contracts mute price signals when consumers remain on inflexible contracts. This underlines the need for simple flexible offers, such as dynamic and TOU contracts, supported by smart meters, data access and automation.

24 See ACER's report on key developments in European electricity and gas markets for drivers of changes, 2025.

Figure 13: Days with day-ahead prices above EUR 150/MWh (left) and the percentage change between 2023 and 2024 (in %) (right)



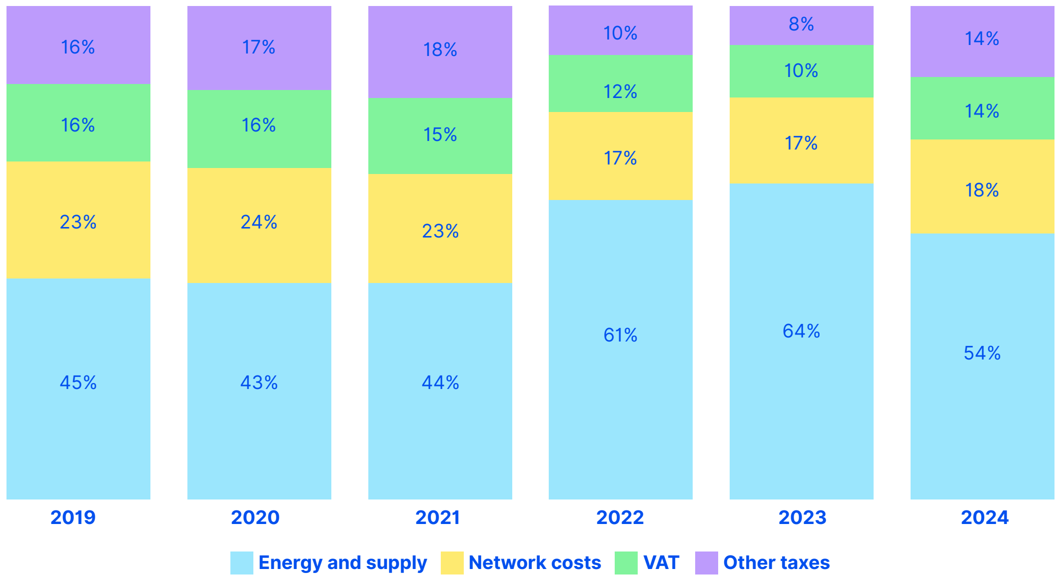
Source: ACER calculations based on generation and pricing data from the ENTSO-E Transparency Platform.

34 Wholesale prices have fallen, but household bills have not kept pace because signals fail to transmit end-to-end. The remedy is to promote switching and to provide consumers with access to a range of contract offers that provide for their needs but are particularly focused on providing exposure to time-varying prices, so they can capture low-cost hours with high renewable generation. These contracts can be fully dynamic or more stable but with flexibility ingrained (such as TOU). This requires ensuring the provision of tools that enable consumer participation (i.e. smart meters, interoperable data access, accredited comparison tools that compare dynamic and TOU offers) and strengthening competition and switching so consumers are not stranded on legacy contracts. With these pieces in place, flexibility can flow through to bills, easing peaks and improving affordability.

Network design will increasingly shape what households pay and whether shifting demand is rewarded

35 As reported by Eurostat, final retail electricity prices combine the energy component with network charges, taxes and levies that differ from energy costs and can mute the pass-through of wholesale price signals. As electricity consumption rises with the electrification of heating, transport and industry – and as networks adapt to this – the network component is expected to become the dominant share of household electricity bills, reflecting the large-scale investments required to modernise grids, connect renewable generation and integrate electric vehicles and heat pumps.

Figure 14: Breakdown of the weighted average final electricity price for households in the EU-27 between 2019 and 2024 (in %)



Source: ACER calculations based on Eurostat data on electricity price components (nrg_pc_204_c), band DC, 2 500–5 000 kWh; updated in July 2024.

36 According to ACER's [2024 electricity infrastructure monitoring report](), average network-related costs are projected to increase significantly in the coming years. Already in recent years, network charges have accounted for approximately 20 % of retail electricity prices across Member States.

37 Peak loads occur mainly in the evenings, when household demand is at its highest. Introducing more flexible network tariff components could help mitigate the need for costly grid reinforcements by encouraging consumers to shift demand away from congested hours.[25] This could in turn improve cost-efficiency and reduce long-term system costs. However, it also means that there may be times when the energy price signal and the network price signal may diverge. For example, wholesale prices may encourage households to consume at noon, when renewables are abundant and cheap, while network tariffs may impose higher charges to reflect local system congestion. The way to reconcile these signals is through retailers offering smart services, such as automation, which can help consumers optimise their usage and mitigate potential cost increases.

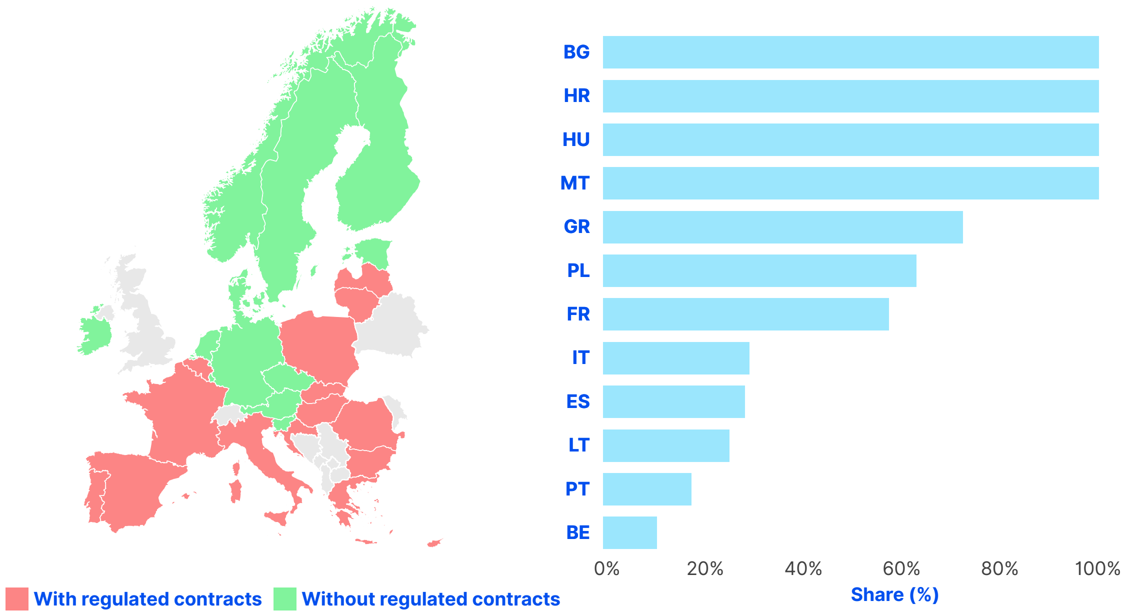
38 While wholesale energy prices vary hourly (or even quarter-hourly), consumer contracts are often flat or poorly aligned with system peaks. This misalignment can discourage load shifting and flexibility. As Figure 15 shows, regulated contracts continue to exist in many Member States. In most cases, consumers under contracts with public price intervention do not receive appropriate price signals, limiting their financial incentive to contribute to demand-side flexibility. Suppliers, on the other hand, are also discouraged to offer innovative products and services.[26] While ACER has previously outlined that regulated contracts can be a barrier to flexibility, as shown in Figure 8, some regulated contracts can provide a signal to the consumer regarding flexibility. For example, 29 % of Spanish households are under regulated dynamic contracts, and 28 % of French and 29 % of Italian consumers are under regulated TOU contracts. These

25 See ACER's 2025 report on network tariff practices for details on different approaches to network tariffs across Member States.

26 See ACER's 2023 report on barriers to demand response.

types of regulated contracts provide a higher level of flexibility than flat-price contracts and could be considered by Member States and regulatory authorities as an alternative to flat and inflexible regulated contracts, which provide broad support to all consumers as opposed to targeting the support to those most in need of assistance. With such lack of targeting, the impact of the support being provided to those most in need is ultimately diluted.

Figure 15: Markets with and without regulated contracts across Member States and Norway (left) and share of household consumers under regulated contracts (in %) (right)[27] in 2024



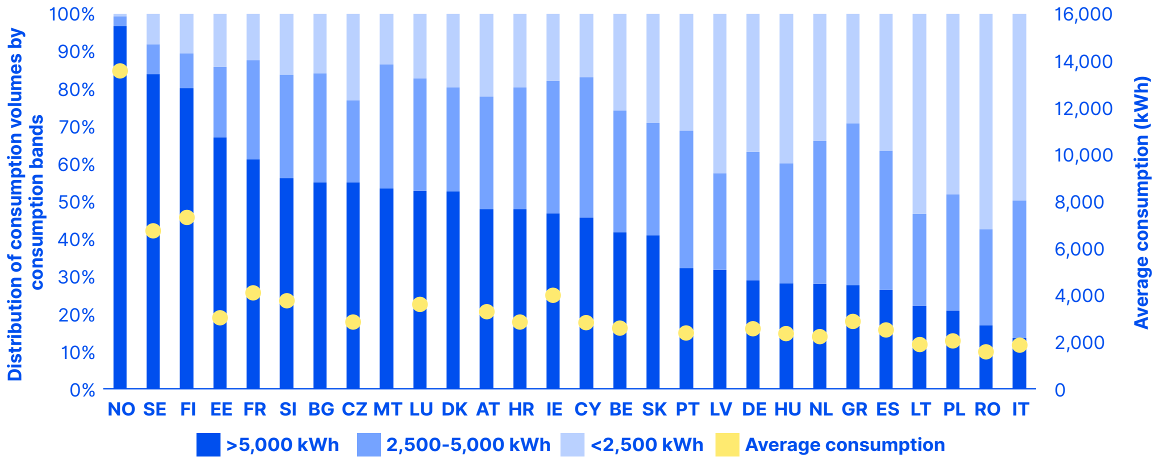
Source: ACER, based on data provided by NRAs.

2.2. Rewards within reach for consumers who choose to be flexible

39 Figure 16 and Figure 17 show that, although electrification levels vary across the EU and Norway, as reflected in the differing average consumption levels, each country has substantial electricity volumes consumed by high-, medium- and low-consumption users at the household and non-household levels. While users with higher electricity consumption often have greater potential for shifting a part of their electricity demand, the degree of flexibility depends on the specific patterns of electricity use of household consumers and the operational constraints of non-household consumers.

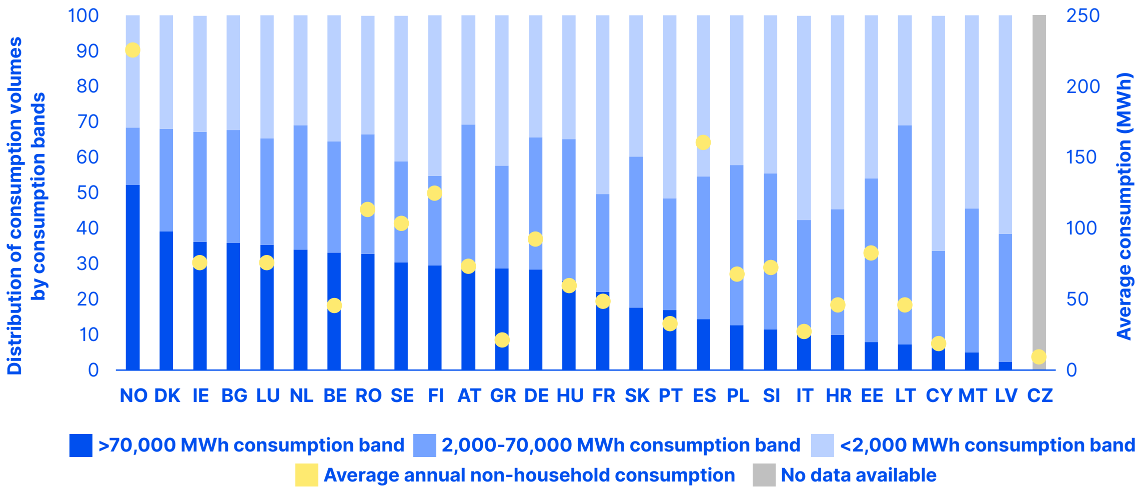
27 Estonia, Cyprus and Slovakia did not provide information on the share of regulated contracts in their markets.

Figure 16: Share of electricity volumes consumed by household consumption bands (in %), and average consumption per household (in kWh) in 2024



Source: ACER, based on data provided by NRAs on average annual household consumption and Eurostat data on household consumption volumes of electricity by consumption bands (nrg_pc_204_v).

Figure 17: Share of electricity volumes consumed by non-household consumption bands (in %), and average non-household electricity consumption per country (in MWh) in 2024

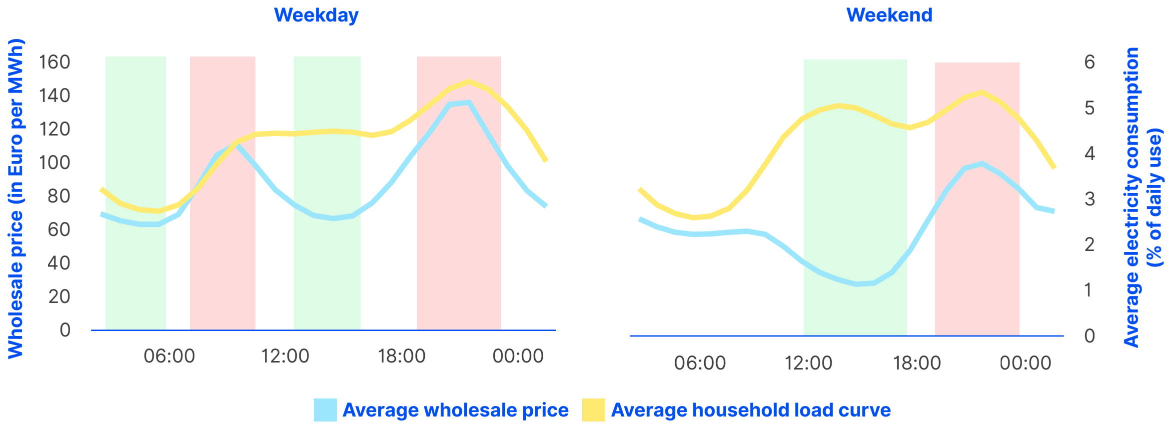


Source: ACER, based on data provided by NRAs on average annual non-household consumption and Eurostat data on non-household consumption volumes of electricity by consumption bands (nrg_pc_205_v).

40 To benefit from demand-side flexibility, consumers shift part of their electricity demand[28] to periods with low wholesale prices. Figure 18 illustrates the potential of demand shifting for household consumers by comparing the average hourly consumption pattern with the average wholesale prices for 2024 in the EU and Norway. Peak household electricity consumption coincides with high wholesale prices that occur during weekday mornings and evenings, and weekend evenings (red-shaded area). By shifting this demand to nighttime and midday periods (green-shaded area), when wholesale prices are lowest, households can achieve cost savings. The figure also shows potential savings from shifting consumption to weekends – particularly to the midday period, when prices are lowest, on average.

28 In this report, 'shiftable electricity consumption' is used to refer to the part of electricity demand that can be moved in time, to some extent, without a significant loss of comfort.

Figure 18: Average hourly household load curve and wholesale price (in EUR/MWh) in the EU-27 and Norway on weekdays (left) and weekends (right)



Source: ACER, based on data provided by NRAs (load curves) and ENTSO-E (day-ahead wholesale prices).

41 This section explores the potential financial benefits for active consumers engaging in implicit demand response,[29] with a focus on household consumers.[30] It introduces different example household consumption profiles, applied consistently across all Member States and Norway,[31] to estimate electricity cost savings under a dynamic-price contract that is based on wholesale prices, compared with a flat-price contract[32] that is price-linked to the market average. The analysis examines scenarios both with and without a behavioural shift on the part of the consumer. The cost comparisons focus on the **energy component** of the electricity bill.

42 As detailed in the methodology below, necessary simplifications and assumptions are applied regarding the example households' consumption levels, daily electricity consumption patterns and the capability to shift certain amounts of demand in time. The purpose is not to compare different households across countries but rather to assess how the impacts of the example households vary between countries. Furthermore, simplifications and assumptions regarding the analysed contract types are described in the section on cost comparisons.

43 The results of the analysis should be read as indicative of the order of magnitude and direction of impacts rather than as precise and definitive values. The outcome of the modelling aims to provide insights for consumers and policymakers on how dynamic pricing can translate into measurable cost savings. Network tariffs and other non-energy components of the electricity bill are not included in the analysis, and their inclusion could further affect potential cost savings.

29 'Implicit demand response' refers to consumers adjusting their consumption directly in reaction to price signals. In contrast, 'explicit demand response' describes situations where demand-side flexibility is offered into electricity markets, often through an aggregator that coordinates and controls loads on behalf of consumers.

30 Non-household consumers are not covered due to lack of data on their daily electricity consumption profiles and limited information on feasible demand-side flexibility options.

31 The analysis focuses on the financial impact in different regions and does not compare differences in household characteristics or specific consumption patterns across countries. The same example households are used in all Member States and Norway to ensure comparability of potential savings. The analysis excludes Cyprus and Malta due to a lack of wholesale price data on the ENTSO-E Transparency Platform.

32 In this analysis, a flat-price contract is equal to the 'energy and supply' price of electricity, as reported by Eurostat. The dynamic-price contract follows the day-ahead hourly wholesale prices. The flat-price contract covers supplier-related costs – such as customer service, after-sales management and the supplier's margin – reported under Eurostat's 'energy and supply' component, which are not explicitly included in the dynamic-price contract. Consequently, the theoretical gains are likely to be slightly overestimated.

Methodology

44 Four household consumers with different electrification pathways are introduced.

- **Base household.** A household with a 3 000-kWh annual electricity consumption, which represents the median household electricity consumption[33] in the EU and Norway in 2024. The base household's average hourly consumption profile follows the average of EU and Norwegian households, as illustrated in Figure 18.

- **Electric vehicle (EV) household.** Base household that additionally owns an electric vehicle (approximately 6 500 kWh/year). This household has a high electricity consumption with high flexibility to shift demand.

- **Heat pump (HP) household.** Base household that additionally has a heat pump installed (approximately 6 000 kWh/year). This household has a high electricity consumption with limited flexibility to shift demand.

- **Electric vehicle and heat pump (EV+HP) household.** Base household that additionally owns an electric vehicle and has a heat pump installed (approximately 9 500 kWh/year). This household has a very high electricity demand and moderate flexibility to shift demand.

45 The case box below illustrates the consumption volumes of the different household appliances used by the example households, with shiftable consumption marked in green. This shiftable consumption can be moved in time without much loss of comfort for the household.

46 Shiftable demand is assumed to be evenly consumed during **active household hours** for the example households when not reacting to price signals. Based on the consumption patterns presented in Figure 18, active household hours are assumed to be in the morning (6 a.m. to 9 a.m.) and afternoon/evening (5 p.m. to 11 p.m.), reflecting typical work and school routines. On weekends, active household hours are assumed to span from 6 a.m. to 11 p.m. with no distinction between pre- and post-work/school routines. The electricity consumption volumes for both the electric vehicle and the heat pump[34] are evenly added to these active household hours for the respective example high-consumption-households.

47 The daily consumption patterns used for the different example households are shown in Figure 22 (base household), Figure 23 (HP household), Figure 24 (EV household) and Figure 25 (EV+HP household) in the Annex.

48 To benefit from demand-side flexibility, each example household shifts its flexible electricity consumption to low-price hours. Based on the average wholesale price curves (see Figure 18, the two lowest-price periods occur, on average, from 2:00 a.m. to 4:00 a.m. at night and 12:00 p.m. to 2:00 p.m. at midday. Depending on the shiftability, some household appliances are shifted and used daily, while some appliances can be used less frequently without a loss in comfort for the household.

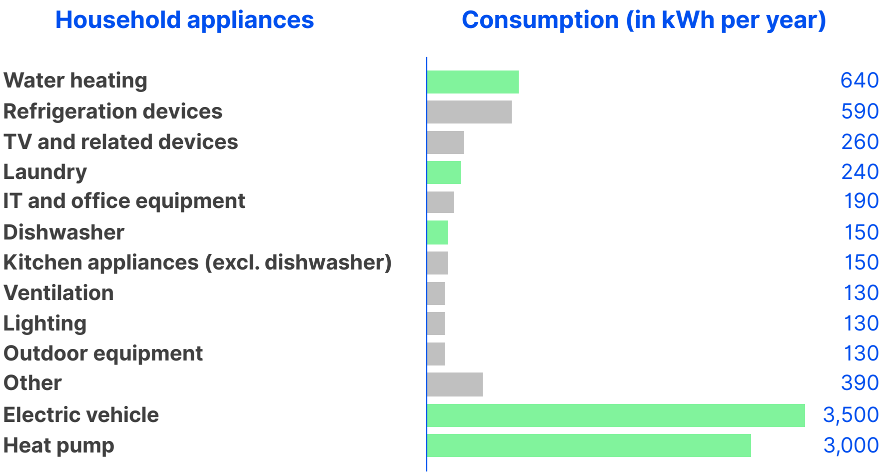
33 Based on NRA data, the median household electricity consumption in 2024 was 2 850 kWh, which was rounded to 3 000 kWh for simplicity. In contrast, the average household electricity consumption was about 3 570 kWh in 2024 and was strongly influenced by higher electricity consumption levels in Norway (13 580 kWh) and Finland (7 330 kWh). For the modelling, the median value was used, as it represents more accurately the representative EU and Norwegian household.

34 Heat pump consumption is primarily used for heating during the heating season. For the modelling, heat pump usage is assumed to take place during the active household hours from November to March.

49 The assumptions regarding the potential for demand shifting across the example households are summarised below. Detailed assumptions on appliance-specific electricity use, including the consumption levels and times of use before and after demand shifting, are provided in Table 1 in the Annex. The resulting net hourly load shifts for the different household appliances are illustrated in Figure 26 (water heater), Figure 27 (laundry), Figure 28 (dishwasher), Figure 29 (heat pump) and Figure 30 (electric vehicle) in the Annex.

- **Water heating.** Used daily, shifted to night and midday periods.
- **Laundry.** Used twice a week, shifted to weekday night and weekend midday periods.
- **Dishwasher.** Used daily, shifted to night period.
- **Heat pump.** Used daily, shifted to early morning and afternoon periods (only during heating season).
- **Electric vehicle charging.** Used twice a week, shifted to weekday night and weekend midday periods.

Case box: Base households' and higher-electricity-consumption households' annual electricity consumption (in kWh per year), including shiftable consumption (in green)



NB: While the study from the French Agency for Ecological Transition includes electricity consumption for space heating and electric mobility, both have been excluded for the base household's consumption assumptions. The exclusion is based on the assumption that gas heating remains more prevalent among European households and that electric mobility is not part of the base household scenario considered here.

Source: ACER, based on data from the French Agency for Ecological Transition.

Cost comparisons

50 Potential cost savings in the electricity energy component are estimated for each Member State and Norway using the abovementioned example households and methodology, applied consistently across all countries. Two cases of potential cost savings are analysed.

- **Case 1: Supply contract-structure effect.** The financial impact of changing from a flat-price contract to a dynamic-price contract is analysed based on the following presumptions.
  - The **flat-price contract** is assumed to be equal to the 'energy and supply' price of electricity, as reported by Eurostat[35], and represents the average price in each country, accounting for different contract type compositions[36]. It further includes supplier-related costs, such as customer service, after-sales management and the supplier's margin.
  - The **dynamic-price contract** follows the day-ahead hourly wholesale prices. In this analysis, the supply component is not explicitly considered in the dynamic-price contract. Consequently, the theoretical gains from a shift in contract are likely to be overestimated.[37]

  It is further assumed that household consumers have the option to switch to a dynamic-price contract, which, as shown in Section 1, is not the case in every country. Figure 31 and Figure 32 in the Annex illustrate the average 'energy and supply' component prices, along with the average daily wholesale prices across the three regions.

- **Case 2: Behavioural effect.** Building on Case 1 (i.e. assuming the household has already switched to a dynamic-price contract), this case analyses the financial impact of demand shifting (implicit demand response) compared to a scenario with no demand shifting, following the assumptions described in Table 1.

51 The financial impacts observed in both cases are closely linked to different electricity price characteristics, such as the wholesale volatility level and the mix of contract types in each country, reflected in the average 'energy and supply' price. Accordingly, Member States and Norway are grouped into three geographical areas[38] that have common features: **eastern and south-eastern Europe** (relatively high wholesale price volatility and low 'energy and supply' prices due to a large share of regulated contracts), **northern Europe** (relatively low wholesale price volatility and low 'energy and supply' prices due to a large share of dynamic-price contracts) and **western and southern Europe** (medium price volatility and relatively high 'energy and supply' prices due to a large share of fixed-price contracts).

52 The outcome of the financial impact is presented in Figure 19 (Case 1 – supply contract-structure effect) and Figure 20 (Case 2 – behavioural effect). Furthermore, Figure 21 presents the estimated annual energy cost savings under both a change of contract and a shift in consumption behaviour (Case 1 and Case 2) for the base household in the years 2019 to 2024, to assess the impact of the energy crisis. Country-level results are presented in Table 2, Table 3 and Table 4 in the Annex, respectively.

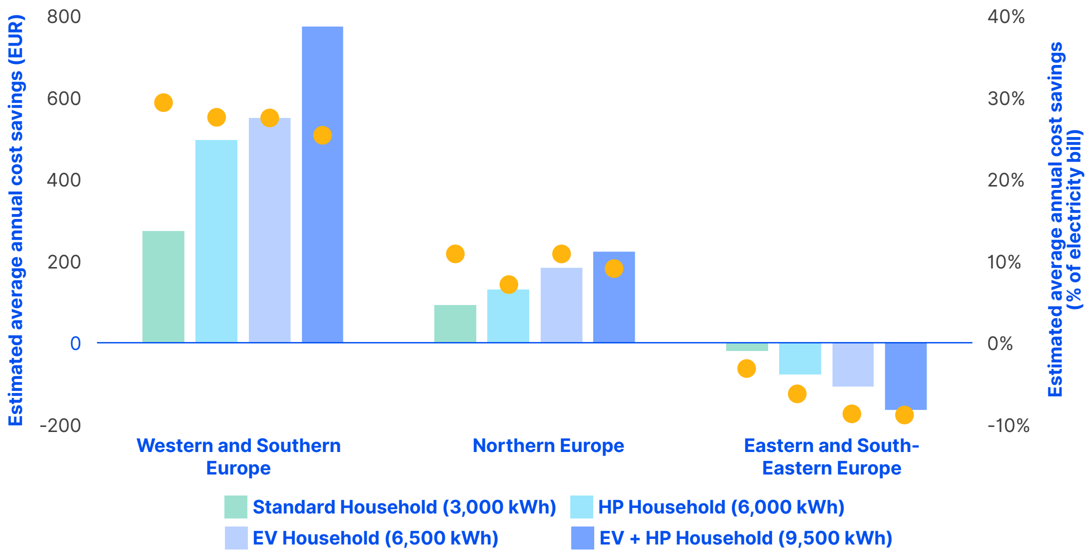
35 Eurostat data on electricity prices components for household consumers (nrg_pc_204_c).

36 The average 'energy and supply' prices reflect the mix of all contract types in each country, including dynamic and regulated contracts, with a higher share of these contracts tending to lower the average price.

37 In practice, suppliers include a supply cost covering administration, billing and risk management, which reduces the potential gains for consumers. These supply-related costs vary among countries and suppliers. For example, Tibber – a Nordic energy company that allows consumers to purchase electricity at wholesale prices – charges a standing fee of approximately EUR 6 per month, or EUR 72 per year.

38 The geographical areas with their corresponding countries are as follows: **eastern and south-eastern Europe** (Bulgaria, Czechia, Estonia, Greece, Croatia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, Slovakia); **northern Europe** (Finland, Sweden, Norway); **western and southern Europe** (Belgium, Denmark, Germany, Ireland, Spain, France, Italy, Luxembourg, the Netherlands, Austria, Portugal). NB: Denmark is included in 'western and southern Europe' based on its electricity price characteristics.

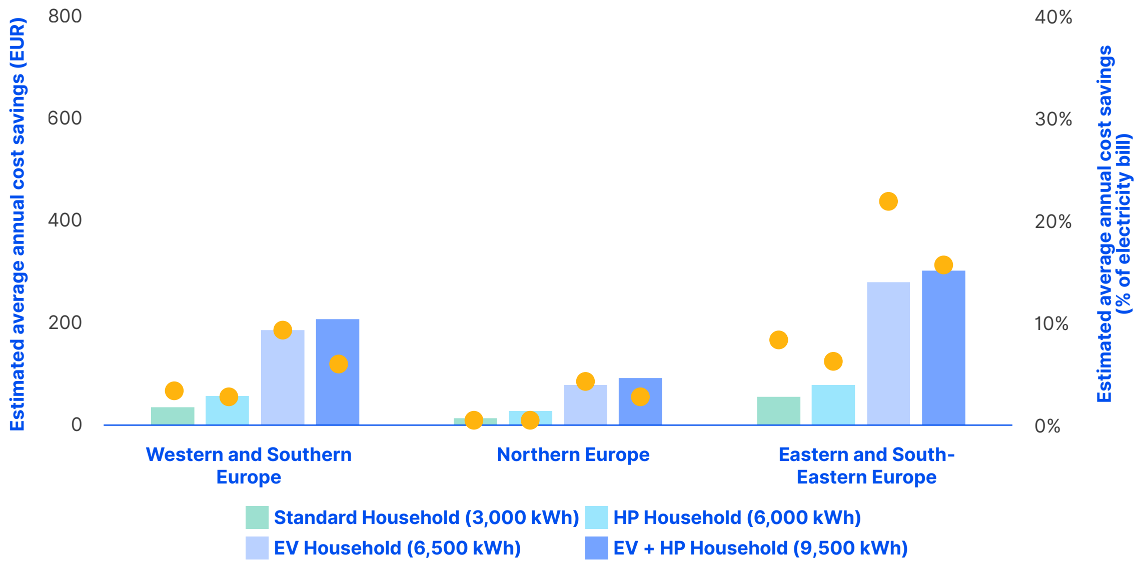
Figure 19: Estimated 2024 electricity bill savings (energy component) per household and region under a change in contract (Case 1) (bars: absolute savings (in EUR), markers: savings relative to overall electricity bill (in %))



NB: The comparison with the overall electricity bill includes subsidies, rebates and allowances that reduce the final electricity price. These measures are primarily applied in western and southern European countries, amplifying the relative financial effect in relation to the overall bill. Furthermore, the analysis does not consider network tariffs, which may have an impact on the potential cost savings. For the average 'energy and supply' price and the overall average electricity price, data for the consumption band of customers consuming 2 500 kWh or more but less than 5 000 kWh are used, allowing for a consistent comparison of different households based on the same average prices.

Source: ACER calculations.

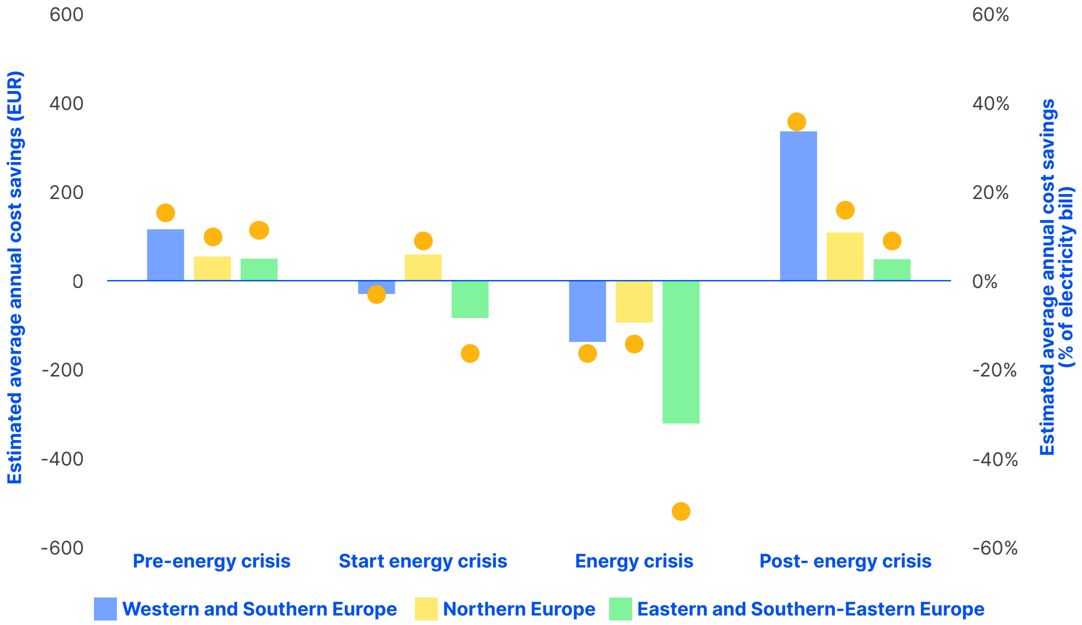
Figure 20: Estimated 2024 electricity bill savings (energy component) per household and region under a change in consumption behaviour (Case 2) (bars: absolute (in EUR), markers: relative to overall electricity bill (in %))



NB: The comparison with the overall electricity bill includes subsidies, rebates and allowances that reduce the final electricity price. These measures are primarily applied in western and southern European countries, amplifying the relative financial effect in relation to the overall bill. The analysis does not consider network tariffs, which may have an impact on the potential cost savings. For the average 'energy and supply' price and the overall average electricity price, data for the consumption band of customers consuming 2 500 kWh or more but less than 5 000 kWh are used, allowing for a consistent comparison of different households based on the same average prices.

Source: ACER calculations.

Figure 21: Estimated cost savings (energy component) per base household under a change in contract and a change in consumption behaviour (Case 1 and Case 2) per geographical area over time (bars: absolute (in EUR), markers: relative to overall electricity bill (in %))



NB: The comparison with the overall electricity bill includes subsidies, rebates and allowances that reduce the final electricity price. These measures are primarily applied in western and southern European countries, amplifying the relative financial effect in relation to the overall bill. The analysis does not consider network tariffs, which may have an impact on the potential cost savings. Pre-energy crisis refers to the years 2019–2020, start of energy crisis to the year 2021, energy crisis to the year 2022, and post-energy crisis to 2023–2024. For the average 'energy and supply' price and the overall average electricity price, data for the consumption band of customers consuming 2 500 kWh or more but less than 5 000 kWh are used, allowing for a consistent comparison of different households based on the same average prices.

Source: ACER calculations.

Results

53 The cost comparisons reveal four key takeaways.

Takeaway 1: Not all household consumers benefit financially from shifting to a dynamic-price contract (Figure 19)

54 Figure 19 shows significant geographical differences in the cost-saving potential of a contract shift from a flat-price to a dynamic-price contract, assuming no change in the electricity consumption pattern. On average, countries in western and southern Europe exhibit the highest estimated annual energy cost savings, whereas eastern and south-eastern European countries show financial losses.

55 Households in western and southern European countries are largely under fixed-price contracts. These contracts offer stable and predictable prices, but include hedging costs that are added by retailers to manage market risks and are passed on to consumers. By moving to a dynamic-price contract, households can avoid these hedging costs and potentially lower their electricity bills.[39]

39 Besides hedging costs, balancing and metering arrangements may differ between contract types: dynamic contracts typically require 15-minute metering with daily reporting, giving retailers better visibility of actual demand and reducing balancing risks. By contrast, fixed or monthly contracts often involve less frequent reporting, which can increase balancing costs. Furthermore, each time a household benefits from switching contracts, the average price faced by the collective rises slightly, creating incentives for additional households to switch.

56 On the other hand, a large share of consumers in eastern and south-eastern European countries are under regulated contracts where the state subsidises the electricity price. The energy component of electricity bills is comparatively low in these countries, leaving less scope for savings through a shift to a dynamic-price contract when compared to a fixed-price contract.[40]

57 The high share of dynamic and flexible contracts (see ACER's 2025 Electricity Country Sheets report for Member State contract uptake) among household consumers in northern European countries reflects the low estimated savings potential when switching from a flat-price contract that is price-linked to the market average to a dynamic-price contract in their respective markets. Were the assessment to be undertaken based on fixed-price contracts only, then the savings potential in northern European countries would be greater, as shown in the 2024 Council of European Energy Regulators and ACER market monitoring report on energy retail.

58 The estimated annual cost savings of the example households range from EUR 165 of losses (10 % of the overall electricity bill) in eastern and south-eastern Europe for the example EV+HP household, compared with EUR 772 of savings (30 % of the overall electricity bill[41]) in western and southern Europe for the same household. To put this into perspective, the example household with an electric vehicle and a heat pump can save money for a daily coffee of EUR 2.10 in western and southern Europe by simply shifting to a dynamic-price contract[42].

Takeaway 2: Demand shifting under a dynamic-price contract reduces electricity costs (Figure 20)

59 Household demand shifting results in cost savings in all countries with geographical differences, as shown in Figure 20. The impact of demand shifting is connected to the volatility level of each country, with households in countries with high price volatility throughout the day benefitting the most.

60 The estimated annual cost savings[43] range from EUR 13 in northern European countries for the base household (2 % of the overall energy bill) to EUR 302 for the example EV+HP household in eastern and south-eastern European countries (16 % of overall electricity bill). In western and southern European countries, the same EV+HP household is estimated to save around EUR 207 annually. As an example, this household could add a monthly premium Netflix subscription of EUR 17.50 to its daily coffee by shifting electricity demand in response to price signals.

61 Beyond household-level savings, demand shifting also has a positive impact on the electricity system as a whole. In particular, in countries with high price volatility, shifting demand away from peak hours not only increases household savings but also mitigates extreme fluctuations in wholesale prices. This reduces pressure on the grid and lowers reliance on costly peak generation.

40 Household income levels are on average lower in these Member States, which may influence both the extent of governmental interventions in retail electricity prices and consumer sensitivity to changes. The situation differs among countries.

41 The comparison with the overall electricity bill includes subsidies, rebates and allowances that reduce the final electricity price. These measures are primarily applied in western and southern European countries, amplifying the relative financial effect in relation to the overall bill.

42 As mentioned, the supply contract structure effect is likely overestimated due to the exclusion of supplier-related costs in the dynamic-price contract.

43 The estimated savings reflect only the energy component of the electricity bill. Potential financial benefits could be larger if network charges were also included.

Takeaway 3: The level of electricity demand drives the potential for absolute cost savings (Figure 19 and Figure 20)

62 The financial impact of a change to a dynamic-price contract, along with the impact of demand shifting, is relatively limited for the base household in many countries in the examined cases.[44] On the other hand, the absolute potential cost savings but also potential losses for a household with an electric vehicle and a heat pump are the greatest.

63 Combining the supply-contract-structure effect and the behavioural effect shows the total estimated saving potential for the example households in each country. Western and southern European countries show, on average, the largest saving potential, ranging from around EUR 300 per year for the base household to almost EUR 1 000 for the EV+HP household in the examined cases.

Takeaway 4: A fully dynamic-price contract bears risks of wholesale price-spike exposures (Figure 21)

64 Figure 21 shows the overall impact of a contract change and a demand shift of the base household across different periods: before the energy crisis (2019–2020), at its onset (2021), during the crisis (2022) and after the crisis (2023–2024). The figure shows that there is cost-saving potential in the years prior and after the crisis. However, at the start and especially during the energy crisis, holders of dynamic-price contracts were exposed to very high wholesale prices. As a result, nearly all countries experienced significant losses when choosing a dynamic-price contract instead of a flat-price contract, as detailed in Table 4 in the Annex.

65 These results indicate a value for targeted (but not blanket) consumer protection measures. Support should focus on vulnerable and energy-poor households, while preserving price signals that encourage demand shifting for everyone else. This can be realised through contract designs that sit between fully fixed and fully wholesale-exposed (e.g. TOU, hybrid variable with protection, or dynamic tariffs with default hedges or alerts). Finally, should a consumer prefer a simpler contract, fixed-price contracts remain available. In addition, crisis responses may be warranted when prices remain exceptionally high for an extended period: clearly defined, time-limited circuit breakers (e.g. caps on exposure for dynamic contracts once a threshold is exceeded) can contain bill shocks without permanently dulling signals. Commercial innovation in supply contracts can deliver this.

2.3. Diversify contract offers: adapt contracts to consumer needs

66 Notwithstanding the importance of demand-side flexibility in the energy transition and its cost-saving potential for consumers, many household consumers[45] remain passive or are simply not offered dynamic-price contracts that provide the greatest incentive to shift demand. As a result, a large share of electricity demand remains untapped by demand-side flexibility.

44 It should be noted that average household income levels and cost of living differ significantly across regions, which affects both the relative burden of electricity costs and the potential financial benefits.

45 While the report focuses on household consumers, it is important to note that the non-household sector accounts for a larger share of demand. This implies a greater potential for demand-side flexibility, suggesting that initiatives to promote demand-side flexibility should also target non-household consumers.

67 Looking ahead to 2030, with variable renewables approaching approximately 50 % of generation, these low-price opportunities will expand further as midday solar and windy nights become more frequent. However, price spikes will not disappear, and extreme events may still occur. Flexible products should therefore come with built-in guardrails (such as TOU contracts), while consumers on dynamic contracts should either be regularly informed about the best or worst time to consume, or have automation in place to avoid consumption during peak price periods and to enable access to lower prices.

68 However, flat-price contracts dominate in the EU today, and although they are beneficial in terms of shielding consumers against market volatility, they may also lock them into higher prices when wholesale prices decrease. Most importantly, in terms of the transition and the need for more flexibility from consumers, such contracts also block the provision of price signals needed to nudge consumers to adjust their behaviour. Despite the potential cost savings that they could achieve with dynamic pricing, many consumers opt for fixed- and flat-price contracts. However, in many cases, consumers are not offered any real alternative, which may be a carry-over from the energy crisis. This preference, particularly when flat-price contracts are offered as the default regulated price option, hinders the adoption of more flexible energy practices or contracts and their overall contribution to the energy transition. At the same time, it limits the price benefits of more responsive consumption patterns.

69 Flexible and dynamic pricing models will be essential in meeting the diverse needs of consumers and the power system. However, not all consumers can adapt to frequent changes in pricing or consumption patterns. It is important to recognise that consumers need broad choice: it should not simply be a choice between a fixed-price contract and a full dynamic-price contract. While electricity consumers have the right to a fixed-price, fixed-term contract or a full dynamic-price contract, these rules will enable electricity suppliers to offer a broader suite of products to consumers.

70 This gives rise to the need for a range of contract models that should be available to ensure electricity consumers have appropriate choices as part of the transition.

- **Flat-price contracts.** These offer consumers a stable and predictable rate for electricity over a specified period, appealing to those who prioritise budget certainty and are less interested in market dynamics. While they provide security against market volatility, they result in higher costs during periods of low wholesale prices and in consumers paying higher costs over a longer period for their electricity when compared to more variable contracts.

- **Dynamic pricing and real-time pricing.** These models, including critical peak pricing, link retail rates directly to wholesale market prices, adjusting in real time according to demand levels and grid conditions. They reflect the actual cost of electricity production and delivery more accurately, incentivising consumers to reduce or shift their usage during peak times, thus aiding grid management and renewables integration. They can lead to savings during periods of low demand and high renewable generation, but may expose consumers to price spikes if they do not adjust their consumption patterns. They suit consumers who can shift their usage patterns in response to price signals and take advantage of low-cost electricity.

- **Time-of-use contracts.** The day is divided into peak and off-peak time periods. Prices are higher during the peak period hours to reflect the higher cost of supplying energy during that period.

- **Hybrid contract models.** These combine fixed and variable pricing elements to balance stability and flexibility. Some contracts offer a fixed rate for part of the consumption and a variable rate for the rest, or incentives for reducing peak-period consumption. These models provide some protection against price volatility while encouraging efficient energy use.

- **Subscription and incentive-based models.** These innovative models, such as fixed bills with incentives, allow consumers to pay a stable monthly fee while earning rewards for reducing peak usage. They simplify billing and promote energy efficiency and load shifting. Despite the benefits of flexible pricing models, many consumers prefer the simplicity and predictability of traditional fixed-rate plans. The complexity of dynamic contracts, lack of enabling technologies (e.g. smart meters) and concerns about bill volatility can deter adoption. Therefore, it is crucial to provide education, technological support and safeguards to ensure all consumers can benefit from the evolving energy market.

71 Retail electricity contracts must balance flexibility and simplicity to cater to the diverse needs of consumers. While flexible contracts offer significant benefits for grid management and renewable integration, a one-size-fits-all approach is not feasible. Policymakers and suppliers must consider these different consumer preferences and the existing barriers in order to design effective and inclusive pricing strategies. A continuation of the outcomes observed today may not be compatible with the achievement of broader decarbonisation goals.

72 Policymakers should recognise and understand the historical behaviour of consumers and apply policies to provide incentives that nudge consumers to adopt more flexible consumption patterns in line with increasing consumer demand in response to electrification. This must not hinder consumer choice but could, if deemed appropriate in driving the transition, involve defaulting consumers onto fixed-price TOU contracts, which offer signals that consumers can choose to respond to.

3. Conclusions

73 The increasing integration of renewable energy sources, combined with the electrification of the household and industry sectors, has far-reaching implications for the energy network. As illustrated throughout the report, instances of low and negative wholesale prices increase across Member States. These instances predominantly occur in the middle of the day and on weekends. This represents a financial opportunity for consumers if they adjust their consumption behaviour accordingly. Simultaneously, periods of high wholesale prices remain, particularly during peak demand in the evening hours.

74 Against this background, four key findings were identified. First, **household demand shifting under dynamic-price contracts can improve electricity affordability for consumers**. This is particularly the case for households with a higher annual consumption. However, it also depends on household electricity use patterns and finally, the level of volatility in the respective wholesale electricity market. At the same time, industrial consumers are likely also in a position to unlock cost savings, given that **the level of electricity demand drives the potential for absolute cost savings**. However, such opportunities would ultimately be dependent on the specific operation of each specific industry, yet, **a fully dynamic-price contract bears risks of wholesale price spike exposures**. This means that price spikes, as observed during the energy crisis, are directly passed on to consumers. Depending on households' consumption profiles and the level of wholesale price volatility, this might increase consumers' energy bills, offsetting cost savings and highlighting a need for a broad range of contracts for all consumers that balance the desire for price stability while incentivising flexibility.

75 Lastly, the report highlights that there are significant geographical differences in the cost-saving potential of a contract shift from a flat-price[46] to a dynamic-price contract. Member States in western and southern Europe show the highest annual bill savings, on average. This is because their consumers are predominantly on fixed-price contracts that include hedging costs that are added by retailers to the bills' energy component to manage market risks and ultimately, provide price stability to consumers. When switching to a dynamic-price contract, consumers avoid paying these costs, resulting in direct savings, but they are exposed to an increased risk of price spikes. In contrast, eastern and south-eastern Member States show, on average, financial losses resulting from a switch to a dynamic contract. As households are largely on regulated contracts, they gain little (or are worse off) from switching to dynamic pricing because the energy component of their bills is already low. This illustrates that **not all household consumers can benefit financially from shifting to a dynamic-price contract**.

76 Finally, to reiterate the points previously made, dynamic-price contracts may not be appropriate for all consumers. However, as outlined in Directive (EU) 2024/1711,[47] consumers are entitled to both a fixed-price and a dynamic-price contract. However, for some consumers – especially those with higher consumption levels and, in turn, potential flexibility – such contracts can deliver benefits to both the individual consumer and the wider system by shifting demand away from peak price periods. Such behaviour can ultimately benefit even inactive consumers.

77 Based on these findings, the following action points were identified to balance retail flexibility with targeted consumer protection.

46 'Flat-price contracts' refer to contracts where the price paid by the consumer remains the same throughout the duration of the contract and offers no price signal to adjust demand.

47 Member States should ensure that their national regulatory frameworks enable suppliers to offer fixed-term, fixed-price electricity supply contracts and dynamic electricity price contracts. Member States should also ensure that final customers that have a smart meter installed can request to conclude a dynamic electricity price contract and that all final customers can request to conclude a fixed-term, fixed-price electricity supply contract with a duration of at least one year, with at least one supplier and with every supplier that has more than 200 000 final customers.

Four priorities to unlock retail flexibility

1. **Flexibility first – build up retail markets to be a cornerstone of system stability.**

   Retail markets can deliver demand response and contribute to stabilising the system and integrating higher shares of renewables.

2. **Tools and choice – empower consumers with meters and contracts.**

   Smart meters and dynamic and flexible contracts are essential in providing households and the industry with real choice.

3. **Fit-for-purpose regulation – create frameworks that enable innovation and efficiency.**

   Regulators should design frameworks that open the market to flexible offers, foster innovation, and encourage efficient use of the grid.

4. **Targeted protection – shield identified vulnerable consumers without blocking flexibility.**

   Support must shield vulnerable consumers from extreme price risks, but in a targeted way that still allows the wider system to benefit from flexibility.

By acting now to build flexible retail markets, regulators and Member States can moderate energy transition costs, strengthen security of supply and ensure that consumers are central to the clean energy transition.

List of figures

Annex

Table 1: Assumptions regarding the example households' shiftable consumption and the typical and shifted time of consumption

Appliance/shiftable load	Typical time of consumption (before shifting)	Shifted time of consumption (after shifting)
Water heating[48] (640 kWh per year)	Weekdays: 06:00–09:00 and 17:00–23:00 Weekends: 06:00–23:00	02:00–04:00 and 12:00–14:00 (daily)
Laundry (240 kWh per year)	Weekdays: 17:00–23:00 Weekends: 06:00–23:00	02:00–04:00 (one weekday use) 12:00–14:00 (one weekend use)
Dishwasher (150 kWh per year)	Weekdays: 17:00–23:00 Weekends: 06:00–23:00	02:00–04:00 (daily)
Heat pump[49] (3 000 kWh per year)	Only in heating period (November–March): Weekdays: 06:00–09:00 and 17:00–23:00 Weekends: 06:00–23:00	04:00–06:00 and 15:00–17:00 (daily, November–March, before waking up and when coming back from work/school)
Electric vehicle[50] (3 500 kWh per year)	Weekdays: 06:00–09:00 and 17:00–23:00 Weekends: 06:00–23:00	02:00–04:00 (one weekday charge) 12:00–14:00 (one weekend charge)

Source: ACER assumptions.

NB: In the modelling, household appliances are assumed to be used evenly across the specified time periods throughout the year. This does not mean they are operated continuously or every day within those periods. In the modelling, no leave days or holidays are considered.

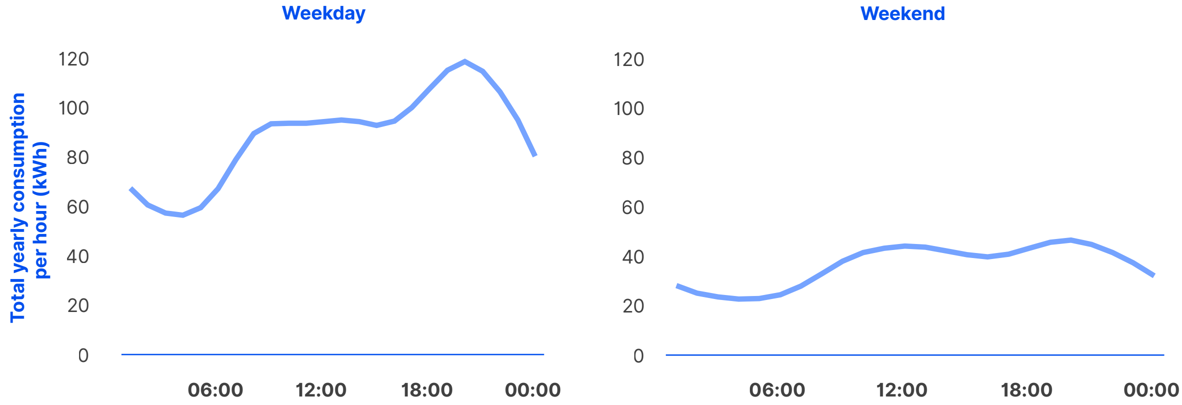
An illustration of the household load curves of the four example households (Figure 22 to Figure 25) and the net hourly load shift used for the modelling (Figure 26 to Figure 30) are presented below.

48 We assume that the boiler can store hot water for several hours, meaning two uses per day are sufficient.

49 The medium use of a 2- to 3-person household with a heat pump, according to Octopus Energy, is 3 000 kWh per year. We assume a pre-heating/pre-cooling strategy in a well-insulated building, enabling room temperatures to be maintained for long periods without the need for continuous heating or cooling. Assumptions regarding the demand side flexibility of the heat pump are taken from Nesta. These include a pre-heating phase of two hours, followed by a flexibility period of two hours during which the heat pump can be switched off. A normal level of energy consumption follows the flexibility period. The electricity use and the shiftability of heat pump operation depend on factors such as house efficiency, room size, type of heat pump and storage options. In the modelling, a simplification is applied with two flexibility periods – during the morning and evening peak wholesale price hours, when the device is switched off. Heat pump consumption is primarily for heating during the heating season. For the modelling, heat pump usage is assumed to take place during active household hours from November to March.

50 We assume that the electric vehicle is driven 15 000 km per year and uses around 20 kWh per 100 km. The electric vehicle is primarily used for commuting, short weekend trips and for covering shorter daily distances such as shopping or leisure activities.

Figure 22: Base household (3 000 kWh) load profile: hourly consumption on weekdays and weekends (in kWh) used for the modelling

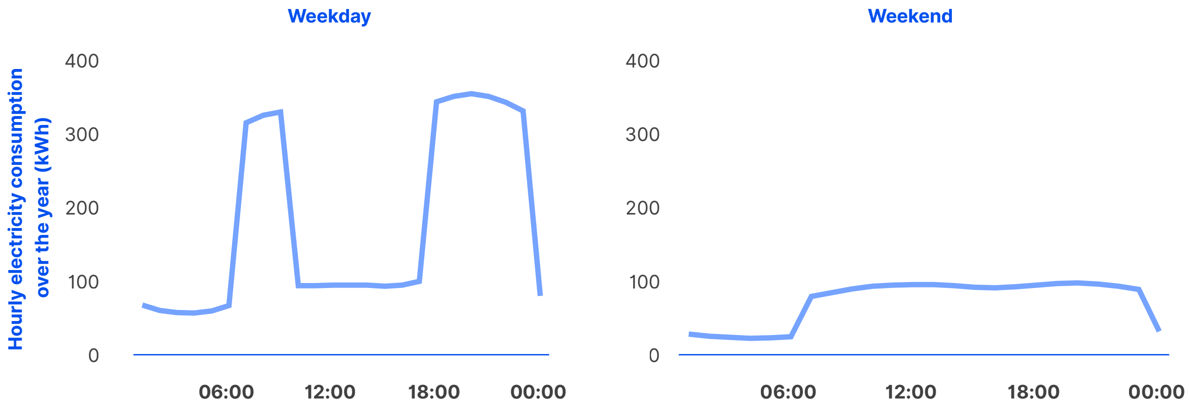


Source: ACER assumptions and calculations based on data provided by NRAs on hourly electricity consumption load curves (household consumers).

NB: The load curves show the assumed hourly consumption for weekdays and weekends over the entire year. Since there are more weekdays than weekends, total consumption is higher on weekdays. Household load curve data for 2019, collected from NRAs, is used in order to exclude impact of heat pumps and electric vehicles to the extent possible, as these are not part of the base household in the modelling. Where 2019 data was unavailable, data from the following year(s) were used instead.

Furthermore, the scale of the y-axis in Figure 22 differs from that used in Figures 23–25 to improve readability.

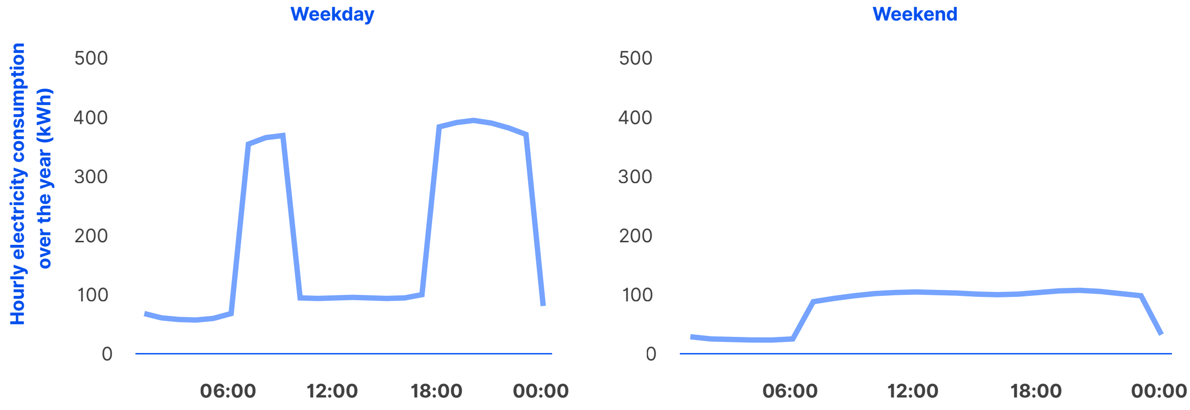
Figure 23: HP household (6 000 kWh) load profile: hourly consumption on weekdays and weekends (in kWh) used for the modelling



Source: ACER assumptions and calculations.

NB: The load curves show the assumed hourly consumption for weekdays and weekends over the entire year. Since there are more weekdays than weekends, total consumption is higher on weekdays.

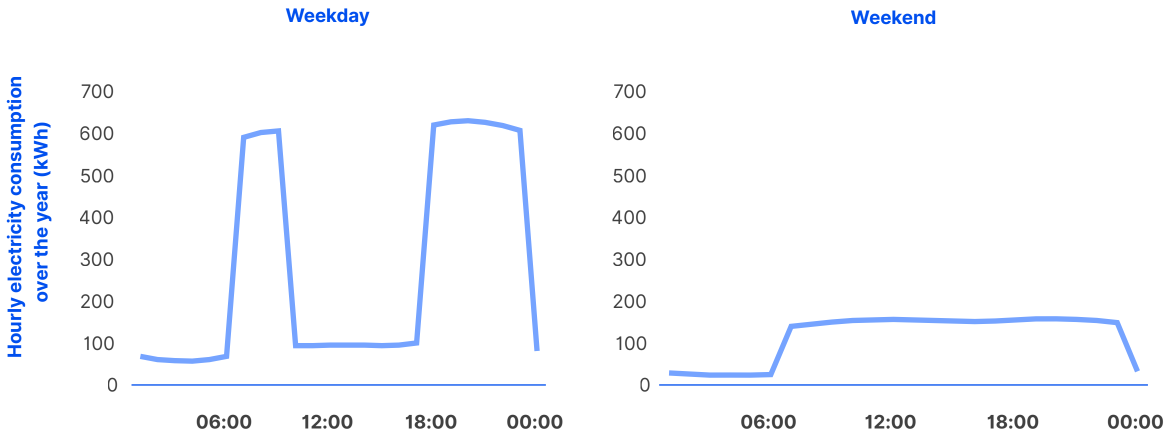
Figure 24: EV household (6 500 kWh) load profile: hourly consumption on weekdays and weekends (in kWh) used for the modelling



Source: ACER assumptions and calculations.

NB: The load curves show the assumed hourly consumption for weekdays and weekends over the entire year. Since there are more weekdays than weekends, total consumption is higher on weekdays.

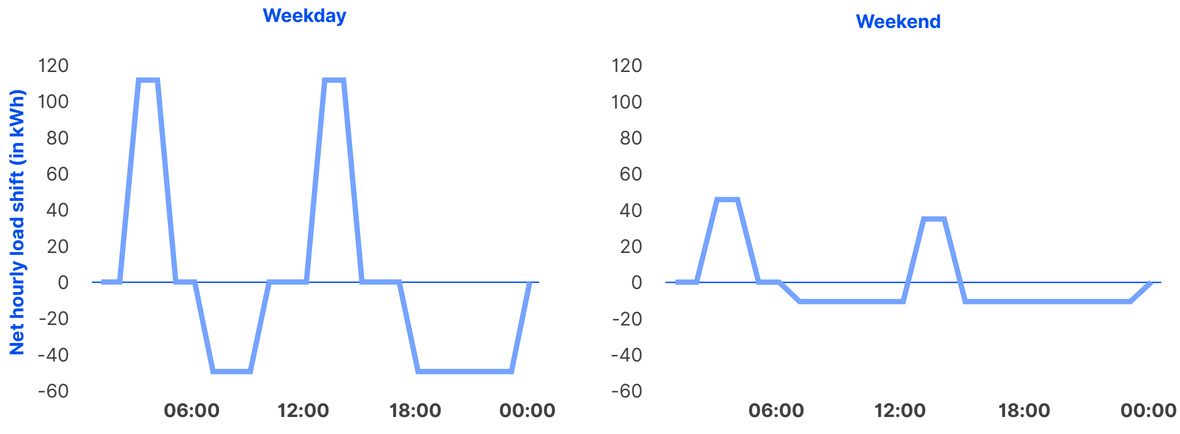
Figure 25: EV+HP household (9 500 kWh) load profile: hourly consumption on weekdays and weekends (in kWh) used for the modelling



Source: ACER assumptions and calculations.

NB: The load curves show the assumed hourly consumption for weekdays and weekends over the entire year. Since there are more weekdays than weekends, total consumption is higher on weekdays.

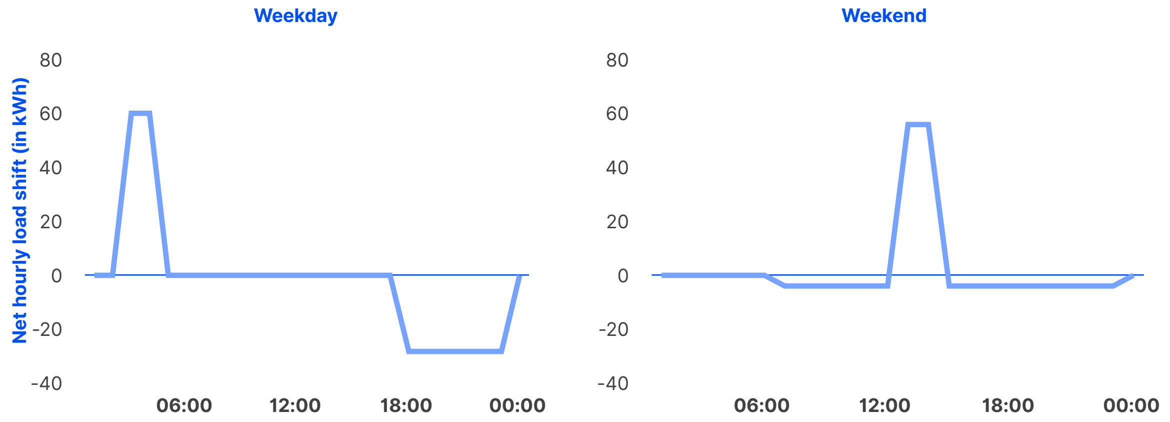
Figure 26: Water heating: net hourly load shift (in kWh) used for the modelling



Source: ACER assumptions and calculations.

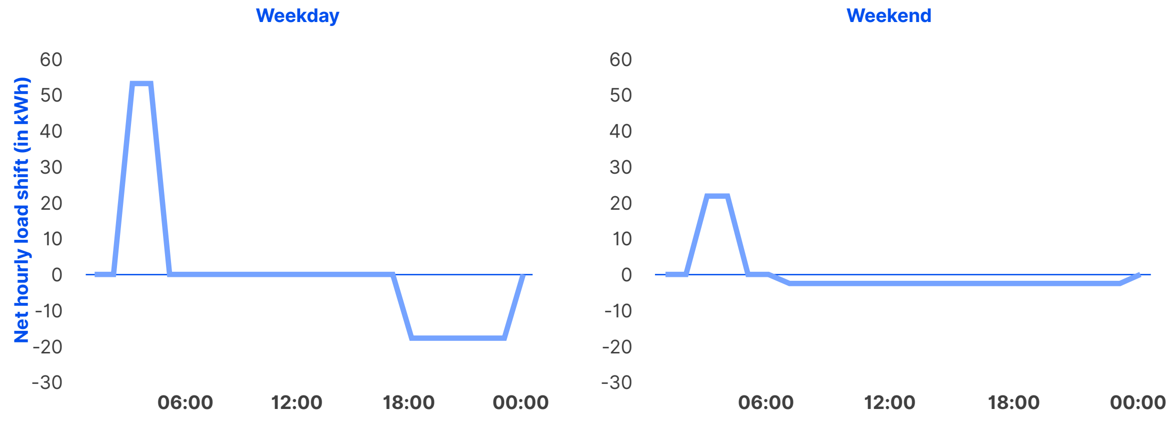
NB: The graphs show the assumed hourly net load shift for weekdays and weekends over the entire year. Since there are more weekdays than weekends, total load shifting is higher on weekdays.

Figure 27: Laundry (washing and drying): net hourly load shift (in kWh) used for the modelling



Source: ACER assumptions and calculations.

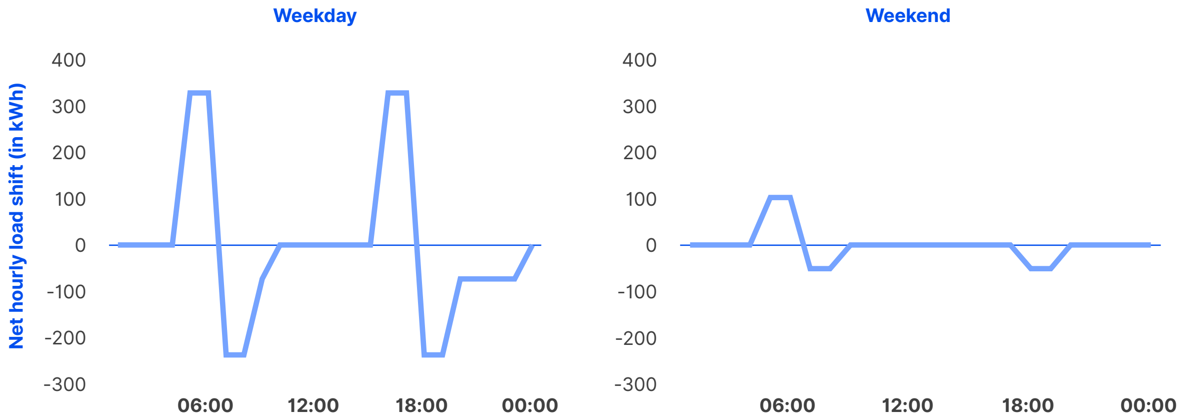
Figure 28: Dishwasher: net hourly load shift (in kWh) used for the modelling



Source: ACER assumptions and calculations.

NB: The graphs show the assumed hourly net load shift for weekdays and weekends over the entire year. Since there are more weekdays than weekends, total load shifting is higher on weekdays.

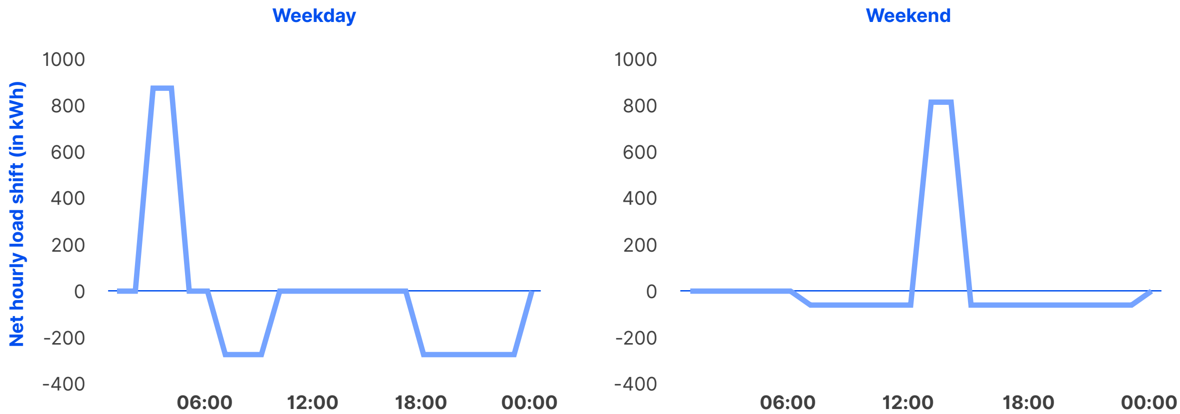
Figure 29: Heat pump: net hourly load shift (in kWh) used for the modelling



Source: ACER assumptions and calculations.

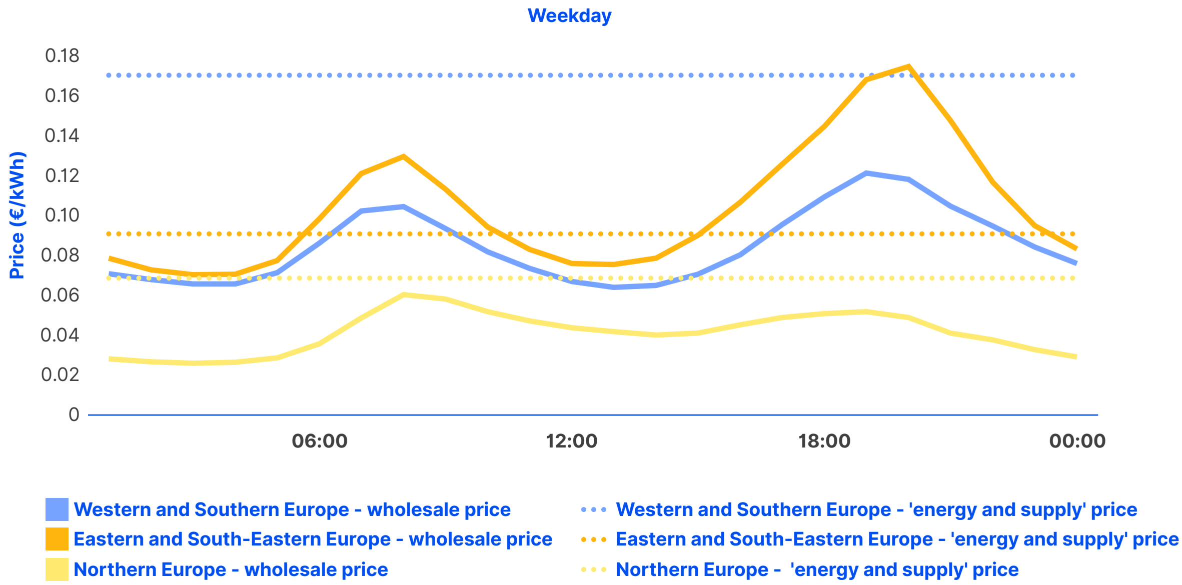
NB: The graphs show the assumed hourly net load shift for weekdays and weekends over the entire year. Since there are more weekdays than weekends, total load shifting is higher on weekdays.

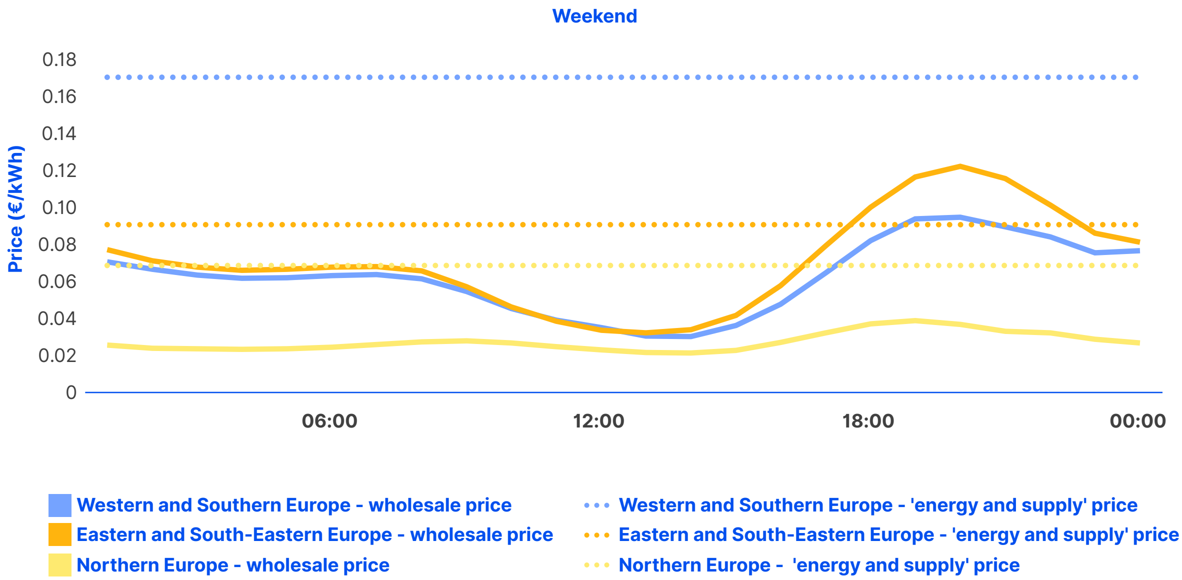
Figure 30: Electric vehicle: net hourly load shift (in kWh) used for the modelling



Source: ACER assumptions and calculations.

Figure 31: Average wholesale prices and 'energy and supply' price for weekdays and weekends for selected geographical regions for the whole year

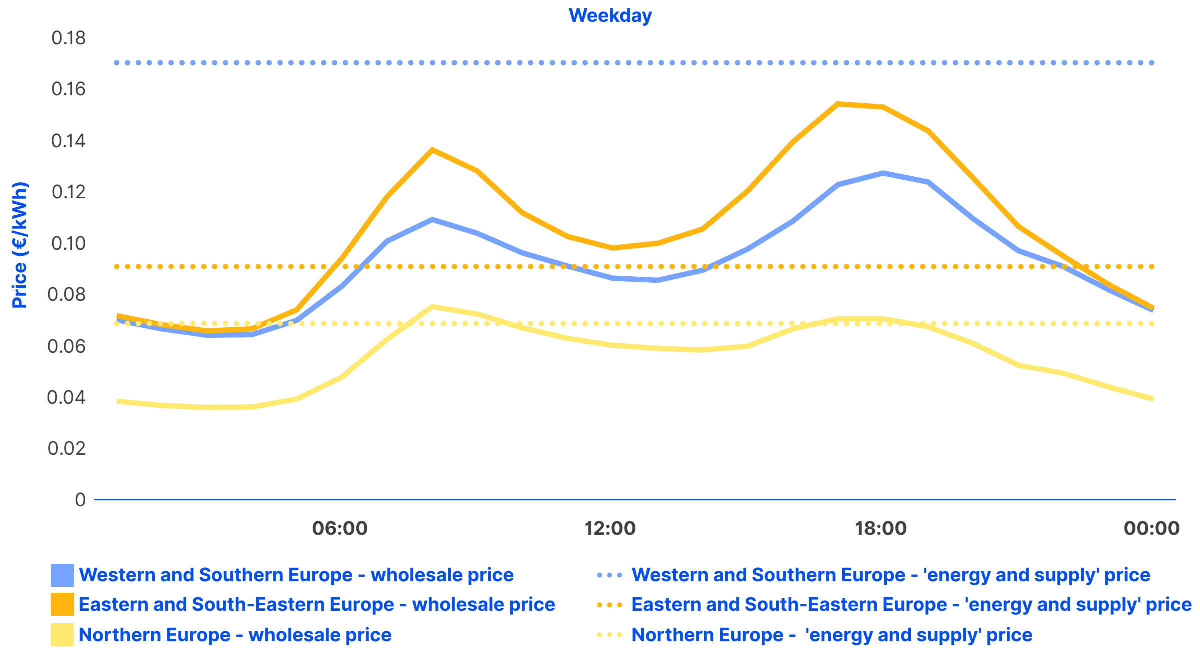


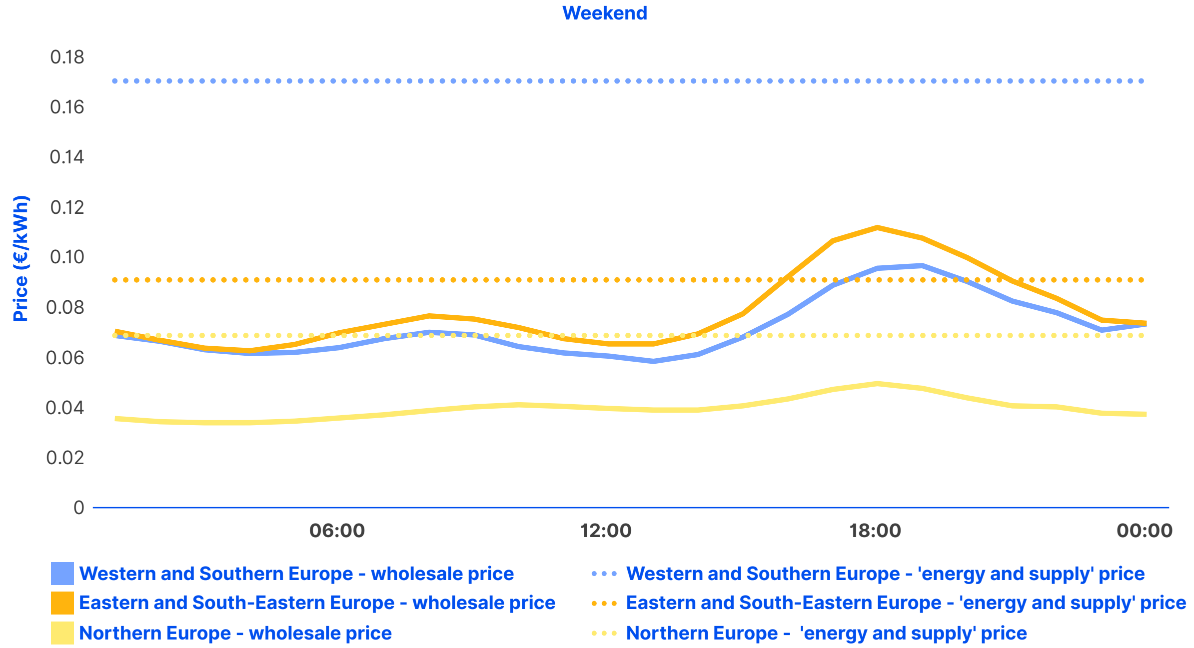


Source: ACER, based on ENTSO-E data on day-ahead hourly wholesale prices and Eurostat data on electricity prices components for household consumers (nrg_pc_204_c), band DC, 2 500–5 000 kWh.

NB: Calculations use the average wholesale price for each country. If a country has multiple bidding zones, the average price across all its zones is used. For the average 'energy and supply' price, data for the consumption band of customers consuming 2 500 kWh or more but less than 5 000 kWh are used, allowing for a consistent comparison of different households based on the same average prices.

Figure 32: Average wholesale prices and 'energy and supply' price for weekdays and weekends for selected geographical regions during the heating season (November–March)





Source: ACER, based on ENTSO-E data on day-ahead hourly wholesale prices and Eurostat data on electricity prices components for household consumers (nrg_pc_204_c), band DC, 2 500–5 000 kWh.

NB: Calculations use the average wholesale price for each country. If a country has multiple bidding zones, the average price across all its zones is used. For the average 'energy and supply' price, data for the consumption band of customers consuming 2 500 kWh or more but less than 5 000 kWh are used, allowing for a consistent comparison of different households based on the same average prices.

Table 2: Estimated annual electricity bill savings of a change of contract (Case 1) per modelled household type and per country (in EUR and % of electricity bill)

Country	Base household (3 000 kWh)	HP household (6 000 kWh)	EV household (6 500 kWh)	EV+HP household (9 500 kWh)	% of electricity bill (average)
AT	349	638	719	1 008	43 %
BE	253	443	506	696	23 %
BG	−119	−291	−343	−514	−41 %
CZ	230	405	455	630	21 %
DE	256	471	510	725	20 %
DK	108	183	196	270	8 %
EE	56	80	56	80	5 %
ES	142	226	271	355	17 %
FI	116	167	226	277	12 %
FR	278	470	561	753	29 %
GR	159	278	267	387	20 %
HR	−82	−198	−234	−349	−22 %
HU	−242	−515	−593	−867	−82 %
IE	577	1 121	1 217	1 760	52 %
IT	206	393	411	597	20 %
LT	−151	−331	−391	−571	−25 %
LU	331	622	673	964	52 %
LV	118	206	191	280	14 %
NL	273	498	546	772	35 %
NO	46	37	91	82	6 %
PL	−115	−241	−295	−421	−18 %
PT	213	378	431	596	26 %
RO	−104	−255	−313	−464	−23 %
SE	110	185	233	307	14 %
SI	37	35	27	26	3 %
SK	−28	−104	−116	−192	−9 %
Average	116	189	204	276	8 %

Source: Estimates based on ACER calculations.

NB: The average cost saving relative to the electricity bill is calculated as the average across all four example households. It includes all taxes and levies. The comparison with the overall electricity bill includes subsidies, rebates and allowances that reduce the final electricity price, amplifying the relative financial effect in relation to the overall bill in some countries. The analysis does not consider network tariffs, which may have an impact on the potential cost savings. For the average 'energy and supply' price and the overall average electricity price, data for the consumption band of customers consuming 2 500 kWh or more but less than 5 000 kWh are used, allowing for a consistent comparison of different households based on the same average prices.

Table 3: Estimated annual electricity bill savings in 2024 of a change in consumption behaviour (Case 2) per modelled household type and per country (in EUR and % of electricity bill)

Country	Base household (3 000 kWh)	HP household (6 000 kWh)	EV household (6 500 kWh)	EV+HP household (9 500 kWh)	% of electricity bill (average)
AT	36	51	204	219	7 %
BE	37	63	202	227	6 %
BG	71	108	343	380	28 %
CZ	40	52	217	230	6 %
DE	40	56	219	235	5 %
DK	34	48	185	198	5 %
EE	53	89	272	309	12 %
ES	26	58	140	173	6 %
FI	24	52	135	162	5 %
FR	35	66	182	212	6 %
GR	60	94	286	321	13 %
HR	54	65	279	290	17 %
HU	65	71	326	332	28 %
IE	34	76	158	199	5 %
IT	33	53	173	193	5 %
LT	51	87	266	302	12 %
LU	40	56	219	235	10 %
LV	52	87	267	302	11 %
NL	40	60	224	243	9 %
NO	9	18	54	64	3 %
PL	40	48	208	216	8 %
PT	24	39	131	146	5 %
RO	73	109	354	390	18 %
SE	7	11	44	48	2 %
SI	50	64	262	276	12 %
SK	51	64	267	280	14 %
Average	42	63	216	238	10 %

Source: Estimates based on ACER calculations.

NB: The average cost saving relative to the electricity bill is calculated as the average across all four example households. It includes all taxes and levies. The comparison with the overall electricity bill includes subsidies, rebates and allowances that reduce the final electricity price, amplifying the relative financial effect in relation to the overall bill in some countries. The analysis does not consider network tariffs, which may have an impact on the potential cost savings. For the average 'energy and supply' price and the overall average electricity price, data for the consumption band of customers consuming 2 500 kWh or more but less than 5 000 kWh are used, allowing for a consistent comparison of different households based on the same average prices.

Table 4: Estimated cost savings for base household (3 000 kWh) of a change in contract and change in consumption behaviour (Case 1 and Case 2) per country between 2019 and 2024 (in EUR)

Country	2019	2020	2021	2022	2023	2024
AT	94	129	9	−383	344	386
BE	149	150	−31	26	437	291
BG	36	60	−117	−513	−106	−48
CZ	95	133	15	−306	286	269
DE	71	92	−24	−244	347	296
DK	54	57	−20	136	263	142
EE	28	41	−11	−122	98	110
ES	61	65	72	49	153	168
FI	40	83	−34	−139	160	140
FR	87	122	−84	−470	150	313
GR	88	182	31	252	434	218
HR	39	69	−148	−556	−63	−28
HU	−13	−1	−210	−663	−191	−177
IE	234	220	−20	47	807	612
IT	142	171	−18	−178	351	239
LT	11	−79	−100	−307	172	−99
LU	71	120	−61	−365	264	371
LV	45	76	−30	−139	285	169
NL	118	146	−45	−48	540	313
NO	50	49	110	−96	48	55
PL	−30	5	−118	−302	−150	−75
PT	74	114	−102	−79	361	237
RO	38	76	−91	−203	−23	−32
SE	47	58	97	−44	131	117
SI	41	90	−123	−507	37	86
SK	47	105	−103	−482	−23	23
Average	66	90	−44	−217	197	158

Source: Estimates based on ACER calculations.