1. EXECUTIVE SUMMARY AND KEY RECOMMENDATIONS

EXECUTIVE SUMMARY

Spain enjoyed an economic boom from the late 1990s to 2008, after which the economy entered into a recession, which lasted until late 2013. The economy is growing again, but total primary energy supply (TPES), total final consumption of energy (TFC), electricity demand, and energy-related carbon dioxide (CO_2) emissions all remain significantly lower than before the recession.

Spain maintains many of its strengths in the energy sector, notably regarding security of supply, but at the same time, the economic situation has brought new challenges that have prompted government action. This has been particularly true for the electricity sector.

An important aspect of Spain's energy policy is the growing role of the European Union (EU) as the source of policy goals and related obligations. Since 2009, the progressive liberalisation and cross-border integration of the electricity and natural gas markets has continued, notably by means of the 2009 third Internal Energy Market Package. Also, Spain and other EU member countries are taking broad-ranging measures to meet the EU targets for 2020 on greenhouse gas (GHG) mitigation, renewable energy, and energy efficiency.

SECURITY OF SUPPLY

Spain´s dependence on energy imports has decreased from around 80% of its energy supply back in 2009 to around 70% in 2014. This success can be attributed in part to the rapid increase in renewable energy supply. Oil supplies are well diversified by country of origin, and Spain holds slightly more oil stocks than required under its International Energy Agency (IEA) membership obligation. Moreover, in 2010, Spain raised the minimum stock requirement to 92 days from 90 days.

Spain has one-third of the total liquefied natural gas (LNG) regasification capacity in the European Union, and diversification of import sources has been successful. Gas is imported from more than ten countries, and the largest importing companies may source only half of their annual total from any given country. Obligatory emergency gas stocks stand at 20 days, further increasing security of supply. Welcoming Spain's efforts to enhance security of energy supply both in oil and gas sectors, the International Energy Agency (IEA) encourages Spain to assess its shale gas potential.

In the electricity sector, Spain has built a large, well-diversified power generation fleet and a very reliable power system. It has succeeded in integrating a large share of wind and solar power while limiting renewable curtailment. As the country has relatively low cross-border capacity, variations in power generation have to be dealt with largely within the Iberian system. This situation has recently improved, however, and more interconnections with France are being planned (see "Market integration and cross-border connections" below).

Security of energy supply has been improved as a result of both laws and regulations, but also because of significant capacity increases over the past 15 years and declining demand for primary energy and electricity during the recession. The resulting large excess capacity for power generation and LNG terminals, however, has put the financial stability of both electricity and gas systems under stress.

FINANCIAL STABILITY IN ELECTRICITY AND NATURAL GAS SYSTEMS

After taking office in December 2011, the new government saw stabilising the public sector finances as an urgent priority. Public debt had soared from less than 40% of gross domestic product (GDP) in 2007 to around 80% of GDP in 2011 and was growing at an unsustainable rate. The government had also inherited a massive imbalance between the regulated costs and revenues of the electricity system. This imbalance, the so-called tariff deficit, was perceived as a financial liability for the state; solving it became one of the government's main focus areas in energy policy.

The tariff deficit, which had been accumulating since 2001, began to spiral out of control after 2005. From 2005 to 2013, the costs in the electricity system grew by 221% while revenues increased by only 100%. Subsidies for renewable electricity are the single largest cost element. By 2012, the accumulated debt in the system had reached more than EUR 20 billion and was set to expand by billions every year unless action was taken. In 2012, the government temporarily eliminated subsidies for new installations. It also reduced remuneration for transmission and distribution network activities, increased access tariffs, and introduced a 7% tax on electricity generation (22% for hydropower). Nevertheless, the deficit grew to EUR 26 billion by the end of 2012.

In July 2013, the government introduced a broader electricity market reform package. The reform reduced the remuneration and compensation for the activities in the electricity system by several billion euros per year. It also introduced the principle of "no new cost without a revenue increase". Importantly, the reform introduced a new way of calculating compensation for renewable energy, waste, and co-generation (combined production of heat and power). With some exceptions, by mid-2015 the comprehensive reform had been implemented. The reform has reached its aim: the sector's costs and revenues are back in balance, and the accumulated deficit, which peaked at the end of 2013 at EUR 29 billion or 3% of GDP, should gradually disappear over the next 15 years.

Electricity market reform has been complex but necessary. The electricity system's future financial sustainability depends both on macroeconomic developments and on a sustained commitment to the reform by the country´s politicians. To overcome any perceived risks for investing in electricity infrastructure in Spain, the government should closely follow the principles of transparency, predictability, and certainty when revising the parameters for defining reasonable return. More generally, to avoid any political interference in the future, the principle of "no new cost without a revenue increase" should be strictly enforced.

As a consequence of the high level of costs in the electricity system, end-user prices in Spain are among the highest in IEA member countries. The government could reform end-user prices by eliminating any cost components that are unrelated to the supply of electricity to final users, recovering them via more appropriate mechanisms. Spain should revisit its renewable energy goals: the burden could be shared more evenly across sectors, which primarily implies a stronger focus on limiting oil use in the transport sector.

Triggered by the recession, a tariff deficit also emerged in the natural gas system, as falling gas demand reduced revenues from infrastructure (pipelines, underground storage and LNG regasification plants) use. By the end of 2013, a tariff deficit of EUR 400 million had accumulated. While this amount was little more than 1% of the accumulated tariff deficit in the electricity sector, it was expected to double in 2014. In July 2014, the government introduced a new mechanism to gradually eliminate the accumulated tariff deficit. Accordingly, all new system costs must be matched by cost cuts or revenue increases elsewhere. Also, the access tariffs will be automatically increased, if the annual tariff deficit rises over a predetermined threshold.

The IEA welcomes the government's actions, which have eliminated the annual deficit from 2014 on. The accumulated tariff deficit has thus stopped from growing and will gradually be eliminated. The government must maintain a strong long-term commitment to balancing the costs and revenues in the natural gas system.

MARKET INTEGRATION AND CROSS-BORDER INTERCONNECTIONS

Creating single markets in electricity and natural gas has long been a priority for the European Union. For obvious reasons, physical cross-border capacity in electricity is essential not only for market integration but also for renewable energy integration and security of supply. Spain's electricity interconnection capacity remains very low at around 4% of installed capacity in 2014. Until very recently, efforts to increase interconnection capacity with France have had few results. In a welcome development, the 1.4 gigawatts (GW) Santa Llogaia–Baixas interconnection was inaugurated in February 2015 – the first new interconnection in almost three decades.

New momentum for additional interconnections is evident: the October 2014 European Council agreed on a target of a 10% share of interconnection capacity in total installed generation capacity in every member country by 2020. Furthermore, this target is to be raised to 15% by 2030. European Union funds are available for priority projects, and the political leaders of France, Portugal and Spain are committed to this objective. After so many years of limited results, it is highly encouraging to see the recent positive developments and the strong political support for further developing interconnections between the Iberian Peninsula and France. The planning and construction of new interconnections should be vigorously pursued and EU funding sources used to the full.

Beyond physical interconnections, cross-border market integration with the rest of Europe has significantly improved over the past few years. Since May 2014, the Iberian market area is coupled with other European market areas, allowing for an optimal utilisation of interconnections. Integrating the intraday and balancing markets closely with the rest of Europe would ensure a more efficient use of existing interconnections.

Regarding natural gas, Spain's underutilised LNG capacity can help increase flexibility, diversity, and security in the EU internal market. For that to happen, more interconnection capacity is needed between the Iberian Peninsula and the rest of Europe. The IEA therefore welcomes the recent decisions to expand this interconnection capacity, in particular through the MidCat project. The IEA also recognises the importance of political and financial support for the project from the EU level and welcomes the recent work to develop and launch a gas hub. An organised gas hub would benefit Spain by providing a more transparent price reference for gas.

PLANNING FOR A LOW-CARBON FUTURE

For understandable reasons, the government´s immediate focus since 2011 has been on restoring financial stability in the electricity and natural gas systems. Now that these extensive reforms have been successfully implemented, the government should focus on providing guidance on long-term energy policy. The government should prepare an integrated long-term energy strategy, with a particular focus on energy demand and energy efficiency. This should be done with the long-term GHG reduction objective in mind. In this context, Spain should keep all options open for low-carbon power generation. It should also increase efforts to limit peak electricity demand through energy efficiency measures.

Spain´s current measures to reduce energy-related CO_2 emissions focus on energy efficiency and renewable energy. Spain is set to meet the 2016 target for 9% final energy savings in the non-emissions trading scheme (ETS) sector from the early 2000s levels. In 2013, it had already reached savings of 10.1%, and the government expects an increase to 15.5% in 2016. Nonetheless, current policies and measures are not enough to meet the target of reducing GHG emissions by 10% from 2005 to 2020 in the non-ETS sector. This is evident from the scenarios laid out in Roadmap 2020, which was adopted in October 2014.

Transport is the largest GHG emitter in the non-ETS sector and, therefore, is the natural focus area of Roadmap 2020. Measures focus on modal shift, fleet renewal, and more efficient ways of driving. In the buildings sector, renovations of dwellings are expected to account for 66% of all emission cuts. In industry, energy efficiency and fuel switching are the focus. The Roadmap, however, does not consider what kind of incentives would be needed to trigger the required investments and in what proportion they would be divided between the public and private sectors. Raising tax rates in a revenue-neutral way, notably, fuel taxation where tax rates are relatively low by international comparison, can encourage more efficient oil use thus delivering environmental and energy security benefits.

Ambitious policies on energy efficiency bring benefits beyond emissions reductions: they save money, reduce import dependence, and improve air quality. An important new funding source is the National Energy Efficiency Fund, set up in July 2014. The IEA also encourages Spain to ensure that any spending on energy efficiency and renewable energy contributes to the overall cost-effectiveness of energy policy. From the financial and environmental perspective, the IEA applauds Spain's decision to significantly cut subsidies for hard coal production since 2011.

KEY RECOMMENDATIONS

The government of Spain should:

- ☐ *Develop, in light of the EU 2030 targets, a long-term energy strategy covering all sectors, including energy demand, in close consultation with all stakeholders.*
- ☐ *Maintain a strong long-term commitment both to balancing the costs and revenues in the electricity and natural gas systems and to the principles of transparency, predictability, and certainty when regularly revising the parameters for remuneration in these systems.*
- ☐ *Reform energy taxation and introduce revenue-neutral fiscal incentives to encourage GHG reductions and energy efficiency improvements.*