Brief

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

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Greece

Key findings

Leading on phasing out fossil fuel subsidies by:

- Due to the current austerity policies in Greece, the majority of national fossil fuel subsidies were reduced between 2013 and 2014. The exception is the heating allowance for households.
- The government has introduced a lignite fee to tax coal-fired power stations, as well as a local community tax, to support mining communities in the transition away from coal.

Lagging on phasing out fossil fuel subsidies by:

- Greece's transparency and reporting on fossil fuel subsidies remains relatively poor compared with other European countries including France, Germany, Italy and Sweden. The fossil fuel estimates in this study are therefore likely to be underestimates.
- The Public Power Corporation (PPC), a majority state-owned energy company, spent €3.6 billion per year in fossil fuel-related infrastructure and operations between 2014 and 2016.
- Significant national subsidies are provided to the electricity sector. It is estimated that each year €306 million is provided to fossil fuel generators under the capacity mechanism and €325 million to combined-cycle gas turbine plants, under the cost recovery mechanism.

Status of the energy transition in Greece

Greece has been slow in privatising its energy sector, and it is largely characterised by incumbents with low levels of competition (Michalopoulos, 2015; Gotev and Michalopolous, 2015; International Energy Agency (IEA), 2011).[1]

Public Gas Supply (Δημόσια Επιχείρηση Αερίου, DEPA), the Greek natural-gas importer and distributor, is 65% state-owned, and in 2015 was responsible for 90% of the wholesale and 51% of the retail market (Michalopoulos, 2015; Organisation for Economic Cooperation and Development (OECD), 2011). The National Natural Gas System Operator (Διαχειριστής Εθνικού Συστήματος Φυσικού Αερίου Α.Ε., DESFA), established as a subsidiary of DEPA, is working to liberalise the gas market (Energy, Oil and Gas, 2017).[2] Despite these efforts, natural gas prices remain high, and Greek consumers pay an average of 35% more than western European consumers (Gotev and Michalopolous, 2015).

Domestic production of oil and gas is limited,[3] however Greece shows potential for new offshore oil and gas, and coal bed methane production (Oxford Energy, 2017; Eurostat, 2017). Most of Greece's oil and natural-gas consumption is dependent on imports (IEA Clean Coal Centre, 2015).

In terms of coal, Greece produces more lignite per capita than any other country in the world: a total of 33 million tonnes in 2016 (of oil equivalent) (Oxford Energy, 2017; World Energy Council, 2017). It still has significant reserves, estimated to be 3 billion tonnes in 2014 (of oil equivalent) (BP, 2015). The Greek electricity system is dominated by lignite-fired power, which provides 46% of the electricity supply, with lower contributions from natural gas (14%) and oil (11%), and the remainder from renewables and hydroelectricity (World Development Indicators (WDI), 2017). The share of natural gas, renewables and lignite has declined over the past decade. In comparison, oil is the primary energy source for the Greek islands (49% of total primary energy) (Grigoriou, 2015; Eurostat, 2016).

The 51% state-owned energy company Public Power Corporation (PPC) sold 96% of the final electricity supply in 2015 (PPC, 2015). The government has committed to lowering PPC's supply market share to 50% by 2020, but measures have not yet been adopted to implement this goal (Michalopoulos, 2015). PPC also benefits from preferential access to domestic coal reserves, including lignite reserves, of which approximately 98% are state-owned (Gotev and Michalopolous, 2015).

The Greek government has stated that it intends to diversify its energy sources and reduce emissions intensity, including through increasing the share of renewables to 20% of final energy consumption by 2020 (OECD, 2016). This is in line with the EU decarbonisation objectives. However, Greece is not yet on track to meet these commitments, with regulatory and budgetary support to wind and solar photovoltaic (PV) energy declining (Worrall and van der Burgh, 2017; European Commission, 2017, Roadmap 2050, 2017; Price of Oil, 2017).

Status of fossil fuel subsidy phase-out in Greece

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, Greece 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 G20, Greece has repeated its commitment to phase out fossil fuel subsidies every year since 2009 (G20, 2017). As a member of the EU bloc that is party to the G7, Greece has committed to phasing out its 'inefficient' fossil fuel subsidies, and called on all countries to do as well, by 2025 (G7, 2016). Together with 40 other countries and hundreds of companies, Greece signed a communiqué in 2015 calling on countries to eliminate inefficient fossil fuel subsidies (Friends of Fossil Fuel Subsidy Reform (FFFSR), 2015).

Following a Memorandum of Understanding between the European Commission, the government and the Bank of Greece, the government introduced new support measures for fossil fuel consumption in certain sectors in 2015. However, the government has also reduced subsidies, by increasing the level of taxation on oil products, and introducing a lignite fee to electricity power stations in 2012 (charged at a rate of €2 per megawatt hours (MWh) (OECD, 2016). Had such a lignite levy been imposed since 1990, it would have generated approximately €1.4 billion to date (Mantzaris, 2017).

Overview of fossil fuel subsidies in Greece

The government of Greece does not publish an inventory of its fossil fuel subsidies or environmentally harmful subsidies. This contrasts with Germany, which demonstrates greater transparency by publishing such inventories. A relatively

1. In 2001 the Greek government reached an agreement with the European Troika – European Commission (EC), European Central Bank and International Monetary Fund (IMF) – on a privatisation programme (Gotev and Michalopolous, 2015).
2. In spite of efforts, the stake in DESFA has not been sold to Azerbaijan's State Oil Company of the Azerbaijan Republic (SOCAR) (Michalopolous, 2015).
3. Total production of natural gas was 0.009 million tonnes of oil equivalent and crude oil was 0.06 million tonnes of oil equivalent (Eurostat, 2017).

small number of subsidies were identified in this analysis (in comparison to countries such as Germany, France and Italy). Due to limited transparency, our research found no data for 54% of the fiscal support instruments and 14% of the state-owned enterprise (SOE) investments identified for this report.

Despite Greece's commitments to phase out fossil fuel subsidies, the government continues to provide support domestically to all sectors reviewed in this brief through national subsidies, public financing and SOE investment.

Table 1 below provides an estimate of the scale of Greece's fossil fuel subsidies between 2014 and 2016 (using publicly available sources).

Domestically, most of the fiscal support identified was for electricity production, amounting to €325 million per year between 2014 and 2016. Fiscal support to fossil fuel consumption was also high, with €190 million per year provided to households (2014-2016). In particular, it is worth noting the 'Services of General Interest' subsidy, worth €570 million per year (2014-2016), which covers the difference between electricity tariffs on the mainland and diesel usage in the islands (categorised as 'Multiple activities or unclear' fiscal support in Table 1). Support through PPC for fossil fuel production infrastructure and operations is also significant, estimated at €3.6 billion per year between 2014 and 2016.

The following sections give more detail on subsidies provided to the production and consumption of oil, gas and coal, and to fossil fuel-powered electricity. The summary below is not comprehensive; the full list of subsidies can be found in the Datasheet.

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*.

Coal mining

Domestic, and within Europe

PPC is investing in new coal mining infrastructure assets in Greece and benefits from royalty exemptions for the extraction of coal (PPC, 2014; 2015). Investments include improvements to equipment, excavation costs and land expropriation for its mining activities in Megalopolis and Western Macedonia (PPC, 2014; 2015). These investments averaged €116 million per year between 2014 and 2015 (PPC, 2014; 2015). The government also provides compensation for mining communities through financing generated by the 'local communities tax'; estimates for this support were not found during our research (OECD, 2016).

Oil and gas production

Domestic, and within Europe

The government has provided loan guarantees to new fossil fuel production infrastructure projects, to assume the risk of default on loans; this has resulted in companies receiving more beneficial loan terms (WWF Greece, 2017; Mantzaris,

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

	Production				Consumption					
Activity / instrument	Coal mining	Oil and gas	Electricity	Multiple or unclear	Transport	Industry and business	Households	Agriculture	Multiple or unclear	TOTAL
Fiscal support (Budget expenditure + tax exemptions + price and income support)	0	0	325	1.7	7.1	362.6	190	53.93	570	**1,510**
Public finance	0	0	0	0	0	0	0	0	0	**0**
Domestic and EU	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
International (outside EU)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
State-owned enterprise investment	116	0	921	2,570	0	0	362	0	0	**3,968**

Note: For sources and data, see country data sheet and summary report available at odi.org/Europe-fossil-fuel-subsidies

2017). Since 2011, loan guarantees of this nature provided to PPC amounted to €109 million per year for natural gas and diesel oil projects (Mantzaris, 2017).

Electricity production

Domestic, and within Europe

The government is providing significant budgetary support to the electricity sector. In 2014 alone, the capacity mechanism[4] awarded €306 million to gas- and coal-based electricity producers (Capros, 2014). This included €149 million for PPC lignite power plants, and €157 million for gas-fired power plants operated by PPC and independent gas power producers (Capros, 2014). A cost recovery mechanism,[5] established in 2008, also compensates combined cycle gas turbine (CCGT) plants with fuel costs equivalent to 10% of the total fuel costs (Mantzaris, 2017). This rewards CCGT plants for (multi-hour) flexibility and (less than one hour) ancillary services, and is worth €325 million per year (Mantzaris, 2017).

Other support measures have also been introduced. In 2013, €578 million was provided for fossil fuel-generated electricity services under the Public Service Obligation uniform tariff (calculated as the proportion of Greece's electricity from fossil fuels) (Regulatory Authority for Energy (RAE), 2015). Under this measure, electricity suppliers are compensated for providing consumers at non-interconnected islands and remote micro-grids, at tariffs equal to those of the mainland interconnected system. Electricity suppliers are also compensated for providing families with more than three children at reduced tariffs (RAE, 2015). More recent estimates for 2014-2016 were not found in this study (this estimate is therefore not included in the data calculations).

Excise tax exemptions apply to coal (lignite) and coke used for the generation of electricity (OECD, 2015). However, estimates for the total amount of support resulting from this measure were not found by this analysis. In 2014, excise tax refunds for fuels used in the manufacture of energy products (for intra-EU use) dropped by almost €3 million, to €1.7 million, compared with the previous year (OECD, 2015).

PPC invests an average of €2.4 million per year to maintain fossil fuel power plants and operations, including for imports of liquid fuels, natural gas, coal and energy (PPC, 2014; 2015). Between 2014 and 2015, annual average investments in the distribution of fossil fuel electricity were equivalent to €157 million (based on 71% contribution of fossil fuels to the electricity system) (PPC, 2014; 2015).

PPC has invested in new lignite- and gas-fired power capacity in Greece. In 2014, €299 million was invested in a new 417 MW unit at the Aliveri lignite power plant (total investment to the end of 2014) (PPC, 2014). Another €1.4 billion investment is being invested in the new 660 MW electrical unit at the Ptolemaida lignite-fired power plant, with an additional district heating capacity of 140 MW, which is due to come online in 2020 (PPC, 2014; Platts, 2017). Between 2009 and 2014, €489 million had been invested in the Megalopolis power plant for the development of the new gas cycle unit and network connections (PPC, 2014). The New South Rhodes station and Thira Autonomous Power station received investments in new diesel engines and gas turbines, but data on the amounts was unavailable (PPC, 2014). In addition, PPC receives tax benefits and invests in its energy subsidiaries, which also operate in the fossil fuel value chain.

PPC benefits from annual compensation for the payment of social electricity tariffs at below market rates (including to large families) (PPC, 2014; 2015). Support for fossil fuel-based power generation under this measure was estimated at €255 million in 2014 (calculated based on 71% contribution of fossil fuels to electricity) (PPC, 2014; 2015).

Transport

The majority of national subsidies supporting transport are fuel tax exemptions. For example, natural gas used as motor fuel is taxed at a reduced rate of 19% compared with the standard VAT rate of 24% (as of 2011) (OECD, 2016; 2017; European Commission, 2014b). Energy taxation applied to diesel is also lower than for petrol (EEA, 2016).[6] Estimates on this support were not found by this analysis.

The domestic shipping sector, including fishing boats, received excise tax refunds on fuels equivalent to €7.1 million, and tourist boats received €0.9 million, in 2014 (OECD, 2015). Commercial flights are exempted from energy tax (European Commission, 2014b). International passenger transport services by both air and sea are taxed at zero rate (estimates were not found by this analysis) (European Commission, 2014b).

4. 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).

5. Cost recovery mechanism: payments provided for gas-fired power plants to recover payments. In this case payments help to recover the cost of fuel expenditures, as a reward for flexibility.

6. On a more positive note, prices for petroleum products in Greece are set freely by the market, with diesel and petroleum prices remaining higher than in other IEA member countries (IEA, 2011).

Industry and business

Fuel taxation is relatively high in Greece, yet the industry and business sectors receive a variety of tax breaks (IEA, 2011). As an example, a reduction on the rate of value-added tax (VAT) is applied to purchases of natural gas is estimated at 13%, which is 10% lower than the standard rate (OECD, 2015).

As we find in several other European countries, different rates of taxation are applied to diesel and petrol products, thereby subsidising the use of diesel. Diesel excise tax is partially refunded when used by industry and commercial enterprises in stationary motors, machines and mechanical equipment, as well as for vehicles which are not intended for use in public roads (also known as the 'Excise Tax Refund for Certain Uses of Diesel Oil') (European Commission, 2014a).[7] When fossil fuels are used for non-energetic purpose, such as materials for plastic production, an exemption of the excise tax also applies (European Commission, 2014a). Estimates of the total amount of support were not identified by this analysis.

Other support measures target the social and hospitality sectors. A refund of any excise tax applies on fuels used for social purposes (hospitals, social solidarity institutions, hotels), which was worth €12 million in 2014 (OECD, 2015).

Under the EU Emissions 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. No data was available on the total value of the permits allocated. Industries across the EU also profit from the ETS because of the overallocation of ETS permits, which they are able to sell off. This generated subsidies for the energy intensive industries worth €349 million between 2008 and 2015, or €44 million per year (Bruyn et al., 2016). However, this value was not included support calculations as it is not a direct subsidy.

PPC has historically provided preferential electricity tariffs to the company Aluminium SA, which accounts for 5% of the country's electricity consumption (Gotev and Michalopolous, 2015; PPC, 2014; 2015). Given that PPC has incurred significant revenue losses from the reduced tariff, PPC is currently supporting arbitration to contest the measure as being a form of state aid, which would be against EU rules[8] (PPC, 2014; 2015; European Commission, 2011; Concurrences, 2017). PPC's reports do not provide detailed financial breakdowns of the arbitration costs for this case, however, the company spent an average of €33 million per year on litigation and arbitration in 2014-2015 (this estimate is not included in the data calculations) (PPC, 2014; 2015).

Households

Natural-gas prices for households in Greece are among the highest in the OECD (IEA, 2011). The government introduced consumer protection rules under its 2011 Law on the third EU Electricity and Natural Gas Market Directives (IEA, 2011); for example, low-income households are granted tax relief for their consumption of heating oil. The Heating Allowance for Households for Space Heating Purposes amounted to €190 million in 2014 (OECD, 2015).

Later in 2014, RAE introduced targeted measures to mitigate energy poverty among private households, including the Social Residential Tariff (RAE, 2014). This included support to short-term unemployed consumers and consumers disconnected from the network due to their inability to pay their electricity debts. In addition, a low-rate Social Solidarity Tariff reduces the electricity bill of certified non-profit institutions providing social care services. No estimates of this support were found.

Given the heavy reliance on expensive diesel oil power plants in the Greek islands, a 'Services of General Interest' support measure is applied to electricity consumers, which is used to cover the gap between electricity tariffs on the mainland and generation costs on the islands (Mantzaris, 2017). This support is estimated at €570 million per year (2006-2015) (Mantzaris, 2017).

PPC has also been providing support to households including through reduced tariffs on electricity for retired employees, as well as contributions to social security (PPC, 2014). Estimates were not found for the total value of this support.

The targeting of subsidies towards low-income households and others in need of support. All of the support measures identified for households in this study were targeted at a particular segment of the population.

Agriculture

Fuels used in the agriculture sector are granted partial excise tax refunds out of a special fund operated by the Greek Payment Agency. In 2014, €54 million was provided in refunds (OECD, 2015). An excise tax refund is provided for fuels used in fishing boats, under a measure for domestic shipping (OECD, 2015). (See further information below in the 'Transport' section.)

7. The reimbursement rate is €125 per 1,000 litres (European Commission, 2014a).

8. Conflicting rulings have been provided by the EC (2011) and European Court of Justice (Concurrences, 2017).

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This country brief is part of a series of 11 country briefs and an EU-level brief, the findings of which are collated in the summary report *Phase-out 2020: Monitoring Europe's fossil fuel subsidies*, available at **odi.org/Europe-fossil-fuel-subsidies**

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.

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