

Country profile – Poland

The section 'Key climate- and energy-related data' was prepared by the EEA. It includes the latest data available as of 31 July 2014

The section 'Climate and energy policy framework' was prepared by eclareon and Ecologic Institute, Germany. It includes the latest information on national policies and measures available as of 31 May 2014.

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Key climate- and energy-related data — Poland

Key data on GHG emissions	2005	2011	2012	2013	EU 2012
Total GHG emissions (UNFCCC, Kyoto Protocol) (Mt CO ₂ -eq.)	398.8	405.7	399.3	396.0	4 544.2
GHG per capita (t CO ₂ -eq./cap.)	10.4	10.5	10.4	10.3	9.0
GHG per GDP (g CO ₂ -eq./PPS in EUR)	907	644	605	587	350
Share of GHG emissions in total EU-28 emissions (%)	7.7 %	8.8 %	8.8 %	8.9 %	100 %
EU ETS verified emissions (Mt CO ₂ -eq.)	203.1	203.0	196.6	205.7	1 848.6
Share of EU ETS emissions in total emissions (%)	51 %	50 %	49 %	52 %	41 %
ETS emissions vs allowances (free, auctioned, sold) (%)	- 14.5 %	- 2.0 %	- 7.7 %	n.a.	- 14.1 %
Share of CERs & ERUs in surrendered allowances (%)	0.0 %	12.2 %	20.3 %	n.a.	26.4 %
Non-ETS (ESD) emissions, adjusted to 2013–2020 scope (Mt CO ₂ -eq.)	179.6	191.5	191.5	190.2	2 566.6
Key data on renewable energy	2005	2010	2011	2012	EU 2012
Share of renewable energy in gross FEC (%)			10.4 %	11.0 %	14.1 %
() = including all biofuels consumed in transport	(7.0 %)	(9.3 %)			
Share of renewable energy for electricity (%)	2.6 %	6.6 %	8.2 %	10.7 %	23.5 %
Share of renewable energy for heating and cooling (%)	10.4 %	11.9 %	13.4 %	13.7 %	15.6 %
Share of renewable energy for transport (%)			6.5 %	6.1 %	5.1 %
() = including all biofuels consumed (%)	(1.0 %)	(6.3 %)			
Key data on energy consumption	2005	2010	2011	2012	EU 2012
Primary energy consumption (Mtoe)	88.0	96.0	96.3	93.3	1 584.8
Primary energy consumption per capita (Mtoe/cap.)	2.3	2.5	2.5	2.4	3.1
Final energy consumption (Mtoe)	58.3	66.3	63.9	63.6	1 104.5
Final energy consumption per capita (Mtoe/cap.)	1.5	1.7	1.7	1.7	2.2
Efficiency of conventional thermal electricity and heat production (%)	47.4 %	47.1 %	46.0 %	46.7 %	50.0 %
Energy consumption per dwelling by end use	2005	2009	2010	2011	EU 2011
Total energy consumption per dwelling (toe/dwelling)	1.47	1.47	1.51	1.48	1.42
Space heating and cooling (toe/dwelling)	1.01	1.02	1.03	1.04	0.96
Water heating (toe/dwelling)	n.a.	n.a.	n.a.	n.a.	0.18
Cooking (toe/dwelling)	n.a.	n.a.	n.a.	n.a.	0.08
Electricity (lighting, appliances) (toe/dwelling)	n.a.	n.a.	n.a.	n.a.	0.20

Progress towards GHG targets (under the Effort Sharing Decision, i.e. non-ETS emissions)

2013 ESD target (% vs base year)	+ 9.1 %	2020 ESD target (% vs base year)	+ 14.0 %
2013 ESD emissions (% vs base year)	+ 11.5 %	2020 ESD projections WEM (% vs base year)	+ 4.1 %
		2020 ESD projections WAM (% vs base year)	+ 4.1 %

Based on approximated emission estimates for 2013, emissions covered by the Effort Sharing Decision (ESD) (i.e. in the sectors which are not covered by the EU ETS) are expected to be above the annual ESD target in 2013. Projections indicate that 2020 ESD emissions are expected to be below the 2020 ESD target, with the current existing measures.

Progress towards renewable energy targets

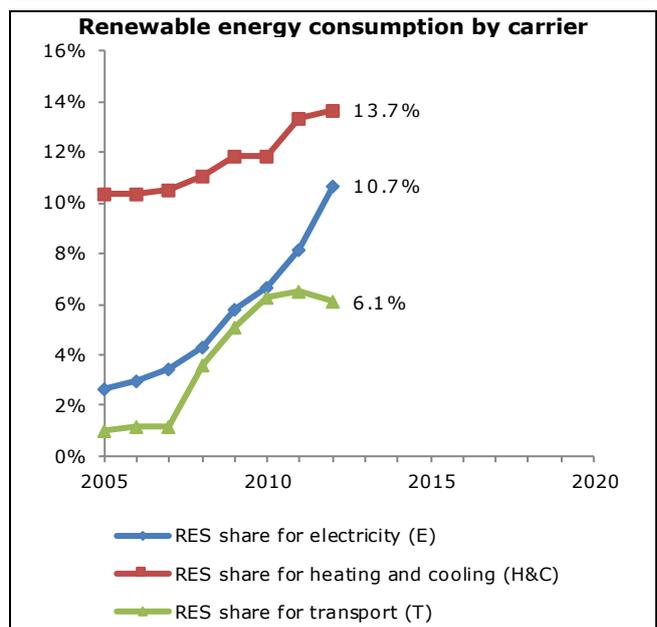
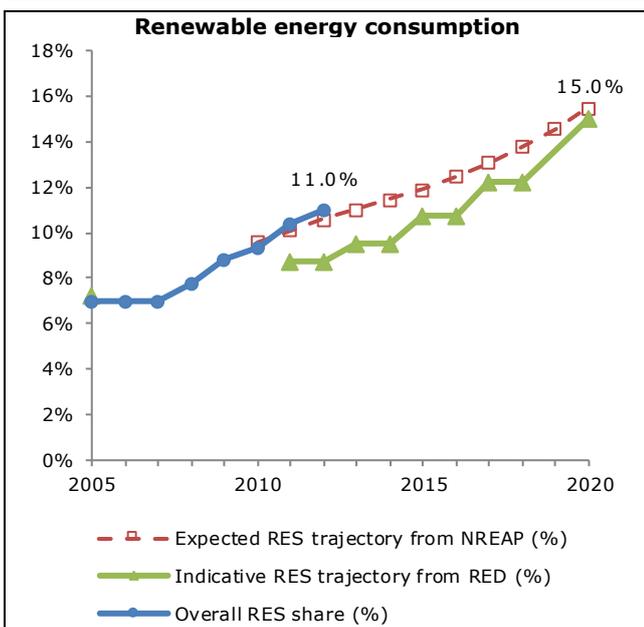
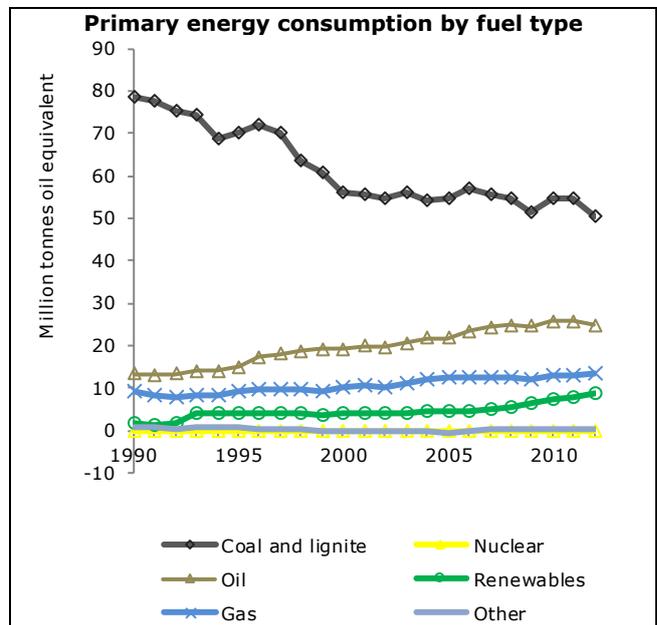
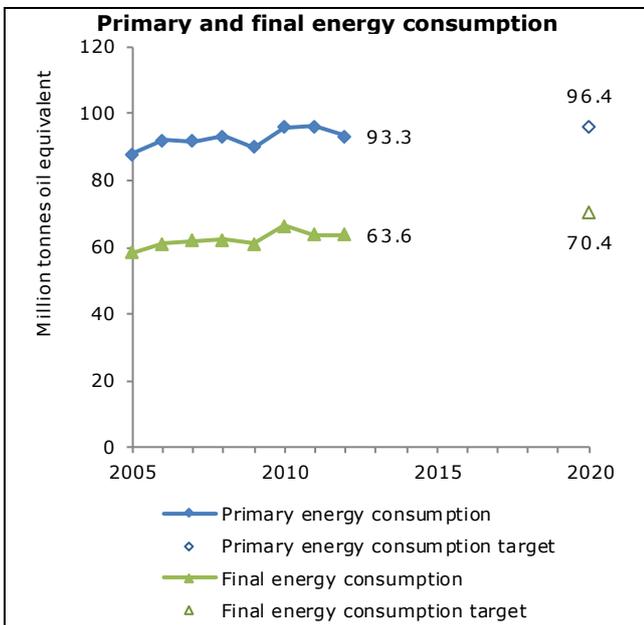
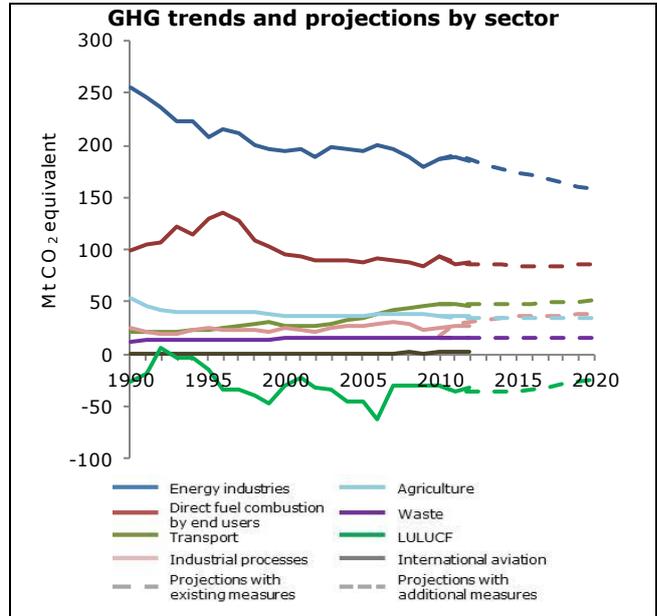
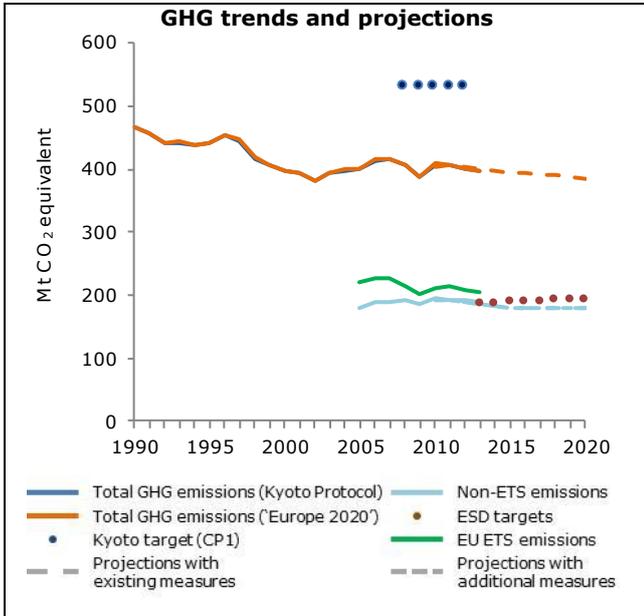
2012 RES share in gross final energy consumption (%)	11.0 %	2011–2012 indicative share from RES Directive (%)	8.8 %
2020 RES target	15.0 %	2012 expected share from NREAP (%)	10.6 %

The average share of renewable sources in gross final energy consumption for 2011–2012 was 10.7% (7.2 Mtoe), which is higher than the indicative RED target for 2011–2012 (8.8%). At the same time, the share of renewables in 2012 (11.0 %) is higher than the expected 2012 NREAP target (10.6 %). Over the period 2005–2012 the observed average annual growth rate in renewable energy consumption amounted to 8.4%. In order to reach its 2020 NREAP target, Poland needs an average annual growth rate of 4.8% in the run-up to 2020. In absolute terms, this is equivalent to 1.1 time its cumulative effort so far.

Progress towards energy efficiency targets

Primary energy consumption:		Final energy consumption:	
2005–2012 average annual change	0.8 %	2005–2012 average annual change	1.3 %
2012–2020 average annual change to target	0.4 %	2012–2020 average annual change to target	1.3 %

Between 2005 and 2012, primary energy consumption grew at a faster pace than is 'allowed' to achieve the 2020 target. Tackling distribution losses (which grew by 46 % between 2008 and 2012), could contribute to further limiting the increase in primary energy consumption. The average increase in final energy is close to the linear target path. Particular attention could therefore be paid in limiting energy use in the transport and the residential sectors.



Climate and energy policy framework

Challenges and opportunities

The Polish economy is very energy intensive and ranks seventh from the bottom among EU Member States. Poland aims at increasing efficiency in energy generation and is currently renewing its aged (mainly coal-fired) power plants (60 % older than 30 years); 18 GW of additional generating capacity are being planned or built. This will mainly be coal and gas plants, with renewables playing an insignificant role, also because the support system delivers few investment incentives. The dependence on coal results in rather high greenhouse gas (GHG) emissions from electricity generation, which need to be reduced substantially by 2050. Shifting to renewables would also help to reduce dependence on energy imports from Russia — a priority of Polish energy policy — and generate local employment and revenues. In addition, large energy savings could be realised in the building sector, where energy for heating could be reduced by more than 80 % (3CSEP, 2012). The socio-economic benefits of a large building renovation programme realising these reductions is expected to result in an additional 250 000 jobs by 2020, substantial improvements in air quality, and reduction of energy poverty and energy dependency.

In the transport sector, emissions have grown considerably over the last decade, energy intensity has increased besides a general downward trend in the EU, and newly registered vehicles are less emission-efficient than the EU average. Taxation on the transport sector is rather limited in Poland, having the lowest vehicle ownership tax in the EU, with private cars being an exception; overall taxation of fuels is very low, creating only a minor incentive to use fuel-efficient cars. Higher taxes on fuels and emissions-based vehicle ownership taxation could on the one hand tackle transport GHG emissions and on the other help to shift taxation from labour to consumption. By 2025, the health and environmental benefits from an environmental tax reform could amount to 0.55 % of gross domestic product in Poland (Hogg et al., 2014).

Climate and energy strategies

Poland is one of a few countries that refer to sustainable development in their constitutions (Art. 5) and low-carbon and efficient development is mentioned in the Medium-Term (up to 2020) and the Long-Term National Development Strategy 2030. The second document specifically recognises the need for an improvement of environmental conditions and eliminating the risks of climate change. However, the 'Polish Climate Policy Strategies until 2020', published in 2003, has little relevance to the current policy situation since it has not been updated; however, Poland has joined the European Union and new EU directives were developed in the meantime.

Polish energy policy focuses on a secure, affordable and diversified energy supply as outlined in the 'Polish Energy Policy until 2030' published in 2009 or in the recently published Strategy for Energy Security and the Environment up to 2020. Security of fuels and energy supplies is a priority of national energy policy and one of the reasons for the Polish government's strong support for its coal industry, new nuclear power plants and exploration of shale gas resources.

Renewable energy

Renewable energies play a minor role in Poland both in electricity and heat generation. The main support mechanism — besides an exemption from the consumption tax levied on the sale of electricity to end users and their consumption — is a quota system (the principle of non-discrimination applies to grid access and transmission of renewable electricity has priority). The system obliges energy companies selling electricity to final consumers to obtain a certain number of 'green certificates' from renewable electricity producers. However, oversupply of certificates mainly caused by power plants co-firing biomass and faster growth (than expected in the National Renewable Energy Action Plan (NREAP)) of wind power capacities resulted in lower prices and thus lower incentives to invest into new renewable capacities. Nevertheless, strong growth of new installations was observed in 2013 — 1 095 MW (mainly wind units). A new draft presented in November 2013 envisions a support scheme based on tendering. The tendering scheme will be divided in two categories, depending on the capacity of the plant (40 kW to 1 MW and > 1 MW). The winner of the tender is the entity that pledges to deliver a specified quantity of electricity at the lowest price. This price represents the guaranteed feed-in tariff (for installation 40 kW to 0.5 MW) or feed-in premium (for installation > 0.5 MW) for 15 years. The operators of existing installations (except of biomass with over 50 MW and plants co-firing biomass) would be able to choose if they want to receive support in form of the green certificates (as currently) or through the new tendering scheme (special auctions will be organised for existing units) (MG, 2013a).

Renewables in heating and cooling are supported through a number of subsidy schemes. The National Fund for Environmental Protection and Water Management (NFOSiGW) provides: grants equal to 45 % of a loan for the purchase and installation of solar thermal heating systems on residential buildings; soft loans for 30–75 % of the total investment costs for commercial entities depending on the type of technology; and grants (20–40 % of investment cost) and soft loans (covering 100 % of investment costs) for municipalities willing to invest in micro installations for renewable electricity and combined heat and power generation.

Under the Thermo-Modernisation scheme the state-owned bank Gospodarstwa Krajowego provides grants equal to 20 % of a loan for refurbishment work, including the installation of renewable heating systems.

Energy networks

The European Commission recommended to 'speed up and extend the development of the electricity grid [...]' (COM, 2013). The legislative proposals on transmission corridors regulating linear investments in the transmission of, inter alia, electricity and natural gas are being prepared. The proposals aim to further simplify procedures and help settle existing conflicts related to transmission. In addition, the European Commission confirmed in February 2014 the award of more than PLN 120 million (approximately EUR 28.9 million) from the Infrastructure and Environment Programme for the construction of the power station Siedlce Ujrzanów and power lines Miłosna to Siedlce Ujrzanów. The project is part of the grid interconnection activities between Lithuania and Poland aiming at closing the so-called Baltic ring.

Energy efficiency

Poland has no long-term energy efficiency strategy outlining specific targets, although improving energy efficiency is the first priority of Poland's Energy Policy until 2030, with two specific aims: to make efforts to achieve development of Polish economy without increasing primary energy demand, and to decrease the energy intensity of Polish economy to

the EU-15 level (in 2005). Energy **taxation** is rather low with the level of excise duties being below the EU average. In addition, there are exemptions for energy-intensive businesses using coal for heating and for coal-using companies covered under the EU Emissions Trading System (ETS). Poland has no carbon dioxide (CO₂) tax. The indicative target included in the Energy Efficiency Act is to achieve energy savings representing 9 % of the annual final energy consumption from the period 2001–2005 by 2016. The energy efficiency target for 2016 is equal to 4.5 Mtoe in the sectors not covered by the EU-ETS.

The main instrument to support energy efficiency is an **obligation** imposed on energy entities in a form of a 'white certificates' scheme. The certificates are granted for energy-efficient investments, such as modernisation of local heating grids and heat sources, buildings, lighting, household appliances, as well as energy recovery and modernisation of industrial devices and installations. Companies selling electricity, natural gas and heat to final consumers are obliged to obtain a certain number of white certificates depending on the energy sold to final consumers.

The quota system for renewable energy is very similar to the quota system which promotes the use of **combined heat and power**. 'Red and yellow certificates' are issued for electricity produced from cogeneration depending on the capacity and fuel. There are specific minimum quotas for green, red and yellow certificates.

Energy efficiency in **industry** is promoted through financial incentives for energy auditing and the implementation of energy management systems. The NFOSiGW will allocate more than PLN 340 million (approximately EUR 81.6 million) in the form of grants and loans to energy-intensive enterprises for increasing energy efficiency, performing energy auditing and using industrial waste for energy generation (including sewage sludge) (Ministerstwo Środowiska, 2014). In the **building sector**, a national action plan aimed at increasing the number of nearly-zero-energy buildings is under development. More stringent rules for minimum energy performance standards for new buildings and those undergoing major renovation are in force since January 2014. In addition, on 29 August 2014 a new law on energy building performance was adopted by the Parliament, which introduces the obligation to receive Energy Performance Certificates for new buildings sold or rented. Financial support is mainly provided by the NFOSiGW, which offers grants and low-interest loans for investments in energy efficiency. The overall budget from 2013–2018 amounts to PLN 300 million (approximately EUR 71.72 million) and should lead to energy savings of 93 500 MWh per year and avoided CO₂ emissions of 32 300 tonnes per year (NFOSiGW, 2013).

Transport

Incentives for efficient driving and the purchasing of efficient cars are rather limited in Poland. There is no registration tax and no ownership tax applies to private cars. A local tax applies only to commercial vehicles depending on weight and number of axles. Taxes on diesel and petrol are well below the EU average. The main measures related to the reduction of GHG emissions in transport include support for biofuels and lower-carbon fuels, such as natural gas. This includes tax relief for liquid petroleum gas and biocomponents and promotional prices of gaseous fuels as well as the obligation to increase the share of biocomponents in transport fuels. In addition, the Council of Ministers also adopted a draft bill amending the Law on the system for monitoring and controlling the quality of fuels, which introduces a 6 % reduction target for GHG emissions from fuel and electricity consumed in transport by 2020 compared to 2010. Entities selling or using liquid fuels or electricity used in vehicles have to submit monitoring reports showing they comply with the obligation (MG, 2013b).

In the rail transport sector, the government works at implementing a more efficient and safe rail traffic management system and invests in the modernisation of rail vehicles and infrastructure and electrification of systems. Policies to increase the share of public transport are currently limited to attempts to raise public awareness (e.g. through one-off, high-profile events such as European Car Free Day or Day of Public Transport) and increasing attractiveness, for example through integrated tickets on designated routes, tickets zone, park and ride, and promotions such as family rides during summer and winter holidays and free transportation of bikes during spring and summer.

Agriculture

Existing measures include a limitation on natural fertiliser use, promotion of organic farming and the ordinance regulating agri-environmental measures that was amended on 12 March 2012. Farmers who voluntarily commit to environmental objectives, including ecosystem preservation, promotion of sustainable management, water conservation and protection of endangered local breeds of livestock and local crop varieties, can apply for funding. In addition, the use of biomass waste, slurry and manure for energy generation is promoted. In particular, the Council of Ministers decided on the 'directions of development of agricultural biogas plants in Poland'. The objective is to have at least one biogas plant in each town by 2020 that should be facilitated by optimising legal and administrative proceedings and using co-financing options from national and EU funds.

Waste

The National Waste Management Plan outlines the objectives for integrated waste management. The Act on Waste includes general waste management rules and rules on organic wastes going to landfills (transposing the EU Directive on landfilling). As partner of the Global Methane Initiative, Poland implements projects to reduce methane emissions from landfills. On 1 July 2013, the law on waste management entered into force, defining amongst others the responsibility for waste collection and segregation at the municipal level (MOS, 2013). For specific wastes, there are additional acts such as the act on the recycling of end-of-life vehicles, and the act on electrical and electronic equipment.

Land use, land-use change and forestry

In Poland, the Rural Development Programme and the Act on Forests and related national programme to increase forest cover (KPZL) outline forest protection, afforestation and use for increasing carbon sequestration and the production of woody biomass. By 2020, forest cover should increase to 30 % and by 2050 to 33 % based on the afforestation of non-agricultural and agricultural land.

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