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Phase-out 2020: monitoring Europe's fossil fuel subsidies

Ipek Gençsü and Florian Zerzawy

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Poland

Key findings

Leading on phasing out fossil fuel subsidies:

- In 2012, the Polish government introduced an excise tax on coal, and it is gradually phasing out some of its support to coal mining in line with EU commitments.
- Almost all of the fiscal support to coal mining by the Polish government identified in this study goes to assisting the transition away from coal.
- The Renewable Energy Supply Act introduced in 2015 aims halve subsidies for the co-firing of biomass in coal plants. But it will not apply to biomass co-firing installations that meet the RES Act criteria, and still favours co-firing in coal-fired power plants over renewable energies.

Lagging on phasing out fossil fuel subsidies:

- Despite evidence that subsidies to coal mining through fiscal support appear to be falling, the Polish government continues to subsidise the coal mining industry through investment by state-owned enterprises (SOEs).
- Polish SOEs also invested nearly PLN11.8 billion (€2.8 billion) per year between 2014 and 2016 in fossil fuel-based power generation, and PLN5.8 billion (€1.4 billion) per year in oil and gas production over the same period.
- Energy tax breaks are provided for fossil fuel consumption by the industry, agriculture and transport sectors, as well as by households. However, estimates on the value of these subsidies were not found.

Status of the energy transition in Poland

Poland has a large coal mining sector; it employs around 100,000 workers (IEA, 2017). It is the second largest coal producer in Europe overall (including lignite), after Germany, though it produced the largest amount of hard coal by a factor of three (EIA, 2016). However, coal production has declined over the past decades, with the amount of halving between 1978 (its peak) and 2015 (IEA, 2017). Poland has been a net importer of coal since 2008, except in 2015 when it was a net exporter (EIA, 2016; Green Budget Europe et al., 2017; IEA, 2017). In recent years, the cost of coal production has increased and coal prices have fallen, which is reducing profitability of the Polish coal mining industry (EIA, 2016). In contrast, domestic oil production is small, leading to a dependency on imports. One third of natural gas is produced domestically, while the rest is imported (IEA, 2017).

In Poland; 81% of electricity generation is based on coal, the highest share in all International Energy Agency (IEA) member countries (World Development Indicators (WDI), 2017; IEA, 2017). The shares of renewables, gas and oil in electricity generation are much lower, at 14%, 4% and 1% respectively (IEA, 2017). This strong reliance on coal results in Poland's economy being one of the most carbon-intensive of the member countries of the Organisation for Economic Co-operation and Development (OECD, 2015a; 2015b; European Commission, n.d.). None the less, Poland has been showing a slow transition away from coal-fired power towards oil, gas and renewables.

Poland has set targets for renewable energy and energy efficiency: the National Action Plan on Energy from Renewable Sources, adopted in 2010, sets targets for the share of energy from renewable sources in the transport, electricity, heating and cooling sector, to achieve a 15% share by by 2020, which is lower than the EU target of 20% (IEA, 2017). The National Action Plan for Energy Efficiency for Poland 2014 sets out the adopted and planned measures to improve energy efficiency in the individual sectors and to achieve 20% savings in energy consumption by 2020, in line with EU commitments (IEA, 2017). Despite these targets, support to renewables other than biomass is limited (IEA, 2017).

Status of fossil fuel subsidy phase-out in Poland

The European Union (EU) including all its Member States have committed to phasing out environmentally harmful subsidies, including those to fossil fuels, by 2020 (European Commission, 2011). In addition, EU Member States are committed to phasing out subsidies to hard coal mining by 2018. As party to the Paris Agreement, Poland has also committed to '[m]aking finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development' (United Nations Framework Convention on Climate Change (UNFCCC), 2015). As a member of the EU bloc that is party to the G7, Poland has committed to phasing out its 'inefficient' fossil fuel subsidies, and called on all countries to do so as well, by 2025 (G7, 2016). As a member of the EU, and therefore a part of the G20, Poland has repeated its commitment to phase out fossil fuel subsidies every year since 2009 (G20, 2017). Subsidies to coal mining have been decreasing, in line with the EU commitment.

In 2012, the government introduced an excise tax on coal, and it is gradually phasing out some of its support to coal mines. Current subsidies to coal mining are mainly focused on alleviating the costs of closing mines, rehabilitating sites and supporting the workforce transition (van der Burg, 2017).

Overview of fossil fuel subsidies by Poland

The government of Poland does not publish an inventory of its fossil fuel subsidies or environmentally harmful subsidies. This contrasts with Germany, which demonstrate higher transparency in publishing such inventories (see Whitley et al., 2017). In the absence of systematic government reporting or a roadmap for the phase out of fossil fuel subsidies, it is challenging to assess whether Poland is on track to meet its subsidy phase out commitments.

Due to limited transparency, our analysis found no data for 56% the fiscal support measures, and 25% of the investment by SOEs, identified for this report.

Based on available information Table 1 below provides an estimate of the scale of Poland's fossil fuel subsidies on average per year between 2014 and 2016 (using publicly available sources).

We find subsidies have primarily been provided through state-owned enterprise (SOEs) investment of PLN18.8 billion (€4.5 billion)[1] per year between 2014 and 2016, of which PLN11.7 billion (€2.8 billion) per year supported fossil fuel-based power generation, and PLN5.8 billion (€1.4 billion) supported oil and gas production. It is likely that significant investments are also provided through major state-owned coal companies, but information about the scale of these investments is very limited.

Subsidies are also provided through fiscal support (including budget expenditure and foregone revenue in the form of tax exemptions) of at least PLN1.8 billion (€555 million) per year was provided between 2014 and 2016.

Investment by Polish public finance institutions was at least PLN416 million (€159 million) per year between 2014 and 2016.

1. Yearly average exchange rates are used throughout in all currency conversions, which are taken from this website: http://www.canadianforex.ca/forex-tools/historical-rate-tools/yearly-average-rates

For more information on the sources of data and the methodology used in this report, please refer to the Methodology chapter of the summary report, *Phase-out 2020: Monitoring Europe's fossil fuel subsidies*[2].

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Coal mining

Domestic, and EU countries

While data is very limited, subsidies continue to be provided to coal mining through fiscal support, public finance, and through state-owned coal companies – a significant portion of which appears to support the transition away from coal production.

Several subsidies support the decommissioning of coal mines and provide transition support to affected communities. Most recently, in November 2016, the European Commission approved PLN8 billion (€1.8 billion) in state aid to alleviate the impact of closing uncompetitive coal mines by 2018 (including transition support for workers, and covering the costs of closing down and rehabilitating mines) (European Commission, 2016). This was not included in the data analysis as it will be disbursed beyond the time period of this study.

The Aid for Coal Mine Decommissioning programme started in 1991 as part of the plan to make the coal mining sector profitable by covering the costs of dismantling equipment and protecting coal mines from hazards. The state committed to continue the programme until at least 2015 (Nettg, 2011). No updates on the programme have been available since then, and data on the amount of support provided is only available up to 2011 (OECD, 2015b).

The state also provided support to miners through Aid for Employment Restructuring and Early Retirement Benefits for Laid-Off Miners. The former started in 1998, with an aim to bring about a reduction in unemployment in the mining sector without a significant loss of welfare of the dismissed workers. Data on the amount of support provided is only available up to 2006 for the former and 2011 for the latter.

The Rehabilitation of Regions Damaged by Coal-Mining Activity scheme forms part of the broader restructuring programme. The state is committed to continue the programme until at least 2015, as outlined

Table 1. Subsidies to fossil fuel production and consumption by Poland, by activity (PLN millions, average 2014-2016)

Activity / instrument	Production				Consumption					TOTAL
	Coal production	Oil and gas production	Electricity production	Mutiple activities or unclear	Transport	Industry and business	Households	Agriculture	Multiple activities or unclear	
Fiscal support (Budget expenditure + tax exemptions + price or income support)	63	230	1,374	0	n/a	157	n/a	n/a	0	**1,824**
Public finance	350	67	0	0	0	0	0	0	0	**416**
Domestic and EU	*20*	*67*	*0*	*n/a*	*0*	*0*	*0*	*0*	*0*	*86*
International (outside EU)	*330*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*330*
State-owned enterprise investments	1,269	5,791	11,746	0	0	0	0	0	0	**18,806**

Notes: This table is in the local currency, but numbers are compiled in Euros for the overall analysis presented in the summary report. For sources and data, see country data sheet available at: odi.org/Europe-fossil-fuel-subsidies

2. Available at odi.org/europe-fossil-fuel-subsidies

in a document adopted by the European Council (Nettg, 2011), but data on the amount of support is not available beyond 2011 (OECD, 2015b).

Of the six total fiscal support measures identified for coal mining, four are supporting the transition away from coal.

In addition to the transition support outlined above, the Polish government spent PLN31.4 million (€7.5 million) on average per year on coal-related research, development and demonstration (RD&D), and PLN31.3 million (€7.4 million) per year on carbon capture and storage (CCS) (IEA, 2017).

Poland also previously had two entirely state-owned mining companies: Kompania Węglowa (KW), the largest coal producer in Europe, and Katowicki Holding Węglowy (KHW). Although there is very limited historical information on the activities of KW and KHW, including their annual capital expenditure or other investment data we were able to identify the following support. In April 2016, state-owned utilities invested PLN2.4 billion (€550 million) to establish Polska Grupa Górnicza (PGG) (Polish Mining Group), and in the process, bailed-out KW so it would avoid bankruptcy (EIA, 2016; Polish Prime Ministry, 2016; Financial Observer, 2016). In April 2017 PGG also bought the assets of KHW by investing PLN75 million (€18 million) (Warsaw Business Journal (WBJ), 2017). This amount was not included in the analysis as it goes beyond the dates of this study.

Bogdanka, another coal company which used to be completely privately-owned, is now 66% owned by the majority state-owned energy company Enea (see 'Electricity production' for more information). This gives the state decision-making power in Bogdanka's activities. The total investments by Bogdanka S.A. averaged PLN462 million (€106 million) per year between 2014 and 2016 (Bogdanka, 2014; 2015; 2016).

The state-owned Polish Development Fund (Polski Fundusz Rozwojowy, PFR) offers instruments supporting the development of companies, local governments and individuals. Data was not found on the amount of support provided by PFR for fossil fuel projects.

International (outside the EU)

The Polish Export Credit Insurance Corporation Joint Stock Company (KUKE) provides insurance to Polish companies for projects in Poland and abroad. While a comprehensive list of their portfolio is not publicly available, projects they have financed in the past include the supply of mining equipment to the Amasra B Coal Mine in Turkey worth PLN330 million (€138 million) per year between 2014 and 2016, and financing for the company Famur, which provides equipment and machinery, primarily for the mining industry (KUKE, n.d.; 2016a).

Oil and gas production

Domestic, and EU countries

There are six oil-producing companies in Poland, of which the 72% state-owned Polish Oil and Gas Company (Polskie Górnictwo Naftowe i Gazownictwo, PGNiG) is by far the largest, accounting for 98% of production. Most of the oil produced comes from onshore wells, while another state-controlled company, PetroBaltic, produces small volumes offshore (OECD, 2012). PGNiG invested over PLN3.4 billion (€801 million) per year in between 2014 and 2016 (PGNiG, 2014; 2015; 2016).

The LOTOS Group, which is 53% state-owned, carries out oil refining, distribution and retailing (OECD, 2012). LOTOS invested PLN1.2 billion (€291 million) per year over the same period (LOTOS, 2016).

A wholly state-owned petroleum logistics company, Przedsiębiorstwo Eksploatacji Rurociągów Naftowych (PERN), operates oil storage and pipeline facilities. We were unable to identify further information on the annual investments or capital expenditures of PERN.

According to IEA data, the Polish government spends PLN59 million (€14 million) per year on average on oil and gas-related RD&D (IEA, 2017).

The 100% state-owned Gaz-System Group is responsible for the transmission of natural gas and management of the transmission network in Poland. Gaz-System invested PLN1.9 billion (€284 million) per year on average between 2014 and 2015 (Gaz System, 2014; 2015).

Financing was also provided by KUKE for Avalon Sea, a vessel designed to support offshore drilling in harsh Arctic conditions (KUKE, 2016b).

The state-owned investment bank, Bank Gospodarstwa Krajowego (BGK), finances a number of projects power, hydrocarbons (oil and gas), transport and logistics sectors, through the Infrastructural Investment Equity Fund (FIZAN) (BGK, 2015). Limited information is available on the financing provided by BGK, but includes PLN1 billion (€239 million) financing for PGNiG in 2014, for maintaining extraction capacity, diversification of gas supply sources, use in activities connected with crude oil and natural gas deposit prospecting and exploration, and energy sector construction (BGK, 2015). This was not included in the analysis to avoid double counting of support, as investments by PGNiG were separately covered.

Electricity production

Domestic, and EU countries

Subsidies towards fossil fuel fired power generation are provided through a number of fiscal support measures. A major support programme is the Stranded Costs Compensation, which provides subsidies to coal power plants to compensate them for the termination

of long-term power purchase agreements (PPAs), a programme started in the 1990s to modernise the domestic electricity sector. Between 1994 and 1998 the programme awarded new modernised projects long-term PPAs for their generation capacity, and the state network operator had a purchase obligation for a guaranteed volume of electricity at a guaranteed price. The last PPA was due to expire in 2027.

However, in November 2005, the European Commission opened an in-depth investigation into PPAs. In response, Polish authorities worked out a draft law that foresees the end of PPAs and a compensation system to the coal power plants in line with the EC's methodology for analysing state aid linked to stranded costs. This compensation scheme provided PLN742 million (€177 million) of support in 2014 (OECD, 2015b). No data is available for after that date.

In Poland, the Operational Capacity Reserve (OCR)[3] was launched in 2014 as a response to the oversupply of electricity and low prices threatening the profitability of some plants (Bayer et al., 2015). In 2016, the Polish government budgeted PLN500 million (€117 million), 20% higher than in 2015, for OCR payments (Towarzystwo Obrotu Energia (TOE), 2016). Research by the Regulatory Assistance Project (Bayer et al., 2015) shows that the mechanism has increased costs to consumers, while it has failed to address electricity system stability problems.

The Intervention Cold Reserve, also introduced at the start of 2016 (TOE, 2016), is another interim measure; this is for old coal plants that were scheduled for retirement but for which retirement has been postponed to address electricity system stability concerns. The maximum annual cost of maintaining the strategic reserve is estimated at PLN174 million (€41 million) (Bayer et al., 2015).

Poland is currently in negotiations with the European Commission over a new proposed capacity mechanism. According to Krzysztof Tchorzewski, Poland's Energy Minister, this will be necessary not only to avoid power shortages but also to 'help coal-fired power plants compete with producers of renewable energy' (Euractiv, 2016). This could add a significant amount of support to coal in addition to the support already provided through the above measures. The total costs of this proposed capacity market have been estimated at PLN7 billion (€1.8 billion) between 2021 and 2030 (Client Earth, 2016). This value was not included in this analysis as it is outside the period of this study. The Polish government revised the draft law for a capacity market in May 2017, allowing the participation of foreign firms and the inclusion of demand-side response measures, as a way to help win EU approval from Brussels following criticism of the initial bill's shortcomings (Montel, 2017).

The Renewable Energy Supply (RES) Act, introduced in 2015, replaces the certificate system and aims to limit support by halving subsidies for the co-firing of biomass in coal plants. But this limitation will not apply to biomass co-firing installations that meet the criteria defined in the new RES Act (Norton Rose Fulbright, 2015). A study suggests the new auction system set to replace the certificates still seems to favour co-firing in coal-fired power plants over renewable energies (Wiśniewski, 2016).

Although an excise tax on coal was introduced on 1 March 2009, coal used for heating purposes was exempt from the excise tax on coal until 1 January 2012. Since then, the following certain uses of coal have been exempt from the excise tax on coal: use in electricity generation or as input in production of other energy products, use in combined heat and power generation, and use in consumption in certain sectors (see sections on Transport, Industry and business, Agriculture, and Households below) (OECD, 2012). However, our analysis found no data on the total estimate of this subsidy, and no information on whether this subsidy is continued beyond 2012.

Under the EU Emission Trading Scheme (ETS), economic operators (utilities and industry) are required to obtain emission permits or allowances for each tonne of CO2 they emit. Although auctioning is supposed to be the default mode for acquiring emission allowances, close to half the total allowances are still handed out to polluters for free. As a result, in its current design the EU ETS provides a considerable amount of subsidies to carbon-intensive operators in the form of free allowances.

Article 10c of the EU ETS Directive allows lower-income EU Member States to give free allowances to electricity installations on the condition that they invest the equivalent monetary value in the modernisation and diversification of their energy systems (Carbon Market Watch, 2016). Considering the prominent role of coal in Poland's energy mix, it is likely that the biggest share of these investments benefit coal. The support provided includes investments in Belchatów, Europe's largest coal power plant and a major source of air pollution (Bankwatch, 2016).

Substantial support is also provided towards fossil fuel-powered electricity generation through a number of majority state-owned enterprises. Energy company Polska Grupa Energetyczna (PGE), Poland's largest, is 57% owned by the Polish State Treasury. In 2016, it generated 54% of the total electricity in the country, far more than each of the other major four energy companies (the majority state-owned Enea and Energa, and the private Tauran and ZE PAK) (PGE, n.d.). Based on the share of fossil fuels in their

3. Capacity mechanism: A mechanism that rewards market participants for available capacity, on top of revenues generated by selling electricity in the wholesale market. These payments are meant to ensure security of supply by incentivising sufficient investment in new capacity or preventing the retirement of existing capacity (van der Burg and Whitley, 2016).

electricity generation: PGE provided over PLN7.2 billion (€1.7 billion) of support per year, between 2014 and 2016 (PGE, n.d.); Enea provided PLN2.7 billion (€636 million) of support per year towards fossil fuels between 2014 and 2016 (Enea, 2016a); and Energa provided PLN 1 billion (€187 million) of support per year towards fossil fuels between 2014 and 2016 (Energa, 2014; 2015; 2016).

Poland's transmission grid is operated and owned by the fully state-owned Polskich Sieci Elektroenergetycznych (PSE). Based on the share of fossil fuels in Poland's electricity generation (815), PSE spent almost PLN1 billion (€248 million) on average per year in capital expenditure (PSE, n.d.)

Transport

In the transport sector, an energy tax relief for diesel is provided, in which diesel is taxed at a lower rate than gasoline (European Environment Agency (EEA), 2016). Furthermore, passenger transport is exempt from VAT. International passenger transport services by sea, air and railway are taxed at a zero rate. All other international passenger transport services as well as domestic transport services by any mode are taxed at a reduced rate of 8% (European Commission, 2014). Estimates for this support were not found in this analysis.

Coal is exempt from excise duty if it is used for rail transport of cargo and passengers (OECD, 2012). Our analysis found no data on the total estimate of this subsidy, and no information on whether this subsidy is continued beyond 2012.

Industry and business

Energy-intensive industries are granted a tax exemption on use of natural gas. In general industries are committed to pay a tax of €1.10/MWh, but industries with energy intensity above 5% are exempted from the excise tax (ECOFYS et al., 2016). Coal is exempt from excise duty if it is used by energy-intensive industries for heating purposes, and by business entities that implement systems aiming to foster environmental protection or increase energy efficiency (OECD, 2012).

Agriculture

The agricultural sector benefits from rebates on diesel fuel tax in farming. These rebates compensate for the minimum tax rate of €21 per 1,000 litres of diesel fuel used for farming purposes. The values are limited to 86 litres per hectare of utilised agricultural area and the Minister of Agriculture and Rural Development determines the exemption rate on a yearly basis (OECD, 2016).

Coal is exempt from excise duty when used in agriculture, horticulture, fish farming and forestry (OECD, 2012). Our analysis found no data on the total estimate of this subsidy, and no information on whether this subsidy is continued beyond 2012.

Households

Since 2008, private households benefit from a tax exemption on natural gas. Until 2010, VAT was the only tax on natural gas, at a rate of 23% in 2011. Since 2013, an excise tax accounts for less than €0.01/kWh (ECOFYS et al., 2016). Our analysis found no data on the total estimate of this subsidy.

As mentioned above, coal is exempt from excise duty if it is used for heating in households (OECD, 2012).

Coal miners also received in-kind coal support, including a free provision of coal for heating and water-warming purposes; cash equivalents have now been introduced. The total amount of coal allowance was PLN13.5 billion (€3.2 billion) in 2014 (OECD, 2015b).

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For the purposes of this country study and accompanying country data sheet, fossil fuel subsidies include: fiscal support from governments (budgetary support, tax breaks, and price and income support), public finance, and investment by state-owned enterprises (SOEs). The years for which data was collected and analysed is 2014, 2015 and 2016, and findings are expressed in annual averages across this period.

The summary report *Phase-out 2020: Monitoring Europe's fossil fuel subsidies* provides a more detailed discussion of the methodology used for this country study. The authors welcome feedback on both this country study and the accompanying country data sheet to improve the accuracy and transparency of information on fossil fuel subsidies.

Overseas Development Institute
203 Blackfriars Road
London SE1 8NJ
Tel +44 (0)20 7922 0300
Fax +44 (0)20 7922 0399
www.odi.org
info@odi.org

CAN Europe
Rue d'Edimbourg 26
1050 Brussels, Belgium
Tel: +32 (0) 28944670
www.caneurope.org
info@caneurope.org

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