

## 6.2. The Czech Republic – Decisive on energy security, but hesitant on climate change

### Introduction

The Czech Republic is part of the ‘coal coalition’ of new member states complaining about EU climate policies. It is in the same difficult situation as Poland. It generates a smaller proportion (around 57 per cent) of its electricity from coal and lignite than Poland (around 95 per cent). It therefore has lower carbon intensity in its energy supply. However, with a long manufacturing tradition dating back to the start of the industrial revolution, the Czechs use relatively more energy, and have a relatively more energy-intensive industry, than the Poles. The Czech Republic therefore has higher energy intensity than Poland (see Table 9a), which means that CO<sub>2</sub> emissions per head of population are nearly 50 per cent higher in the Czech Republic than in Poland.

**Table 9a: Coal coalition compared and contrasted**

<b>Figures for 2007</b>	<b>Czech Republic</b>	<b>Poland</b>
Energy intensity (toe/M euros '00)	553	400
Carbon intensity (tCO <sub>2</sub> /toe)	2.83	3.37
Energy per capita (kg oil equiv./ capita)	4480	2571
CO <sub>2</sub> per capita (kg/capita)	12694	8667

Source: Eurostat

Czech energy policy has, in recent years, been characterized by decisiveness on issues relating to security of energy supply, such as the building of oil and gas pipelines to reduce dependence on Russia and the completion of nuclear power plants (which are generally considered a matter of energy security). However, precisely because domestic sources of coal and lignite are seen as an important element in the country’s energy security, there has been hesitation and delay in reducing the use of coal and lignite. Czech scepticism about climate change, personified in Vaclav Klaus, the country’s famously climate-sceptic president, and Czech doubts about the feasibility of alternatives to fossil fuels, have been reinforced by an ill-judged solar PV scheme. This scheme has brought a surge of solar PV investment into the country, but has added significantly to Czech electricity bills.

### 6.2.1. Energy supply and security

Well before its entry into the EU, and well before other new member states, the Czech Republic began to take steps to secure its energy supplies.

## ***Gas***

In the 1990s the Czech Republic started to diversify away from Russia by contracting for supplies of Norwegian gas. This Norwegian gas is notionally deliverable directly through the RWE Transgas network from Germany into the Czech Republic. For practical reasons, the Norwegian gas is delivered in northern Germany and swapped for an equivalent amount of Russian gas routed via Germany into the Czech Republic. Prague appears to draw a double assurance that a) Germany will never deny this supply of Russian gas to the Czech Republic because it is getting Norwegian gas in return, and that b) Russian gas via Germany is a safer source than Russian gas via any other route because Russia would never jeopardize its market and relationship with Germany. ‘Russia will never play with Germany, which is the biggest market for Russian gas’, says Vaclav Bartuska, the Czech ambassador for energy security.<sup>16</sup> In practice therefore, the Czech Republic continues to get about 100 per cent of its gas from Russia, although only 80 per cent of this comes along the traditional east–west route through Slovakia. By establishing an alternative German route for some of this gas (and conceivably for Norwegian gas), the Czech Republic feels itself less at Gazprom’s mercy. In these circumstances, it has been happy for RWE–Transgas, the Czech subsidiary of RWE, to extend its long-term import contract with Gazprom for the Czech Republic until 2035.

RWE–Transgas has also increased its ability to reverse the normal east–west flow on the main transit pipeline carrying Russian gas from Slovakia, across the Czech Republic, and into Germany. This prudent step paid off in January 2009, when the Czech Republic was able to increase imports from Germany, both for Czech use and for storage in western Slovakia. (When Slovakia had its supply of Russian gas cut off at its eastern frontier bordering Ukraine, it found itself unable to pipe the gas from its western storage sites to eastern Slovakia. As a result the Slovaks are now constructing the same two-way gas transport system as the Czechs have done.) Since January 2009, there has been considerable work in the Czech Republic on creating new gas connections to Austria – and there is even more work underway in Slovakia on links to Hungary, Austria, and possible plans for a link to Poland.

## ***Oil***

Another example of where the Czech authorities have acted on energy security – rather than, like some of their neighbours, just complaining about it – is the Ingolstadt–Kralupy–Litvinov

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<sup>16</sup> Author interview on research trip to Czech Republic April 2010.

(IKL) oil pipeline built in the 1990s to Germany. When the European Commission wrote its 2008 Green Paper on energy security, it chose to highlight the IKL pipeline as ‘a striking example [to all EU countries] of public financing of a pipeline for security of supply, when the market does not see the need’. Ambassador Bartuska admits that the IKL pipeline, which cost \$400m out of the Czech government budget, is far from used to capacity; it hardly could be, given that the IKL’s capacity is 10m tonnes a year compared to total Czech oil imports of 8m tonnes. He says, however, that the Czech Republic reaped the benefit of the pipeline in summer 2008. Shortly after the Czech Republic and the USA signed a missile defence agreement that Russia disliked, supplies of Russian oil to Czech customers through the Druzhba oil pipeline were cut off ‘for technical reasons’. The Czechs were, however, able to get replacement supplies through the IKL pipeline.

### ***Nuclear***

This accounts for around 40 per cent of Czech electricity. The Czechs are probably the most pro-nuclear nation in the EU and they are the most recent country in Europe to complete a nuclear power plant (Temelin started operation 10 years ago). The country seems generally content to see new reactors built on the site of the two nuclear sites at Temelin and Dukovany. The operating costs of these plants are low. CEZ, the dominant (and state-controlled) Czech utility which owns and operates these nuclear plants, describes them as ‘the winning ticket’. CEZ calculates that, thanks to its sizeable nuclear power generation, the CO<sub>2</sub> intensity of its operations stands at 0.66 tonnes of CO<sub>2</sub>/MWh – less than what it estimates (based on the German market) is the European average of 0.80 tonnes of CO<sub>2</sub>/MWh. This therefore is a rare case of a central or eastern European energy company with lower carbon intensity than its western European counterparts.

### ***Coal/lignite***

This is still the most important fuel for power generation, accounting for over 50 per cent of electricity, and in view of climate change, the most controversial. CEZ says that it has taken notice of climate change concerns and of EU policies to scale down its coal operations. ‘We had a 2005 plan to maintain, by rebuilding, as much as 6.5 Gigawatts (6,500 MWs) of coal plants, but we cut this in half and are only continuing with 3 GWs of coal plant, and beyond 2020 it will be 2.5 GWs with just three projects’, says Alan Svoboda, CEZ’s commercial

director.<sup>17</sup> Moreover, apart from a coal investment in Germany and Poland, the foreign expansion of CEZ – which has become the biggest multinational among the new member states’ utilities – is in gas or renewables. It is planning gas-fired plants in Bulgaria, Poland, and (in alliance with Hungary’s MOL) Hungary and Slovakia, while in Romania it has bought into a big wind farm and taken a share in a nuclear plant.

In the Czech Republic, however, CEZ is pursuing its scaled-down coal plans in hard-headed ways that dismay many environmentalists. For a start, on economic grounds, CEZ favours lignite, which emits more carbon per unit of energy than does hard coal. The latter is expensive to mine or buy, says a CEZ executive, ‘because you pay a high price for the coal and also a high price for the CO<sub>2</sub> permit, whereas if you use lignite the only high price is for the CO<sub>2</sub> permit’. As a result of its low energy content, lignite is not considered worth transporting, so the criterion for new lignite investments – and crucially the level of technology in them – is how much lignite can be strip mined in the plants’ immediate surroundings. Therefore CEZ has decided to upgrade the lignite plant at Ledvice with the latest ‘supercritical’ boiler and turbines that will raise efficiency to the level of 42 per cent, because the company judges that there is sufficient strip-mineable lignite (40 years’ worth) in the vicinity to warrant the extra investment cost. However, in the case of another upgrade at Prunerov, CEZ was only willing to pay for equipment that will take efficiency up from around 36 per cent to 39–40 per cent, on the ground that the Prunerov lignite reserve is too short-lived to justify any higher investment.

CEZ’s cautious investment logic on coal technology also extends to carbon capture and storage. In contrast to Polish power companies, CEZ has declined to take part in any early commercial demonstration of CCS technology, even though it is being subsidized by the EU and some national governments. Though the Czech Republic has a couple of sites suitable for carbon storage, a CEZ executive says: ‘we see slower progress in CCS development than many others are predicting’.<sup>18</sup> In its refusal not to be pushed out of coal mining or into spending more on coal technology, CEZ knows that it has the backing of the country’s political establishment and of many allies in the country’s coal lobby. This lobby includes all the heating companies that burn coal in their boilers.

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<sup>17</sup> Comments made at a conference on energy security, organized by the Institute for Public Discussion, Prague, April 2010.

<sup>18</sup> Author interview.

One person did object to CEZ's refusal to put the best available technology into Prunerov, which is one of the country's largest sources of greenhouse gases. This was Jan Dusik, who was the Green party nominee as environment minister in a caretaker government until he resigned in spring 2010, in protest at the rest of the government taking CEZ's side on the Prunerov investment issue.

### ***Renewables***

The Czech Republic has never been seen as the most fertile ground for renewables. A 2005 study on the Czech Republic by the International Energy Agency remarked that 'historically and geographically the Czech Republic has greater scope for energy efficiency than for renewables'. By 'historically', the IEA meant the legacy of command-and-control communism and waste of energy, and by 'geographically', the fact that a relatively cloudy land-locked country in central Europe is not a natural zone for solar and wind power.

The Czech Republic's traditional renewable resources are hydroelectricity – which accounts for just over half (54 per cent in 2008) of all renewable electricity – and biomass – which accounts for over a quarter of all green electricity. As elsewhere in Europe, the Czech Republic has exhausted most of the good potential for hydro, going further would create further damage to the environment. Nor can biomass be much expanded. Czech forests are already well exploited, with most biomass (70 per cent) going to produce heat, which is the most efficient way of converting biomass into energy.

The search is therefore on for new forms of renewable power. Wind power is on the increase, but there are environmental objections and planning problems to putting more wind turbines on Czech mountain tops. The government's own report of November 2009 was pessimistic about wind. 'From the perspective of technical and energy efficiency, wind power plants in continental conditions are more a source of problems than a competitive source of energy. Their construction leads to an increase in the need for reserve sources, to the origin of bottlenecks in the transmission system and to local overloading of lines.'

Proof, however, that you can have too much of a good thing has come in the astonishing story of the Czech solar PV bubble. The most climate-sceptic of the new member states has found itself writing a blank cheque to investors who have rushed in to exploit a 2005 law. This law

set the feed-in tariff for solar PV at no less than Czech crowns (CZK) 14,080 (Euros 522) per MWh, guaranteed for 15 years, with the Czech regulator (ERU) left with the power to reduce that tariff by a maximum of only 5 per cent a year.

**Table 10a: Scaling down solar incentives**

<b>Date of commissioning</b>	<b>Feed-in tariffs CZK/MWh (Eur/MWh)</b>	<b>Green bonuses CZK/MWh (Eur/MWh)</b>
Solar PV after Jan 2009 below 30kW	12,890 (477)	11,910 (441)
Solar PV after Jan 2009 above 30kW	12,790 (474)	11,810 (438)
Solar PV in 2008	13,730 (509)	12,750 (472)
Solar PV in 2006–7	14,080 (522)	13,100 (485)
Solar PV before Jan 2006	6,710 (249)	5,730 (212)

Source: Czech Energy Regulators Office

The 2005 law was intended to give a boost to renewables, which indeed it did. Czech regulators say that the rate chosen to apply after January 2006 was rational, given the then prevailing price of silicon and solar panels. What they could not have foreseen was the collapse in the price of solar panels, partly due to Spain's cut in its big solar subsidy, which left excess Chinese production on the market. The effect of this was to reduce the payback period on solar PV investments to around 6–7 years in a scheme with a tariff guaranteed for 15 or 20 years. Not surprisingly, there was a surge of investment. Banks marketed Czech solar PV projects to investors as sure-fire 'financial products' regardless of other considerations such as the difficulties faced by the Czech grid in connecting all these solar generators. Table 10a clearly shows how the regulators repeatedly cut the tariff by the full amount allowed to them – 5 per cent a year – and in 2009 they split the tariff between big and small generators so as to apply a slightly bigger cut to bigger projects. Table 10a also gives an idea of how low the electricity market price has been in comparison to the huge subsidy. Solar PV investors could choose to get either the feed-in tariff or the green bonus which is aimed at bringing the market price up to the level of the feed-in tariff, so the market price is just the small difference between the green bonus and the feed-in tariff.

Not surprisingly, the investors have kept coming – installing 65MW of new solar PV capacity in 2008, 462MW in 2009, and anywhere from 1,600 to 3,000 MW in 2010. Moreover, in contrast to Slovakia – which set high feed-in tariffs but limited the quantity of investment on which the tariffs were payable – Czech PV subsidies have been unlimited. A blank cheque

indeed. Eventually, the Prague government overcame its fear of upsetting investors and amended the law to allow regulators, from 2011 on, to cut tariffs by more than 5 per cent in cases where the payback period is shorter than 11 years (11–15 years being the normal payback period for other renewables, according to the regulators). This is expected to slow the increase in investment.

What, therefore is the upshot of all this? On one hand, the artificial solar PV boom has produced some modest industrial spin-offs. One is Fitcraft, a Czech company making silicon wafers and PV panels. This is a relatively rare example of a company in one of the new member states succeeding in green technology; another Czech example of this is Wikov, which makes gears for wind turbines. On the other hand, solar support tariffs/bonuses have added 4 per cent to electricity bills in 2010, and probably double that amount in 2011. At least 40 per cent of total renewable support is being spent on something that only provides about 7 per cent of renewable power so far. This discrepancy, and popular discontent about rising electricity prices, threatens to confirm many Czechs in their scepticism about climate change and its supposed remedies. Zuzana Musilova of the CZEPHO trade association of some 70 solar companies and investors operating in the Czech Republic, recognizes the boom in her sector may have been counter-productive. ‘We want durable development of the sector with stable growth, so we could accept a lower tariff so as to reduce the impact on end-users and their electricity bills.’<sup>19</sup> There is thus a general consensus that Czech consumers would have gained far more energy for the extra crowns on their energy bills if the money had been spread more evenly across the range of renewables, on biogas and biomass as well as on wind and solar power.

**Energy efficiency and demand.** The Czech economy has, as the IEA noted, considerable scope for energy-saving. Efficiency has increased in households and industry, though much of the improvement in industry is the result of structural changes – the shift since 1990 from energy-intensive branches of manufacturing to less intensive ones. The biggest change came in metallurgy. The industrial city of Ostrava now has one blast furnace (owned by ArcelorMittal) where once it had four. Sectors such as textiles, machinery, china, and glass also shrank. According to the Odyssee energy efficiency index, structural changes accounted

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<sup>19</sup> Author interview.

for 46 per cent of the general energy efficiency improvement between 1997 and 2000, and for around 28 per cent in the period 2000–7.

However, efficiency improvements in households and industry have been effectively cancelled out by a big increase in the energy intensity of transport. There has been a shift for passengers and freight from rail to road, from public transport (buses) to private cars, from smaller cars to bigger cars with higher fuel consumption, and a massive import of second-hand cars from western Europe. To help its car industry through the 2008–10 recession, Germany, like many other countries, introduced a scheme giving those people handing in old cars some money towards buying new cars. However, due to the lack of any enforced requirement in the German scheme that old cars be scrapped, many of these older cars ended up in central and eastern Europe.

On the other hand, among the new member states, the Czech republic has been one of the most successful sellers of Kyoto ‘hot air’ credits. It has a surplus of 150m EUAs for the 2008–12 period, of which it planned to sell 100m and carry the rest forward. By spring 2010, it had sold 71m credits, mainly to the Japanese government and Japanese companies, and also to Austria and Spain, raising around Czech crowns 18bn. This money has gone into a Green Investment Scheme, to be chiefly used to fund residential insulation and to encourage renewables at the household level (solar heating, biomass boilers, and heat pumps).