

# SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

The Czech Republic has undergone a major transformation in the last fifteen years. The country has changed from an economy guided by central planning and intensive government involvement to one driven by market forces and the individual choices made by producers and consumers. This transformation has proceeded smoothly during the break from the previous regime in the "Velvet Revolution" and the separation with what is now the Slovak Republic in the "Velvet Divorce". Despite large budget deficits, the country has seen strong economic growth in recent years and most forecasts project that this expansion will continue. On 1 May 2004, the Czech Republic, along with nine other countries, joined the European Union (EU).

The energy sector has also changed substantially over this period. Energy efficiency for supply and consumption has improved, with the national energy intensity (unit of primary energy supply per unit of GDP) decreasing by 17% from 1990 to 2002. Emissions have also fallen, with CO<sub>2</sub> emissions from fuel combustion decreasing by 24% from 1990 to 2003. The government has privatised almost the entire natural gas sector and market reforms in the gas and electricity sectors have introduced competition and compliance with the relevant EU directives. The framework for reform is sound and includes a timetable for gradual market opening with fixed dates for complete opening, non-discriminatory open access to all networks, elimination of subsidies for different customer classes and the establishment of an energy regulator. The Energy Regulatory Office (ERO) was established in January 2001. The government is to be commended for this work and is encouraged to continue with the process. New entrants to the electricity sector now capture 30% of the wholesale market in competition with the incumbent. In 2003, a new nuclear power plant was brought on line (Temelín) allowing the country to become a major electricity exporter. In March 2004, the government released its new State Energy Policy (SEP) with long-term targets and strategies through 2030. The aim of the SEP is consistent with the IEA *Shared Goals*, seeking to achieve the three Es of energy policy: Energy security, Economic growth and Environmental sustainability.

Despite these many positive developments, substantial challenges remain for the Czech Republic. One such challenge involves the implementation and practice of market reform in the gas and electricity sectors. The largest impediment the country is facing in transiting to competition may be the

market power of the incumbent utilities. On the gas side, one company (RWE), the near-exclusive gas importer, owns and operates the transportation pipeline network and controls distribution companies which together have 83% of the retail market share. On the electricity side, one company (ČEZ) has a 70% wholesale market share and controls companies which themselves have a 66% share of the retail market. While maintaining powerful national companies may be attractive in certain respects, the government is encouraged to envision how such market concentration will impede competition (and its benefits) and which tools can be used to overcome this obstacle. One means of addressing market concentration is through imports (or the threat of imports) into the Czech market. The government should take all steps to ensure that any restrictions (*e.g.* with the infrastructure or regulations) are removed and that such cross-border trade is encouraged.

Another related challenge for the government is to strengthen the institutions that will be required in a competitive market. These are primarily the regulator, the ERO, and the competition authority, the Office for the Protection of Competition. There have been questions raised about the independence and strength of the ERO, particularly following the dismissal of its chairman in August 2004. The Office for the Protection of Competition has ruled on a number of important cases regarding market power concentration in the energy sector but the power of its edicts has not been thoroughly established. While it would appear that the expertise and intentions of these two groups are sufficient for their important role in the reformed markets, their independence and authority need to be more explicitly established.

As customers are given the right of supplier choice in the gas and electricity markets, they will no longer have recourse to a regulated tariff and must take gas and electricity at prices and terms offered by market players. While this may not be a problem for larger industrial customers who have the resources and motivation to pursue alternative suppliers, the smaller customers will generally not be so motivated and thus accept the terms that the incumbent offers. Given the initial state of concentration in the Czech gas and electricity markets, the government should take steps to ensure that newly contestable customers are able to access a regulated transitional tariff until such time as a mature competitive market develops.

Given the Czech Republic's central position in Eastern Europe, its relatively small size and its lack of oil and gas deposits, it is not surprising that the country has many different types of international energy connections. It is the second-largest electricity exporter in Europe (after France) and displays a commendable gas supply diversity with more than 25% of imports coming from non-Russian sources. This international scope should be maintained and even expanded further as appropriate. This would include: removal of any constraints on international electricity trade in order to mitigate domestic market power and boost security of supply and consideration of a regional

power pool as a longer-term project; maintained gas import supply diversity; use of international flexible mechanisms to benefit from the comparatively low GHG emissions; and international co-operation with energy research and development such as through the IEA's Implementing Agreements (IA).

As mentioned above, the SEP contains generally prudent strategies and objectives that move the country in the right direction. However, the review team felt that some of the targets were overly ambitious and would thus be very difficult to achieve. For example, the SEP called for a decrease in liquid fuel use with consumption in 2030 below current levels. Since liquid fuel use includes the transport sector, and transport demand has risen strongly in countries that improve their per capita income, this objective may be too ambitious. The energy target of 8% of electricity coming from renewables by 2010 is also ambitious. Given the reach of some of these targets, cost-benefit analyses of the plans could be highly useful. The SEP also includes target ranges for the shares of fuel for primary energy supplies through 2030. Given the trends observed in most other European countries, it seems unlikely that the share of gas consumption out of total primary energy supply would stagnate at around 20%. While such an energy portfolio can provide guidance to sector participants, the government should refrain from direct interventions with the goal of meeting the fuel supply targets. Such a supply mix should be achieved by market instruments and the decisions of individual producers and consumers. Excessive government intervention could deter efficient private-sector investment in energy infrastructure and services.

The SEP rightly makes energy efficiency the primary focus of the new energy strategy. Even though progress has been made in this area over the last fifteen years, this improvement lags behind that of neighbouring countries. While energy intensity has fallen by more than 17% in the Czech Republic from 1990 to 2002, it has fallen by 23% in Hungary, 27% in Slovakia and 39% in Poland. This suggests that substantial energy efficiency potential remains in the Czech Republic. The government is encouraged to follow up its work in the SEP with concrete policies and measures to improve efficiency which the review team felt was lacking in the new plan. Improving the efficiency of the transport sector and the building sector should be the government's highest priority.

Currently, renewable energy does not play a major role in the Czech Republic, accounting in 2002 for 2.5% of primary energy supply and 4.2% of electricity generation. As noted above, the SEP calls for a substantial increase in renewable energy, with its share in electricity generation rising to 8% by 2010 and that of primary energy supply rising to 16.8% in 2030. While renewable energy is one important means to achieve multiple energy policy objectives, it is not an objective in itself and care should be taken that overly ambitious targets do not put an excessive burden on the economy. The government is currently revamping its renewable energy support scheme. This is a prudent

undertaking since the previous scheme was a complicated two-tiered approach of investment subsidies and feed-in tariffs. The proposed new scheme will constitute either a continuation of the feed-in tariff (with discontinuation of the investment subsidies) or a green certificate programme with quotas. While feed-in tariffs have proven effective in delivering installed capacity, the tariffs should be regularly reduced to motivate greater efficiency and thus reduce costs to the consumer. If green certificates are chosen, the government may draw on the experiences of other countries in designing an effective trading system that could also accommodate regional certificate trading. Regardless of the renewable support scheme ultimately chosen, care should be taken to avoid overlap with any other support schemes, whether domestic or international (*e.g.* the EU-ETS).

The Czech government often groups energy efficiency and environmental policy together. These two topic areas are often discussed together in policy papers, pursued by the same organisations and have budgets that are difficult to separate. Even though both efficiency and renewables can deliver decreased emissions and reduce reliance on imported fuels, their application and implementation are substantially different from one another. While it is commendable that the energy policy implementation reflects environmental realities, the government may consider taking a more distinct and separate approach to efficiency and renewables from an organisational point of view. It appears that government funding for energy efficiency has fallen in recent years while funding for renewable energy has risen. This is not consistent with the ambitious targets for energy efficiency improvement in the SEP. If energy demand can be reduced at a lower cost than production of useful energy through renewable means, more attention and resources should be directed towards energy efficiency, and vice versa. Historical and geographical factors indicate that the potential for energy efficiency in the Czech Republic is greater than that for renewable energy. The finite budget resources of the government should be allocated accordingly.

Regarding Czech environmental performance, emissions from fuel combustion have fallen substantially in the last ten or so years. As noted, CO<sub>2</sub> emissions from fuel combustion have fallen by 24% from 1990 to 2003 and other energy-related emissions (*e.g.* SO<sub>2</sub> and NO<sub>x</sub>) have declined even further. These reductions have proceeded from economic developments and, in the case of SO<sub>2</sub>, from specific government policies. Nevertheless, almost all energy-related emissions (per unit of GDP) remain well above the average for the EU. The country is expected to easily meet both its commitment under the Kyoto Protocol to reduce greenhouse gas (GHG) emissions by 8% below 1990 levels by 2008-2012 and a more stringent internal target of 20% below 1990 levels by 2005. As a result, the government has not actively designed or executed an emissions control strategy despite the potential to achieve further reductions from current high levels at relatively low cost. This lack of a comprehensive GHG strategy is unfortunate because the country can benefit

substantially by selling or otherwise transferring its emission rights to other countries, primarily through the EU Emissions Trading Scheme. It should be borne in mind that the country could face more demanding targets in the future. The Czech Republic is encouraged to introduce and implement a strengthened climate change strategy with plans to benefit the country by transferring emission rights abroad.

Coal is the most important energy supply for the Czech Republic accounting in 2003 for 47% of total primary energy supply (TPES). While coal's share of TPES has been falling steadily – it was more than 63% in 1991 – and is expected to fall further according to most forecasts, it will remain a crucial part of the Czech energy sector in the foreseeable future. Coal is a relatively low and stable priced fuel from domestic sources. The government makes payments to defunct coal mines to restore mine sites and pay for former miners. The mines receiving these payments had been producing uneconomic coal under the previous regime. Such payments are appropriate given the historical legacy and responsibility. Nevertheless, efforts should be made to reduce these payments as much as possible and ensure they do not become a *de facto* subsidy to operating mines which might discourage them from making sufficient financial provisions for their future closure expenses. In particular, the government should set transparent criteria for future payments, payments to mines currently under operation and a fixed date by which all such payments are terminated. At present, the mining industry does not appear overly concentrated, but the government is advised to monitor the situation closely because of the substantial merger and acquisition activity in the sector.

The Czech Republic has two nuclear power plants which in 2003 provided 15% of TPES and 31% of total electricity generation. According to international organisations, the safety and technical performance of both operating nuclear power plants have been satisfactory. The government has established funds to handle waste disposal. While the levels in these funds and provisions for future funding appear sufficient for their purposes, the government is encouraged to monitor this situation and regularly review the adequacy of these provisions, especially given the uncertain nature of post-operation liabilities. Attempts to create a domestic final waste disposal site have been thus far unsuccessful, primarily because of local opposition to those sites deemed geologically suitable. The government is urged to develop a framework for expanded and more consultative dialogue with local groups to see if a solution is not ultimately possible. In 2004, the Czech Republic continued to produce uranium from its Dolní Rožínka mine although the cost of ore from this site is substantially above market rates. The Czech government decided to close the Dolní Rožínka mine in 2005. The government is urged to shut down this mine, as it has said it would on previous occasions.

# RECOMMENDATIONS

*The government of the Czech Republic should:*

## **General Energy Policy**

- ▶ *Examine the feasibility and cost of achieving the national targets such as energy efficiency, renewable and fuel mix goals.*
- ▶ *Supplement work in strategy with detailed action plans and with sub-targets to ensure progress across all areas.*
- ▶ *Follow through on the intention to conduct a three-year review of strategy by developing an analytical framework to assess progress.*
- ▶ *Develop a regulatory, fiscal and market structure that seeks to reflect environmental externalities in energy prices.*
- ▶ *Enhance involvement of all stakeholders, including consumers, when developing energy policies and disseminate information widely.*
- ▶ *Ensure the independence of the Energy Regulatory Office from political and industry influence.*
- ▶ *Enable the anti-monopoly authority to monitor energy markets in depth, promote a competitive environment and prevent possible abuse of market power, and act where appropriate.*
- ▶ *Consider means of improving the efficiencies of the still-regulated components of the liberalising energy sector, including domestic and international benchmarking and regulatory incentives.*

## **Energy and the Environment**

- ▶ *Consider developing a plan for reducing GHG emissions with targets on overall and sectoral level; regularly update GHG projections and take measures if necessary.*
- ▶ *Monitor and evaluate the cost-effectiveness of the policies and measures in the State Environmental Policy and the National Plan to Mitigate Climate Change.*
- ▶ *Define clear responsibilities of relevant ministries and strengthen co-ordination among different ministries.*
- ▶ *Examine and institute means of profiting from continued emissions reduction through the use of flexible mechanisms such as emissions trading and/or Joint Implementation.*
- ▶ *Continue to reduce the level of emissions of local pollution.*

## **Energy Efficiency and Renewable Energy**

- ▶ *Develop sectoral targets supported by concrete measures to achieve the national target of improving energy efficiency, and closely monitor progress.*
- ▶ *Define clear responsibilities of relevant ministries and strengthen co-ordination among different ministries to improve energy efficiency in each sector.*
- ▶ *Consider expanding efforts to capture the energy-saving potential of medium- and small-size energy users.*
- ▶ *Address energy demand growth in the transport sector by:*
  - *Further fostering more energy-efficient modes such as public transport.*
  - *Providing economic and regulatory incentives (e.g. fuel taxation, vehicle taxation, car inspection system) for the choice of more fuel-efficient vehicles and for the accelerated retirement of old and inefficient vehicles (vehicle taxation, car inspection system, etc.).*
  - *Enhancing measures to control the volume of road traffic such as park and ride and road pricing.*
- ▶ *Enhance policies to encourage renovation of existing energy-inefficient buildings.*
- ▶ *Define the role of combined heat and power (CHP) in achieving national energy policy objectives and target the support scheme for CHP plants with higher efficiency.*
- ▶ *Pursue renewable energy policy that is cost-effective with elements of incentives for cost reduction. Consider a market-oriented approach such as green certificates.*
- ▶ *Enhance measures to promote renewable energy use in the heat and transport sectors.*
- ▶ *Review prioritisation of state budget allocation between energy efficiency improvement and renewable energy promotion based on its cost-effectiveness.*

## **Fossil Fuels**

### *Natural Gas*

- ▶ *Continue to monitor overall supply source decisions made by private gas importers to ensure a continued sufficiency of supply diversity and continued adequacy of plans to deal with emergency situations.*
- ▶ *Review the static demand projection of gas use presented in the SEP.*
- ▶ *Refrain from any policy intervention to discourage gas growth to meet the static demand projections used as the basis for the SEP.*

- ▶ *Remove barriers to entry for new competitors in the supply, distribution and retail aspects of the liberalised gas market.*
- ▶ *Closely monitor the gas market and prevent possible abuses of dominant position.*
- ▶ *Ensure that consumers given supplier choice are provided protection from excessive prices in the transitional phase towards a competitive market.*
- ▶ *Develop best practice principles for negotiated third-party access to gas storage so as not to disadvantage new entrants or consumers seeking competitively provided gas supplies.*

## **Coal**

- ▶ *Search for a sustainable solution for using coal resources, including consultative processes (e.g. facilitating community consultations and environmental impact statements).*
- ▶ *Monitor concentration of mining interests to maintain diversity in the market.*
- ▶ *Continue to reduce government payments to defunct coal companies while maintaining responsibility for environmental rehabilitation and former workers.*

## **Oil**

- ▶ *Sustain efforts to increase the utilisation of the IKL pipeline with further diversification of import sources.*
- ▶ *Promote sufficient demand for biofuels to stimulate increased investment in bioethanol production facilities.*
- ▶ *Continue to maintain a consistent record of meeting the IEA stockholding obligation.*

## **Electricity**

- ▶ *Closely monitor the electricity market and prevent possible abuses of dominant position.*
- ▶ *Consider possible impediments to competition resulting from ČEZ's horizontal and vertical integration in the electricity sector, and maintain a robust approach to eliminating any anti-competitive behaviour.*
- ▶ *Ensure non-discriminatory access to the grid.*
- ▶ *Work with industry and international partners to remove any remaining constraints on international electricity trade to help enhance energy security*

*and reduce the dominant position of the incumbent; consider the advantages of a regional power pool as a longer-range project.*

- ▶ *Seek to expand the Electricity Market Operator's (OTE) wholesale market in order to create a viable reference price and increase market transparency.*
- ▶ *Ensure that consumers given supplier choice are provided protection from excessive prices in the transitional phase towards a competitive market.*
- ▶ *Maintain a transparently arm's length relationship with ČEZ and clarify the various roles it plays with regard to ČEZ.*

## **Nuclear Power**

- ▶ *Maintain the nuclear option while ensuring that additional units would be built in an open market situation.*
- ▶ *Continue regular monitoring of nuclear safety in both Dukovany and Temelín nuclear power plants.*
- ▶ *Assure an atmosphere and a solid framework for open discussions on nuclear waste management issues to involve the public in the decision-making process.*
- ▶ *Continue to assure that the fund generated is in compliance with the costs of fuel backend and decommissioning.*
- ▶ *Pursue final nuclear waste storage solution.*
- ▶ *Pursue the closure and clean-up of the Dolní Rožínka uranium mine.*

## **Energy Research and Development**

- ▶ *Examine the effect that reduced government R&D spending could have on meeting the country's energy objectives.*
- ▶ *Incorporate more fully the government energy policy into the formulation of energy R&D strategy by targeting those technologies that can help the country achieve its specific energy goals.*
- ▶ *Develop a more comprehensive qualitative and quantitative picture of current energy R&D efforts and a vision for the future.*
- ▶ *Examine possibilities for greater international co-operation in energy R&D given budget constraints and the opportunities offered by the country's participation in international entities such as the IEA and the EU.*
- ▶ *Investigate private-public partnerships to ensure continued energy R&D efforts by energy companies in the competitive market.*