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LINKING AN EU EMISSION REDUCTION TARGET BEYOND 20 % TO ENERGY SECURITY IN CENTRAL AND EASTERN EUROPE

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Introduction

The Central and Eastern European Member States are expected to play a key role in the debate around future EU climate policy, including the potential move beyond a 20% greenhouse gas (GHG) reduction target by 2020. Hungary and Poland hold the rotating EU Presidency in 2011, and energy security has been placed as a priority issue on both Presidency agendas. At the same time, energy security is a key issue in climate policy, particularly for the Central and Eastern European (CEE) Member States. Hungary's ambassador for Energy Security, Mihaly Bayer, made the link explicit, saying "if we can settle energy security then we can deal with climate change more calmly".[1] It is important to gain an understanding of the actual underpinnings of the energy security debate in CEE, and of the impact of a more stringent 2020 reduction target for this region.

Energy security is commonly defined as the ability of the energy system to deliver the required energy services at affordable prices. Within the EU, energy security is defined in terms of security, sustainability and competitiveness of supply.[2] Such conceptions of energy security largely focus on the risk of short-term disruptions, e.g. gas disputes or outages of large generating plant. However, more recent literature gives weight to the *resilience* of the energy system, which includes its ability to deliver the required energy services at affordable prices in the face of long-term systemic pressures.[3] The continuation of high oil prices and the need to decarbonize the economy are arguably important long-term pressures, against which European energy systems need to measure up. We argue that the concept of *resilient* energy systems needs to be included in the EU's discourse on energy security and climate policy; this can cast their interaction in a very new light.

This paper assesses the issue of energy security and climate policy from the perspective of the CEE Member States. Qualitative case studies are conducted of the objective understanding and political discourse around energy security and climate policy in Poland, the Czech Republic and Latvia. Their energy security is approached from the perspective of "subjective" and "objective" energy security. By the former we mean the political discourse around this issue, and by "objective" energy security we mean the quantifiable parameters of energy security. A central thesis of the paper is that these are not always in accordance;

[1] Quoted in David Buchan, "Eastern Europe's Energy Challenge: Meeting Its EU Climate Commitments", Oxford Institute of Energy Studies, 2010.
[2] European Commission, "Second Strategic Energy Review", COM(2008) 781 final.
[3] Andy Stirling, "What is Energy Security? Uncertainties, dynamics, strategies". Presentation to the Sussex Energy Group Seminar, January, 2009. Available at: http://www.sussex.ac.uk/sussexenergygroup/documents/s9a-seg_energy_security_conference.ppt. Date accessed: 3 March 2011.

examining either objective data or the political discourse in isolation will not generate a complete understanding of the dynamic relationship between energy security and climate policy.

The paper makes the following arguments:

- Stronger emissions reduction targets could potentially improve the energy security situation of CEE Member States, in particular in vulnerable, peripheral Member States highly reliant on imported fuels, e.g. Latvia. Energy efficiency improvements and renewables expansion can make a significant contribution to reduced import dependency; depending on the scenario, the *share* of gas may increase, but reduced energy demand could lower its *absolute volume*.

- The current 20/20/20 framework risks locking-in suboptimal investment and technology choices. The framework does not sufficiently support carbon capture and storage (CCS) and nuclear, which form a key element of some CEE decarbonization pathways, e.g. Poland. Stronger reduction targets to 2020 and beyond may contribute to an investment/policy framework more conducive to the accelerated deployment of such technologies. The current absence of a robust investment/policy framework for these technologies should be seen as an energy security risk.

- "Traditional" tools of energy security, i.e. diversification of supply sources and routes, and market integration, also clearly have a role to play in ensuring energy security in the CEE region. The agendas of market integration, energy supply diversification and stronger energy efficiency and renewable energy exploitation, leveraged for example by a more stringent 2020 emissions target, should be viewed as complementary measures for improving EU energy security.

- Implementation capacity and costs remain key concerns in the policy debates in the Member States studied; in this regard, the EU budget could play a role in overcoming financial/market barriers in the CEE Member States.

Poland

Summary

- EU climate goals require a wide reaching and challenging reform of the Polish economy and energy sector in particular.
- Subjectively, perceived energy insecurity is high, but objective indicators suggest energy insecurity is low in Poland relative to other EU Member States.
- Poland places high priority on EU energy policy and solidarity as a tool to improve energy security in CEE.
- The pressing need to modernize the energy sector is becoming an increasing energy security concern; ambiguous climate policy may contribute to an unfavourable climate for investment.
- Macroeconomic modelling and micro economic analysis demonstrate the importance of a strong carbon price to leverage key low-carbon technologies, i.e. CCS and nuclear.

Energy in Poland

Coal is the linchpin of the Polish energy system, and its dominance determines for the time being the parameters of Polish energy and climate policy. With coal accounting for 90 percent of Poland's electricity generation, Poland is often referred to as "the China of Europe". Poland is the biggest extractor of lignite within the European Union. The major utilities remain vertically integrated and under state control. Hence their influence in formulating government policy is very high. In conjunction with powerful trade unions they constitute an energetic force for the *status quo* that is difficult to bypass. The idea of sustainable energy security does not resonate particularly well in the Polish public discourse, with none of the major political parties explicitly prioritizing the low carbon transformation of the economy in their policy platforms.

Relying on its large coal reserves gives Poland the advantage of importing only 30% of its primary energy consumption – being overall far less dependant on Russia than many other Member States within the region. The drawback is that Poland faces a particular challenge meeting its EU climate change commitments.[4] This is exacerbated by the dynamism of Polish economic growth and a history of chronic underinvestment in the energy sector, meaning that about 12 GW of capacity may need to be added by 2015.[5] While this also provides an opportunity to replace old generation stock with cleaner capacity,

[4] The World Bank, "Transition to a Low Emissions Economy in Poland", 2011.
[5] The Economist Intelligence Unit, "Changing Direction: Reform of Energy Utility Sectors in Central and Eastern Europe", 2010, pp. 31.

this requires a strategic decision on the future generation mix, which needs to balance the goals of energy security and climate policy.

Structurally Poland's energy mix is trapped in coal, leaving few short-term alternative options for policy makers looking to reduce the emissions intensity of energy production. Poland's first nuclear plant will come online by 2020-2022 at the earliest. Gas accounts for only 15 percent of Poland's final energy balance, one of the lowest ratios of gas use in Europe. Shale gas exploration is at a very early stage in Poland. However, even if shale gas emerges as a viable alternative to coal, this is unlikely to occur in a sufficiently timely manner to facilitate Poland's ability to achieve its EU 2020 climate and energy targets.[6] The planned LNG terminal at Świnoujście is expected to be operational by 2014 with an initial capacity of 5 billion cubic meters (bcm), compared to national annual consumption of ca. 14 bcm; PGNiG's[7] already contracted LNG is reported to be 1.5 bcm. Last but not least, the deployment of renewable energies is - with a share of only 7.3 percent in the final energy balance - by far below Poland's potential,[8] and again reflects Poland's "coal complacency". In its National Energy Strategy of 2009 the Polish Ministry of the Economy aims to reduce the share of electricity generated by coal to 57 percent by 2030; renewable energies are to contribute 19 percent of electricity generation by this date, compared to 7.5 percent currently.

Energy Security in Poland

In traditional terms, i.e. security of supply, Poland's energy security position is quite comfortable. Its electricity production is based overwhelmingly on domestic coal; one third of gas consumption is covered by domestic production, and in spite of a clear import dependence on Russia (almost 100 percent), the oil sector does not face the risk of supply disruptions since both of Poland's big refineries can be supplied via overland pipelines and sea terminals. Poland is an important transit country for Russian natural gas and oil to Western Europe (notably via the Yamal and Družba pipelines), although new developments circumventing Poland (like the Nord Stream gas pipeline) might modify this situation to a certain extent.

Yet the subjective Polish view on energy security is characterized by a sense of asymmetry and unilateral dependence on Russia. Poland's official national security document from 2007 shows the key role of energy security in the broader threat assessment and risk perception: "The dependence of Polish

[6] Florence Gény, "Can Unconventional Gas be a Game Changer in European Gas Markets?", OIES, 2010.
[7] Polskie Górnictwo Naftowe i Gazownictwo, the Polish Oil and Gas Company, is the leading utility in the Polish gas sector.
[8] See, Mario Ragwitz et al, "Renewable Energy Policy Country Profiles", Frauenhofer Institute, 2009, ff.187.

economy on supplies of energy resources – crude oil and natural gas – from one source is the greatest external threat to our security".[9] In a 2007 opinion poll by the PEW Research Centre, 75 percent of Poles said that they were concerned about their country's level of energy dependence on Russia; this was the highest in all countries surveyed. Although concerns abated somewhat in the following year, probably due to a certain detente in Polish-Russian relations, in 2008 66 percent of Poles said that they were concerned.[10]

Diversification efforts are mainly aimed at creating new supply options in the gas sector. These include plans for an LNG terminal on the Baltic Sea; infrastructure projects like the Yamal reverse flow, and interconnector projects with Germany, the Czech Republic and Lithuania. Poland is seeking to open up new routes and sources of supply in the oil sector, e.g. through cooperation with Eastern Europe on an Odessa-Brody pipeline project, which could transit oil shipped via the Black Sea through Ukraine to Central Europe. Consequently, in European energy politics Poland puts particular emphasis on energy solidarity, which is also included in the Lisbon treaty (§194, Treaty on the Functioning of the European Union). Poland is politically a strong supporter of EU energy market integration, participating in two of the EU's six regional priority infrastructure clusters (BEMIP, CEE/SEE).[11]

In practice, however, the Polish response to the EU internal energy market agenda reveals a certain internal ambiguity regarding energy market interconnection. This is exemplified by the recent negotiations between PGNiG and Russia's Gazprom on a new long-term gas import contract. In July 2010 the Commission intervened in negotiations, arguing that the contract contravened EU internal market law.[12] In addition, the agreement originally appeared to prescribe import quantities up 2037, and to contain an agreement that the Yamal pipeline would be used until at least 2045. However, this came up against resistance in Poland, based on the argument that such a contract would fix Polish dependence on Russia far into the future, even though unconventional gas could potentially change Poland's import needs. The final agreement provides for the import of 10.3 bcm/yr, up from 7.5 today, until 2022; current annual consumption is around 14 bcm.

The national energy security discourse is also increasingly focusing on the domestic side of energy security – the poor state of the energy sector in Poland in

[9] The Republic of Poland, "National Security Strategy of the Republic of Poland", Warsaw, 2007, pp. 8.
[10] See http://pewresearch.org/pubs/1083/
[11] Baltic Energy Market Interconnection Plan; Central and Eastern Europe and Southern and Eastern Europe.
[12] See e.g., "Commission requests Poland to stop violation of EU rules on internal gas market", IP/10/945, 14.07.2010. http://europa.eu/rapid/pressReleasesAction.do?reference=IP/10/945&format=HTML&aged=0&language=EN&guiLanguage=en.

general. Due to many years of under investment in energy infrastructure, around 40% of all thermal plant is over 35 years old; around 25% over 40, and 10% over 50. According to some experts, energy shortages could occur already in 2014-2015.[13] The situation is worsened by the poor state of the energy transmission grid. Many medium voltage lines are part of radial distribution networks; 5384 km of these are over 100 km long (2.3 percent) and more than 4200 km over 50 km long (18 percent). The state of the domestic electricity sector is becoming a factor in perceived economic security as well, with Polish industry increasingly reporting electricity supply security as an important concern.[14]

Given these combined pressures to improve and secure energy supply in Poland in coming years, the impact of uncertain or ambiguous climate policy on investment will have increasing importance for the energy sector. Particularly regarding investment in fossil fuel plant, a project's net present value (NPV) will be greatly influenced by estimations of future CO_2 prices. In situations where anticipated future carbon prices are highly uncertain, the "option value" of deferring investment decisions in order to garner further market information in the future may exceed the NPV of immediate investment.[15] Similarly, where technology risk plays an important role, as in the case currently with CCS, there may be a high option value of waiting in order to assess the progress of broader R&D efforts globally.

As expected CO_2 prices rise, the option value of waiting decreases because the project's economics become dominated by the increasing certainty and magnitude of the CO_2 price. Current uncertainty over the EU's future reduction target could potentially delay the deployment of technologies such as nuclear and CCS, which are likely to play an important role in Polish decarbonisation scenarios post-2020. This could pose an energy security risk for Poland after 2020.

The World Bank argues that "[t]he concurrence of new obligations for carbon abatement requiring substantial new investment with, at the same time, assets nearing the end of their replacement point could greatly improve outcomes for Poland. The country should be well placed to avoid stranded assets that become too expensive once carbon is taxed (or restricted administratively)".[16] However, timely and strategic investment hinges upon a clear and robust policy framework. It is arguable whether the current 2020 climate framework provides this to a sufficient degree.

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[13] The Economist Intelligence Unit, "Changing Direction: Reform of Energy Utility Sectors in Central and Eastern Europe", 2010, pp. 31.
[14] According to the latest World Bank-EBRD Business Environment and Enterprise Performance Survey.
[15] See e.g. William Blyth, "The Economics of Transition in the Power Sector", IEA Information Paper, 2010.
[16] The World Bank, "Transition to a Low Emissions Economy in Poland", 2011, pp. 107.

Climate Policy and Energy Security in Poland

The EU climate program has a significant impact on Polish energy policy. In the negotiations around the 2008 Climate and Energy Package (CEP), Poland fought for, and won, the right for itself and most of the rest of the CEE Member States to allocate a progressively declining portion of allowances for free to the electricity sector. On a purchasing power parity basis, Poland has the third highest household electricity prices in the EU, after Slovakia and Italy,[17] and it is feared by policy makers that raising electricity tariffs would spark a political and social backlash. The target of a 14 percent increase in emissions in the non-ETS sector is viewed by policy makers as quite stringent, due to the projected increase in transport and service sector emissions. In this regard, it is interesting to note the difference between Polish non-ETS sector emissions in 2020 under the PRIMES Baseline and Reference scenarios. Under the Baseline scenarios, which assumes that ETS targets are met but not the non-ETS, RES or efficiency targets, Polish non-ETS emissions increase 18.1% on 2005 levels by 2020. However, under the Reference case, which assumes that RES, non-ETS and efficiency targets are met, they increase only 7.1% by 2020, with an EU-wide shadow carbon price of €5.3 in the non-ETS sector.[18] This suggests that Poland has a significant quantity of relatively cheap abatement in the non-ETS sector.

Among Polish policy-makers there is general support for expanding renewables and energy efficiency. For example, the National Security Strategy of the Republic of Poland states that "[e]nergy savings … are an important component of wider-scale measures aimed at guaranteeing energy security of the country".[19] However, doubts persist among policy-makers as to whether energy efficiency goals can be met, without a more comprehensive domestic policy, and potentially EU-level support for energy saving policies.

Poland feels that it is located on the periphery of the EU, and therefore has a unique "carbon leakage" problem. More than other EU Member States, Poland is afraid of losing market shares in manufacturing and potentially electricity generation to neighboring Ukraine. Preliminary analysis by Climate Strategies indicates low risk of outsourcing a significant portion of electricity generation to neighboring countries without a carbon constraint.[20] In the manufacturing sector, the gross value added (GVA) contribution of sectors potentially at risk of carbon leakage[21] is slightly higher in Poland than the EU average, although still less than 2.5% of GVA. However, a number of factors, including potential for energy

[17] Eurostat, "Panorama of Energy 2009", Figure 4.6, pp. 107.
[18] DG Energy, "EU Energy Trends to 2030", 2010, pp. 106 and 164.
[19] The Republic of Poland, "National Security Strategy of the Republic of Poland", Warsaw, 2007, pp. 32.
[20] See Susanne Droege et al, "Tackling Leakage in a World of Unequal Carbon Prices", Climate Strategies, 2009, ff. 37.
[21] i.e. iron & steel, aluminium, nitrogen fertilisers, cement and lime, basic inorganic chemicals, pulp and paper

efficiency, favourable conditions under the ETS, and the relative importance of other competitiveness factors, may mitigate the risk of carbon leakage in Poland.[22]

A more sustainable climate policy approach for Poland requires the development of intrinsic climate policy – a policy perception in which climate policy is not tantamount to externally imposed obligations, but rather a process which corresponds to well understood national interests of creating sustainable energy security and economic and political benefits alike.

In view of the incoming Polish EU Presidency in 2011 the following policy levers might be considered. Firstly, the agendas of market integration, energy efficiency and energy supply diversification should be viewed as complementary measures for improving EU energy security. The new EU Energy Security and Infrastructure Instrument can promote energy security via interconnectivity. At the same time, strengthening EU climate policy, e.g. by raising the 2020 reduction target, can reduce import dependence via the expansion of efficiency and renewables,[23] and the accelerated development of CCS and nuclear power. Current ambiguous climate policy may act as a barrier to investment and hence as an energy security risk. This should be taken into account in the EU discussion on the 2020 emissions targets.

Poland is not a supporter of "greening" the EU budget. Poland's official position on Cohesion policy states "the Republic of Poland is against determining the future of Cohesion Policy by the results of climate negotiations… and against introducing new solutions into this policy which are in contradiction with its obligations stemming from the [Lisbon] Treaty, i.e. which are not directly related to the objectives of Cohesion Policy and its delivery instruments."[24] However, analysis conducted in a companion paper[25] shows that there are synergies between "traditional" Cohesion policy aims and targeted policy interventions to support EU climate and energy goals. Addressing systemic gaps in the innovation landscape in Poland will be an important driver of future growth.[26] Therefore the general push to focus the EU budget on innovation may be

[22] See Simone Cooper, "Overview of Competitiveness Issues in Poland", Climate Strategies, 2010.
[23] See e.g. CICERO, "Policy appraisal for the Electricity sector: Impacts, mitigation, adaptation, and long term investments for technological change", ADAM Project, 2009, ff. 128; Ecofys, "Quantifying the Impact of a 30% Target on Energy Security", 2011.
[24] "Position of the Government of the Republic of Poland on the future of Cohesion Policy after 2013", August 2010, pp. 6.
[25] See Thomas Spencer et al, "The 2008 Climate and Energy Package and EU Fiscal Policy: What Role for the Budget in Supporting CEE Decarbonization", Climate Strategies, 2011.
[26] See e.g. Reinhilde Veugelers, "Assessing the Potential for Knowledge Based Growth in Transition Countries", Bruegel, 2010; and Paweł Zerka, "Turning gaps into niches. For a new innovation paradigm in Central Europe", DemosEuropa, 2010.

coherent with Poland's interest, if it can target areas where Poland could develop niche expertise. From a Polish perspective, a support scheme under the budget for electricity grid upgrades, e.g. smart grid, and framework for CCS and biomass energy may be interesting.

Czech Republic

Summary

- Nuclear energy is an important part of the Czech energy mix, and is perceived as a key tool to solve both climate mitigation and energy security challenges.
- The Czech Republic is a rare example of a CEE country, which has successfully diversified its energy imports; however, 'subjective' perceptions of energy insecurity are high regardless.
- Given this and the Czech Republic's role as an exporter of electricity, the Czech Republic has a strong interest in strengthening market integration and regional cooperation.
- Whilst climate policy is not really perceived as a threat to energy security, economic security and competitiveness are important concerns in the domestic climate debate.

Energy in the Czech Republic

The Czech energy balance is marked by a high share of coal and nuclear energy. The country's coal and lignite plants account for up to 60 percent of Czech electricity generation; the nuclear plants at Temelín and Dukovany contribute about one third to national electricity production. Due to significant lignite deposits and an important coal mining industry there is a strong coal lobby, spearheaded by the powerful, state-owned energy company CEZ, which owns the Severočeské uhelné doly mining firm with almost 50 percent of Czech lignite production; more than a dozen coal-fired power plants, and also the nuclear power plants.

Coal, lignite and nuclear energy have made the Czech Republic a net exporter of electricity, exporting 14 TWh in 2009 or some 17 percent of gross electricity generation. However, the country covers its gas and oil consumption (16 percent and 22 percent of gross inland energy consumption respectively) almost exclusively by imports. Gas and oil are imported mainly from Russia, but since the mid 1990s substantial diversification in supply sources has taken place.

The existence of a strong coal sector in the Czech energy system has lead to considerable reluctance in policy and industry circles towards EU climate mitigation policies. A second driver of Czech reticence toward climate policy is an ideological disbelief in the scientific and political/economic foundations of climate policy. Although the Czech public accepts the basic elements of EU climate policies, support for more specific action, e.g. the readiness to pay the

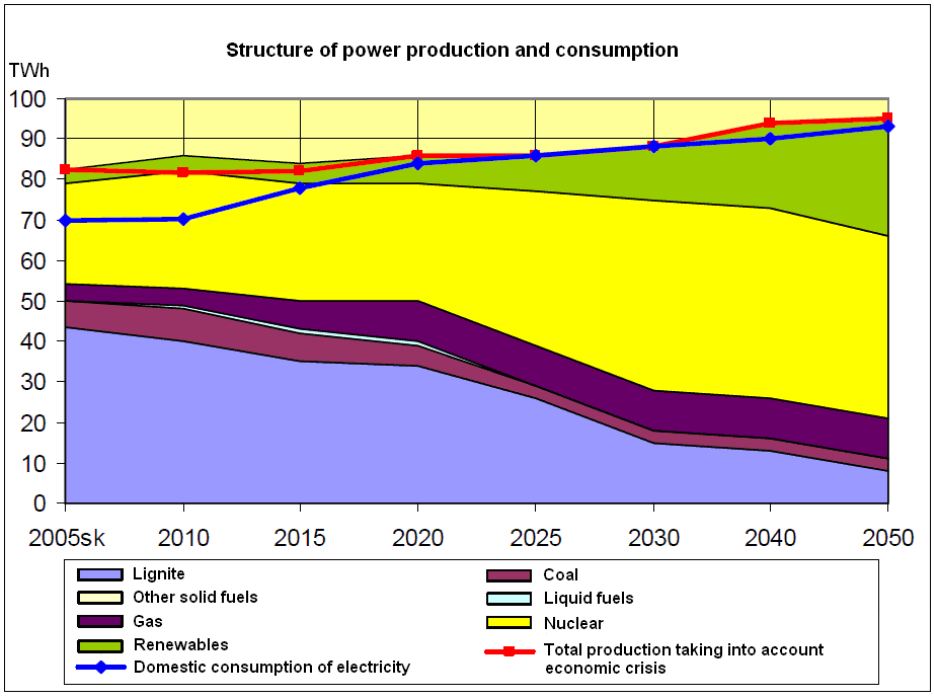
costs of climate-friendly measures, is among the lowest in the EU.[27] Czech president Václav Klaus and large parts of the important conservative Democratic Civic Party (ODS) have been standard-bearers of a kind of neo-liberal "climate scepticism".

Alongside this, there seems to be a strategic consensus that (for reasons of energy, economic and industrial policy) the Czech Republic should remain a production site for energy and thus strengthen its domestic energy generation capacities. However, the Czech Republic also has to fulfil its climate related commitments. Hence, more recent strategic documents like the draft "Update of the State Energy Concept of the Czech Republic" from February 2010 or the "Climate protection policy"[28] depict what the path to a low-emission energy sector in the mid to long term might look like. The impression that emerges from these and from other more recent statements by Czech politicians is that the Czech low-carbon scenario might be one based on a dynamic expansion of nuclear power and a modest extension of renewable energy sources, with domestic lignite playing for a long time at least the role of a "bridge-resource" (figure 1).

[27] Special Eurobarometer 322, *Europeans' attitudes towards climate change*, Fieldwork: August–September 2009, Publication: November 2009, http://ec.europa.eu/public_opinion/archives/ebs/ebs_322_en.pdf

[28] Ministerstvo průmyslu a obchodu ČR, Ministry of Industry and Trade of the Czech Republic, *Aktualizace Státní energetické koncepce České republiky*, draft, February 2010; Ministry of Environment, *Politika ochrany klimatu v České republice, Návrh Ministerstva životního prostředí ČR*, without date and place; Both documents will be probably reviewed and modified by the center-right government established in mid-2010.

Figure 1: Scenario for Czech electricity production. (Source: ERÚ skutečnost, MPO predikce.)



Energy Security in the Czech Republic

The Czech Republic is a rare example of a Central European country, which has been relatively successful in overcoming the structural energy legacies of the planned economy era and improving its energy security.[29] Early in the 1990s the government in Prague decided to build a crude oil pipeline connecting a new Czech oil supply depot in Nelahozeves (near the refinery in Kralupy) with the Bavarian city of Vohburg. The construction of this so called IKL-pipeline (Ingolstadt-Kralupy-Litvínov) opened up a new route of supply for the Czech refineries, which now could obtain oil from the Italian terminal in Trieste (via the Trans-Alpine Pipeline TAL). Hitherto they had been supplied exclusively with Russian oil via the Družba pipeline. Since its commissioning in 1996, the IKL-pipeline has never been used at full capacity and two thirds of Czech crude oil consumption is still covered via Družba. But with a capacity of 10 million tons annually the pipeline exceeds the demand of the Czech refineries and offers the country a fully-fledged alternative to Družba. This back-up paid off in 2008, when supplies from the East were disrupted – officially for "logistical reasons",

[29] Cf. Petr Lang, Andrej Nosko, *Lessons from Prague: How the Czech Republic Has Enhanced Its Energy Security,* in: Journal of Energy Security, July 2010 http://ensec.org/index.php?option=com_content&view=article&id=258:how-the-czech-republic-has-enhanced-its-energy-security&catid=108:energysecuritycontent&Itemid=365 .

but Czech analysts saw this as a retaliation for the Prague's decision to install US anti-missile radar systems on Czech soil.

The Czech government also implemented a diversification strategy for the gas sector. After Poland and Russia had agreed to build the Yamal gas-pipeline through Belarus and Poland to Germany, the Czech authorities looked for alternative deliveries from Western Europe. In 1997 the Czech gas company Transgas (later RWE Transgas) finished negotiations on a long-term contract on the import of gas from Norway. Today about a fifth to a quarter of Czech gas demand is covered by Norwegian producers (transported via Germany); the rest comes from Russia. Due to appropriate storage capacities, reverse-flow facilities and additional import capacity from Germany, the Czech Republic experienced no shortages during the 2009 Russia-Ukraine gas crises (it was even able to supply Slovakia).

An additional factor contributing to Czech energy security is the country's nuclear program. The nuclear power plants in Dukovany (four blocks) and Temelín (two blocks) are key for the Czech energy sector. In autumn 2009 CEZ invited three companies to take part in a tender for the construction of two new reactors at Temelín, which are supposed to go on-line in 2020-25. In the longer term, the building of up to three more reactors in the Czech Republic has been proposed. Apart from a rather weak NGO-community and the Czech Green Party (which was part of government between 2007 and 2010), Czech politics is overtly pro-nuclear. All relevant political parties (except for the Greens who are not represented in the parliament after the 2010 elections) are in favour of modernising or building new nuclear reactors.[30] The then Czech Prime Minister Mirek Topolánek called nuclear power "the Alpha and Omega" for the future development of the Czech energy sector. For him, renewable energies are just a "complementary" energy source. In November 2007, together with his Slovak counterpart Robert Fico, Topolánek initiated the European Nuclear Energy Forum (ENEF), a platform within the EU for debating the opportunities and risks of nuclear power.

In spite of successful diversification and the existence of stable sources of domestic energy generation, energy security is still high on the Czech political agenda. In particular, dependency on Russian energy supplies has remained an active issue in the public debate and security policy. According to the chair of the ODS group in the European Parliament, dependency on Russian gas and oil is a problem for the CEE Member States, since "we have some experience and we know that energy imports can be used as a political instrument. We perceive this differently than Western Europe, which – due to supply diversification – feels

[30] *Klimatická změna ve volebních programech*, comparison of election manifestoes of political parties, aktualne.cz, 4 May 2010.

that [Russia] cannot exert pressure."[31] 57% of Czechs are concerned that their country has become too dependent on Russia in terms of energy supplies (PEW survey 2007), despite the country's success in securing alternative supply routes and a strong nuclear sector. In this context, the Temelín reactor tender has also seen questions raised regarding the participation of the Russian company Atomstroyexport.

The Czech government continues to look for additional ways to reduce the country's perceived dependency on Russia. Part of this strategy is the effort to build a new gas pipeline on Czech territory (the so called Gazelle pipeline), which would connect Hora Svaté Kateřiny with Waidhaus in Germany. This would allow Russian gas to be imported from Germany via the Nord Stream pipeline. It would also transit gas back to South Eastern Germany, effectively interlinking the countries' supply networks. Together with other Central European countries, the Czech Republic supports interconnection projects in the EU North South energy corridor, which would potentially link proposed LNG terminals on the Baltic and the Adriatic coasts. There have also been plans to construct an oil pipeline connecting the Czech downstream sector with the German refinery at Leuna, thus linking the country to oil supplies imported via the Baltic Sea (from Rostock and then intra-German pipelines).

The Czech government sees EU energy policy and the principle of energy solidarity as an important framework to improve energy security for the Czech Republic. During the Czech Presidency of the EU Council in the first half of 2009, energy security was among Prague's top priorities. During the Presidency, the Czech government also tried to advance the Nabucco and the "Southern gas corridor" project, organizing a special meeting in Prague to bring together key stakeholders in the endeavour. Together with partners from the Visegrád-group (Slovakia, Poland, Hungary), the Czech Republic seeks to enhance regional cooperation on energy security in Central Eastern and South Eastern Europe.

Climate Policy and Energy Security in the Czech Republic

"Climate reluctance" in Czech policy and parts of the Czech society has been nurtured by various factors. A relatively strong presence of climate change denialism in public discourse is one. Although obstinate positions, like those expressed by President Klaus in his book "Blue Planet in Green Shackles. What Is Endangered: Climate or Freedom?", are not shared by the majority of Czechs, more modest forms of aversion to climate mitigation are widely spread in society and the political class.

[31] Evropa si sama sponzoruje kritiky, Interview with Miroslav Ouzký, chairman of the ODS political club in the European Parliament, in: Lidové noviny, 18 September 2010.

Doubts about the commercial sustainability of renewable energy sources are another tenet of climate scepticism. In political and public discourse renewables are often framed as economically non-viable and highly subsidized energy sources. Particularly, a 2005 law regulating feed-in tariffs has sparked controversial discussions. After the fall in manufacturing prices for solar panels the profitable feed-in regulations brought an unprecedented photovoltaic boom. The downside of this is the imbalanced development of the renewables sector (since sources other than PV have been developed more slowly) and reported electricity price increases. In the public debate the upsurge of solar energy has been viewed critically and was described as "solar madness" or the "photovoltaic trap".[32] The experience with solar sector support mechanisms and the difficulties of correcting subsidy schemes (in autumn 2010 the government introduced some restrictions) will make governments even more cautious in backing renewables programs.

Also, fears of carbon leakage are an often-mentioned argument in the Czech discussion, given the Czech Republic's industrial structure and position on the periphery of the EU. The draft Update Energy Concept emphasizes that "under the conditions of the Czech Republic" ambitious CO2 reduction goals will have "serious implications for the economy and its competitiveness".[33] The issue of carbon leakage has been studied at EU level. Findings suggest that risks are limited to a few specific sectors making up a relatively small share of GVA, and output losses in energy intensive sectors are limited (less than 1 percent[34]) under existing conditions and with access to international credits, free allocation and banking of surplus allowances. Specific studies on the Czech Republic have not, to our knowledge, been conducted.

Irrespective of these reservations, the Czech Republic is required to comply with EU climate mitigation obligations. This means attaining the EU's GHG mitigation target, and increasing the 5 percent share of renewable energy sources in 2008 to 13 percent in 2020 – a target the Czech government considers attainable. Of course, these and other commitments affect also the future of the Czech energy sector. As far as the energy security aspect is concerned, climate policies are a less salient issue than for other countries of the region, notably neighbouring Poland. In the Czech discussion, the high relevance of nuclear power plants for electricity generation and far-reaching Czech nuclear plans have

[32] *Česká republika je ve fotovoltaické pasti*, 24 September 2010, http://econnect.ecn.cz; *Česko prožívá solární šílenství. Elektřina zdraží o 22 procent*, idnes.cz, 28 August 2010, http://idnes.cz

[33] Ministerstvo průmyslu a obchodu ČR, Ministry of Industry and Trade of the Czech Republic, *Aktualizace Státní energetické koncepce České republiky*, draft, February 2010, pp. 24f. download.mpo.cz/get/26650/46281/556302/priloha001.pdf

[34] See, European Commission, "Analysis of options to move beyond 20% greenhouse gas emission reductions and assessing the risk of carbon leakage", Communication 650, 2010. Only "other chemicals" sees impacts of 2.4%

made nuclear a means to solve both the country's energy security challenges and climate mitigation commitments.[35]

On the other hand, considering energy security and climate targets there is considerable resistance against extending the use of natural gas. A report of the Prague Security Studies Institute based on opinion polls among Czech citizens, industrialists and representatives of big companies concluded that the phasing out of lignite should be slow, and that lignite should be used as important energy source for heating, so that the share of natural gas could be kept at the "relatively safe level of 20%". Obviously, the authors of the report see an intensified use of gas as risky, since it might imply additional imports from Russia.[36] However, under a more stringent EU reduction target, energy efficiency may offset fuel switching meaning that the overall share of gas is stable in the Czech Republic, or declines. In any case, the country's generation surplus and reliance on nuclear means that a higher reduction target would have relatively minor structural implications for the Czech energy sector.

Domestic coal and especially lignite are envisaged to remain an important component of the Czech energy security in the near future. By 2020 CEZ is to invest about 100 billion Czech crowns (4 billion Euros) into the modernisation of its outdated thermal power plants (at Tušimice, Prunéřov and Počerady) and into the construction of new blocks (at Ledvice and Počerady). Over the same period, 14 lignite fired blocks are to be retired. Nevertheless, the Czech eagerness for lignite is limited, given the possibility of a shift from lignite to nuclear; various commercial uncertainties in coal-fired investments, including the uncertain CO_2 price, and rising controversies around the extension of opencut lignite mines. ČEZ's pragmatic and commercial approach to lignite seems to be also confirmed by the company's rather lukewarm attitude towards CCS.

All together, energy security is not a dominant theme in the Czech discourse on climate mitigation policies, since climate policies are discussed rather in the context of competitiveness and catch-up opportunities/trade-offs for the Czech economy. However, energy security and security of supply are key features of Czech energy policy. Two specific factors might have relevance for climate policies, and potentially open ways to link climate and energy security policies. First, in the light of the considerable, but costly efforts to diversify transit routes and sources for the import of gas and oil (IKL-pipeline, expensive contracts with Norway) there is a certain political and social acceptance of strategic measures to

[35] According to the then Czech Prime Minister Fischer nuclear energy is "a resource which does not produce emissions, which reduces our energy dependence and it is also a very effective resource", *Speech by the Prime Minister Jan Fischer at the 4th European Nuclear Energy Forum*, Prague, 29 May 2009, http://ec.europa.eu/energy/nuclear/forum/meetings/doc/2009_05_29/jan_fischer_enef_speech.pdf

[36] Jiří Schneider, Petr Lang, *Jak posílit energetickou bezpečnost ČR*, PSSI Policy Brief, 15.12.2009.

increase energy security; this could support the acceptability of climate policies. Second, the geographical location in Central Europe is seen as an asset for the country's energy security and energy sector in general, since it opens up the possibility to build interconnections and integrate with regional energy markets. With its surplus of low-opex, low-carbon nuclear generation, the Czech Republic seems relatively well placed to compete in the integrated energy market that stronger climate policy will require. Also, the positive experiences of cooperation with (Western) investors in the energy sector for energy security and security of supply[37] can support such integration in practice. These factors could contribute to additional integration with energy systems and energy policy priorities of other countries in the region and on a European level; integration of climate policy principles would be likely to happen in tandem.

[37] RWE Transgas as the strategic investor in the gas sector was perceived as a guarantee for securing alternative gas flows during the Russian-Ukrainian gas crises in early 2009.

Latvia

Summary

- Latvia is highly dependent on Russia for energy imports and has no import alternatives for gas and oil.
- However, "subjective" perceptions of dependence are mitigated by the existence of significant gas storage capacities, which also serve Russia.
- Nonetheless, diversification is a priority for the Latvian government; in this regard EU action under the European Energy Program for Recovery was a good example of EU "value-added".
- Latvia is already a frontrunner in the use of renewables in the EU, mainly run-of-the-river hydro and biomass. Untapped biomass and energy efficiency potentials are still very high.
- Latvia's apparent position as a potential "winner" from EU climate policy needs to be considered in the light of financial and capacity constraints, as well as a monopolistic market structure still ill-suited to further energy mix diversification.

Energy in Latvia

As is the case with the other Baltic States, Latvia's energy sector is characterized by Soviet legacies and supply dependency on Russia. Natural gas is imported exclusively from Russia and there are no interconnections, which would enable the country to obtain gas from Western or Northern Europe. In the electricity sector, Latvia is still connected to the Russian electricity transmission system – just like Estonia and Lithuania.[38] For these and other reasons, the EU has described the Baltic states as "energy islands", largely isolated from the Union's energy markets. Facing these challenges, Latvia is looking for ways to reduce asymmetries with Russia and to become better integrated into EU energy networks. The quest for diversification of supply routes and sources is driven by the high relevance of the "Russian factor" in Latvia's foreign and domestic security discourse – which is hardly surprising given the historically difficult relations between both nations.

Whereas Latvia has no domestic fossil fuel resources, there is one important "homegrown" energy source: renewables. Biomass and hydropower account for some 36 percent of the total primary energy supply. About a third to 45 percent of the total electricity supply is generated by run-of-the-river hydropower along the Daugava river, with the annual fluctuation being due to meteorological

[38] Although since 2006 Estonia has been connected to the Nordic NORDEL-network by the Estlink cable running under the Baltic Sea to Finland.

factors.[39] This makes Latvia a frontrunner in the use of renewable energy sources not only among CEE Member States, but in the EU as a whole. Latvia also has a large untapped potential in biomass (ca. 38 percent of gross inland energy consumption). In addition, the Latvian economy has a high potential for energy efficiency improvements, with final energy consumption per unit GDP (in €2005, at ppp) 43 percent higher than the EU27 average, and consumption of energy in manufacturing per unit value added (in €2005, at ppp) 36 percent higher than the EU27 average (Odyssee database, 2009). The issue of energy poverty is very pressing with total heating bill debt estimated at LVL 25 million, growing by 30% over the last few years.[40]

Russia's "energy shadow"; the lack of a domestic coal lobby, and experience with renewable energies might suggest a positive stance towards climate mitigation. A country highly dependent on a "politically sensitive" energy provider might see new opportunities for its energy security by strengthening key objectives of the EU Energy and Climate Package. However, political reality shows that, for the time being, Latvian enthusiasm for climate policy is still rather modest.

Energy Security in Latvia

Looking at key parameters, Latvia is a country with low levels of energy security and high energy dependence on Russia. In spite of a considerable improvement in import dependency since the early 1990s (when up to 90% of domestic demand came from abroad), two thirds of Latvia's gross energy consumption is still covered by imports, mostly from Russia.

Latvia's gas sector relies completely on imports from Russia and on cooperation with Gazprom. The pipeline infrastructure does not allow for any alternative supplies, and given a lack of local sources, 100 percent of Latvia's consumption comes from Russia. Latvia's monopoly gas company Latvijas Gāze is co-owned by Gazprom (25 percent), its strategic partner E.ON Ruhrgas (47.15 percent) and Itera Latvija (25 percent). The importance of gas in Latvia's energy system (30 percent of gross inland consumption, which is considerably above the EU average of 25 percent), contributes to the high overall import dependence.

As there are no refinery capacities in Latvia, the country has never been a destination for Russian crude oil. But due to its ice-free ports, Latvia has been an important transit location for the export of oil and oil products from Russia. In

[39] Compared to the three big HPP, small power plants and wind power have only modest contributions to the electricity supply. In 2007 34,3% came from the big HPP; 0,9% from 149 small HPPs and 0,7% from wind power.
[40] Household heating debt in Latvia up 30% in past years, *Baltic Course*, 18 October 2010. Date accessed: 21 October 2010. http://www.baltic-course.com/eng/energy/?doc=32834

the 1990s almost one third of Russia's oil exports to Western markets was shipped via the Latvian terminal of Ventspils. Russia's strategy to reduce its dependence on transit states has lead to the construction of alternative transport routes, bypassing the Baltic states. After a new oil terminal in Primorsk near St. Petersburg was built, Russian companies rerouted (or had to reroute) much of their exports, and Russia's pipeline owner Transneft ceased to deliver oil to the Ventspils terminal.[41] This means that Latvia's capability to counterbalance dependence on Russia by being a transit-country for oil has been substantially reduced.

The main pillars of Latvian electricity generation capacities are big hydropower stations on the Daugava river and big cogeneration facilities in Riga. As gas for the CHPs has to be imported (from Russia) and up to 40% of gross electricity consumption has to be imported (depending on annual meteorological conditions), there is a high dependence on external sources of power production. This is aggravated by the fact that Latvia's power system is linked only to the ex-Soviet grid.

Putting together these features of energy security, some observers hold Latvia to be extraordinarily vulnerable and characterize it "as the most energy insecure country in the Baltic Sea region".[42] Others have been less pessimistic and point at several mechanisms mitigating energy asymmetries with Russia. In particular, the big underground gas storage facilities at Incukalns are considered an important building block for Latvia's energy security. It currently has a capacity of 2,3 bcm; Latvijas Gāze, the owner and operator of the facilities, is considering an expansion of up to 3,2 bcm. Gas from Incukalns (which is fed during spring and summer) is destined not only for Latvia, but also for consumers in Estonia, Lithuania and North West Russia, including Saint Petersberg. By disposing of gas storage on its own territory, equal to double the annual consumption, gas supply disruptions can be effectively buffered. Moreover, due to the integration of Incukalns in the Russia supply system, Latvia is a transit and storage country for Russian gas supplies.

Latvia's relatively high share of renewable energy sources partially mitigates the one-sided reliance on Russia for its energy supply. This is in spite of volatility risks[43], the relatively high share of renewable sources in the energy and

[41] After that, some oil was transported via railway, which is more costly. The construction of a new Russian Baltic Sea terminal in Ust-Luga and the respective pipeline infrastructure (BTS-2), which are to be completed in 2012, could mean an additional rerouting of oil transports from Latvia and Estonia.
[42] Andris Spruds, Latvia's Energy Strategy: Between Structural Entrapments and Policy Choices, in: Spruds, Andris and Toms Rostoks (eds.), *Energy. Pulling the Baltic Sea Region Together or Apart?*, Riga, 2009, p. 223–249, 230.
[43] Baseload problems have been solved by importing electricity from Lithuania's Ignalina nuclear power station and – since its decommissioning – by purchasing power from Estonian oil shale fired power plants.

electricity sector gives Latvia a feeling of not being completely dependent on Russia. This is particularly so because also here some interdependence with Russia exists. Karlis Mikelsons, the CEO of the leading power producer Latvenergo sees "no risks for Latvia that some politbureau in Russia might all of a sudden decide to turn off the tap". According to Mikelsons the gas and electricity supply systems of Latvia and Russia are tightly integrated and arguably co-dependent. "In other words, the word 'dependence' is of no use here. They need our cascade, we need their power."[44]

Irrespective of positive voices from industry, Latvia's official energy policy emphasizes the need for a reduction of energy dependence. Diversification of supplies, additional supply routes, new interconnectors or better integration with EU energy markets are among the priorities outlined for enhancing Latvia's energy security. Latvia is particularly supportive of the European energy policy. In this context it sees new opportunities in the implementation of EU energy solidarity and in regional cooperation. The latter aspect has been an area where tangible progress has been made.

Mutual coordination between the three Baltic States, integration with the Northern European energy markets and regional cooperation in the Baltic Sea region are fields were Latvia has been particularly active. In a Joint Declaration from April 2009, the prime ministers of Estonia, Latvia and Lithuania set out the goal of establishing a common energy market of the three States, emphasizing specific steps aiming at liberalisation and mutual connection of energy systems.[45] The Baltic Energy Markets Interconnection Plan (BEMIP), an initiative launched by the European Commission and the eight EU member states from the Baltic Sea region, intends to establish "an open and integrated regional energy market between the EU member states in the Baltic Sea region in electricity and gas".[46] BEMIP gives particular emphasis to the interconnection of the three Baltic States and their energy systems with regional and EU wide energy markets.

In this context, a variety of priority projects have been defined, and some of them are in the implementation process. The whole process is buttressed by financial assistance for some of the proposed projects from the EU European Energy Program for Recovery. With regard to electricity, BEMIP prioritizes interconnections from Estonia to Finland (the Estlink 2 submarine cable to be ready by 2014); from Lithuania to Sweden (the NordBalt submarine cable); between Estonia and Latvia and an "electricity bridge" from Poland to Lithuania. These new links will enable the Baltic States to join the integrated Nordic

[44] Latvenergo: concern about Latvia's dependence on Russia's energy supplies is unfounded, The Baltic Course, 3 March 2010, www.baltic-course.com
[45] Joint Declaration of the Prime Ministers' Council of the Baltic Council of Ministers, Vilnius, 27 April, 2009.
[46] Memorandum of Understanding on the Baltic Energy Markets Interconnection Plan, Brussels, 17 June 2009.

electricity market Nordpool.[47] In the gas sector, where efforts are not so far advanced, BEMIP tries to identify essential infrastructure projects to open up new diversification options for the countries of the region. Among these endeavours are possible interconnector pipelines from Estonia to Finland or from Poland to Lithuania, and the construction of an LNG terminal in one of the Baltic States. Latvian representatives say that BEMIP has been useful to increase diversification and cooperation efforts in the Baltic States. According to these voices, the BEMIP process and the involvement of the European Commission have encouraged investors to take regional projects seriously and were particularly helpful in raising the interest of Scandinavian countries.

These first achievements should not hide considerable coordination problems between the three Baltic States. Lithuania and Latvia quarreled over the future electricity cable connection with Sweden. Only after the Commission clearly expressed that EU support for the project might be in danger without a swift agreement could both countries decide to opt for Lithuania. Looking ahead, there is no orchestrated discussion on a future site for a Baltic LNG terminal. In 2010, the Lithuanian government announced that it intended to build LNG facilities on its own (with a capacity of up to 3 bcm exceeding the country's annual consumption). A possible location could be the port of Klaipeda. Although Lithuanian officials declared that the planned terminal would be open for Latvian and Estonian companies, this is a different conception than building a common Baltic terminal. The formation of a joint Baltic electricity market – originally planned for the end of 2010 – has been postponed to the end of 2011.

Another example of friction between the three states is the projected construction of a new nuclear power plant in Lithuania, which is to replace capacity lost by the decommissioning of the second reactor of the Ignalina nuclear power plant (NPP) at the end of 2009. Although the original plans to launch a common project including Lithuania, Latvia, Estonia and Poland are still valid, there are increasing doubts if, how and when a new Lithuanian NPP (called Visaginas) is going to emerge. Lithuania's partners have been dissatisfied with the slow progress of the project and uncertainties about the timeline and investment conditions. Poland has given priority to build its own nuclear power plant by 2022, and in the meantime Russia has come up with plans to build a NPP in Kaliningrad.

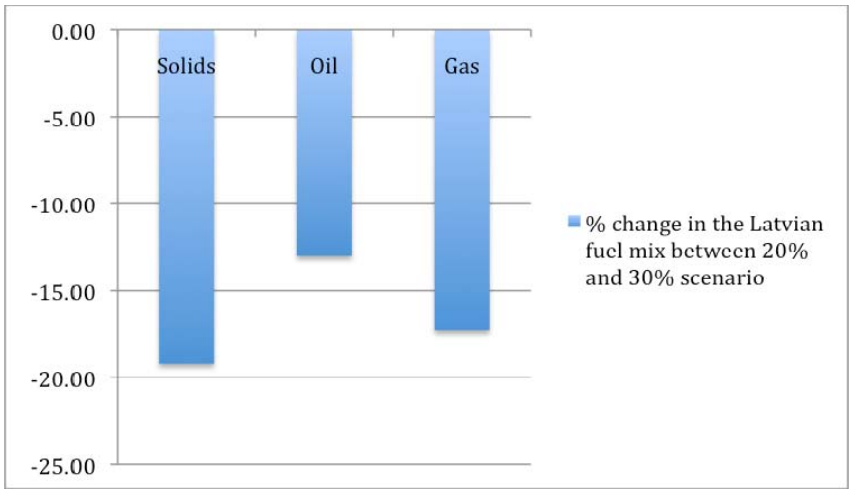
Climate Policy and Energy Security in Latvia

Latvia lacks domestic fossil fuels resources, has high unexploited renewable and efficiency potentials, and experiences high levels of real and perceived energy dependency on Russia. Therefore, climate mitigation policies might be more

[47] Estonia is connected to Nord Pool Spot market since April 2010, when the so-called Estlink bidding area was established.

attractive in Latvia than in some other CEE Member States. According to an efficiency and renewables scenario developed by Ecofys,[48] under a 30% EU reduction target Latvian gas consumption would be reduced by some 17% (figure 2).

Figure 2: % change in the Latvian fuel mix between 20% and ECOFYS 30% reduction scenarios (Source: Ecofys, 2010).



However, this line of argumentation does not yet prevail in Latvia's energy discourse. Climate policies are not perceived as a threat to energy security, but as yet there is no conviction that climate mitigation and related targets might enhance national energy security. So, from Latvia's point of view the relation between climate policy and energy security is still rather neutral, despite significant potential for improved energy security under strengthened climate policy, as shown above.

What dominates the discussion are the potentially restrictive effects for the economy and competitiveness. In this context, Latvian officials claim that implementation costs of the EU climate package (including Latvia's 40% renewables target by 2020) are the highest in the EU and would account for costs in the order of 1.5% of GDP. This can be placed against modelling by the EU Commission, which results in energy sector costs to Latvia of –0.18% of GDP for the 2008 Climate and Energy Package, i.e. net gain, assuming redistribution of non-ETS, RES and auction allowances according to the principle of GDP per capita.[49] Regarding carbon leakage, in spite of an overall relatively low carbon

[48] Ecofys, "Quantifying the Impact of a 30 % Target on Energy Security", 2011.
[49] EU Commission, "Package of Implementation measures for the EU's objectives on climate change and renewable energy for 2020: Impact Assessment", 2008, table 2, pp. 22.

intensity, there are some important sectors of the Latvian economy, which might be affected by higher energy prices (steel, cement, brick production). With regard to these industries carbon leakage apprehensions are quite substantial, since Latvia is situated at the periphery of the EU. However, these concerns need to be placed against the significant potential for efficiency in Latvia and Latvia's favourable position under the EU ETS. To our knowledge there are no specific studies of the risk of carbon leakage to Latvia in the manufacturing sector.

Notwithstanding these objections, there are a couple of peculiarities in Latvia's energy situation, which could unlock paths to a more pro-climate orientation. Latvia's experience with renewables is substantial, and the government has defined ambitious plans for the future use of renewable energy sources.[50] Latvia is probably the "greenest" among the CEE EU member states. Supporting Latvia with green innovation partnerships, e.g. under the EU budget and/or BEMIP, could be a project which might gain support among the political leadership. In this regard, the implications of the international financial crisis, which hit Latvia hard, pose a particular challenge. Latvia needs thorough investments to reach its far-reaching goals: e.g. 6,7 billion Lats to attain the objectives for the year 2016 in Latvia's First Energy Efficiency Action Plan.[51]

Latvia is interested in deepening regional energy cooperation in the Baltic Sea region and with Northern Europe. Growing interaction with and integration into regional energy markets will bring Latvia closer to frameworks of cooperation, energy systems and commercial actors with well developed green technology applications. This might further the transfer of expertise, capital and equipment. In particular, the balancing of Baltic and North Sea wind capacity and Norwegian/Swedish (pumped) hydro capacity is a regional decarbonisation strategy with large potential. Market integration initiatives like BEMIP can lay the foundation for developing the regional RES sector in this direction.

[50] The Latvian government assumes that it will attain the renewables target of 40% in 2020 mainly on the basis of domestic RES; Forecast Document on Attaining the Target Share of Renewable Energy Sources in Gross Final Energy Consumption in the Republic of Latvia by 2020, pursuant to Article 4(3) of Directive 2009/28/EC, Riga, 2009

[51] D.Blumberga et al.: Model and Action Plan for increasing Latvia's use of renewable energy resources and energy efficiency, Riga, 15–16 September 2009.

Conclusions

With its May Communication,[52] the EU Commission initiated a political debate around the desirability and feasibility of increasing the EU's 2020 target. Within this debate, energy security will be a salient issue, in particular for the CEE Member States. It is important to gain an understanding of the actual underpinnings of the energy security debate in CEE, and of the potential impact of a more stringent reduction target by 2020 for this region. This study conducted qualitative case studies of the "subjective" and "objective" energy security understandings of three CEE Member States, Poland, Czech Republic and Latvia. The question arises: to what extent can energy security motivate stronger climate policy in the CEE Member States? Each of our case study countries provides different perspectives on potential synergies and tradeoffs.

In Poland, perceptions of energy security risks are higher than "objectively" seems to be justified, relative to other EU member states. Poland imports only 30% of its TPES, however, the sense of unilateral dependence on Russia raises concern. The increasing focus in the domestic debate on the poor state of the energy sector could open opportunities to link solving the problem of energy security to climate policy. In particular, the investment risk posed by ambiguous climate policy could be connected to the energy security debate. The current 20/20/20 framework seems to risk locking-in suboptimal investment and technology choices. This is of particular concern for Poland, given: i) substantial near-term capacity expansion requirements; ii) the need to make a strategic decision on the fuel mix; iii) reliance post-2020 on "backstop" mitigation technologies like CCS and nuclear. There is a need to complement the energy security discourse with a conception of *resilience* to long-term systemic trends, e.g. decarbonization; Poland risks exposure to high CO_2 prices and being stuck with a portfolio of stranded assets.

In the Czech Republic, perceptions of energy insecurity are similarly stronger than would seem justified based on its "objective" position. Dependence on Russia raises alarm even though the Czech Republic has already made significant investments in the diversification of energy sources, and has even proved the success of these policy choices. Nuclear is considered as a solution to both energy security and climate policy, and in general the Czech energy sector seems relatively well-placed to handle long-term decarbonization, including a higher 2020 emissions target. As a result, it is difficult to credit arguments that stronger climate policy could damage Czech energy security. The IEA review of Czech energy policy notes the significant untapped potential of energy efficiency, and for a moderate expansion of gas in the electricity sector, given the Czech

[52] European Commission, COM(2010) 265, 2010.

Republic's strong energy security position going forward.[53] Stronger climate policy could also allow the Czech Republic to maintain a competitive position as an exporter of electricity.

Latvia remains "objectively" highly dependent on Russia, both in terms of fuel supplies and power grid connection. However, domestic sources of renewables, significant gas storage capacity and interdependencies with Russia moderate "subjective" perceptions of energy insecurity. Nonetheless, energy security is considered as a problem. There seem to be strong synergies between energy security and climate mitigation, but these are yet to be drawn in the domestic debate. This is in contrast to Lithuania, whose 2010 "National Energy (Independence) Strategy" strongly notes the synergies between climate policy and energy security.[54] Energy efficiency, renewables expansion, and international grid interconnections all form coherent elements of an energy security and climate policy scenario for Latvia, and the Baltics more generally. For vulnerable, peripheral countries like Latvia, the energy security agenda seems to support a more stringent EU climate policy.

In summary, the case study countries show the diversity of circumstances in the CEE region: there is no one-size-fits-all relationship between climate policy and energy security. This paper has argued that there are strong synergies between climate policy and energy security in the region, which could support a stronger 2020 EU reduction target. For each country, different arguments may resonate:

- There is strong potential for renewables and RES to reduce dependence on single-source energy imports. This is particularly the case for vulnerable peripheral countries, such as the Baltics. In this regard, a stronger reduction target could improve energy security.
- For other countries, the risk under the current framework of sub-optimal technology lock-in should be taken as an energy security threat. Here the imperative is to develop energy systems that are resilient to the long-term pressure of decarbonization, through the enhancement of efficiency and expansion of RES, and the timely deployment of key technologies. Stronger EU climate targets 2020 can provide a framework to support both strategies.
- The agendas of market integration, energy supply diversification and stronger energy efficiency and renewable energy exploitation should be viewed as complementary measures for improving EU energy security.

[53] The IEA, "Energy Policies of IEA Countries: The Czech Republic 2010", Paris: IEA, 2010.
[54] Government of the Republic of Lithuania, "National Energy (Independence) Strategy", 2010.

The case of Latvia shows that traditional tools of energy security are still needed.

- Finally, where implementation costs and capacity are a concern, the EU budget could play an important role in supporting the agendas of climate policy and energy security.

As the EU debates the merits of increasing its 2020 reduction target, energy security is likely to be a key issue. This paper aimed to contribute to this debate by exploring in detail the energy security situation and discourse in three Member States, and their interactions with climate policy. It revealed the diversity of circumstances; in each case, there are strong but often under-explored synergies between climate policy and energy security. These could potentially contribute to CEE support for a stronger EU reduction target.

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