

1. EXECUTIVE SUMMARY AND KEY RECOMMENDATIONS

EXECUTIVE SUMMARY

Austria's energy policy strives to promote economic growth, environmental protection and security of energy supply in a balanced manner. Since the last IEA in-depth review, which was published in 2008, economic growth has been slow while climate policy has had an increasing impact on the energy sector in Austria. The focus on security of supply has expanded from oil to natural gas and, more recently, to electricity.

In 2010, the Austrian Energy Strategy was adopted to help implement the EU 20-20-20 targets (binding targets to reduce greenhouse gas emissions and increase the share of renewable energy in gross final energy consumption, a non-binding target on energy efficiency) and to develop internal EU markets for electricity and natural gas. The Strategy integrated security of supply, energy efficiency and renewable energy sources as the three pillars of Austrian energy policy.

Currently, the European Union is working on the EU 2030 Energy and Climate Package to rebalance the objectives of "competitiveness" with "sustainability" and "security of supply". In relation to the EU 2030 policy framework negotiations, Austria will need to formulate an evidence-based position on how to reach any possible targets cost-effectively.

SECURING ENERGY SUPPLY

Two of the main aims of Austrian energy policy have been to reduce its dependence on energy imports and to strengthen its security of supply. Import dependence has been reduced slightly from 65% in 2000 to 62% in 2012, largely owing to increases in bioenergy supply. Bioenergy and waste now provide around 20% of total primary energy supply (TPES), an exceptionally high share by international comparison. With large hydropower resources, and its reservoir and pumped storage plants, Austria could play a battery role for the wider region. Austria also has ambitious plans for adding more than 3 gigawatts (GW) – equal to roughly 14% of its current total capacity – to its wind and solar power capacity by 2020. Realising these plans will require close monitoring of costs and co-ordination with electricity grid operators.

As is common among IEA member countries, government efforts on security of supply have long focused on oil and, more recently, on natural gas. Oil is the most important fuel in Austria, accounting for 34% of TPES in 2012. Oil security is on a sound basis as the country holds oil stocks equalling more than 110 days of net imports. Also, while most oil products are imported, the sources and routes for these imports are well diversified.

An exception to this diversification can be seen in Austria's sole oil refinery, the Schwechat refinery, which receives its oil supply through one pipeline from Trieste, Italy. To improve the security of crude oil supply, the government should continue to facilitate a pipeline connection to the Slovak Republic in order to gain access to a second crude oil supply route.

Security of a natural gas supply is a more recent area of government focus since the fuel provides around 22% of TPES. Imports cover four-fifths of gas demand, and almost all imports are physically sourced from Russia. At the same time, gas transit volumes through Austria are many times larger than domestic consumption, and the country has never suffered a major gas disruption. Adding to supply stability is Austria's ample storage capacity, which roughly equals 80% of the nation's annual gas demand in 2012 and which is capable of an output rate above peak demand on a cold winter day. In another commendable development, Austria has taken effective steps to prepare for a gas emergency, notably, by enabling physical reversibility of several pipelines with neighbouring countries (Germany to Austria and Italy to Austria) in 2011. Austria should continue to explore the benefits of increasing flexibility and diversity of supply options so as to increase the resilience of energy security.

A potential source for reducing the need for gas imports would be to explore the country's shale gas resources. These are estimated to equal at least 20 years of domestic consumption, but the current regulatory framework effectively discourages the development of these resources since the obligatory environmental impact assessment process for each hydraulic fracturing well takes three to four years. The IEA recognises the sensitivity of this issue and encourages the government to formulate a position regarding the potential use of shale gas resources. This position should be based on a solid scientific understanding of the resources and of new technologies and their environmental impacts. Thanks to its technological know-how, strong environmental awareness and experience with upstream production, Austria is well placed to explore this shale gas potential further.

WORKING TOWARDS AN INTERNAL ELECTRICITY MARKET

The electricity sector in Austria and neighbouring regions is undergoing two simultaneous major developments. On the one hand, the national electricity markets and systems in the European Union are moving towards integration into an EU-wide single electricity market. This is expected to improve security of electricity supply and yield cost efficiencies. At the same time, large increases in variable renewable energy supply, driven by EU renewable energy targets, heighten the need for new, more flexible ways to operate interconnected electricity systems.

The EU-wide electricity market integration is a gradual process. At this stage, Austria's electricity market needs to be developed in a regional, cross-border context. The country should increase cross-border network capacity and extend market coupling. The transmission system operator (TSO) and the regulator should continue to co-operate with and co-ordinate their actions with other national regulators and TSOs of its neighbours and the related EU-level bodies.

While transmission grids are becoming more interconnected across national borders, the push for grid integration of large variable generating capacity from wind and solar, both in Austria and neighbouring countries, implies a need for changes in cross-border electricity systems. For smoother electricity system functioning, re-dispatch measures should be co-ordinated and congestion management improved. Pricing of transmission use should also be discussed in a regional context. These measures are clearly needed since Austria is already affected by loop flows originating in Germany, which also cause significant congestion at the Czech/Austrian border. Also, the establishment of competitive cross-border balancing and intraday markets deserves attention.

New investments in transmission and distribution grids are required as are smarter systems for managing supply and demand. Permitting processes need to become more efficient. The permitting procedures related to infrastructure projects should be streamlined on a federal and provincial level, and the procedures should also ensure transparency and early involvement of civil society. Meanwhile, new investments in pumped storage facilities are under way. Austria deserves to be commended for developing smart grids for electricity distribution.

LIMITING ENERGY-RELATED GREENHOUSE GAS EMISSIONS

Austria's greenhouse gas (GHG) emissions have grown by around 6% from 1990 to 2011, while the country's target under the Kyoto Protocol is to reduce them by 13% from 1990 to 2008-12. The largest source of GHG emissions is CO₂ from energy use, which has risen by around one-fifth from 1990 to 2011, mainly because of increases from the transport and industry sectors. Austria will use flexible mechanisms to bridge the gap between its target under the Kyoto Protocol and its actual emissions. In a positive development, despite higher GHG emissions than in 1990, total emissions peaked in 2005 and have been trending downward since then. This downward trend reflects the reduced CO₂ intensity of Austria's overall energy supply in recent years, with fossil fuels declining from 77% of primary energy in 2002 to 67% in 2012. Both oil and coal use declined in absolute terms over that same period.

As emissions from large power plants and processing industries are covered under the EU Emissions Trading Scheme (EU-ETS), the Austrian government focusses on the sectors outside the EU-ETS. In Austria, transport is by far the largest emitter. Emissions from transport have increased by more than 50% since 1990, owing to an expansion of the car fleet, growing transit freight transport and relatively low fuel prices attracting buyers from the neighbouring countries: fuel sales to foreigners account for up to 30% of total fuel sales. The lower fuel prices are a result of lower fuel taxes, and the tax revenue is several times higher than spending on carbon credits that Austria purchases to offset part of the resulting emissions. Austria has been the third-largest buyer of carbon credits under the Kyoto Protocol (after Japan and Spain), buying up to 80 million tonnes of CO₂-equivalent (Mt CO₂-eq.), roughly equalling all GHG emissions in 2011, at a total cost of more than EUR 600 million since 2007. However, the feasibility of this policy depends on the availability of carbon credits that can be used to help Austria meet its 2020 targets. In the longer term, EU regulations on CO₂ intensity of new cars and freight vehicles will limit emissions from transport. In the short term, the simplest way to limit CO₂ emissions from transport would be to raise fuel taxes to a level that would discourage fuel tourism, but this raise would likely have the perverse impact of reducing overall tax revenue. In any case, the government should enhance efforts to reduce carbon emissions in the transport sector, for example, by supporting alternative fuel vehicles and increased promotion of modal shift.

SUPPORTING ECONOMIC GROWTH

Since 2008, Austria has performed better in macroeconomic terms than most EU member countries, and unemployment is one of the lowest in the region. As an open economy, rising energy prices and costs are a concern in the country since global price shifts are quickly reflected domestically, and decisions on energy prices and costs that affect the competitiveness of industry and the welfare of citizens are only partly in the hands of national decision-makers. This can be seen in the fact that energy prices are

mostly explained by the cost of imported energy. In addition, taxes on many energy products have been increased for fiscal reasons, and these reasons are likely to stay. Tariffs related to grid use may have to be increased to attract the needed investment in the grid. The government, however, has several options to tackle the impact of energy prices and costs. One of these is the promotion of energy efficiency, and Austria has been both ambitious and successful in this area, in particular as regards buildings. Another measure is to promote competition in the retail electricity and gas markets. This could be done by further strengthening the powers of the regulator and by empowering consumers and promoting supplier switching.

EU-wide energy studies show that high import dependence and low diversification of imports can significantly contribute to increasing end user prices for industries and households. Energy efficiency and increasing local energy production would be the obvious answers. The position on shale gas should be considered also from this angle.

Also, in the electricity market, support to less mature renewable energy technologies has in many countries translated into higher electricity prices for both industry and households. To address this point, Austria should comprehensively analyse the cost-effectiveness of the planned investments. Specifically, in the context of an increasing share of renewable energy, it should consider opportunities for demand-side management, and the implications for the need for electricity storage and for extensions and renewal of the grid. The costs of the support mechanisms need to be controlled (in particular feed-in tariffs) and their necessity should be reassessed regularly as the different technologies mature. Austria should review its current feed-in tariff regime and figure out cost-effective options, including gradually decreasing tariffs over time and moving to a premium system.

ENCOURAGING RESEARCH AND DEVELOPMENT

Energy research, development and demonstration (RD&D) is essential for delivering technology solutions for meeting energy policy objectives. Since 2007, the government has more than tripled public funding in this sector, adopted a new Energy Research Strategy and launched several priority programmes. Responsibilities between institutions are clear, and priority setting is based on an open and transparent process. Publicly funded energy RD&D activities are also regularly monitored and evaluated using different approaches. These are impressive developments.

The major increase in public funding is a result of the Climate and Energy Fund to support R&D in renewable energy and energy efficiency as well as market demonstration and deployment. This is to be applauded. The IEA encourages the government to maintain energy RD&D funding at the current levels – or, ideally, to increase it, particularly with regard to incentives and measures to support private sector R&D. As government budgets are under pressure from various directions, the government should consider stronger incentives for more private funding, including venture capital, for energy technology development.

KEY RECOMMENDATIONS

The government of Austria should:

- *Develop a post-2020 energy and climate strategy that integrates security of supply and internal market dimensions. Specifically, analyse how emissions could be reduced with domestic and EU-wide measures only.*

- *Address concerns over energy prices and costs by further promoting energy efficiency and greater retail market competition.*
- *Continue the drive towards cross-border integration of both electricity and natural gas markets. In doing so, attention should be paid to the need for:*
 - *co-ordination and co-operation with neighbouring countries*
 - *encouraging investment in networks, optimising demand response and integrating variable renewable energy supply in a cost-effective and market-based manner.*