CAN
CLIMATE ACTION NETWORK
Europe

The path to affordable electricity: lessons from 7 European countries

Report

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Contents

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1. Executive summary

Electrification is Europe's pathway to climate neutrality, energy security and independence from fossil fuel imports. But it can only succeed if electricity becomes more affordable.

Today, electricity prices remain high across many European countries, driven by a combination of structural factors and policy choices. These high costs risk **undermining the economic case for electrification**, **slowing the shift away from fossil fuels** and **weakening public confidence in the energy transition**.

As the European Commission prepares to unveil an **EU Electrification Action Plan** and a policy proposal addressing electricity network charges and taxation, national governments have a critical opportunity to remove barriers to affordable electricity and ensure that renewable electricity can become the foundation of Europe's future energy system.

This report examines electricity prices and their drivers **across seven European markets** (Poland, Greece, Spain, Ireland, Italy, Czechia and Germany), revealing that while national circumstances differ significantly (reflecting distinct energy mixes, market structure, infrastructure needs and policy choices), the key barriers to affordable electricity follow common patterns: fossil fuel dependence, limited storage and flexibility, infrastructure constraints, rising network costs, and inadequate taxes and levies, hampering affordable electricity and electrification.

Despite these different national contexts, the analysis identifies **a series of best practices already in place**, and **a shared set of policy solutions that are needed to lower prices and incentivise electrification**: accelerating renewable deployment and integration, improving network charges for a more efficient use of the grid, reforming taxes and levies that disproportionately burden electricity, and designing fair price mechanisms ensuring that the benefits of the clean energy transition translate into lower and more stable electricity bills for consumers.

Ultimately, making electricity affordable is about more than lowering bills. It's essential to unlocking electrification, strengthening energy independence, and securing lasting support for the transition to a climate-neutral economy.

2. Introduction

Europe's opportunity: from a growing renewable power sector to broader electrification.

Europe is entering a new phase of the energy transition. The rapid growth of renewable electricity is transforming the power sector, with renewables already generating around half of EU electricity and creating the foundation for a broader shift away from fossil fuels.

The next step is to enable households, businesses and industry to benefit from abundant, home-grown and increasingly affordable power by **extending renewable electrification to transport, buildings and industrial processes**.

The PAC scenario and the European Commission's 2040 Climate Target Impact Assessment confirm that **deep electrification is a key component of all pathways to climate neutrality**, requiring a major increase in renewable electricity generation alongside the transformation of end-use sectors. But electrification is not only essential for achieving Europe's climate goals; it is also a strategic opportunity to strengthen resilience and enhance energy security. By replacing imported fossil fuels with renewable electricity produced in Europe, electrification can reduce exposure to volatile global energy markets, improve long-term energy affordability and create new opportunities for investment and industrial development. As electricity demand is expected to grow substantially in the coming decades, Europe will need to accelerate both the expansion of renewable power and its uptake across transport, buildings and industry.

Why affordable electricity matters

However, for electrification to deliver its full potential, **households, businesses and industry must be able to benefit from affordable electricity** and the growing share of low-cost renewable energy. While electrification offers significant long-term savings and emissions reductions, high electricity prices weaken the economic case for replacing fossil fuel technologies with electric alternatives such as heat pumps and electric vehicles. Affordable electricity prices are therefore critical to unlock electrification.

Ensuring that consumers see the benefits of the energy transition will also be essential for **maintaining public support** and accelerating its progress. This is particularly important in the context of rising energy poverty, as millions of Europeans continue to struggle with energy costs. According to Eurostat, over 41 million people in the EU (9.2% of the population) could not afford to keep their homes adequately warm in 2024, while other estimates suggest that around 17% of Europeans may experience some form of energy poverty. Ensuring access to affordable electricity is therefore not only essential for accelerating electrification, but also for ensuring a fair and socially inclusive energy transition.

Why is electricity expensive?

Structural drivers

In many European countries, electricity remains unreasonably more expensive relative to fossil fuels. This is due to a combination of structural challenges that limit Europe's ability to fully capture the benefits of its growing renewable power supply. Despite the growing share of renewable energy in the EU's electricity generation, fossil fuels still influence electricity prices in many markets, with gas-fired power plants often setting the marginal price during periods of lower renewable output. The European Environment Agency (EEA) estimates that gas price volatility added around €13 billion to the EU's wholesale electricity bill in the first 16 weeks of 2026, illustrating the impact of Europe's continued reliance on gas.

Europe also faces significant infrastructure gaps: the continent is building renewable generation faster than the networks, storage and flexibility solutions needed to integrate it. Grid congestion is already forcing renewable assets to be curtailed, while lengthy connection queues are delaying new projects. With around 40% of distribution grids already over 40 years old and an estimated €584 billion required to upgrade electricity networks by 2030, Europe must urgently close the infrastructure gap. These challenges prevent abundant, low-cost renewable electricity from reaching consumers when and where it is needed, keeping prices higher and slowing the electrification of the economy.

Policy drivers

Next to structural challenges, a number of policy choices create artificial barriers that further undermine electricity competitiveness, making them among the most urgent issues to address because they are entirely within policymakers' control. Across many EU countries, electricity continues to bear a disproportionate fiscal burden compared to fossil fuels. Bills also include levies and policy costs, even though many of these measures deliver benefits that extend well beyond the electricity system, including improved air quality and greater energy security. Financing these broader societal benefits primarily through electricity bills make electrification artificially more expensive, while at the same time fossil fuels continue to benefit from substantial subsidies. Together with rising network costs and tariff structures that do not yet fully reflect the benefits of renewable electricity, these policy choices unnecessarily inflate electricity prices and weaken incentives for electrification.

Policymakers must act now to make electricity more affordable in order to unlock electrification and foster social acceptance for the energy transition.

Governments have a unique opportunity to make electricity more affordable and unlock faster electrification. The present report demonstrates that **many of the key barriers to affordable electricity are not fixed**, but they can be addressed through targeted policy action. Drawing on an analysis of electricity prices and their drivers across seven European countries (Poland, Greece, Spain, Ireland, Italy, Czechia and Germany), it identifies practical, actionable solutions, highlights successful policy approaches that can be replicated elsewhere, and provides recommendations for policymakers.

Despite differences in market structures and energy mixes, the country case studies consistently point to recommendations that policymakers must urgently address to make affordable electricity a reality across Europe.

3. Country cases

Poland: high bills driven by fossil fuels

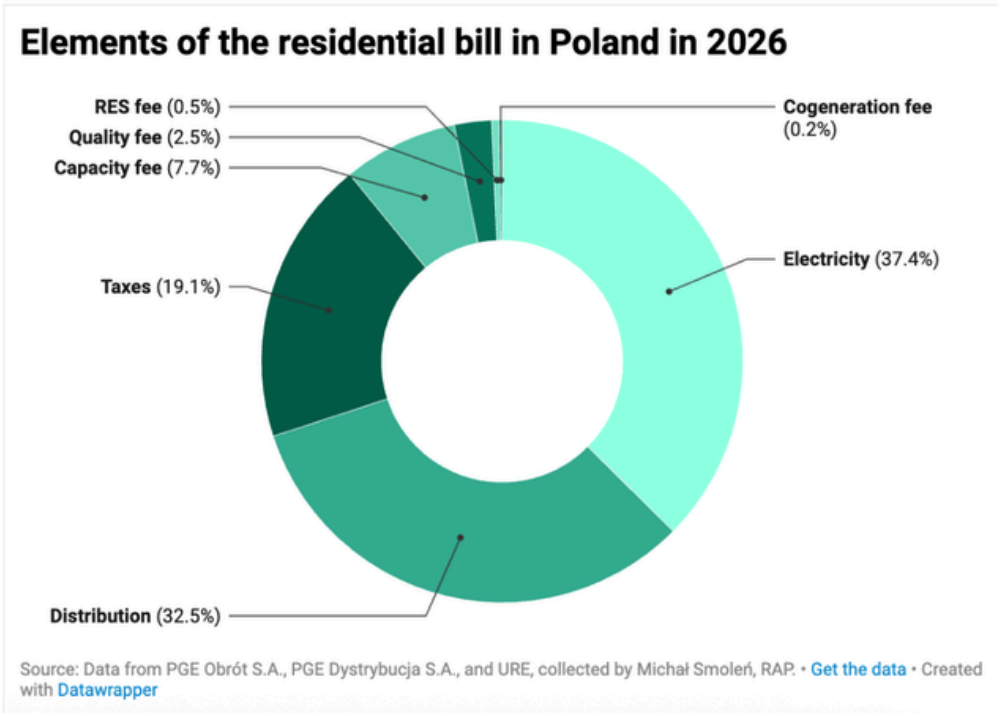
By Marta Anczewska, Reform institute.

Overview

According to the latest Eurostat data, electricity prices for household consumers in Poland rose by around 20% year-on-year in the first half of 2025.

In purchasing power terms, retail electricity prices for households rank among the highest in the EU (second overall), although in nominal terms Poland sits closer to the EU average (around 11th in the EU27 in H1 2025).

Poland's electricity prices are largely driven by the energy mix, still heavily reliant on coal, which sets the marginal price and continues to receive state support. Coal still accounts for around 57% of electricity generation. Other significant factors include: blocked onshore wind development, lack of battery storage (the market is only developing), low system flexibility, and increase of grid charges. A significant share of the overall bill are taxes and fees such as the one financing the capacity market that favours coal and gas, which has increased [1] in the past years. Taxes and levies are an important share but than what is reported by Eurostat .



Elements of the residential bill in Poland in 2026.

(1) Due to reporting discrepancy, Eurostat singles out an environmental tax, which in fact reflects an estimate of the cost of EU ETS allowances which are already embedded in wholesale electricity prices as a part of energy supply costs. As a result, according to Eurostat, taxes and levies accounted for 42.9% of household electricity bills in 2025. Reform Institute calculations show a significantly lower level of below 30% (27.1%).

It should also be noted that, residential electricity bills in Poland are shaped by political decisions prioritising household support in moments of crisis or ahead of successive election cycles (for example freezing the tariff on electricity until December 2025) while industry and small businesses remain more heavily burdened.

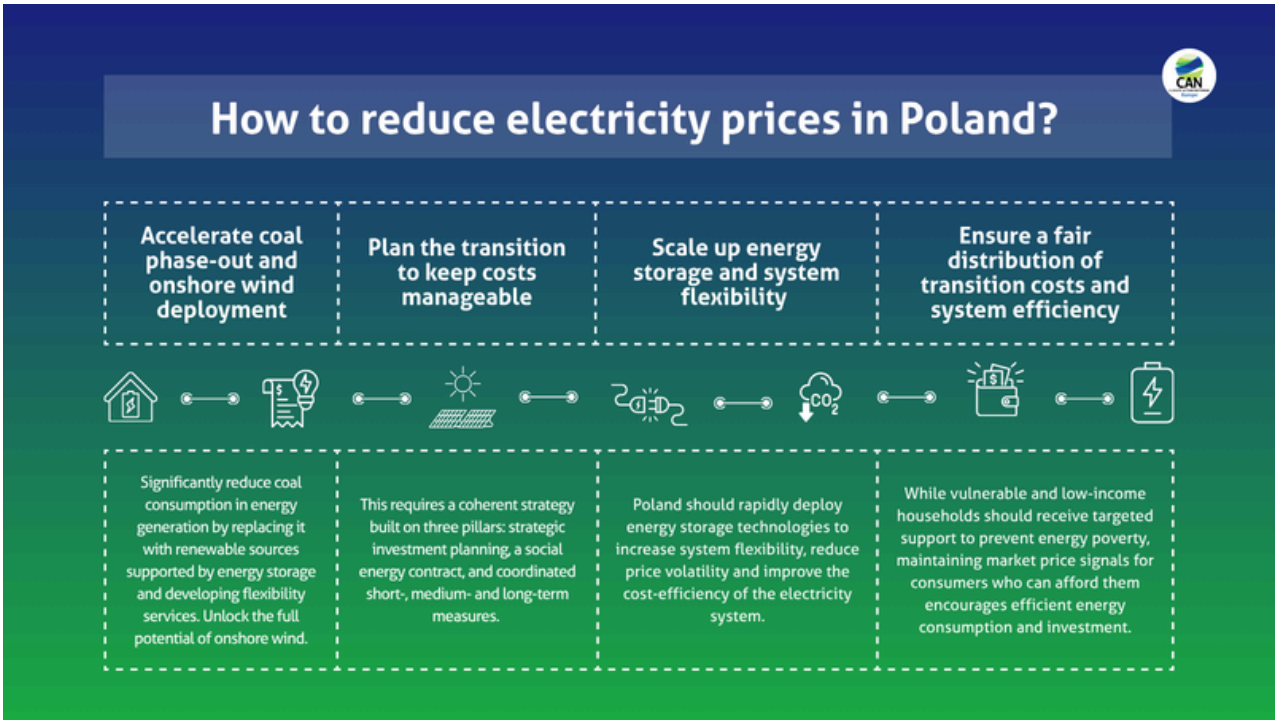
A slow coal phase-out, delays in the energy transition towards renewables, and the resulting high system cost undermine Poland's competitiveness. The Polish industry pays 25% more for wholesale electricity than its competitors in Germany and 100% than those in France. The path to restoring competitiveness lies in a new wave of investment in energy efficiency, electrification, and self-generation of electricity from renewable sources.

Best practices to inspire action in other countries

In response to the sharp increase in energy prices following the European energy price crisis of 2022–2023, Poland introduced several support measures to protect households from rising energy costs. One of these measures was targeted support for households using district heating systems, commonly referred to as a district heating voucher or heating allowance. Rather than capping prices for all consumers, the scheme provided targeted financial assistance to households connected to district heating systems, particularly those most vulnerable to rising energy bills.

The main advantage of the approach was that it protected consumers from energy poverty while preserving market price signals and limiting the fiscal cost compared with universal subsidies. The policy is often cited as an example of targeted energy support that balances social protection with economic efficiency, although its effectiveness depends on accurate targeting and efficient administration.

How to reduce energy bills? Recommendations.



Recommendations for reducing electricity prices in Poland.

1. **Accelerate coal phase-out and onshore wind deployment**

Significantly reduce coal consumption in energy generation by replacing it with renewable sources supported by energy storage and developing flexibility services. Unlock the full potential of onshore wind.

2. **Plan the transition to keep costs manageable**

Poland must keep electricity system costs under control through a well-planned energy transition. This requires a coherent strategy built on three pillars: strategic investment planning, a social energy contract, and coordinated short-, medium- and long-term measures. As distribution network costs are expected to rise, they should be managed gradually while respecting the Energy Efficiency First principle: ensuring that grid modernisation strategies consider non-wire and flexibility solutions as viable options.

3. **Scale up energy storage and system flexibility**

Poland should rapidly deploy energy storage technologies to increase system flexibility, reduce price volatility and improve the cost-efficiency of the electricity system.

4. **Ensure a fair distribution of transition costs and system efficiency**

While vulnerable and low-income households should receive targeted support to prevent energy poverty, maintaining market price signals for consumers who can afford them encourages efficient energy consumption and investment. Mobilising demand-side efficiency and flexibility requires market arrangements that allow its value to be reflected in end-user decisions. This begins with upstream energy and flexibility markets producing efficient price signals that are passed through to retailers and other service providers, enabling them to develop retail offerings that reward consumers for shifting or reducing demand when it provides the greatest system value. To enable the development of a competitive flexibility market in Poland, policymakers should establish a clear and stable regulatory framework that provides transparent market access and fair remuneration for flexibility services. In parallel, investments in smart grid infrastructure, digitalization, and coordination between transmission and distribution system operators should be accelerated to unlock the full potential of demand-side flexibility and distributed energy resources.

Realising this potential also requires market rules that enable demand-side resources to participate on equal terms with supply-side resources, widespread deployment of flexible assets (such as storage, demand-side response, tariffs that reward shifting usage), and digital automation that reduces the cost and complexity of providing flexibility.

Greece: high power prices from gas dependence

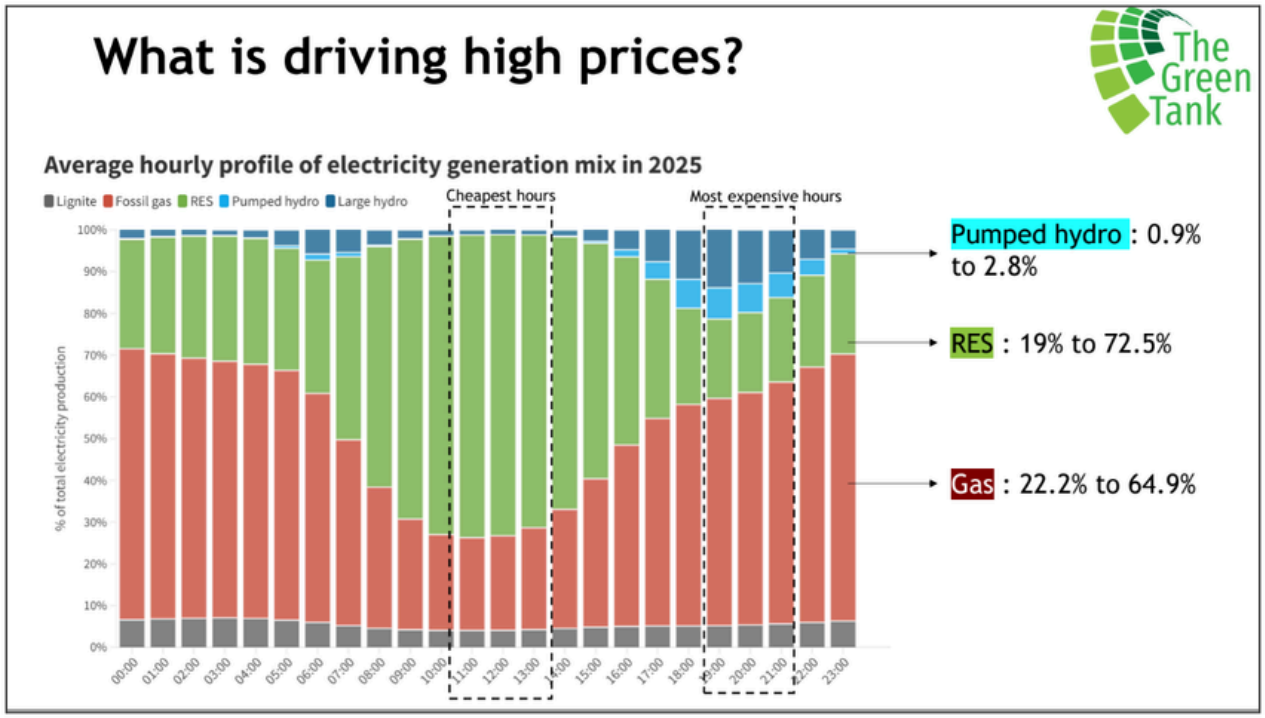
By Evita Kourtza, The Green Tank.

Overview

Despite its abundant renewable energy sources, Greece's electricity market remains among the most expensive in Europe. The main reasons are the country's growing dependence on fossil gas and the lack of energy storage infrastructure.

Since 2024, the Greek retail market has been organised into three types of tariffs. Next to the fixed and variable tariffs, a “special” option is a regulated tariff that combines a constant factor and a variable element based on the wholesale prices of the last two months. This green tariff is the most expensive one and continues to dominate the retail market, highlighting the lack of consumer awareness.

Looking at the period 2024-2025, green tariffs were on average 13-27% more expensive than the other tariff options, which resulted in additional expenses for ~60% of residential customers. Data from the Regulation Authority for Energy, Waste, and Water, indicate that the retail price is strongly correlated with the country's wholesale market prices, constituting around 70% of the final price. Consequently, elevated wholesale prices have a direct impact on the finances of households and businesses. With 31.9% of Greek households reporting overdue utility bills in 2025, one of the highest rates in Europe, energy pricing has become a subject of public debate.



Drivers of electricity prices in Greece. Source: The Green Tank.

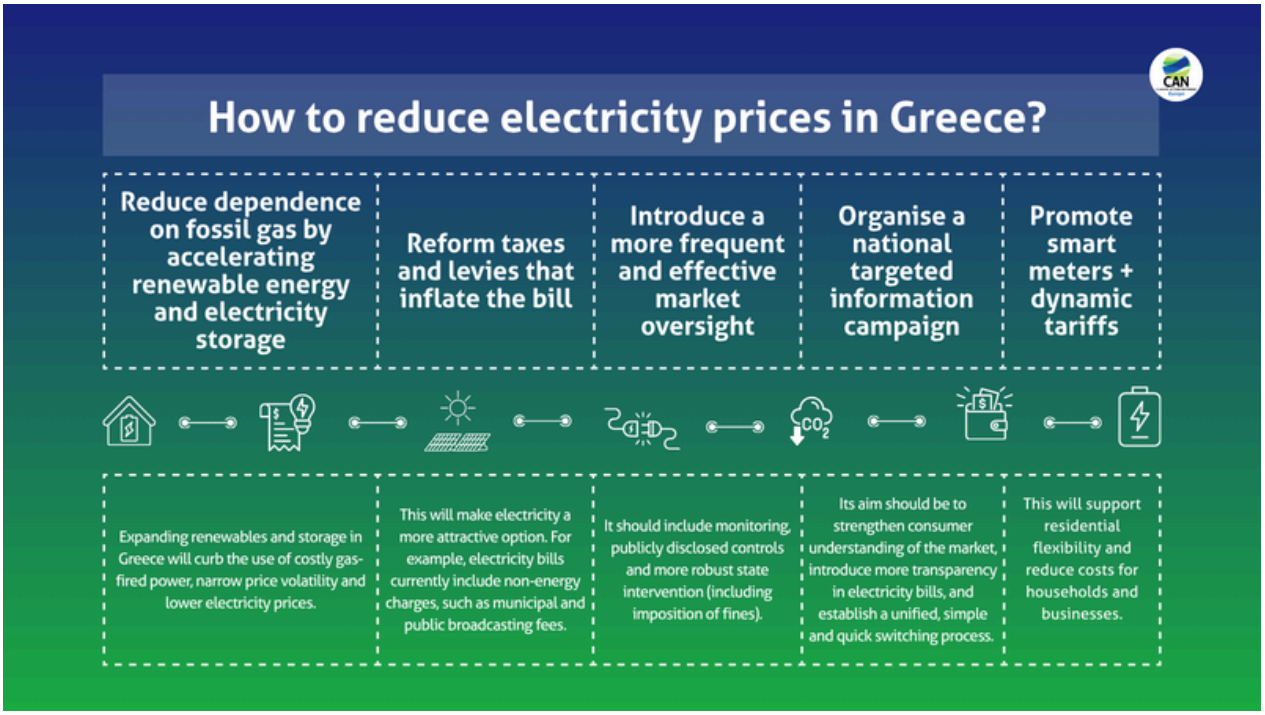
Gas has a significant influence on the Greek power mix, especially at hours of the day when solar is not available. Since gas is much more expensive than renewables, the gap between Greece’s average minimum price and average maximum price over the course of a day widened from €128/MWh in 2024 to €135/MWh in 2025. This widening spread is partly due to a modest increase in cheap RES generation (+4%) and a much larger (+9%) increase in expensive fossil gas. Furthermore, this analysis by the Green Tank reveals that electricity storage systems can significantly affect prices, by operating in conjunction with RES, thus, constricting the use of expensive fossil fuels to meet peak demand. As evidenced, Greece's current energy policy promotes fossil gas-fired electricity production and exhibits stagnation in the installation of storage infrastructure.

Best practices to inspire action in other countries

Since February 2025, all electricity suppliers in Greece have been allowed to offer bi-zonal tariffs, which provide discounted electricity prices during midday hours, when renewable energy generation is typically high, and late at night, when demand is low. Although consumer uptake remains limited, these tariffs create an opportunity to shift household electricity consumption towards periods of abundant renewable generation while reducing energy costs.

Furthermore, since the introduction of variable tariffs, the government has implemented two interventions aimed at limiting electricity costs for consumers. A first intervention in August 2024 consisted of introducing a levy on excess profits of gas-fired electricity, a second one a year later, was a demand from the government towards suppliers to moderate retail price increases. While these measures have had only limited effectiveness, they nevertheless demonstrate a degree of market oversight and a willingness to intervene to protect consumers from excessive price volatility.

How to reduce energy bills? Recommendations.



Recommendations for reducing electricity prices in Greece.

1. **Reduce dependence on fossil gas by accelerating renewable energy and electricity storage**

Expanding renewables and storage in Greece will curb the use of costly gas-fired power, narrow price volatility and lower electricity prices.

2. **Reform taxes and levies on electricity that inflate the bill**

This will make electricity a more attractive option. For example, electricity bills currently include non-energy charges, such as municipal and public broadcasting fees.

3. **Introduce a more frequent and effective market oversight**

It should include monitoring, publicly disclosed controls and more robust state intervention (including imposition of fines).

4. **Organise a national targeted information campaign.**

Its aim should be to strengthen consumer understanding of the market, introduce more transparency in electricity bills, and establish a unified, simple and quick switching process.

5. **Promote smart meters + dynamic tariffs**

This will support residential flexibility and reduce costs for households and businesses.

Spain: debunking the myth of cheap electricity

By Hannah Fakir and Ismael Morales, Fundación Renovables.

Overview

Spain's electricity market has undergone a profound transformation since the 2022 European energy crisis. At the time, soaring gas prices exposed the vulnerability of electricity markets to high fossil fuel costs, as gas-fired power plants quite often set wholesale electricity prices (mainly in the summer and winter) under Europe's marginal pricing system. According to Ember, in 2021, gas influenced Spanish electricity prices during 52% of all hours. By contrast, in the first five months of 2026, gas set electricity prices in only 9% of hours, demonstrating how Spain has progressively decoupled electricity prices from fossil fuel volatility through the rapid expansion of renewable energy.

This shift has been driven by unprecedented growth in solar pv and wind power. Since 2019, Spain has doubled its wind and solar capacity, adding more than 40 GW and bringing renewables to more than half of total electricity generation annually. As a result, the influence of fossil gas on electricity price formation has fallen, helping Spain become one of Europe's lowest-price wholesale electricity markets. In the first half of 2026, Spain's average wholesale electricity price was around €48/MWh, compared with €97/MWh in Germany and €124/MWh in Italy.

The benefits of this transition became particularly visible during the latest gas price shock in 2026. While international gas prices rose sharply, Spanish electricity prices remained largely unaffected. According to Ember, the expansion of wind and solar over the last five years reduced household electricity bills by around €10 per month, while average household bills would have been approximately 19% higher without the additional renewable capacity installed since 2021.

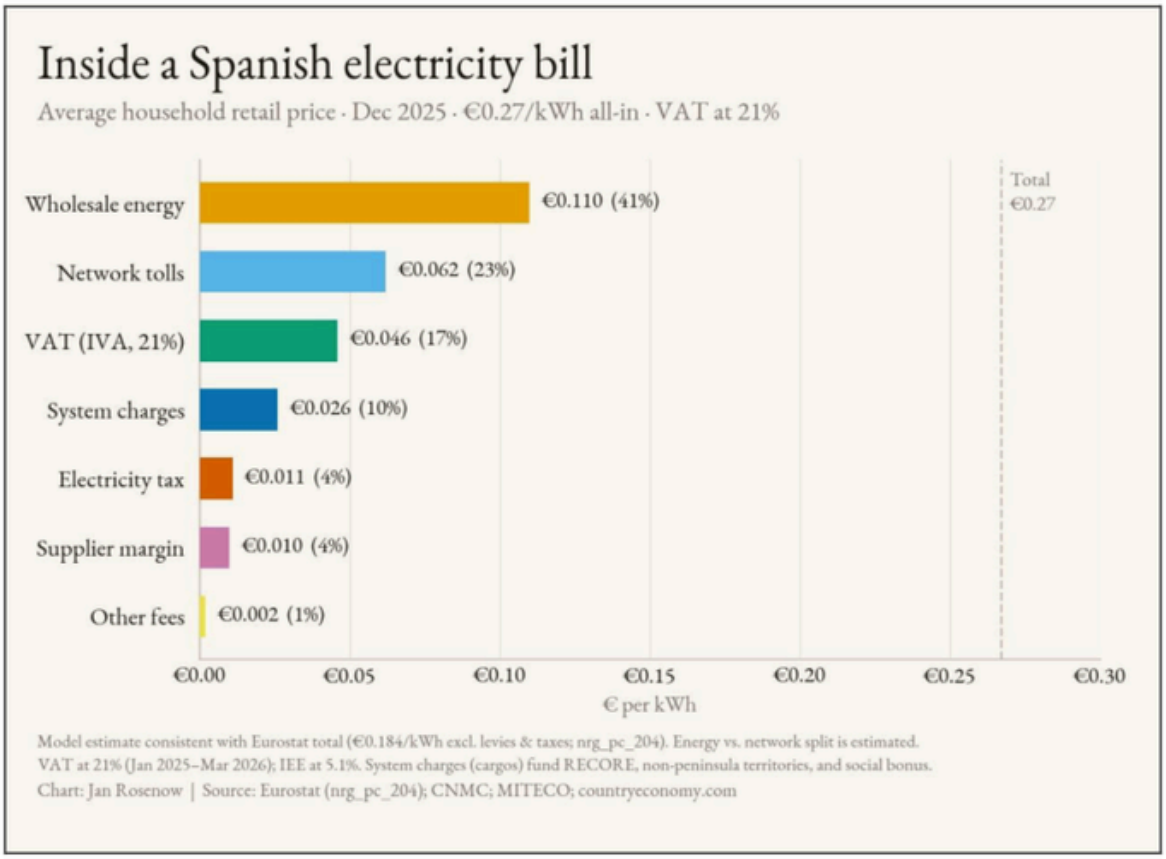
However, Spain's experience also illustrates that achieving low wholesale prices is only one part of the challenge. The nationwide blackout of 28 April 2025 highlighted growing concerns about grid resilience and system flexibility in a power system increasingly dominated by variable renewable generation. Although subsequent investigations found that renewables were not the cause of the blackout, the event exposed weaknesses in voltage control, balancing resources, and network operations. Following the blackout, the Spanish system operator relied more heavily on gas plants to provide grid stability services, causing the cost of these services to double. In May 2025, ancillary and balancing services accounted for 57% of the electricity price, compared with an average of 14% during the previous year.

The blackout also revealed broader structural constraints. Renewable curtailment increased from 1.8% of generation during the previous two years to 7.2% between May and July 2025, indicating that the electrification, grid and flexibility infrastructure have not expanded at the same pace as renewable capacity. Limited battery storage, insufficient interconnection capacity, and delays in grid modernisation and digitalization increasingly prevent Spain from fully capturing the benefits of abundant low-cost renewable electricity.

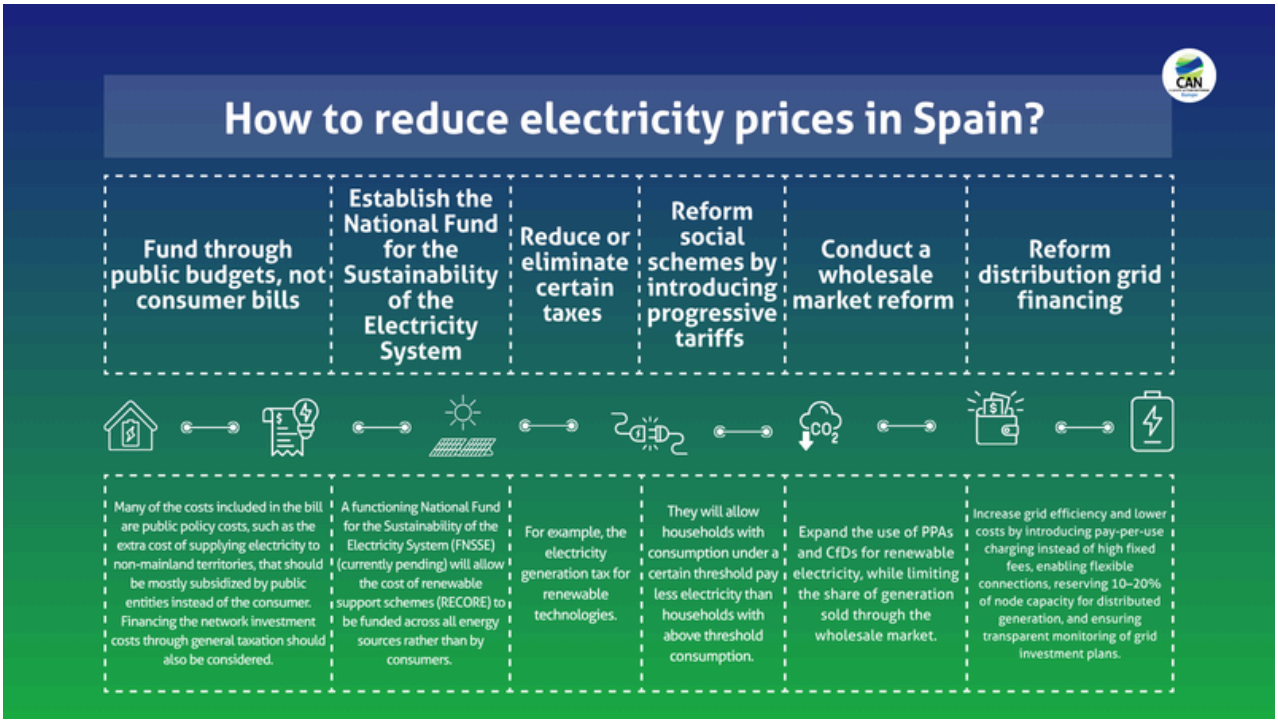
Importantly, lower wholesale electricity prices do not automatically translate into proportionally lower consumer electricity bills. In Spain, the final electricity bill can be two or even three times higher than wholesale market prices because the energy component represents only one part of total costs. Household bills also include transmission and distribution network charges, system costs related to renewable support schemes, capacity mechanisms, tariff deficit recovery, non-peninsular system costs, supplier margins, and other regulated charges.

Taxes further increase final electricity costs. Consumers pay VAT, electricity taxes, meter rental fees, and other regulated charges, all of which contribute significantly to the final bill. Consequently, even when renewable energy substantially lowers wholesale market prices, the effect on end-user electricity costs remains more limited.

Spain's experience therefore demonstrates both the benefits and the challenges of the energy transition. The country has shown that large-scale deployment of wind and solar can significantly weaken the link between gas prices and electricity prices, protecting consumers from fossil fuel shocks. At the same time, achieving consistently lower and more stable electricity bills will require complementary investments in storage, grid infrastructure, interconnections, flexibility services, and broader reforms addressing the non-energy components of electricity prices.



How to reduce energy bills? Recommendations.



Recommendations for reducing electricity prices in Spain.

1. **Fund through public budgets, not consumer bills**

Many of the costs included in the bill are public policy costs, such as the extra cost of supplying electricity to non-mainland territories, that should be mostly subsidized by public entities instead of the consumer. Financing the network investment costs through general taxation should also be considered.

2. **Establish the National Fund for the Sustainability of the Electricity System**

A functioning National Fund for the Sustainability of the Electricity System (FNSSE) (currently pending) will allow the cost of renewable support schemes (RECORE) to be funded across all energy sources rather than by consumers.

3. **Reduce or eliminate certain taxes**

For example, the electricity generation tax for renewable technologies.

4. **Reform social schemes by introducing progressive tariffs**

They will allow households with consumption under a certain threshold to pay less electricity than households with above threshold consumption.

5. **Conduct a wholesale market reform**

Expand the use of PPAs and CfDs for renewable electricity, while limiting the share of generation sold through the wholesale market.

6. **Reform distribution grid financing**

Increase grid efficiency and lower costs by introducing pay-per-use charging instead of high fixed fees, enabling flexible connections, reserving 10–20% of node capacity for distributed generation, and ensuring transparent monitoring of grid investment plans.

More details about possible reforms can be found in this report.

Ireland: Gas Dependence, Demand Growth, and Network Costs Drive a Persistent Affordability Crisis

By Clare O'Connor, Friends of the Earth Ireland.

Overview

Household electricity prices in Ireland have consistently ranked amongst the highest in the EU in recent years across both nominal and purchasing power standards. In the second half of 2025, Ireland was the EU member state with the highest electricity prices (C 0.4042 per kWh). In March 2026, one in seven Irish households were in arrears on their electricity bills, with the average debt rising to €511 per household.

This sustained and worsening level of energy debt more than three years after the 2022 price crisis highlights how structural electricity costs are continuing to translate into long-term affordability pressures for households. High prices have persisted despite strong progress in renewable deployment, particularly wind, which now accounts for over one-third of electricity generation. This reflects a structural challenge - a decarbonising system is not automatically translating into lower consumer prices due to system design, fossil fuel price-setting, and rising network costs.

Despite strong renewable rollout, wholesale electricity prices in Ireland are strongly influenced by gas-fired generation. Ireland has one of the highest shares of gas-fired electricity generation in the EU, with gas frequently setting the dominant marginal price-setting fuel across a large share of hours. Fossil gas generated around 40% of Ireland's electricity in 2025.

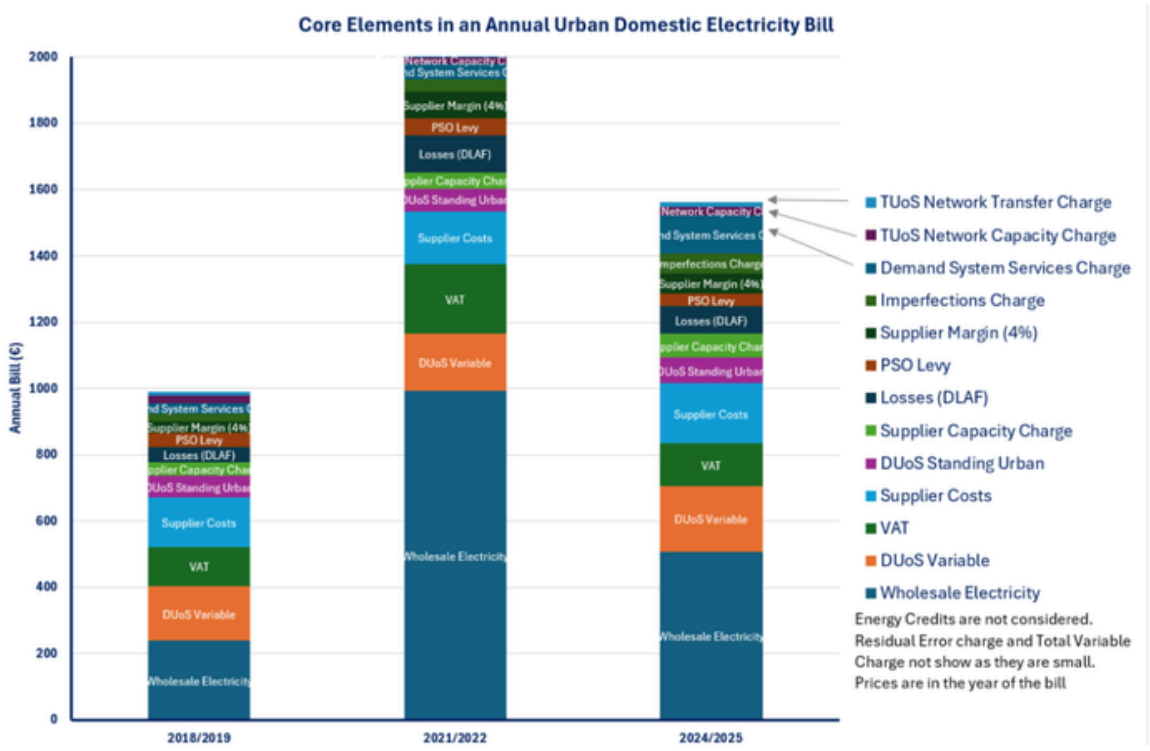


Figure 1: Core elements in an annual urban electricity bill in Ireland-Detailed breakdown.

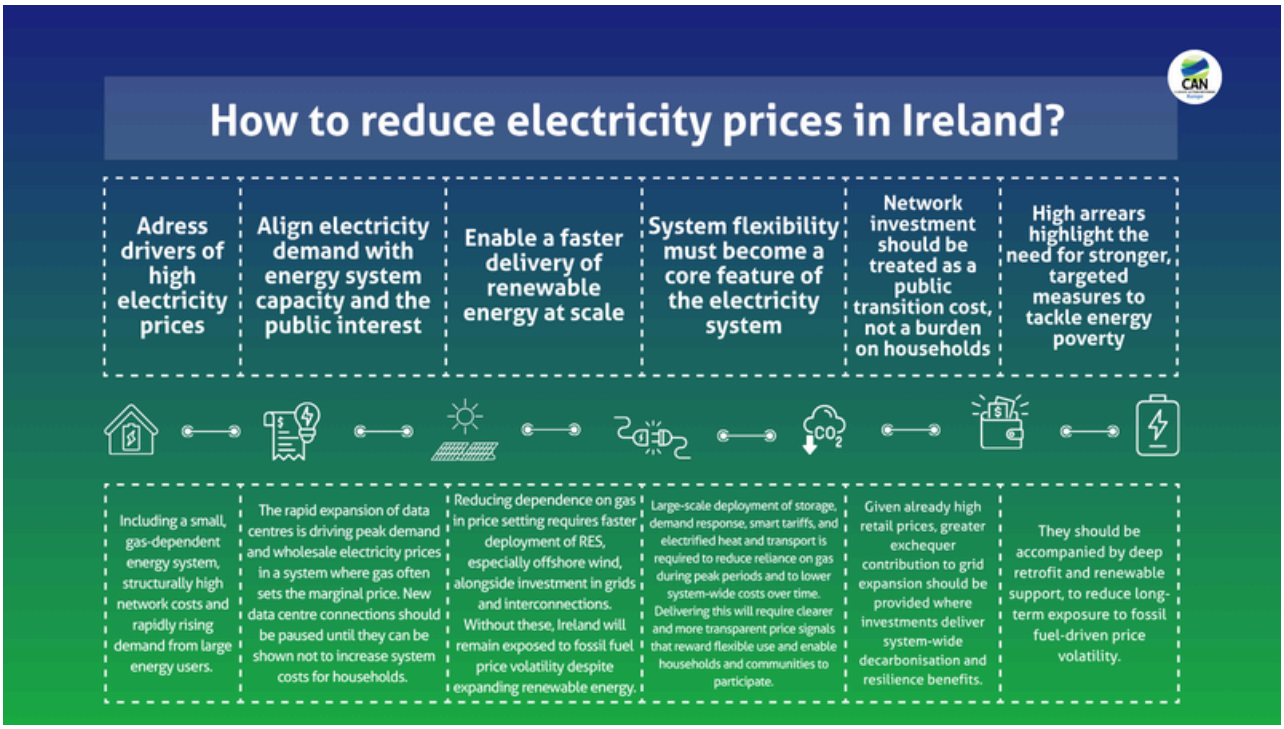
Paul Deane (2026) Core Elements in Annual Urban Domestic Electricity Bill.

reland's relatively small and isolated electricity system, with limited interconnection compared to larger EU Member States, increases dependence on and exposure to fossil fuel price volatility during periods of stress. While renewable generation can reduce wholesale electricity prices during periods of high wind output, retail electricity prices also reflect network charges, taxes and levies, supplier costs, and continued exposure to international gas markets.

In Ireland, network tariffs account for around 30% of a typical domestic electricity bill. This reflects the extensive distribution infrastructure required to serve a dispersed rural population - Ireland has the highest percentage of people living in rural areas in the EU and around twice the length of distribution network per customer as other EU states. It also reflects the significant investment needed to reinforce and operate the electricity system as renewable generation expands and electricity demand grows. Together with wholesale energy costs, network-related charges are an increasingly important driver of retail electricity prices.

Recent years have also seen rising demand-side pressures on the system, including growing electricity consumption from large energy users such as data centres. Data centres accounted for approximately 22% of Ireland's metered electricity consumption in 2024, up from around 5% in 2015, making them one of the fastest-growing sources of demand on the Irish grid. Over the same period, total electricity consumption increased by around 30%, with **large energy users now representing the single largest share of demand at roughly 31%.** This matters in the context of Ireland's marginal pricing system, where electricity prices are set by the most expensive generator needed to meet demand at any given time. Because gas-fired generation accounts for a large share of Ireland's electricity supply and frequently sets the marginal price, particularly during peak demand, rising and relatively constant loads increase the likelihood of higher-cost gas-led pricing conditions. As a result, the interaction between data centre demand and Ireland's gas-dependent electricity mix can increase wholesale electricity prices and exposure to gas price volatility. These effects are passed through to retail electricity bills, meaning sustained inflexible demand growth can translate into higher household costs.

How to reduce energy bills? Recommendations.



Recommendations for reducing electricity prices in Ireland.

1. **Address drivers of high electricity prices**

Including a small, gas-dependent energy system, structurally high network costs and rapidly rising demand from large energy users.

2. **Align electricity demand with energy system capacity and the public interest**

The rapid expansion of data centres is driving peak demand and wholesale electricity prices in a system where gas often sets the marginal price. Given grid constraints and Ireland's reliance on volatile fossil gas markets, new data centre connections should be paused until they can be shown not to increase system costs for households. A precautionary moratorium on new connections is therefore warranted while capacity, flexibility, and renewable energy adequacy are established.

3. **Enable a faster delivery of renewable energy at scale**

Reducing dependence on gas in price setting requires faster deployment of RES, especially offshore wind, alongside investment in grids and interconnections. Without these, Ireland will remain exposed to fossil fuel price volatility despite expanding renewable energy.

4. **System flexibility must become a core feature of the electricity system**

Large-scale deployment of storage, demand response, smart tariffs, and electrified heat and transport is required to reduce reliance on gas during peak periods and to lower system-wide costs over time. Delivering this will require clearer and more transparent price signals that reward flexible use and enable households and communities to participate.

5. **Network investment is essential, but should be treated as a public transition cost, not a burden on households**

Given already high retail prices, greater exchequer contribution to grid expansion should be provided where investments deliver system-wide decarbonisation and resilience benefits.

6. **Persistently high arrears highlight the need for strengthened, targeted energy poverty measures**

They should be accompanied by deep retrofit and renewable support, to reduce long-term exposure to fossil fuel-driven price volatility.

Italy: fossil import dependence, and tax and charges holding back electrification

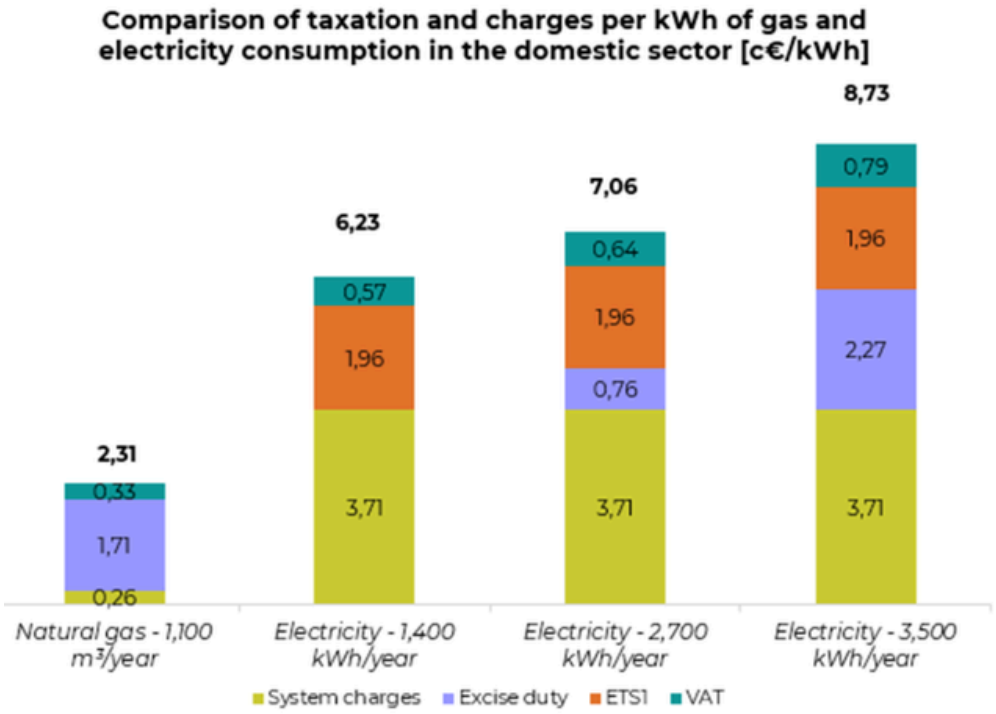
By Caterina Molinari, Francesca Andreolli and Carolina Bedocchi, ECCO.

Overview

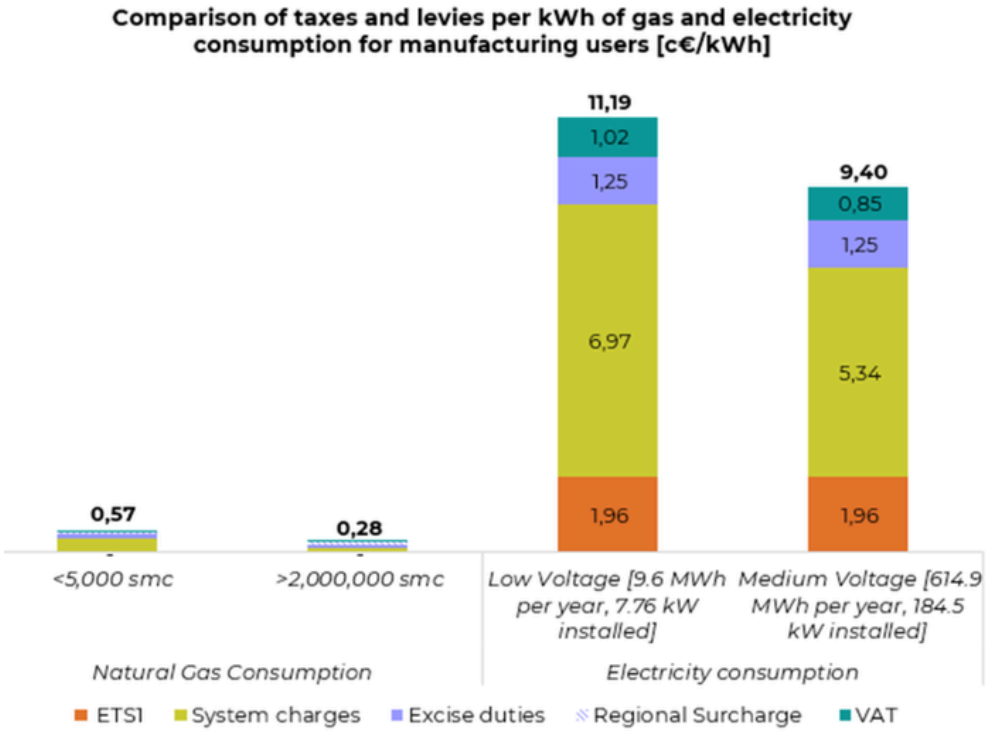
Two factors significantly contribute to Italy’s electricity affordability problem: first of all, the country’s high dependence on imported fossil fuels. In 2024, Italy imported 74% of the energy it consumed, one of the Member States in the European Union most dependent on energy coming from abroad.

When it comes to oil and gas, Italy imports 89% of the oil it uses, and 95% of gas. This, coupled with the fact that natural gas sets the marginal price of electricity most of the time (in the first quarter of 2026, 89% of the hours) leads to electricity prices being highly subject to the volatility of international energy markets. Even though the percentage of hours in which natural gas sets the marginal price is set to decline, to date it still weighs significantly on the utility bills of households and firms.

Secondly, taxes and charges on energy in Italy still reflect a fossil-based energy model: they are significantly higher on electricity than fossil fuels for the same uses, thereby making electricity artificially more expensive; increasing the return on investment time for electric technologies; sending price signals that discourage consumers from autonomously switching to electric alternatives; and ultimately slowing down electrification.



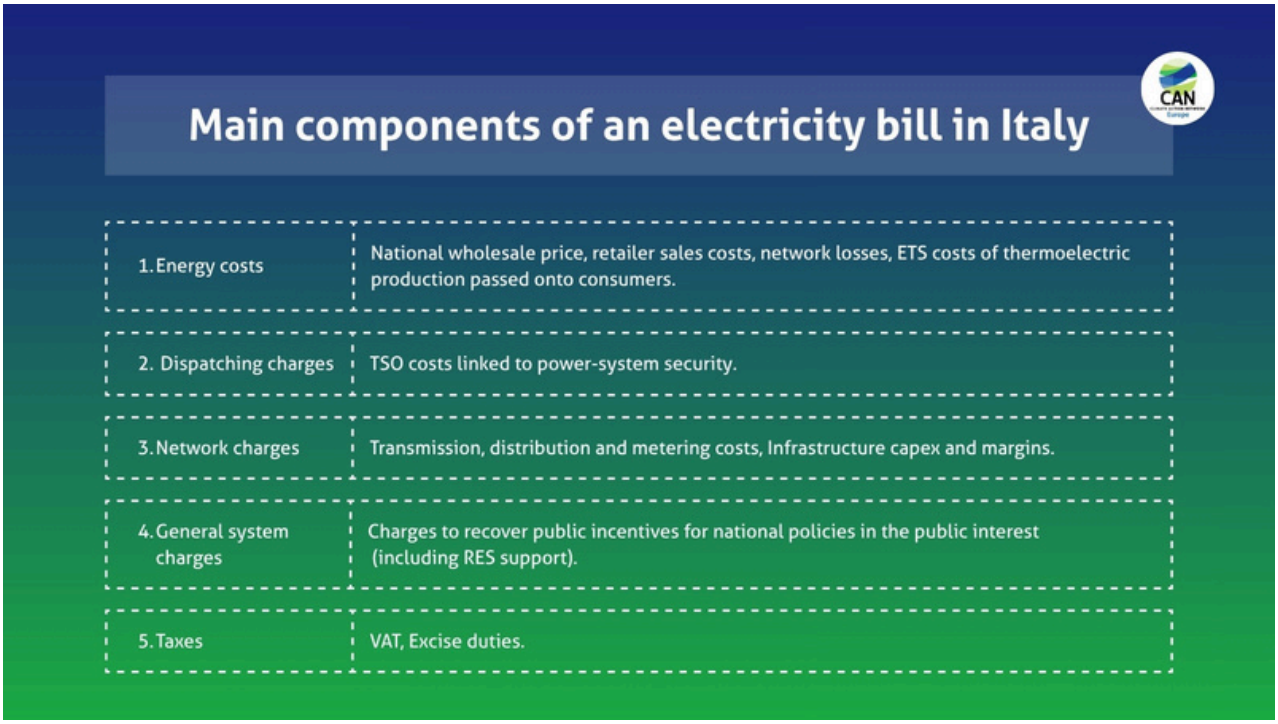
Breakdown of the price components on domestic energy bills relating to taxes (excise duty and VAT on tax components and charges), general system charges and ETS per kWh of energy consumed, applied to gas and electricity for a domestic user with different consumption levels [c€/kWh]. Source: ECCO calculations based on ARERA and MEF data for 2024.



Breakdown of the price components comprising taxes (excise duties and VAT on tax and charges), general system charges, and ETS levied on natural gas and electricity bills for manufacturing consumers, by different consumption levels and user types. Source: ECCO calculations based on ARERA data for 2024.

The average electricity price in Italy in 2024 was around 31 c€/kWh, made up of approximately 49% energy costs;[2] 16% network services; and 35% taxes, general system charges and the environmental costs linked to the ETS[3]. This means that more than one third of the electricity price is not related directly to the costs of producing or transporting electricity, but is the product of regulatory choices taken through the years.

(2) ECCO Think Tank (2026) "Electrification, interrupted: how taxes and levies are slowing down the energy transition in Italy".
(3) The ETS component is included here among taxes and charges – even though it reflects a genuine external cost of carbon emissions from electricity thermoelectric production – because it functions by design as a price signal instrument that generates public revenue to be redistributed in favour of a public interest objective (decarbonisation), which makes it analytically closer to a levy rather than a pure production cost. Carbon pricing mechanisms are indeed often considered as environmental taxes or treated as such.



Main components of electricity bills in Italy.

The current situation undermines electrification. Heat pumps, electric industrial heat at low and medium temperatures and electric mobility are three to four times more efficient than their fossil alternatives, meaning that they can deliver the same services with far less energy than fossil technologies. However, Italy's current bill structure erodes much of the economic gain that a consumer could legitimately expect.

Best practices to inspire action in other countries

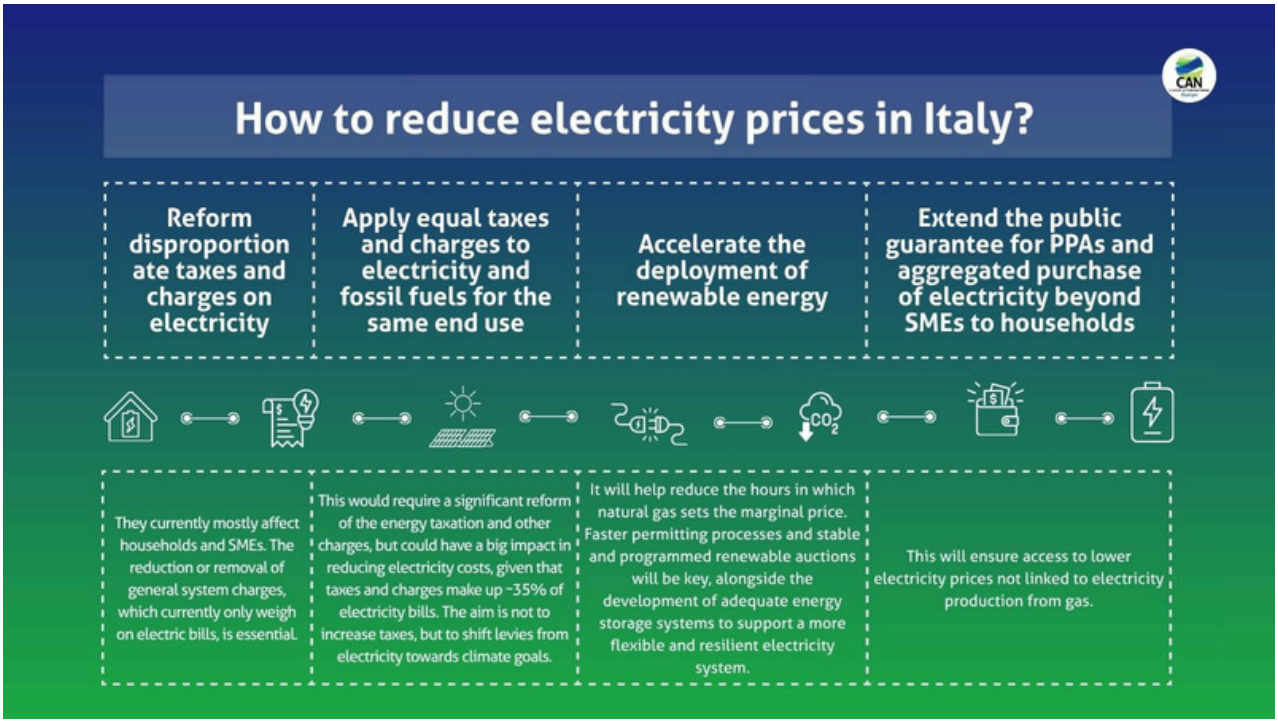
Positive practices from recent legislative developments in Italy include the protection and strengthening of long-term renewable Power Purchase Agreements in the government's latest Energy Bill Decree, which by providing public guarantees and aggregated purchase for PPAs including for SMEs, can reduce counterparty risk and give consumers access to stable renewable electricity prices. However, the same Decree also included, as the main mechanism proposed to reduce electricity costs, the reimbursement of ETS-related costs incurred by gas-fired power plants, with the cost then recovered from consumers through system charges, an approach that not only neutralises the price signal set by the ETS mechanism at EU level, but also does not appear entirely compliant with EU state aid law.

The recently approved FER-X scheme also aims to develop more renewable energy production capacity, by relying on 20-year two-way Contracts for Difference for larger renewable projects awarded through competitive auctions, as such giving investors long-term revenue visibility. The effectiveness of the scheme, however, will depend on the timely publication of auction calendars and volumes, and on whether the mechanism can support sufficient deployment at competitive costs without adding further complexity.

The Energy Release mechanism has also been another relevant Italian experience to lower electricity prices for energy-intensive industries. The mechanism ensures advanced access to renewable electricity at a capped price, while requiring beneficiaries to develop or contract new renewable energy capacity and return electricity to the system over time. Its value lies in decoupling part of industrial electricity costs from gas prices and showing that renewables can provide stable and competitive power.

Finally, a useful practice from Italy is the transparency and detailed decomposition of electricity bills for consumers. Detailing wholesale energy, retail costs, dispatching, networks, system charges and fiscal components helps identify which costs can be reduced through market reform, regulation or fiscal policy.

How to reduce energy bills? Recommendations.



Recommendations for reducing electricity prices in Italy.

1. **Reform disproportionate taxes and charges on electricity**

They currently mostly affect households and SMEs. The reduction or removal of general system charges, which currently only weigh on electric bills, is essential.

2. **Apply equal taxes and charges to electricity and fossil fuels for the same end use**

This would require a significant reform of the energy taxation and other charges, but could have a big impact in reducing electricity costs, given that taxes and charges make up ~35% of electricity bills. The aim is not to increase taxes, but to shift levies from electricity towards climate goals.

3. **Accelerate the deployment of renewable energy**

It will help reduce the hours in which natural gas sets the marginal price. Faster permitting processes and stable and programmed renewable auctions will be key, alongside the development of adequate energy storage systems to support a more flexible and resilient electricity system.

4. **Extend the public guarantee for PPAs and aggregated purchase of electricity beyond SMEs to households**

This will ensure access to lower electricity prices not linked to electricity production from gas.

Czechia: Market failure and flat compensations turning into fossil fuels subsidies

By Heda Čepelová and Štěpán Vizi, CDE.

Overview

Like all European countries, Czechia experienced a sharp surge in energy prices following the Russian invasion of Ukraine, which led to a dramatic spike in gas prices throughout 2022 and triggered a subsequent surge in electricity costs. Currently, Czechia faces the second-highest electricity prices in Europe when adjusted for Purchasing Power Standards (PPS). To understand the factors that amplified this price shock in the domestic market, we must examine the months preceding the continent-wide energy crisis.

In the autumn of 2021 Bohemia Energy, one of the country's largest "alternative" energy suppliers, announced the surrender of its trading license, effectively ceasing operations. The company specialized in spot market trading, and its collapse was driven by a combination of rising market electricity prices, inadequate hedging for client supply, and the non-renewal of the bank credit line that underpinned its business model's cash flow.

At the time of its collapse, Bohemia Energy served approximately one million customers, mainly households. These customers were forced to re-enter the market in autumn 2021, just before the energy prices surged, when suppliers lacked sufficient capacity. Many were automatically placed under the Supplier of Last Resort (SoLR) scheme, but as it is time-limited, hundreds of thousands had to switch back to commercial suppliers at the beginning of 2022 – at the very peak of the price surge. This surge in demand drove up retail prices in an electricity system still heavily reliant on fossil fuels with not enough renewable resources in place to curtail the prices.

Alarmingly, there is still no detailed analysis of the socioeconomic impacts of this market failure. We lack precise data on whether the forced change of supplier disproportionately affected households already at risk of energy poverty. The scale of the impact is reflected in the fact that between 2021 and 2024, the number of individuals receiving housing benefits (a state social support tool compensating for high energy and heating costs) nearly doubled, increasing nominally by more than 1,5 million. However currently the housing benefit has been integrated into a so-called "super-aid", which significantly restricts overall support and narrows the pool of eligible recipients.

In addition to housing benefits, Czechia introduced a broad-based "energy savings tariff" in 2022. This consisted of a temporary reduction in renewable energy charges (previously paid directly by consumers via their energy bills) and a one-time fixed contribution of 2000 - 3500 CZK (80 - 140 EUR) per supply point. The final stage of the energy price mitigation strategy was the introduction of an energy price cap in 2023 (a flat measure, including for energy intensive industry), coupled with cost compensation for energy suppliers.

Together, these measures cost over 52 billion CZK (over 2 billion EUR) on the “energy savings tariff" and price caps. However, our analysis shows that a substantial portion of these costs effectively functioned as fossil fuel subsidies, particularly for fossil gas, as the ultimate beneficiaries of price cap compensations were energy producers still heavily using fossil gas and coal. Between 2022 and 2023, subsidies for fossil gas increased sevenfold compared to previous years, while total subsidies for all fossil fuels quadrupled. This represents a growth rate in support for fossil fuel sources that is 2,5 times faster than the European average.

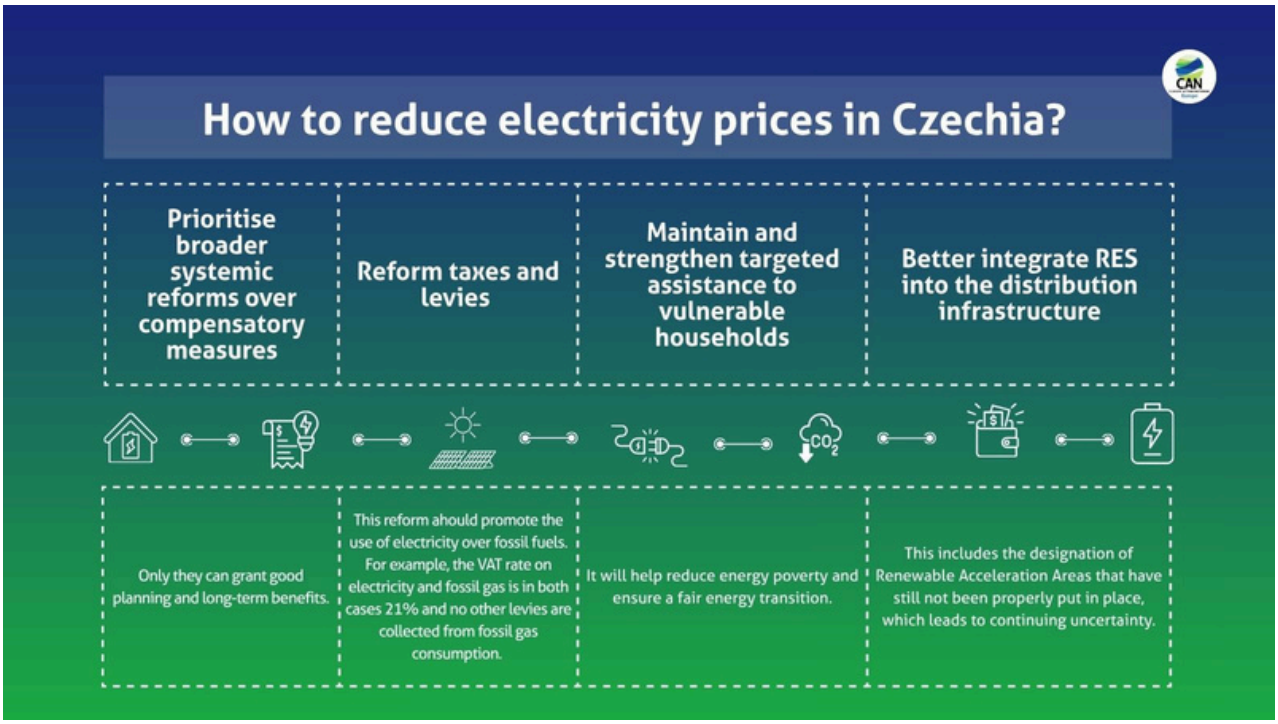
Best practices to inspire action in other countries

However, some good-practice examples are also present, although they remain limited. The Czech grant program “New Green Savings” reached a record budget of 23-24 billion CZK (nearly 1 billion EUR) between 2023 and 2024 to support household energy savings, including insulation, rooftop solar power generation with storage, and low-threshold support for minor renovations in low-income households. This program was primarily funded through EU ETS revenues and the Modernization Fund. However, for 2026, the program has transitioned from grants to subsidized loans mainly, with a drastically lower public allocation (approximately 4 billion CZK, or 160 million EUR) and only a small proportion of grants for vulnerable households.

Czechia has recently implemented several systemic changes. The Energy Act now requires energy traders to meet a “hedging index,” reflecting the requirements for comprehensive hedging strategies mandated by the EU electricity market design reform. This should prevent a recurrence of the Bohemia Energy scenario.

Currently, the main measure to reduce energy prices is the permanent transfer of renewable energy charges from consumers to the state. However, this is a broad-based, non-targeted approach that fails to provide focused relief and does not support further deployment of renewables. Moreover, it is not accompanied by systemic reform of the taxes and levies structure. While a reform of regulated electricity charges is under preparation, it focuses primarily on integrating renewables and storage rather than reducing consumer prices.

How to reduce energy bills? Recommendations.



Recommendations for reducing electricity prices in Czechia.

1. **Prioritise broader systemic reforms over compensatory measures**

Only they can grant good planning and long-term benefits.

2. **Reform taxes and levies**

This reform should promote the use of electricity over fossil fuels. For example, the VAT rate on electricity and fossil gas is in both cases 21% and no other levies are collected from fossil gas consumption.

3. **Maintain and strengthen targeted assistance to vulnerable households**

It will help reduce energy poverty and ensure a fair energy transition.

4. **Better integrate RES into the distribution infrastructure**

This includes the designation of Renewable Acceleration Areas that have still not been properly put in place, which leads to continuing uncertainty.

Germany: lowered wholesale prices amid persistent system integration challenges and high policy costs

By Henri Schmitz, Germanwatch.

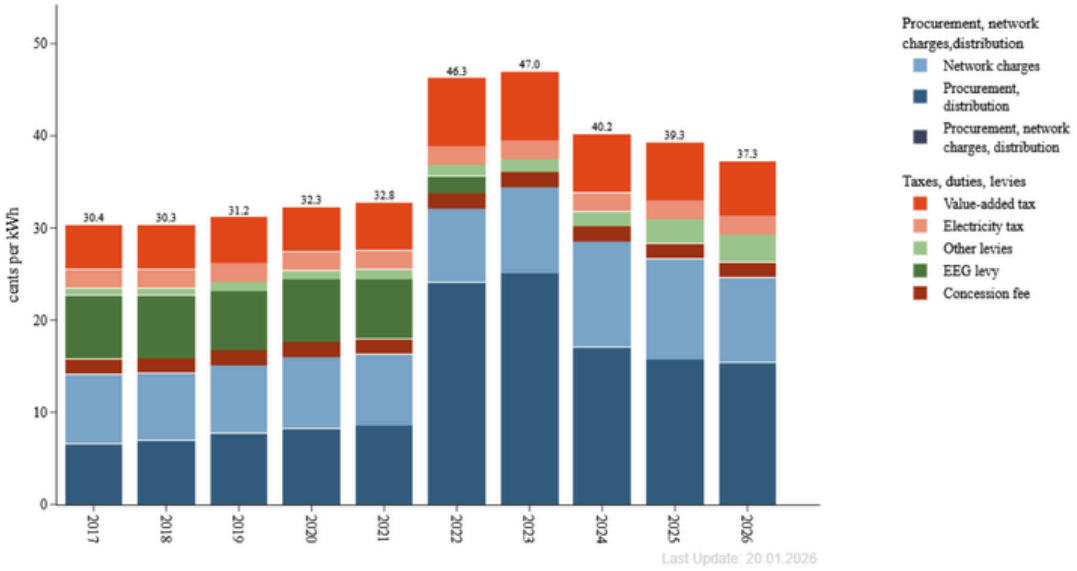
Overview

Germany illustrates a key challenge of Europe's transition: despite having one of the highest shares of renewable electricity in Europe, it also has some of the EU's highest household electricity prices. While renewables are increasingly reducing wholesale electricity prices, households face rising network charges, taxes, levies and system integration costs. The policy challenge is therefore not whether to continue deploying renewables, but how to integrate them more efficiently and distribute the costs and benefits of the transition more fairly.

Germany's renewable expansion has helped bring wholesale electricity prices down from the exceptional peaks of the 2022 energy crisis, converging towards the EU average. Yet these reductions have not been fully reflected in household bills. According to the latest BDEW analysis, the average household electricity price in 2026 remains high at 37 ct/kWh. Only 41% of this price is linked to electricity procurement and supply costs, while 25% comes from network charges and 34% from taxes, levies and other government-imposed charges. In other words, most of the cost from the final electricity bill is unrelated to the actual cost of generating electricity.

Electricity continues to carry a significantly higher tax and levy burden than fossil fuels used for heating, weakening incentives for electrification. Although Germany abolished the EEG levy in 2022 and shifted its financing to the federal budget, reducing electricity costs and lowering the gas-to-electricity price ratio from roughly 4 to around 3.3, electricity taxes, VAT and other levies still represent a substantial share of final consumer prices, preventing households from benefiting from the falling cost of renewable electricity.

At the same time, network tariffs have become one of the fastest-growing components of electricity bills. Although average network charges declined slightly in 2025 due to federal support measures and a redistribution of transmission costs, they still amount to more than 9 ct/kWh, making them the second-largest individual component of household electricity prices.



Average household electricity prices in Germany, annual consumption of 3,500 kWh. Source: Open Energy Tracker (2026)

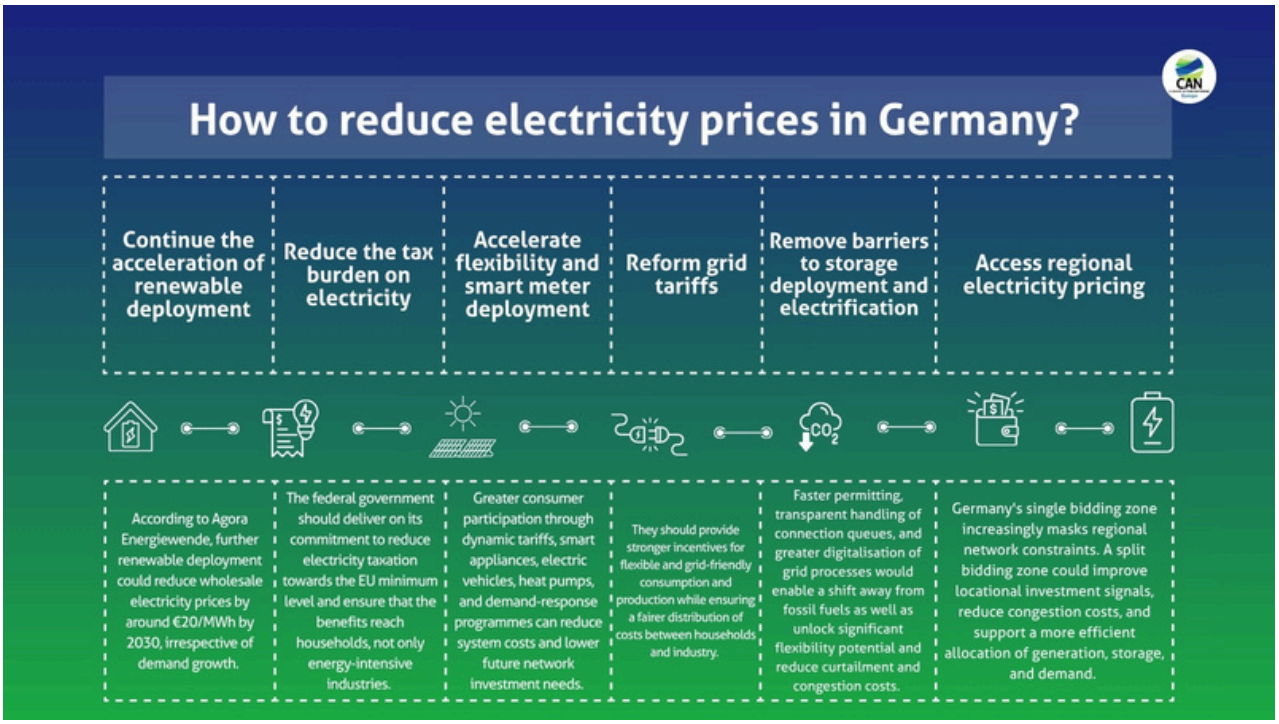
The rapid deployment of wind and solar power and the integration of new demand and storage units requires an estimated € 600bn in investments in both transmission and distribution networks until 2045. Renewable generation is often located far from consumption centres, particularly (offshore) wind in northern Germany and industrial demand in the south. This increases the need for network reinforcement, grid extensions and congestion management measures. While grid investment is unavoidable, its extent and subsequent impact on consumer bills can be reduced through greater system flexibility. Demand-side response, battery storage and flexible industrial demand can lower peak loads, reduce congestion and defer costly network expansions.

However, several barriers continue to limit flexibility deployment. These include grid tariff structures that provide weak incentives for flexible consumption, regulatory frameworks that inadequately reward demand response, complex and lengthy grid connection procedures for storage projects and limited digitalisation of distribution-level grid planning and connection processes. The Federal Network Agency (Bundesnetzagentur) has acknowledged many of these challenges, but comprehensive reforms are likely to take several years to fully implement.

Smart meter deployment remains particularly problematic. Although rollout has accelerated following legislative reforms, Germany continues to lag behind many European countries, with only 5.5% of measuring points fitted with a Smart Meter in 2025. Inadequate regulation, lacking incentives, labour shortages, limited administrative capacity among distribution system operators, stringent data protection requirements and complex certification procedures have slowed deployment. This limits consumers' ability to participate in dynamic tariffs, flexibility markets and automated demand-response programmes.

As a result, households remain heavily exposed to high electricity prices. At the same time, energy-intensive industries benefit from a range of support mechanisms, including reduced network charges, electricity price compensation schemes, exemptions from certain levies and state aid measures designed to preserve industrial competitiveness.

How to reduce energy bills? Recommendations.



Recommendations for reducing electricity prices in Germany.

1. **Continue the acceleration of renewable deployment**

According to Agora Energiewende, further renewable deployment could reduce wholesale electricity prices by around €20/MWh by 2030, irrespective of demand growth.

2. **Reduce the tax burden on electricity**

The federal government should deliver on its commitment to reduce electricity taxation towards the EU minimum level and ensure that the benefits reach households, not only energy-intensive industries.

3. **Accelerate flexibility and smart meter deployment**

Greater consumer participation through dynamic tariffs, smart appliances, electric vehicles, heat pumps, and demand-response programmes can reduce system costs and lower future network investment needs.

4. **Reform grid tariffs**

They should provide stronger incentives for flexible and grid-friendly consumption and production while ensuring a fairer distribution of costs between households and industry.

5. **Remove barriers to storage deployment and electrification**

Faster permitting, transparent handling of connection queues, and greater digitalisation of grid processes would enable a shift away from fossil fuels as well as unlock significant flexibility potential and reduce curtailment and congestion costs.

6. **Access regional electricity pricing**

Germany's single bidding zone increasingly masks regional network constraints. A split bidding zone could improve locational investment signals, reduce congestion costs, and support a more efficient allocation of generation, storage, and demand.

4. Key recommendations

While each country faces distinct challenges and circumstances, reflecting differences in energy mixes, market structures, geographical conditions and tax systems, the analysis reveals clear opportunities for action across Europe. There is no one-size-fits-all blueprint for reform, and policy measures must be tailored to national contexts. Yet a common set of principles emerges: by accelerating and integrating better renewable energy, redesigning network charges, aligning fiscal frameworks with electrification objectives and enhancing transparency and fairness in pricing mechanisms, governments can make electricity more affordable, build trust and accelerate the transition away from fossil fuels.

1. Provide lowered and stable supply costs by accelerating the deployment of renewable energy, storage and other flexibility resources that improve system integration and reduce exposure to volatile fossil fuel prices. Experience across Europe shows that rapidly expanding renewable generation can significantly reduce wholesale electricity prices, as illustrated by countries such as Spain, where the growth of wind and solar has increasingly displaced expensive fossil-fuel generation. Conversely, fossil fuel reliance has driven up wholesale prices, with gas a key cause of imported price volatility in Italy and Greece, and coal reliance acting as a major barrier to electricity cost reductions in Poland. While building new renewable capacity takes time, governments can already act to deliver more affordable and predictable electricity prices by strengthening long term purchase agreements through public guarantees and aggregated procurement mechanisms. In parallel, expanding the use of well designed support schemes for new renewable capacity such as two-sided contracts for difference (CfD), can accelerate investment while limiting price volatility and ensure that the benefits of low-cost renewable generation are shared more widely with consumers.

2. Contain network charges and anticipate rising grid investment needs by redesigning tariff structures to better reflect the grid's capacities and reduce the need for costly infrastructure investments. This means designing tariffs that provide predictable signals that reflect the real costs and constraints of grid usage, as well as providing stable revenue streams to finance the expansion and modernisation of electricity networks required for electrification. This approach should be complemented by sustained public investment at both the EU and national level to help finance grid expansion and reduce upward pressure on network fees, ensuring that the cost of strengthening the system does not undermine the affordability of electricity.

3. Stop overburdening electricity and lower the electricity-to-gas price ratio by reducing the disproportionate fiscal burden placed on electricity and better aligning price signals with climate and environmental objectives. This requires setting a clear trajectory for the evolution of energy taxes, gradually shifting the tax burden away from clean electricity towards fossil fuels, while carefully managing the distributional impacts on households and businesses that are not yet able to switch to electric alternatives. Moreover, a first and readily available lever for governments is to reform the way energy transition costs are financed, by reallocating the levies supporting the transition across all energy carriers (rather than placing them solely on electricity). Depending on national fiscal circumstances, some levies may also be financed through general taxation, as it happened in Germany. These reforms should be designed alongside carbon pricing policies, taking into account existing carbon costs and anticipating the introduction of the EU Emissions Trading System for buildings and road transport (ETS2).

Governments should use the transition to ETS2 to establish a coherent and predictable tax framework in which the overall price signal consistently rewards clean electricity over fossil fuels, while recycling carbon pricing revenues to support vulnerable consumers and accelerate the uptake of clean technologies.

4. **Enhance fairness by ensuring that electricity remains affordable for all consumers while preserving efficient price signals**. Rather than relying on broad and costly price caps that weaken incentives to invest in energy efficiency and electrification, governments should provide targeted safeguards that reflect consumers' needs and capacities. Households in vulnerable situations should receive tailored support through social tariffs, income-based assistance or other targeted measures. At the same time, consumers who are able to respond to price signals should benefit from retail tariffs that reflect underlying system costs, enabling them to reduce their bills through more efficient consumption patterns. Fairness also requires a transparent and balanced allocation of electricity system costs. As electricity demand grows, policymakers should ensure that the costs of networks and public policy objectives are shared equitably between households and industry.

5. Conclusion

Taken together, these priorities provide a pathway towards an energy system that places affordable, renewable electricity at the heart of Europe's transition. This is about far more than transforming the power sector: it is about enabling consumers, businesses and communities to fully benefit from abundant, low-cost renewable energy, building lasting public support for the transition, and unlocking the electrification needed to decarbonise transport, heating, industry and beyond. By tackling the root causes of high electricity prices, Europe can accelerate the shift away from fossil fuels, strengthen its energy sovereignty and create the conditions for a resilient, inclusive and renewable-based economy. Delivering stable and affordable electricity prices is therefore not only an economic priority, but a cornerstone of Europe's climate ambitions and long-term energy security.