



ISSN 2443-8022 (online)

Energy Reforms in Greece during the Economic Adjustment Programmes

Alexander Ioannidis

DISCUSSION PAPER 166 | JULY 2022

EUROPEAN ECONOMY



Economic and
Financial Affairs

European Economy Discussion Papers are written by the staff of the European Commission's Directorate-General for Economic and Financial Affairs, or by experts working in association with them, to inform discussion on economic policy and to stimulate debate.

DISCLAIMER

The views expressed in this document are solely those of the author(s) and do not necessarily represent the official views of the European Commission.

The cut-off date of this paper was mid-2021.

Authorised for publication by Declan Costello, Deputy Director-General for Economic and Financial Affairs, Coordination of Economic Policies of Member States.

LEGAL NOTICE

Neither the European Commission nor any person acting on behalf of the European Commission is responsible for the use that might be made of the information contained in this publication.

This paper exists in English only and can be downloaded from https://ec.europa.eu/info/publications/economic-and-financial-affairs-publications_en.

Luxembourg: Publications Office of the European Union, 2022

PDF ISBN 978-92-76-52934-7 ISSN 2443-8022 doi:10.2765/961088 KC-BD-22-003-EN-N

© European Union, 2022

Non-commercial reproduction is authorised provided the source is acknowledged. For any use or reproduction of material that is not under the EU copyright, permission must be sought directly from the copyright holders.

CREDIT

Cover photography: © iStock.com/g-stockstudio

Energy Reforms in Greece during the Economic Adjustment Programmes

Alexander Ioannidis

Abstract

This paper summarises the approach taken by the Commission during the Economic Adjustment Programmes to address reforms to Greece's energy market. It will argue that it was necessary to address the sector as part of the programme, and to make energy-related reforms part of the conditionality applied to post-programme surveillance, underlined by the Eurogroup commitments. The paper will explain how the Greek energy sector looked at the outset of the programme, which problems were seen as priorities to be tackled, and how such reform efforts developed. With a lack of competition and poorly functioning markets, necessary investments were not taking place, particularly in the context of the EU's ambitious climate and energy goals. The paper will aim to show that over the years, the programmes were effective in contributing to real structural improvements in the energy markets. Today, the Greek energy sector is greener and more open to competition. Such reforms, with a focus on developing the renewable energy sector, proved to be aligned with the general direction of EU policy, shown by events after the programme such as the European Green Deal and the COVID recovery package, the Recovery and Resilience Facility, which put an emphasis on sustainable investments.

The state of the energy sector has an impact on a country's growth and competitiveness, both in its own right and for sectors that heavily rely on energy inputs. From a social aspect, energy poverty is an important issue to consider. Before entering the macroeconomic adjustment programmes, the Greek energy market was much less developed than that of its EU peers, not as open to competition and lacking investment. Given the importance of energy markets to the wider economy, it was found that a reform programme should also place focus on this area. With this in mind, this paper will argue that the programme was right to put efforts into a systematic reform of the Greek energy market. It will argue that those reforms, sometimes implemented in a different manner to how they were originally envisaged, made good progress, which helped the energy market from both an economic and environmental/climate perspective, with benefits for wider society.

The information provided in this paper was used as an input for the ex-post evaluation of the Greek adjustment programmes during the period 2010-2018. The cut-off date of this paper was mid-2021.

JEL Classification: L33, Q40.

Keywords: Greece, energy, climate, reforms, economic adjustment programme, electricity markets, fiscal, rule, natural gas, infrastructure, privatisation, competition, country focus, financial assistance, Public Power Corporation.

Acknowledgements: The author would like to thank Carlo Viviani (SG-RECOVER) and Markela Stamati (DG ENER) for the useful comments and information and the Country Unit for Greece of DG ECFIN and especially the members who contributed for this publication: Platon Derdemezis, Fotini Dionyssopoulou, Sotirios Giannoulis, Julia Lendvai and Vasilis Nikitas.

Contact: Alexander Ioannidis, European Commission, Directorate-General for Economic and Financial Affairs, alexander.ioannidis@ec.europa.eu.

CONTENTS

1.	INTRODUCTION	4
2.	GREEK ENERGY MARKETS PRE-PROGRAMME	6
2.1.	The Greek electricity sector	6
2.2.	The gas market	7
2.3.	Europe's climate and energy goals	8
2.4.	Public administration	8
2.5.	Environmental protection	9
3.	PROGRAMME INTERVENTIONS	10
3.1	The first programme 2010-2012	10
3.2	The second programme 2012-2015	12
3.3	The ESM programme (August 2015 – August 2018)	13
4.	ASSESSMENT	18
4.1	Overview	18
4.2	Appropriateness of measures and EU value added	20
5.	OVERALL ASSESSMENT AND POST PROGRAMME EVENTS	22

1. INTRODUCTION

The state of the energy sector has an impact on a country's growth and competitiveness, both in its own right and for sectors that heavily rely on energy inputs. The energy sector may also generate large investments in infrastructure and production sites. From the beginning of the financial assistance programmes for Greece, it was evident that significant structural reform was needed in certain areas of the energy sector, and that the sector clearly lacked foreign direct investment. As part of a broader approach to liberalising product and service markets in the Greek economy, opening up network industries was seen as an important driver of growth. Greece's energy market in particular was beset by structural problems and a lack of investment, but also had potential that could be unlocked with the right reforms.

Energy markets impact other markets in a fundamental way. For services and industry, they prove an important input cost and for households they are essential to the quality of life. The energy sector creates externalities from local pollution to carbon emissions affecting the global climate, which also need to be taken into account. The 'energy triangle' underlying EU energy policies tries to balance sustainability, affordability and security of supply ⁽¹⁾. Sustainability is of increasing importance to the narrative of growth, as recognised by the Commission's European Green Deal ⁽²⁾, and reflected in the objectives of the Next Generation EU funds, particularly the Recovery and Resilience Facility, which focuses on funding reforms and investments in support of the green transition.

From a social aspect, energy poverty is an important issue to consider. Though not strictly and consistently defined, the Electricity Directive tasks Member States with identifying 'vulnerable' customers, based on issues such as income levels, the share of energy expenditure of disposable income, the energy efficiency of homes, critical dependence on electrical equipment for health reasons, age or other criteria ⁽³⁾. While definitions may vary, Greece generally is recognised as being a Member State where energy poverty represents a major challenge, though one that is active in both nationally and EU-funded initiatives to try and tackle the issue ⁽⁴⁾. Since 2010, energy prices in the

⁽¹⁾ See for example COM(2019) 285 final, section 1.6- "This system should provide solutions to the global energy and climate challenges based on social consensus, but also on creating value for businesses and society without jeopardising the energy triangle of security and access, environmental and social sustainability, and economic development and competitive growth".

⁽²⁾ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en.

⁽³⁾ Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity, article 28. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019L0944>.

⁽⁴⁾ JRC Science for Policy Report, Energy poverty through the lens of EU research and innovation projects, Gangale, F. and Mengolini, A.

EU rose faster than wages ⁽⁵⁾, which clearly contributed to increasing energy poverty. Tackling energy poverty can only be successful as far as poverty can be reduced; energy prices can only be reduced so far and if household incomes are low even reasonably-priced energy can be a strain. Energy poverty doubtless contributed to the extensive non-payment of electricity bills, which also impacted the market's functioning, but strategic defaulters and a general lack of culture of payments remain significant issues in Greece.

According to national accounts data, the contribution of the energy sector remains relatively low in terms of Gross Value Added (3.6%) and in terms of employment (0.8% of total employment). However, energy contributes as an important element of the general economy and efficient energy markets aid productivity in many other sectors, as a key input to production processes, transport and domestic life.

Given the importance of energy markets in general, energy sector reforms were considered an important element of the Greek reform programme. Greece had an energy market that was much less developed than its EU peers, not as open to competition and lacking investment.

With this in mind, this paper will argue that the programme was right to put efforts into pushing for systematic reform of the Greek energy market and applying conditionality in the form the Eurogroup commitments related to specific achievements in that sector. This paper will attempt to show that energy market reforms were critical to Greek economy and thus formed an important part of the financial assistance programme. It will argue that the energy market reforms pursued in the programme eventually made notable progress, and helped Greece on a wider level both economically and environmentally.

In the energy sector, competition increased, particularly in the gas sector, and the programme years saw a significant change to the energy mix, away from an overreliance on lignite. Nevertheless, Greece still faces challenges in terms of high wholesale prices and market dominance / lack of competition.

⁽⁵⁾ Working Paper on Energy Poverty, Vulnerable Consumer Working Group, https://ec.europa.eu/energy/content/meetings-and-documents-related-vulnerable-consumer-working-group-2012-%E2%80%93-2016_en?redir=1.

2. GREEK ENERGY MARKETS PRE-PROGRAMME

2.1. THE GREEK ELECTRICITY SECTOR

At the outset of the programme, the Greek electricity production sector could be summarised as being heavily reliant on lignite, provided exclusively through the national incumbent, which also dominated the electricity supply sector. This lack of competition hampered investment, particularly in infrastructure and alternative sources of generation.

Given these characteristics, reforms focussed on the national incumbent Public Power Corporation (PPC), which by the end of the economic adjustment programmes was still a majority state-owned enterprise with a position of monopoly in the use of key natural resources (lignite and hydroelectric power). This situation has put the company in a situation of competitive dominance, distorting the market; but it also had negative effects for the company itself, as it was essentially unable to introduce strategic changes to adapt to new conditions, including more stringent climate policies.

The several hundred inhabited islands in Greece pose a specific challenge in terms of transmission of electricity, which becomes more complicated and expensive than for the mainland. Greece deals with a large number of non-interconnected islands, which are off the main grid and have to generate their own power, often relying on oil-based units given their small size, in spite of the generally high potential for solar or wind energy. The approach taken by Greece was a Public Service Obligation (PSO) imposed on PPC to provide energy to the islands at the same price than at the mainland. This obligation would cost on average 900 million a year, representing half a percent of GDP.

Lignite served as a primary energy source, with apparently low marginal cost, that can be used to generate power. Such reliance on lignite meant however that Greece was less inclined to explore more efficient sources, regardless of whether they were exported or used domestically, and to develop renewables. On top, the incumbent's legal monopoly over lignite hampered efficient free market dynamics. The price increase above EUR 30/MWh (Mega watt-hours- a unit of energy) for emission allowances under the Emissions Trading Scheme (ETS) ⁽⁶⁾ puts into serious question the cost-effectiveness of lignite-based power compared to other sources of energy. The issue of the incumbent's market power has affected both the design of the programme and the implementation of commitments, as structural change that was seen to have a large impact on PPC was met with resistance.

In the energy sector, most Member States initially had state-owned companies which were liberalised in due course. At the start of the programme period in 2010,

⁽⁶⁾ Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32003L0087>.

Greece was faced with an extremely dominant player in the market, which, because of its size and its involvement in such a sensitive sector, also exerted influence on social and labour policies. Indeed, since the outset of the first programme, issues with and around PPC were often addressed in the technical discussions on the energy sector. As a large employer, including of rare highly-paid and technical jobs, PPC's activity as a state-owned enterprise was important and any rationalisations or reforms would be considered also through the prism of jobs. Understanding the importance of PPC to the Greek energy sector and to Greece in general, and its interdependence with other sectors, is vital to understanding the nature of the programme intervention in this field.

Energy pricing has been a sensitive issue for both households and businesses. From a social point of view, high energy prices can put a big strain on households, leading to political pressure to keep them artificially low. An additional crucial factor was cross-subsidisation among customer categories, meaning that prices for households across Greece were kept low at the expense of other customers, such as commercial businesses. The above-noted PSO further weakened the company's financial situation.

PPC had a unique role in widespread areas; in electricity generation, on wholesale markets, and on retail markets providing distributed power to houses and businesses (PPC was also the sole supplier to high-voltage heavy industry⁽⁷⁾). It was recognised from the outset of the programmes that an approach bringing competition to the Greek markets was the priority, as this would at the same time benefit consumers and reform PPC.

2.2. THE GAS MARKET

Whilst there is a certain uniformity of needs for electricity in the EU, with adjustments in terms of heating and transport, the size of gas markets and of the associated infrastructure varies across the EU. Greece's gas market was relatively small at the beginning of the first programme, and has not much increased since. This has hampered the opportunity to move to a source relatively cleaner than lignite. It is worth noting that the EU as a whole has committed to climate neutrality by 2050, and to a reduction of greenhouse gases emissions of 55% by 2030. In this context, natural gas is recognised as having a 'transitional' role. Furthermore, infrastructure for natural gas can be future-proofed to support biogases and green (i.e. produced with renewables) hydrogen.

Already in 2013, it was recognised that the structure of the Greek gas market was counter-productive for competition and investment. Long characterised by regional gas distribution companies (EPAs) operating local monopolies, it was not until the ESM programme in 2015 that a complete overhaul of the gas market was put in place. This was fully implemented and focused on liberalisation and privatisation going hand-in-hand.

⁽⁷⁾ Related to this, Greece has been sanctioned for illegal state aid support to LARCO, a company producing nickel. LARCO has among other things an extremely high amount of arrears towards PPC. Decision C (2014) 1818 found that Larco has received State aid incompatible with the internal market.

2.3. EUROPE'S CLIMATE AND ENERGY GOALS

Europe's 2020 climate targets, consisting of a 20% reduction in greenhouse gas emissions, 20% energy from renewables, and a 20% energy efficiency target (based on a projected energy use under business as usual) were a political priority of the EU at the outset of the programme, which needed individual buy-in from Member States to deliver, with some national-level binding targets. The achievement of the targets in Greece was not a direct purpose of the reforms, but the acceleration of the energy and climate transition was an important by-product of the programme. This takes further importance in light of the forthcoming revision of the 2030 national targets and of the goal of climate neutrality by 2050.

Regarding climate goals, Greece at the beginning of the programme period stood out as one of the Member States with a large proportion of its energy mix coming from lignite, which would be incompatible with longer-term climate goals, barring leaps in the introduction of Carbon Capture and Storage (CCS). Even back in 2010, however, it was foreseen that lignite would remain part of the energy mix for the mid-term at least. The programme noted that “it is expected to represent at least one third of electricity in Greece's own energy forecasts for 2020 in the scenario with the highest development of renewables ⁽⁸⁾”. It was clear that renewable energy generation capacity would need to grow, but some mistakes in the design of incentives and the early reluctance of PPC to invest in them were constraining factors, at least in the first years of the programmes.

2.4. PUBLIC ADMINISTRATION

Public administration is a cross-cutting area with specific impact on the energy sector. In accordance with EU legislation, Member States need to have independent energy regulators ⁽⁹⁾ that make specific decisions free from government or stakeholders' influence. As this is an essential element to guarantee effectiveness, some commitments were introduced early in the programme to try to strengthen this element for the Greek energy regulator (RAE). Another element of public administration crucial to energy markets is the issue of licensing. Particularly the licensing of renewables projects, energy plants and infrastructure needs a specific regime to assess their impacts on land use and local environment. It was identified, particularly by market players, that in Greece the licensing process was not efficient, causing project delays and investment uncertainty.

⁽⁸⁾ The Economic Adjustment Programme for Greece First review, summer 2010. https://ec.europa.eu/economy_finance/publications/occasional_paper/2010/op68_en.htm.

⁽⁹⁾ Directive 2003/54/EC and Directive 2003/55/EC. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32003L0054> and <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32003L0055>.

2.5. ENVIRONMENTAL PROTECTION

Some environmental strains facing Greece, particularly regarding air pollution, were exacerbated during the crisis. After many years of improvements, through measures such as car controls, the financial crisis led to a deterioration in air quality, for example from households, who turned to more affordable but more polluting wood for heating as opposed to oil. Whilst not an explicit focus of the programme's energy reforms, it was generally acknowledged that reforms leading to a reduction in lignite use and an uptake in renewable energy, along with progress in clean transport, would also benefit air quality. Air pollution data ⁽¹⁰⁾ show that at the time of the programmes, and still today, a large number of the urban population was exposed to levels of particulate matter (PM10) that were above the EU air quality objectives. Areas such as Western Macedonia had specific problems due to the lignite industry. The interplay between environmental and energy policy aspects was demonstrated with the infringement cases against the Amyntaio and Kardina lignite plants, which were found to be in breach of the Industrial Emissions Directive (IED) 2010/75/EC. Prior to Greece's post-programme decommissioning plan, Greece had been sent a formal notice regarding extending the lifetime of two of its lignite plants beyond the limited lifetime derogation granted in lieu of full compliance with the Directive's emission limit values ⁽¹¹⁾.

⁽¹⁰⁾ Air pollution fact sheet 2014, EEA European Environment Agency.

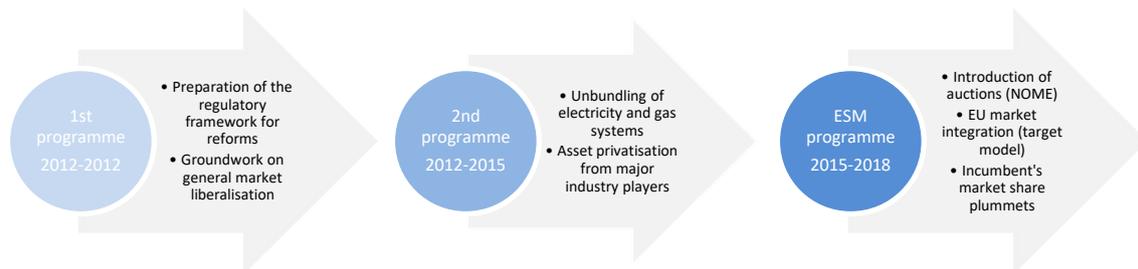
⁽¹¹⁾ Letters of formal notice on air quality:
https://ec.europa.eu/commission/presscorner/detail/en/INF_19_4251.

3. PROGRAMME INTERVENTIONS

3.1 THE FIRST PROGRAMME 2010-2012

Initially, the programmes focused on fiscal and financial affairs primarily and the energy sector was not considered a priority. Still, energy was included already in the first programme, with the initial report on Greece⁽¹²⁾, attaching conditionality to fundamental reforms based on general market liberalisation; ensuring the independence of the energy regulatory and liberalising price setting (see figure below). Indeed these reforms were aimed at setting Greece on the same path as the rest of the EU. The original Memorandum of Understanding requested that Greece applied the terms of the existing acquis with regards to opening the sector to competition, applying market-based tariffs and ensuring more independence for the national energy regulator, and to pursue the ‘unbundling’ of the gas and electricity sector, meaning to divide up the management of production, transmission and supply. Tailor-made approaches were considered for those challenges specific to the Greek market, such as PPC’s monopoly on lignite and hydroelectricity. PPC’s control on the two main baseload sources had a distortive impact on the price of electricity and impacted on the ability of competitors to enter the market.

Figure 1: Overview of Programme Interventions



Source: Author’s own.

An ongoing anti-trust decision of the European Court of Justice, pre-dating the programme, constituted the basis of the reform approach. The decision adopted in 2008⁽¹³⁾, concerned PPC’s monopoly in lignite. It took the view that “despite liberalisation of the electricity wholesale market which started in 2001, PPC continues to enjoy today a virtual monopoly over access to lignite and Greece has protected PPC's dominant position in the electricity market”, and called “on Greece to propose and adopt remedies to ensure sufficient access to lignite by competitors of PPC”. As noted

⁽¹²⁾The Economic Adjustment Programme for Greece 2010, https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-financial-assistance/which-eu-countries-have-received-assistance/financial-assistance-greece_en#first-programme-for-greece.

⁽¹³⁾ Commission Decision 2008/C 93/03, OJ C 93, 15.4.2008.

above, the need to address PPC's unique position underpinned the whole reform of the market. However, regarding commitments and the intervention logic, it should be noted that there was a particular challenge as the commitments assumed by the Greek government needed to be implemented by PPC, a listed company with 49% of private shareholders. The goal of providing market access to 40% of PPC's lignite production in order to remedy the anti-trust issue became one of the key tasks of the energy market reform programme. Regarding the ownership of PPC, the programme also had plans to privatise the company, following the envisaged anti-trust solution.

By the fifth review⁽¹⁴⁾ of the first programme in 2011, it was noted that “energy is one of the policy areas that have accumulated most delays”. Key goals remained as ‘not observed’. Regarding the anti-trust case, progress with measures to grant access to lignite capacity stalled, as identified solutions were deemed unsuitable and proved a lingering challenge to find. Similar issues were seen regarding PPC's hydroelectricity reserves. The underlying intervention logic was that granting competitors access to these ‘baseload’ sources (constant and reliable energy provision that is not intermittent like wind and solar, and provides the minimum requirement to the grid) would encourage more investment in the market.

What had been observed in the review were the more general concerns, dealing with further implementation of the EU's ‘Third Energy Package⁽¹⁵⁾’, aiming at improving the functioning of the internal energy market, in line with the longer-term EU goal of creating a single market for energy, that also addressed climate issues through encouraging renewable energy and energy efficiency. Particularly relevant to Greece were the ‘network codes’, a set of rules issued EU-wide to facilitate the harmonisation and integration of the European electricity markets, and the guidelines issued on their basis for the development of a competitive market for gas and electricity. The programme pushed for the passing of laws regarding the independence of the energy regulator and unbundling provisions were pursued; as a result, in electricity the Distribution System Operator and Transmission System Operator were established as separate legal entities.

Whilst initially the reform of the Greek energy market focussed on lignite, the programme has successively recognised the important of investments in renewable energy. An important driver for incentivising renewable investments was the Renewable Energy Sources (RES) Special Account⁽¹⁶⁾. This account ensured active financial support for the development of renewable energy, paying producers for their generation in line with specific incentives for renewable energy.

As noted above, the main achievement during the first programme was that Greece legislated the new regulatory framework for the operation of electricity and gas energy markets, allowing for the creation of separate companies for

⁽¹⁴⁾ https://ec.europa.eu/economy_finance/publications/occasional_paper/2011/op87_en.htm.

⁽¹⁵⁾ https://ec.europa.eu/energy/topics/markets-and-consumers/market-legislation/third-energy-package_en.

⁽¹⁶⁾ Known in Greece as ELAPA.

network activities. For gas, this meant provisions were passed to allow for an Independent Transmission Operator (ITO)⁽¹⁷⁾ model to be applied for DESFA (the Greek Gas Transmission Operator⁽¹⁸⁾), as well as provisions for DEPA⁽¹⁹⁾ (The Public Gas Supply Company of Greece) and DESFA to be sold as a vertically integrated company (though this sale fell through). However, the reforms fell short in terms of moving to the full ownership unbundling model of the electricity and gas transmission and distribution systems, including a timely transfer of assets and staff to the new company, which would have been critical for the various privatisation processes to proceed as planned.

3.2 THE SECOND PROGRAMME 2012-2015

The second programme placed increasing emphasis on the implementation of the growth-enhancing structural reform agenda. This entailed the development of additional conditionality, including related to energy sector reforms. Building on progress during the first programme but recognising the need for further action, the second programme stated ⁽²⁰⁾: “Electricity and gas transmission systems need unbundling before privatisation”, implying full separation of ownership of the networks from energy operators.

During the second programme, the approach towards PPC’s lignite monopoly changed, though this would not be the last time (indeed the latest approach emerged post-programme). Regarding measures to allow third party access to PPC’s lignite, a goal identified from the outset, the approach changed with the development of the so-called ‘small PPC’ plan, which was agreed and legislated in May 2013. This plan sought to (i) execute full ownership unbundling and privatisation of the transmission operator; (ii) create and sell a new company (“small PPC”) owning approximately 30% of PPC’s generation capacity and mirroring its generation and customers portfolio; and (iii) sell 17% of the PPC shares owned by the Greek government to a strategic investor.

By the fourth review of the second programme, completed in April 2014⁽²¹⁾, it had been noted that electricity market reforms were progressing, given the apparent progress with the PPC privatisation plan and the design of a new electricity market (with the components of a day-ahead, intraday, and balancing market in compliance with the EU target model). However, while progress had been made on the privatisation plan with the identification of the assets to create the new generation

⁽¹⁷⁾ ITO, Independent Transmission Operator is a form of unbundling in which the TSO may remain part of a vertically integrated undertaking.

⁽¹⁸⁾ Hellenic Gas Transmission System Operator. In Greek: Διαχειριστής Εθνικού Συστήματος Φυσικού Αερίου.

⁽¹⁹⁾ In Greek: Δημόσια Επιχείρηση Αερίου.

⁽²⁰⁾ https://ec.europa.eu/economy_finance/publications/occasional_paper/2012/op94_en.htm.

⁽²¹⁾ <https://op.europa.eu/en/publication-detail/-/publication/fe2e91cb-d0e8-47c8-a76f-de6cd8677bb8/language-en>.

company, as well as with the changes in the regulatory regime to facilitate the unbundling of ADMIE (the Greek Electricity Transmission System Operator)⁽²²⁾, its sale, which was managed by PPC, collapsed in the second half of 2014. This was in spite of the process being in a very advanced phase, including concrete and significant expressions of interest by international investors.

It should be noted that in 2014 the gas sector was still completely closed to liberalisation, and following extensive negotiations the government took commitments to allow for more consumer choice, by ending the exclusive right of regional gas companies (EPAs) to develop and exploit the gas distribution network in their area. However, these commitments were not implemented, and it was not until the ESM programme that major progress was made on this front.

At the wholesale/transmission level, an attempt of selling DEPA and DESFA failed due to competition concerns, which the nominated buyer of DESFA was unable to remedy. Regarding the process, it should be noted that energy assets, like other state assets that came under the programme's privatisation remit, were handled by HRADF (Hellenic Republic Asset Development Fund), the privatisation agency set up in 2011. This agency was created to restrict government intervention in the privatisation process, and to ensure further asset development within a fully professional context.

By the close of the second programme, much remained to be done. A workable approach to dealing with PPC had still not been found, and the gas market was still closed to competition. However, small steps had been taken. Regulated electricity prices were removed, and the transportation fuel market was liberalised.

3.3 THE ESM PROGRAMME (AUGUST 2015 – AUGUST 2018)

While the previous programmes were looking at moving Greece towards compliance with the 'Third Energy Package', EU policy had evolved towards a more ambitious setup, with the 'Energy Union' strategy adopted in 2015⁽²³⁾; this would be followed in 2017 by a new legislative package under the political headline of 'clean energy for all Europeans'⁽²⁴⁾. As part of the approach to Governance of EU energy and climate goals, Member States would have to submit 'National Energy and Climate Plans' (NECPs⁽²⁵⁾) in which they outlined how they would achieve their energy and climate targets for 2030.

Stronger ambitions and moves towards completing a single market for energy necessitated a more efficient and integrated Greek energy market. While the emphasis on market reform was always present, with the ESM programme this focus

⁽²²⁾ In Greek: Ανεξάρτητος Διαχειριστής Μεταφοράς Ηλεκτρικής Ενέργειας.

⁽²³⁾ <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/building-energy-union>.

⁽²⁴⁾ https://ec.europa.eu/energy/topics/energy-strategy/clean-energy-all-europeans_en.

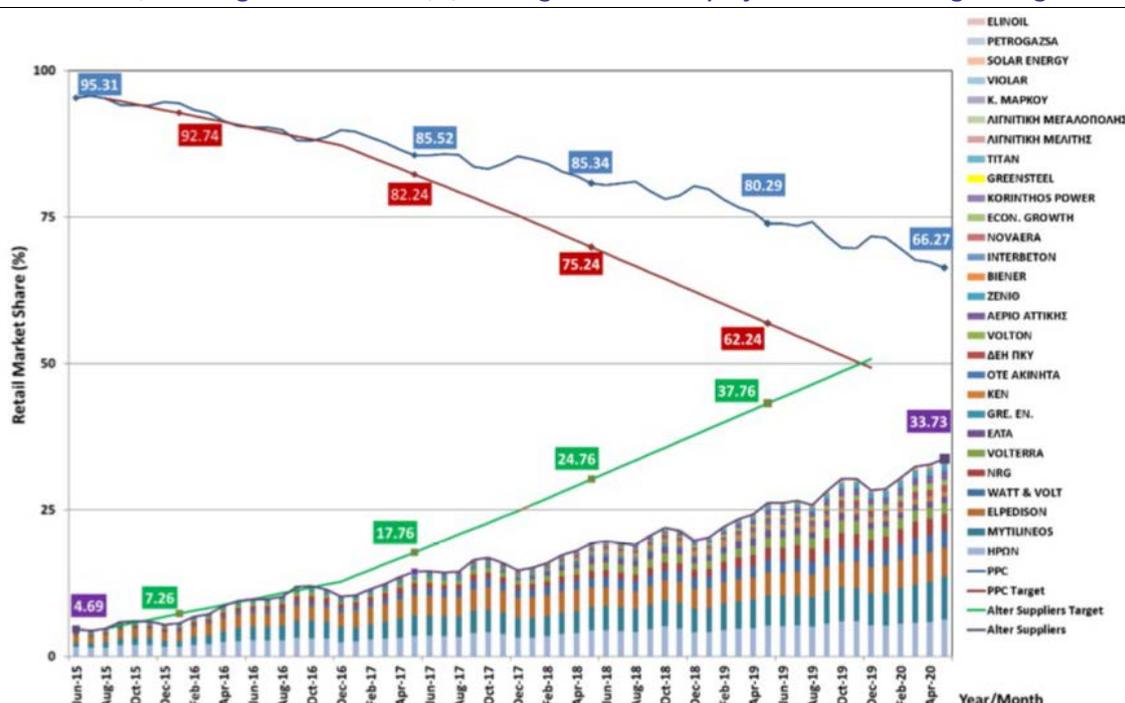
⁽²⁵⁾ https://ec.europa.eu/energy/topics/energy-strategy/national-energy-climate-plans_en#national-long-term-strategies.

was intensified, with a strong attention to the introduction of the “EU target model” for trading and the coupling of the Greek market with other EU markets, such as Italy and Bulgaria. During this time, based on one of the first commitments taken under the ESM programme, the Transmission System Operator ADMIE became fully ownership unbundled in 2017 and is now entirely separated from PPC in terms of assets and operation.

As the Greek government that came to power early 2015 rejected the “small PPC” approach of the second programme, the ESM programme adopted a different approach, which was meant to deliver equivalent results in terms of the reduction of PPC’s market share.

The new agreement was that NOME, or ‘Nouvelle Organisation du Marché de l’Electricité’ auctions would be established in order to open up the Greek market by allowing other market players to acquire additional market share at the retail level. These, as the name suggests, were based on a French model and is based on a law adopted in France as a market opening tool to give alternative market suppliers access to nuclear energy, set at a certain price. In Greece, the NOME auctions took the form of auctions for forward products based on PPC’s power production, set at a reserve price based upon RAE’s calculations of variable costs. The programme initially set a goal of getting PPC’s retail market share to below 50%.

Graph 1.1: Percentage of the total consumption for PPC for the period October 2016 – May 2020 (including the reference (%) for August 2015 and projections according to targets)



Source: EnEx.

While the 50% target was not achieved by the end of the programme, it is clear that the impact of the measure was very significant, driving the market share of PPC from over 95% in August 2015 to 66.27% in May 2020. On top, the reforms facilitated

the emergence of many competitors (see Graph 2.1 ⁽²⁶⁾ which depicts the actual evolution of the retail market share of PPC, as of May 2020).

As noted above, there was a longstanding anti-trust decision of the Commission dating back to 2008, referring to the exclusivity of access to Greece's lignite resources enjoyed by PPC and its impact on competition. This Commission decision, and the following one of 2009 approving the remedies identified by the Greek authorities, were appealed by PPC and never implemented. It was only by December 2016 that the General Court of the European Union confirmed both decisions, making them final and binding.

In parallel to the implementation of NOME, this new element was made part of the ESM programme, and negotiations started to identify the measures to implement the General Court's anti-trust decision, and to ensure fair access to lignite-fired electricity generation for PPC's competitors.

These measures were made legally binding as an anti-trust remedy in a 2018 Commission decision ⁽²⁷⁾. The seemingly final approach to PPC was proposed as a requirement to divest two of its lignite plants, and this became the focal point of post-programme surveillance.

It should be noted that following the end of the ESM programme, the nature of this commitment changed again, based on PPC offering Power Purchasing Agreements to the market, again based on a share of its lignite generation and still on the basis of anti-trust remedy. This clearly shows that, while the approach was flexible in terms of how certain goals should be achieved, it was overall consistent in terms of what was to be achieved, namely an increase in competition in the electricity market.

Overall, it could be maintained that, other than ensuring a better functioning of the market and an improvement in the conditions for consumers, the reforms implemented through the ESM programme also promoted an internal change in PPC. The company is modernising in terms of organisation and operation, and becoming less reliant on fossil fuels (in 2019, the government announced a complete phase-out of Greece from lignite by 2028) and more focused on renewable energy.

Another key element of the ESM programme's energy reforms was the implementation of the EU target model. The target model has also been introduced in other Member States and is based on the establishment of specific component markets in line with the pan-EU 'network codes'. It aims to support the creation of a single European market for electricity, as consistent markets could easier couple with those of their neighbours. At a purely national level, the target model was hoped to form a better basis for price discovery and the remuneration of services such as the balancing⁽²⁸⁾ of

⁽²⁶⁾ Source: Greek Energy Exchange.

⁽²⁷⁾ https://ec.europa.eu/commission/presscorner/detail/en/IP_18_3401.

⁽²⁸⁾ Balancing the supply and demand of power to keep the grid frequency stable.

the grid. Whilst the original timeline was delayed, this key reform in the energy market has been completed and the target model has been launched in November 2020, forming the cornerstone of the new domestic market. The programme also foresaw coupling with the Bulgarian and Italian markets following the launch of the target model.

As far as renewables were concerned, the focus of the ESM programme was on ensuring that the RES Account was financially viable, setting a continuous commitment that remains valid in the post-programme era. Over time, a number of factors led to a strong imbalance of the RES account. These included the large subsidies to RES producers which were not adjusted to take into account the drop in the cost of production as the technology evolved, and a low level of the levy paid by consumers. This had to be corrected also to avoid significant fiscal risks; the measures taken already in 2014 were a retroactive reduction in the subsidies and an increase in the levy paid by consumers. Further measures were taken in the context of the ESM programme, reforming the overall approach to incentives also to take into account the EU State aid guidelines and, as mentioned above, the commitment to keep the RES account balanced is a continuous commitment also in the post-programme.

Regarding gas markets, while earlier reform attempts were started in the form of legal proposals, though not finalised, a decisive step was taken as mentioned with the August 2015 Omnibus law, adopted as a prior action immediately after the finalisation of the ESM programme.

This law removed all restrictions to competition in the gas market, mainly originating from a specific exemption to the application of the Third Energy Package, and separated supply of gas from the operation of the distribution network through unbundling. This reform was underpinned by a roadmap including secondary legislation and regulation, which has been implemented. The unbundling has put an end to the regional monopolies and resulted in the complete separation of distribution and supply activities, the eligibility of all consumers to switch supplier without restriction, the definition of new distribution and transmission tariffs, and the review of the gas release programme. The latter improves alternative suppliers' access to the gas supply offered by the state-owned natural gas company, the incumbent DEPA⁽²⁹⁾ (Public Gas Corporation of Greece), which still maintains a quasi-monopolist position in the import of natural gas into Greece. Finally, a significant reform of energy taxation and in particular of natural gas excises was also approved as part of the fiscal package of the first review of the ESM programme. Before the reform, Greece had an exceptionally high level of excises imposed on all uses of natural gas consumption, with rates up to ten times higher than the EU-mandated minima. The reform has reduced this rate to levels in line with EU rules and removed excises on gas used for electricity production, as mandated by the Energy taxation Directive (2003/96/EC).

A further development was finally finding an approach to privatising the transmission system operator DESFA (National Natural Gas System Operator⁽³⁰⁾). As mentioned above, a previous attempt to sell the company had failed. Following a

⁽²⁹⁾ Δημόσια Επιχείρηση Αερίου ΑΕ.

⁽³⁰⁾ DESFA- Διαχειριστής Εθνικού Συστήματος Φυσικού Αερίου.

new tender in 2017, and a key step forward with the Commission approving RAE's preliminary certification of DESFA's as Fully Ownership Unbundled, financial closing was achieved in late 2018. This was, regarding energy, one the first post-programme commitments to be met.

Regarding DEPA, agreement was reached as concerns the tender structure leading to privatisation to be followed. The plan was for an overall corporate restructuring with networks and international projects to be part of a separate entity, where the State will maintain sole control, whereas the wholesale and retail will form a separate entity with the State selling a majority/controlling stake. The 'term sheet' set guidance on the acceptable structural split and related market measures such as the gas release programme. Whilst there is work to be done, it seemed that a clear pathway had also been set which could further improve the outlook of the domestic gas market.

4. ASSESSMENT

4.1 OVERVIEW

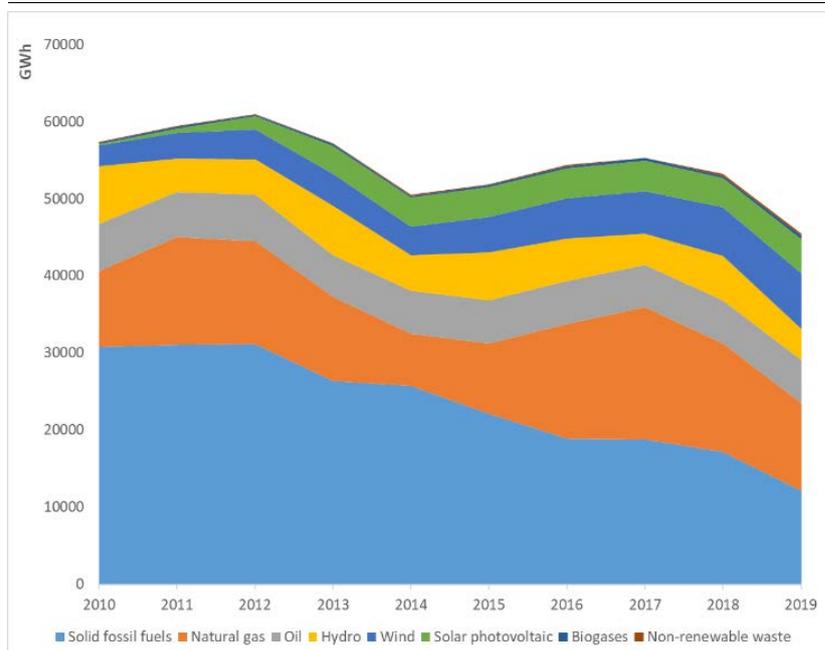
In summary, the successive programmes:

- Focused the energy reforms on increasing competition in the Greek energy markets
- Faced difficulties resulting from the fact that the energy markets were dominated by a two state-owned vertically integrated companies that contributed to the resistance to such reforms
- Produced significant results in the functioning of the gas market, with the breaking of the gas distribution monopolies with the ensuing structural change in the supply and distribution networks, the full ownership unbundling and privatisation of the gas transmission system operators, and the privatisation of DEPA/DEPA infrastructure which is ongoing.
- Produced significant results in the electricity market, with the strong reduction in the market share of PPC (from 95% in 2015 to 66% in 2019) which is an ongoing process. The opening up of the electricity market is expected to be favoured by the new electricity market design, compliant with EU legislation and allowing market coupling with other EU countries. The creation of a power exchange Hellenex (Hellenic Energy Exchange) was a significant step in this regard. The full ownership unbundling of the Greek transmission system operator was one of the most important reforms, as it removed the conflict of interest coming from the previous relationship with the incumbent and is leading to the creation of interconnections of the Cyclades and of Crete. This will have positive effects in terms of energy security and an expected strong reduction of the cost of the equalisation of electricity prices between island and the mainland. Plans for further interconnections will increase security of supply and improve market conditions.

In terms of concrete measurable results, one can consider several key parameters to see how far the Greek energy market has evolved. From 2010 to 2018, there is a clear argument that:

- PPC's market share was reduced (as seen above, this was a quick and drastic decline in a market share that had remained at high levels for a long time)
- The energy mix changed, particularly in terms of a reduction of lignite-based power on the grid and an increase in renewable energy (see graph 2.2)

Graph 2.1: Electricity generation by type of fuel

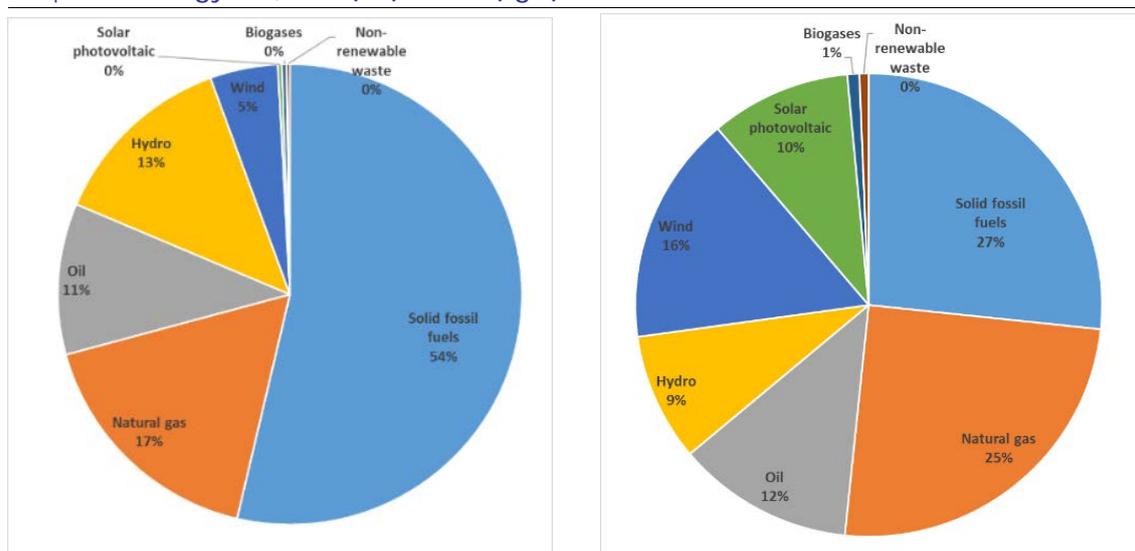


Source: Eurostat.

The graphs below ⁽³¹⁾ give an example of how Greece's energy mix moved from being based predominantly on coal, with even a share of oil used for generation, to a far more balanced portfolio, showing increases in the share of solar, wind and gas (as noted above, recognised to some extent as a transition fuel), meaning a far lower carbon footprint than a lignite-heavy basis. Support for renewables and efforts in the gas market were shown to be successful, though of course this was the direction Greece was moving towards in any case without the programme influence.

⁽³¹⁾ Eurostat.

Graph 2.2: Energy mix, 2010 (left) & 2019 (right)



Source: Eurostat.

The gas market has been growing, as data from RAE show ⁽³²⁾:

Table 2.1: Number of active customers (thousand) per distribution network

	2012	2013	2014	2015	2016	2017	2018
Attica	78	81	86	94	98	106	120
Thessaloniki	155	164	172	196	210	222	227
Thessaly	55	62	67	78	85	92	94

Source: RAE.

4.2 APPROPRIATENESS OF MEASURES AND EU VALUE ADDED

Overall, this analysis suggested that the energy sector is an important element in many areas of society and any comprehensive reform agenda should include it. It should also be clear that Greece's energy sector was in need of ambitious reforms, and that the programme was in fact a good mechanism to implement such reforms. It can be argued that the energy reforms, focussing on competition and opening up the markets for gas and electricity, had the right objectives, and despite many challenges in terms of how to open up the markets, due to the system's internal resistance and vested interests, the interventions have led to substantial achievements. Despite resistance and a number of missed deadlines and targets, the ambitious, systemic approach has delivered on various aspects. If mistakes were made in knowing which specific reforms would achieve the required buy-in, a combination of flexibility regarding the exact nature of reforms (particularly regarding PPC and market access) with a steadfast commitment to market opening meant that results were delivered and internal barriers to future reform were removed.

⁽³²⁾ RAE National Report 2019 Regulation and performance of the electricity market and the natural gas market in Greece, in 2018.

As mentioned above, energy markets were not amongst the priorities at the outset of the programmes. It should also be mentioned that energy is a sector where EU legislation has been strongly evolving over time. Overall, Greece had been slow to adapt to the necessary changes, driven inter alia by climate policies.

Regarding the EU value-added, there is a strong argument to be made that the interventions of the programmes facilitated and accelerated the necessary change, delivering a modernised framework fully in line with the EU acquis and making possible a stronger integration of Greece in EU energy markets. In this context, the programmes could design a specific approach to the far-reaching reforms that were needed, going beyond purely incremental reforms. The programme context allowed discussion of the difficult decisions that needed to be taken, which enabled the first steps of essential reforms that had previously not been taken and would likely not have been taken or taken much later outside this context.

Regarding the programme intervention, a final point should be made about the Commission's specific role in the energy reforms. Given the focus of economic adjustment programmes and the mandate of the other institutions involved (i.e. IMF, ECB and later ESM) which focuses more on macro-fiscal-financial areas, the Commission took a leading role in reforms in this area.

Finally, the programme coordinated several different areas of the EU acquis and worked towards a consistent approach to matters relating to the energy market, from competition issues to environmental standards. Anti-trust remedies had to take into account the changing market structure as it moved towards the target model and vice versa. Local air quality concerns and related emissions standards were linked to decommissioning of lignite plants for climate reasons. A horizontal, consistent approach was found to be effective, rather than taking certain isolated issues case by case.

5. OVERALL ASSESSMENT AND POST PROGRAMME EVENTS

Given the long-term nature of the reforms and the post-programme commitments to complete reform implementation, the ongoing conditionality and enhanced surveillance framework seem appropriate as an incentive and check towards Greece's progress. The Eurogroup ⁽³³⁾ statement following the closing of the programme highlighted three key commitments in the field of energy: launching the target model, divesting the lignite plants, and following the recommendations of a review of the NOME system.

The energy market is an example of how Greece has aligned its economy with the rest of the Union following its exit from the ESM programme. With the European Green Deal, and the European Semester's (to which Greece was reintegrated after the programme) focus on environmental sustainability, support and ambition for far-reaching energy reform has never been greater. Indeed, with Greece's aforementioned ambition to decommission all its lignite-based electricity generation units by 2028, a plan that was discussed in the programme context, particularly regarding the issue of PPC's monopoly, the country actually has the opportunity to establish itself as a front-runner amongst those Member States facing post-coal transition. Greece's geographical position also means it could establish itself as an “energy hub”, at the gateway of inter and intra-continental transit of both gas and electricity. For instance, the East-Med pipeline project, planned to deliver Cypriot gas into the EU and connect to the Trans-Adriatic Pipeline, is developing and showing a lot of promise. It could be said that the reforms of recent years made Greece's potential involvement in such projects more likely.

However, it is clear there is still work to be done. While the ESM programme left a clear roadmap in place, full implementation of post-programme commitments is still a challenge. As noted above, the nature of the headline commitment was altered several times, as for example several attempts to divest the PPC plants fell through. At the time of writing, a market test has started regarding the PPC remedy. On the other ‘Eurogroup commitments’, the NOME system closed prematurely, ended unilaterally by the Greek government. However, the target model was launched, though after delays. This represents a major milestone for Greece, and the impact of the lignite-related measures must be seen in the context of the country's ambitious decommissioning plan, which is on schedule.

As a closing note, it is timely to recall that with the European Green Deal and the EU's ambitious climate goals, sustainability is now an integral part of the Union's growth strategy. This is visible in the Recovery and Resilience Facility, the EU's

⁽³³⁾ <https://www.consilium.europa.eu/en/press/press-releases/2018/06/22/eurogroup-statement-on-greece-22-june-2018/>.

approach to supporting the economic recovery ⁽³⁴⁾ following the outbreak of the COVID-19 pandemic, in which financial support is made available to Member States in order to implement growth-enhancing reforms and investments. In line with the importance placed on sustainability, 37% of the expenditure financed by the Facility in each country must be climate-related. As with other Member States, Greece's National Recovery and Resilience Plan will be a vessel to support some of the strategies outlined in its National Energy and Climate Plan (NECP), as well as the overall decarbonisation process. In turn, the Commission's assessment of Greece's NECP encouraged the completion of market reforms in line with the ESM Programme.

⁽³⁴⁾https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en.

EUROPEAN ECONOMY DISCUSSION PAPERS

European Economy Discussion Papers can be accessed and downloaded free of charge from the following address:

[https://ec.europa.eu/info/publications/economic-and-financial-affairs-publications_en?field_eurovoc_taxonomy_target_id_selective=All&field_core_nal_countries_tid_selective=All&field_core_date_published_value\[value\]\[year\]=All&field_core_tags_tid_i18n=22617](https://ec.europa.eu/info/publications/economic-and-financial-affairs-publications_en?field_eurovoc_taxonomy_target_id_selective=All&field_core_nal_countries_tid_selective=All&field_core_date_published_value[value][year]=All&field_core_tags_tid_i18n=22617).

Titles published before July 2015 under the Economic Papers series can be accessed and downloaded free of charge from:

http://ec.europa.eu/economy_finance/publications/economic_paper/index_en.htm.

GETTING IN TOUCH WITH THE EU

In person

All over the European Union there are hundreds of Europe Direct Information Centres. You can find the address of the centre nearest you at: <http://europa.eu/contact>.

On the phone or by e-mail

Europe Direct is a service that answers your questions about the European Union. You can contact this service:

- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 22999696 or
- by electronic mail via: <http://europa.eu/contact>.

FINDING INFORMATION ABOUT THE EU

Online

Information about the European Union in all the official languages of the EU is available on the Europa website at: <http://europa.eu>.

EU Publications

You can download or order free and priced EU publications from EU Bookshop at: <http://publications.europa.eu/bookshop>. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see <http://europa.eu/contact>).

EU law and related documents

For access to legal information from the EU, including all EU law since 1951 in all the official language versions, go to EUR-Lex at: <http://eur-lex.europa.eu>.

Open data from the EU

The EU Open Data Portal (<http://data.europa.eu/euodp/en/data>) provides access to datasets from the EU. Data can be downloaded and reused for free, both for commercial and non-commercial purposes.

