1. EXECUTIVE SUMMARY AND KEY RECOMMENDATIONS

EXECUTIVE SUMMARY

Energy policy in Greece has the potential to make a significant contribution to the country's economic recovery. Increasing competition and reducing the role of the State in the energy sector should add efficiency and dynamism to the Greek economy. This, in turn, should generate self-sustained employment and prosperity for the country.

Among the key pieces of legislation that the EU member states have adopted in recent years are the third Internal Energy Market Directives which oblige the member states to further liberalise their electricity and natural gas markets. The 2020 renewable energy target, the Emissions Trading System (EU-ETS) and the EU air quality standards in turn are pushing Greece to decarbonise its lignite-dominated electricity sector.

The IEA urged Greece to reform its energy sector already in the 2006 *Energy Policy Review*. The completion of these reforms is now even more necessary than at the time. Reform in the electricity, natural gas and coal sectors is also a condition for the crucial financial assistance from the eurozone countries and the International Monetary Fund. These conditions go only to some extent beyond what is already required under the adopted EU directives and the decisions by the European Commission, mainly in the area of privatisation and unbundling of the System Operators in both gas and electricity from the verticai integrated companies. Accordingly, Greece has decided to partly privatise state-controlled energy companies, including the dominant Public Power Corporation (PPC) and Public Gas Corporation (DEPA).

It is important to note that, regardless of the economic situation in Greece, these reforms are fundamentally sound energy and economic policy and contribute to the country's long-term development. It is therefore very welcome that the Greek Parliament has in August 2011 adopted a law to this end. The new law (4001/2011) transposes into national legislation the third Internal Energy Market directives. Among others, it stipulates the unbundling of the system operators and enhances the role of the independent regulator regarding security of supply, licensing, monitoring of the market and consumer protection. Overall, the new law improves the legislative framework for the monitoring, control and regulation of electricity and gas sectors. Now that the law has been adopted, the IEA urges Greece to implement it in full without delay.

ELECTRICITY MARKET REFORM

Further reform in electricity market structures and regulations is needed if Greece wishes to reach its ambitious energy goals, including those on renewable energy. Although competition is finally emerging, PPC dominated more than 75% of the wholesale market and more than 90% of the retail market in 2010. The company also remains the owner of transmission and distribution assets and has a 49% stake in HTSO,

the operator of the transmission system and wholesale market. Meeting the obligations under the third EU Electricity Market Directive will improve this situation. In particular, the Regulatory Authority for Energy (RAE) has lacked full independence and sufficient powers to execute effectively. Another area where reform is urgently needed is moving to cost-reflective end-user tariffs.

A strong and independent regulator is needed to mitigate PPC's dominance, ensure non-discriminatory treatment for independent power producers (IPPs) and provide regulatory certainty for investors in a competitive energy market. Investments and competition are needed for ensuring the financial efficiency of the electricity sector. Investments by IPPs in both renewable and flexible conventional generation will be necessary in the transformation to a low-carbon, green electricity market. Competition can also drive prices down and help mitigate the costs of necessary network investments and renewable energy supports.

The regulator should also be tasked with stronger supervision of the wholesale market. This is particularly important in the Greek context of a mandatory pool with a highly concentrated supply situation and regulated end-user tariffs that do not necessarily reflect all supplier costs. As the sole owner of lignite plants and large hydro plants which generate cheap electricity, PPC has significant capacity that can be put first in the merit order and therefore has the potential to affect wholesale prices. At the same time, the company is obliged to sell electricity to end-users at regulated tariffs that often do not reflect costs. Greece should move to fully cost-reflective retail tariffs and eliminate cross-subsidies.

To limit PPC's dominance in the electricity market, the government should consider divesting a reasonable percentage of PPC's power generating capacity. It could also move the network assets of PPC into separate companies and later privatise them. This would be better for electricity market development than simply reducing government ownership in PPC.

NATURAL GAS MARKET REFORM

Natural gas is emerging as the fuel of choice for power generation, both to replace lignite and to support the expected large increases in variable generation from renewable sources. As the electricity sector, the natural gas sector has traditionally been state-controlled, but after a slow start, market reform is now gaining pace. Since April 2010, independent suppliers and large customers willing to be self-supplied may import gas to the country. The reforms are yet to make their full mark on the gas sector, but it is encouraging that more than a dozen new players had entered the Greek gas market by the end of May 2011. The IEA congratulates the government for this reform as a necessary step in effective market liberalisation. Ensuring access to the network and the liquefied natural gas (LNG) terminal is crucial for effective competition to emerge.

Although the State remains in control of most of the gas supply through DEPA and the gas transmission infrastructure through DESFA, the TSO, new entrants can be expected to gradually reduce this dominance and bring multiple benefits to the economy and the citizens. Therefore, the government should review the role of DEPA as the majority-owner of current and future distribution companies (EPAs), as it is unclear what net benefit DEPA's dominance brings to the customers. Again, there is scope to reduce DEPA´s role in the market by taking some of the same measures as in the electricity sector.

SECURITY OF GAS AND OIL SUPPLY

Greece imports practically all the oil and gas it needs, and security of supply is one of the key objectives of the Greek energy policy. In the case of natural gas, the supply sources are already diversified, as Russian gas is imported through the Greek-Bulgarian entry point, while the Greek-Turkish entry point allows Greece to import gas from the Middle East and the Caspian region. Greece also receives LNG, mostly from Algeria on long-term contracts as well as additional volumes from the spot market. During the January 2009 Russia-Ukraine gas supply crisis, the gas system showed better resilience than in other countries in the region, but experience has shown that in a gas crisis, the two border entry points to Greece may become simultaneously unavailable.

Entry capacity to the Greek gas system seems sufficient to accommodate the projected growth in demand to 2020, but the growing peak demand may pose challenges. Greece's efforts to further diversify import routes and sources, while expanding LNG import capacities, are therefore to be commended.

Turning to oil security, Greece deserves credit for diversifying its sources of crude oil and oil products and for taking measures to increase its indigenous oil production. Greece has also been compliant with the IEA 90-day stockholding obligation since the end of 2004.

The draft Joint Ministerial Decision on the National Emergency Plan outlines the response measures and their implementing procedures which would become the basis for Greece's emergency response mechanisms. This Joint Ministerial Decision has long had the status of a draft and would need to be improved on several key points before being enacted, so that Greece can immediately and efficiently participate in an IEA collective action.

The IEA urges the government to revise the draft Joint Ministerial Decision and to prioritise the emergency response measures to be taken in a global crisis, notably by stating that use of stocks obligatorily held by the industry is a primary response measure. The draft should also stipulate that the release of industry stocks could be complemented by demand restraint measures, and that the government will ensure a direct and unrestricted flow of oil to the global market in the event of an IEA co-ordinated action.

RENEWABLE ENERGY

In a remarkable change from the situation a few years ago, the government has adopted ambitious targets, policies and measures for increasing the use of renewable energy. The country aims to raise the share of renewable energy in gross total final consumption to 20% by 2020, which is 2% higher than its EU obligation and almost triple the 6.9% share in 2005. It has also set a specific target for renewable sources to provide 40% of electricity generation by the same year (the share in 2010 was 15%) and to provide 20% of primary energy for heating and cooling in 2020. The government deserves to be applauded for setting these targets and adopting policies and measures to reach them.

The government should now work to ensure that the ambitious 2020 targets are met. In the electricity sector, large investments in grids and generating capacity are needed. Greece has significant wind power potential and the government foresees wind power capacity to increase from around 1.3 gigawatts (GW) in 2010 to 7.5 GW in 2020, far more than other renewable energy technologies combined. Careful planning is required

to ensure a smooth integration of new renewable electricity capacity into the grid and to maintain the reliability of the electricity system as the share of variable generation increases. A key part of this development is to connect Greek islands with abundant wind and solar power potential to the mainland transmission network. It will also be essential to expand hydropower and/or natural gas capacity and build more interconnections to help balance variations in power generation from wind and solar resources. Power system flexibility should also be increased by storage and demand response, including advanced metering and time-of-use pricing of power. The government should also closely control the costs of the feed-in tariff system, for example by reducing the tariffs over time or linking them more closely to the wholesale power price.

Complex licensing and siting procedures have caused long delays in renewable energy projects. It is therefore remarkable that Law 3851/2010 has shortened the licensing process by several years, and to just a few months in some cases. The 2008 Special Spatial Framework, in turn, has facilitated siting procedures for renewable energy projects. These are major improvements and the IEA congratulates the government. In another welcome development, Law 3851/2010 also increases the public acceptance of renewable energy projects by channelling the local communities more money from the generators – a simple and effective measure.

CLIMATE CHANGE MITIGATION

Greece is set to meet its Kyoto target, while the main contribution to reducing energy-related CO_2 emissions to meet its 2020 EU target will come from measures on renewable energy, fuel switching and energy efficiency. The government is encouraged to focus on cost-effectiveness and to prioritise economic instruments when incorporating these measures into a coherent whole.

Because of its strong reliance on oil and lignite, primary energy supply in Greece is the most carbon-intensive among the IEA member countries. The government is fully aware that this will have to change and is dedicated to greening the economy. Greece has a large potential for wind and solar energy and is rightly determined to increase its use. The renewable energy sector also holds promise for job creation, in particular if linked with research and development (R&D) activities.

Experience from IEA member countries shows that improving energy efficiency typically offers large cost-effective potential for mitigating climate change, saving money and improving energy security. The IEA urges the government to look more into this potential and further strengthen the co-ordination and evaluation of its various programmes and projects. Oil could be a focus area. In Greece, oil use is high by international comparison and oil is the most important fuel in all end-use sectors. The government has rightly supported the gasification of the country, mandated renewable energy use for heating and promoted public transport, among other measures. At times of high oil prices and economic distress, intensified efforts to save oil and reduce its use would be a rational choice for government action.

KEY RECOMMENDATIONS

The government of Greece should:

- *Continue to implement the planned reforms in the energy sector to improve the country's economic prospects; in particular, intensify electricity market reform and continue natural gas market reform to increase efficiency and ensure attractive framework conditions for future investments; consider further limiting market dominance of the Public Power Corporation and the Public Gas Corporation, including through privatisation.*
- *Continue to promote long-term gas security policies and complement, where appropriate, oil security policy to meet IEA best practice.*
- *Continue to work towards the decarbonisation of the economy over the long term.*
- *Intensify efforts to promote energy efficiency in order to save money, improve energy security and mitigate climate change.*