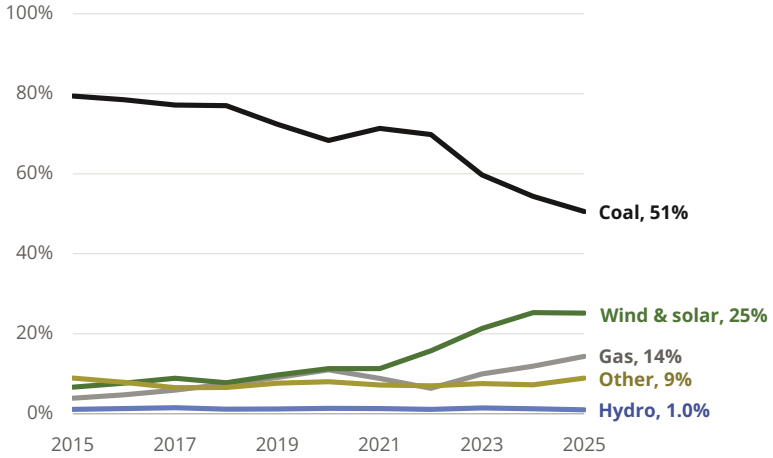
Poland at a glance

Poland is rapidly diversifying its power system, but deep coal lock-in, energy security concerns, an ageing and inflexible grid, and major gas investment alongside renewables constrain its transition.

Key transition conditions: Strong business support and market momentum pull policy forward, but deployment is outpacing what the coal-based system, grids and storage can absorb.

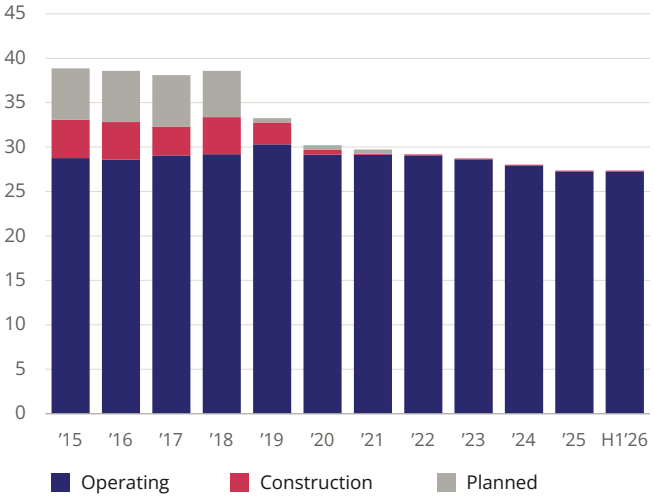
Electricity generation by source

2015–2025

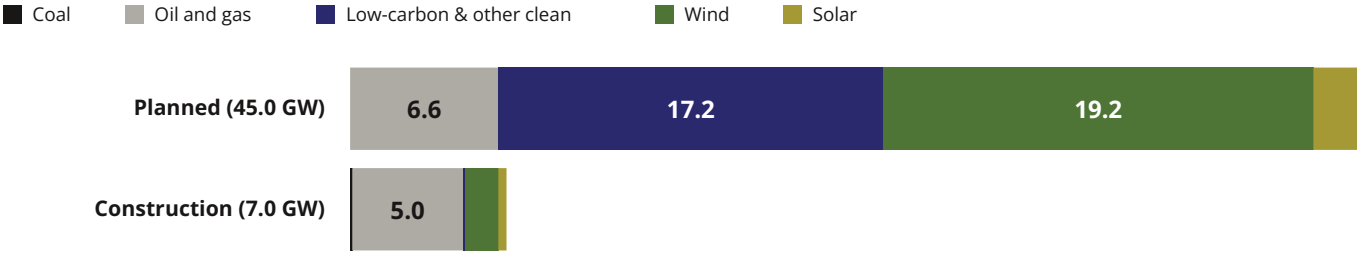


Coal capacity by status

GW, 2015–H1 2026



Capacity under development by source



Solar 2.0 GW (planned) · Coal 0.1, Low-carbon & other clean 0.1, Wind 1.5, Solar 0.4 GW (construction)

Power system landscape

Coal supplied approximately **54%** of electricity in 2024 and fossil fuels around 69%; wind and solar provided about a quarter. Imports cover around 82% of gas and 97% of oil demand. Coal should fall below 13% by 2034.

Clean transition trends

4.7 GW of solar was added in 2025. The updated national plan sees renewables at about 52–53% of electricity by 2030, with offshore wind above 9.3 GW by 2032. Poland makes about 60% of Europe's lithium-ion batteries.

Enablers and bottlenecks

92% of business leaders back a shift from fossil fuels, and prosumer storage grew tenfold in two years to 0.6 GW. Yet nearly **1.4 TWh** was curtailed in 2025, twice the 2024 level, and almost 4,900 grid connections were refused.

Opportunities for international cooperation with *Poland*

- **Regional just transition experience can be shared:** Poland's coal regions have built strong bottom-up models for worker transition and economic diversification.
- **Cleantech manufacturing partnerships are an opening** on critical mineral processing, recycling and batteries, drawing on Poland's industrial base.
- **The Baltic Sea can become a clean energy and security hub** with Germany, Denmark, Sweden and the Baltic states: offshore wind, cross-border grids and infrastructure protection.

Sources: *Ember annual electricity data; Global Energy Monitor annual capacity charge data and coal plant tracker data*

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This country profile was produced as part of the report *Powering Across Divides – Clean energy cooperation in a fragmented world*, published November 2026. The full report is available from **https://www.e3g.org/publications/powering-across-divides-clean-energy-cooperation-fragmented-world/**

Poland's profile

Outline and domestic political economy context

Poland remains heavily reliant on fossil fuels across its wider energy system, although its power sector is transitioning more rapidly. In 2024, fossil fuels accounted for around 83% of total energy supply, with oil and coal each providing around 33%, followed by gas at 18%. Fossil fuels also remain deeply embedded in final energy use, accounting for around 61%, while electricity accounted for 17%.[1] The electricity sector itself is further ahead: fossil fuels supplied around 69% of generation in 2024, including approximately 54% from coal, while wind and solar together provided around 25%.[2]

Within this still carbon-intensive system, renewable power is expanding rapidly, and policy ambition is beginning to catch up. Wind is Poland's largest clean electricity source, while solar deployment has accelerated particularly quickly: 4.7 GW was added in 2025 alone, taking available PV capacity to 25.9 GW, compared with 11.2 GW of onshore wind.[3] Poland's updated National Energy and Climate Plan, adopted in June 2026, envisages renewables reaching around 52–53% of electricity generation by 2030 and 66–69% by 2040.[4] Offshore wind is emerging as a major new pillar, with government support awarded to around 3.4 GW of new capacity through Poland's first competitive offshore auction in December 2025; total offshore capacity is expected to exceed 9.3 GW by 2032.[5] Onshore wind, however, remains politically constrained, illustrated by President Karol Nawrocki's 2025 veto of legislation that would have further eased turbine-distance requirements.[6]

Poland also has a significant industrial stake in the clean energy transition, particularly through battery manufacturing. Poland produces around 60% of Europe's lithium-ion batteries, making it a major European battery hub.[7] Its largest battery producer, LG Energy Solution Wroclaw, has operated on 100% renewable electricity since 2019,

[1] IEA, 2024, **Poland** (webpage, accessed 9 September 2026)
[2] Ember, 14 April 2026, **Poland**
[3] Forum Energii, 2026, **2025 wrapped by Forum Energii – a rapid review of the most interesting power - sector data from 2025** (webpage, accessed 9 September 2026)
[4] Ministry of Energy, 8 June 2026, **The Council of Ministers adopted the National Energy and Climate Plan. The document was developed by the Ministry of Energy (Krajowy Plan w dziedzinie Energii i Klimatu przyjęty przez Radę Ministrów. Dokument opracowało Ministerstwo Energii)**
[5] Ministry of Climate and Environment, 18 December 2025, **Over 3.4 GW of capacity contracted in the first offshore auction (Ponad 3,4 GW mocy zakontraktowano w ramach pierwszej aukcji offshore)**
[6] Reuters, 21 August 2025, **Polish president vetos bill easing rules about building wind farms**
[7] European Commission, 2025, **2025 Country Report – Poland** (PDF)

showing how clean power is already embedded in parts of Poland's emerging industrial base.[8] Industrial interests are therefore aligning more closely with the transition, meaning decarbonisation is linked to the country's competitiveness, to future investment and its position in European cleantech value chains.

Grid capacity and system flexibility are becoming immediate physical constraints on further renewable deployment. Rapid solar and wind growth is increasingly outpacing the power system's ability to connect and absorb new generation: in 2025, nearly 1.4 TWh of renewable electricity was curtailed, twice the 2024 level, predominantly because of balancing constraints.[9] Poland's generation fleet remains dominated by relatively inflexible coal units, while storage and demand-side flexibility are only beginning to scale. Grid access is also increasingly constrained, with almost 4,900 connection applications refused in 2025. [10] Poland's transmission system operator is beginning to respond to these pressures as it plans major grid reinforcement and modernisation through to 2034.[11] Therefore, the challenge is not simply to add renewable capacity, but to accelerate network investment, storage and increasing flexibility both for demand and generation.

Poland remains a substantial net energy importer, particularly of oil (both crude and products) and gas, and therefore exposed to international fuel markets. Domestic oil and gas production is small relative to demand; in 2024, imports supplied around 82% of gas demand and 97% of oil demand.[12] Reliance on imported fuels carries geopolitical and economic costs, although supply has been successfully diversified away from Russia, as Poland continues to spend heavily on imports from elsewhere. Overall import dependency has reached around 45%, and net import expenditure on energy resources around 112 billion zloty (US$28 billion), of which around 80% was accounted for by fossil fuels. [13] This restates the security case for expanding domestically generated resources, particularly renewables. Gas is nevertheless gaining importance in the near-term transition: gas power generation in Poland rose from 20.5 TWh in 2024 to 24.4 TWh in 2025 as new gas plants entered operation and wholesale gas prices fell.[14] Poland envisages nuclear power to

[8] The EV Report, 6 May 2022, **LG Energy Solution Wins E-Mobility Leader Award for Efforts in Zero-Emission Mobility**

[9] Forum Energii, 2026, **2025_wrapped by Forum Energii – a rapid review of the most interesting power - sector data from 2025** (webpage, accessed 9 September 2026)

[10] Energy Regulatory Office, 7 July 2026, **The Accelerator, the Digital Twin, an offshore wind power auction and the initial decisions shaping the hydrogen market – the Report on the Activities of the President of the Energy Regulatory Office in 2025 is now available**

[11] Polskie Sieci Elecktroenergetyczne, **Development of the transmission system** (webpage, accessed 10 September 2026)

[12] Forum Energii, 2025, **Energy Transition in Poland**

[13] Ministry of Climate and Environment, 3 April 2026, **Is renewable energy one of the pillars of Poland's energy security? (Czy OZE jest jednym z filarów bezpieczeństwa energetycznego Polski?)**

[14] Forum Energii, 2026, **2025_wrapped by Forum Energii – a rapid review of the most interesting power - sector data from 2025** (webpage, accessed 9 September 2026)

provide much of its firm low-carbon generation in the long term, with the country's first large-scale plant (3.75GW) currently planned to enter operation between 2036 and 2038.[15]

Coal remains central to Poland's energy system and retains considerable political value as both a source and a symbol of domestic energy sovereignty, though this rationale is weakening. Although declining, coal remains the dominant resource, accounting for around one-third of total energy supply and more than half of electricity generation. Polish households burned 6.8 million tonnes of coal in 2023, around 75% of all coal used to heat individual households across the EU.[16] Poland's large coal resources have long provided an indigenous energy source that reduced reliance on foreign suppliers, closely associating coal with security of supply and national sovereignty, particularly given the country's experience of dependence on Russian energy. This helps explain successive governments' reluctance to commit to an early coal phase-out even as its economics have deteriorated. However, the material basis for this way of thinking is weakening as domestic production declines; indeed, Poland has already become a net importer of hard coal.

Coal's political durability is also rooted in its concentration in mining regions, such as Silesia: here relatively secure, well-paid employment has underpinned regional prosperity, identity and status, raising concerns that replacement industries may not offer equivalent security.[17] The 2021 social agreement between government and mining unions therefore schedules a gradual series of closures of hard-coal mines through to 2049.[18] However, the power system trajectory is faster: competition from renewables, declining coal use (even if still high) and EU policies including the EU ETS are pushing coal generation down: Poland's transmission system plan projects coal to generate less than 13% of electricity by 2034,[19] and the latest NECP projects only a marginal role for coal by 2040.[20] The political challenge is therefore less whether coal declines than how that decline is managed, and whether workers and mining regions are offered credible economic alternatives.

Summary of key domestic transition factors

- **Strong business support and market momentum are accelerating Poland's transition, increasingly pulling policy in the same direction.** Polish business leaders show strong support, as 92% say Poland should transition away from fossil fuels.[21]

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[15] National Atomic Energy Agency, 2025, **National Report of the Republic of Poland on Compliance with the Obligations of the Convention on Nuclear Safety: 10th National Report of Poland** (PDF)

[16] Forum Energii, 18 September 2025, **Heating Sector Transition in Poland 2025 Edition**

[17] OECD, 2026, **Local Identity, Pride, and Branding in Place Transformation**

[18] Ministry of State Assets, 28 May 2021, **Social contract for mining signed (Umowa społeczna dla górnictwa podpisana)**

[19] Polskie Sieci Elecktroenergetyczne, 2 January 2025, **Transmission Grid Development Plan 2025-2034 (Plan rozwoju sieci przesyłowej na lata 2025-2034 uzgodniony)**

[20] Ministry of Energy, 8 June 2026, **The Council of Ministers adopted the National Energy and Climate Plan. The document was developed by the Ministry of Energy (Krajowy Plan w dziedzinie Energii i Klimatu przyjęty przez Radę Ministrów. Dokument opracowało Ministerstwo Energii)**

[21] We Mean Business Coalition, E3G, Global Renewable Alliance and Public First. 2026, **Powering up: Business perspectives on electrification** (PDF)

Deployment is already moving rapidly, with 4.7 GW of solar added in 2025 − the fourth consecutive year of similarly high additions − and three-quarters of new capacity coming from larger on-grid installations. The updated NECP therefore represents an important step towards aligning national planning with a transition already advancing through the market.

- **The transition is constrained by a mismatch between rapid renewable deployment and the pace at which Poland's legacy power system and infrastructure can adapt.** An ageing, relatively inflexible coal-based generation fleet, limited storage and delayed grid expansion already contribute to renewable curtailment and connection constraints. This creates a sequencing challenge as renewable capacity and coal displacement are progressing faster than the systems that are needed to accommodate them, from the physical infrastructure to flexibility and socially negotiated arrangements to secure jobs. Political fragmentation is another risk to implementation, for example, with differences between the government and presidency creating uncertainty over the pace of reform.

Opportunities for international collaboration

1. **Share just transition learnings from the experience of Poland's coal regions.** They have developed comparatively strong bottom-up transition models that can offer lessons to coal-dependent regions elsewhere. Poland could use this regional experience to strengthen international cooperation on supporting jobs and skills through the transition, and economic diversification.

2. **Build strategic cleantech manufacturing partnerships around Poland's industrial strengths.** Poland's established battery-manufacturing and critical minerals base provides an entry point for international cooperation to build more resilient value chains through partnerships on critical mineral processing, recycling, battery manufacturing and upstream supply diversification.

3. **Make the Baltic Sea a regional clean energy and security hub.** Poland can deepen cooperation with the Baltic states, Germany, Denmark and Sweden on offshore wind, cross-border grids and protecting critical infrastructure; it can do so by building on the Baltic Offshore Grid Initiative and existing cooperation about energy systems around information sharing, repair capacity and security surveillance. Such regional cooperation should integrate grid planning, resilience and security by design to accelerate renewable deployment and strengthen wider European energy security.

ABOUT E3G

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We drive systemic action on climate by identifying barriers and constructing coalitions to advance the solutions needed. We create spaces for honest dialogue, and help guide governments, businesses and the public on how to deliver change at the pace the planet demands.

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