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CAN THE EU BUDGET SUPPORT CLIMATE POLICY IN CENTRAL AND EASTERN EUROPE?

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Introduction

In October 2010 the Commission released the long-awaited review of the EU budget,[1] setting out the parameters of the debate around the next financial perspective, 2014-2020. The Budget Review outlined a rather conservative programme for reform of the Cohesion and Common Agricultural Policy, largely envisaging the preservation of existing objectives and instruments. However, policymakers have also called for a stronger integration of EU climate policy with EU fiscal policy, particularly with regard to the Central and Eastern European (CEE) Member States; the budget has also been proposed as a mechanism to compensate for the potential loss of surplus Assigned Amount Units under the Kyoto Protocol.[2] Likewise, the 20/20/20 climate and energy targets were placed at the heart of the EU 2020 strategy. The question therefore arises: What role should the EU budget play in supporting climate policy in CEE Member States?

This paper seeks to explore some of the issues around integrating climate policy more closely into the EU budget. It puts forward the following arguments:

- EU fiscal policy could function as an intermediary instrument between EU and national-level policies, in order to support climate policy targets that are not backed by EU-level instruments such as the EU ETS.
- There are under-explored synergies between the existing goals of cohesion policy and climate policy.
- Moreover, systemic weaknesses in CEE, market failures, and gaps in EU climate policy justify deploying the EU budget towards EU climate goals.
- The budget could form an important element of negotiations around a higher 2020 emission reduction target. It could facilitate "soft" effort sharing between Member States, and within Member States between the ETS and non-ETS sectors. Linking the issues of "early action", effort sharing and intra-state flexibility via the budget may help progress negotiations around the EU's 2020 target.
- In times of tight budgetary pressure, EU interventions must be targeted to deliver the maximum value added; energy efficiency, the electricity grid, biomass and CCS, and energy interconnectors are suggested as potential areas for stronger intervention.

[1] The European Commission, COM (2010) 700 final – Provisional.

[2] The European Commission, COM (2010) 265, 7 ff.; The European Commission, COM (2011) 112/4, 5 ff.

Rationale for mainstreaming climate change into the EU budget

For the budgetary period 2007-2013, cohesion policy is divided into three objectives:[3]

1. Convergence, which aims to stimulate growth and employment in the least developed regions.
2. Regional competitiveness and employment, which aims to support regions' competitiveness and attractiveness as well as employment, by anticipating economic and social changes.
3. European territorial cooperation, which aims to reinforce cooperation at the cross-border, transnational and interregional level.

There are several rationales why climate policy should be integrated into cohesion policy. These can be built around i) EU policy principles; ii) the existing goals of cohesion policy; iii) the need for an intermediary instrument to support the implementation of climate policy targets in CEE Member States. The following section briefly addresses each of these in turn.

With the enactment of the 2008 Climate and Energy Package and its far-reaching targets, climate change has clearly become an issue of broader consequence for EU policy and law in general. Indeed, combating climate change is listed as one of the core environmental goals of the EU in the Lisbon Treaty.[4] Morgera et al argue that the principle of environmental integration as enshrined in article 11,[5] combined with the commitment to combating climate change in article 191, suggests "an obligation to mainstream climate change in other EU policy areas".[6] De Larragán, in his comprehensive review of the legal principles underpinning EU climate policy, argues that based on EU treaty principles, "… the review of European measures in the light of the environment should be regarded as possible".[7] Admittedly, the principle of environmental integration is difficult to operationalize, forming a guiding horizontal "ideal" for EU policy rather than a legally binding requirement.[8]

The expansion of climate change into an area of highest political concern and policy-making consequence is confirmed by the Europe 2020 Strategy, which places the achievement of the climate and energy package as one of the strategy's headline targets.[9] In June 2010, when the Council endorsed the strategy, the Council

[3] The European Commission, "Cohesion Policy 2007-2013: Commentaries and official text".
[4] TFEU, §191.1
[5] TFEU, §11, which states that "…[e]nvironmental protection requirements must be integrated into the definition and implementation of the Union policies and activities…"
[6] Morgera, E. et al, "The EU's Climate and Energy Package: environmental integration and international dimensions", Edinburgh Europa Paper Series, 2011, p. 7.
[7] De Larragán, J., "Distributional choices in EU climate change law and policy: towards a principled approach?", Kluver Law International, 2011, p. 129.
[8] De Larragán, J., "Distributional choices in EU climate change law and policy: towards a principled approach?", Kluver Law International, 2011, p. 129.
[9] European Commission, "Europe 2020: A Strategy for Smart, Sustainable and Inclusive Growth", 2010, p. 3.

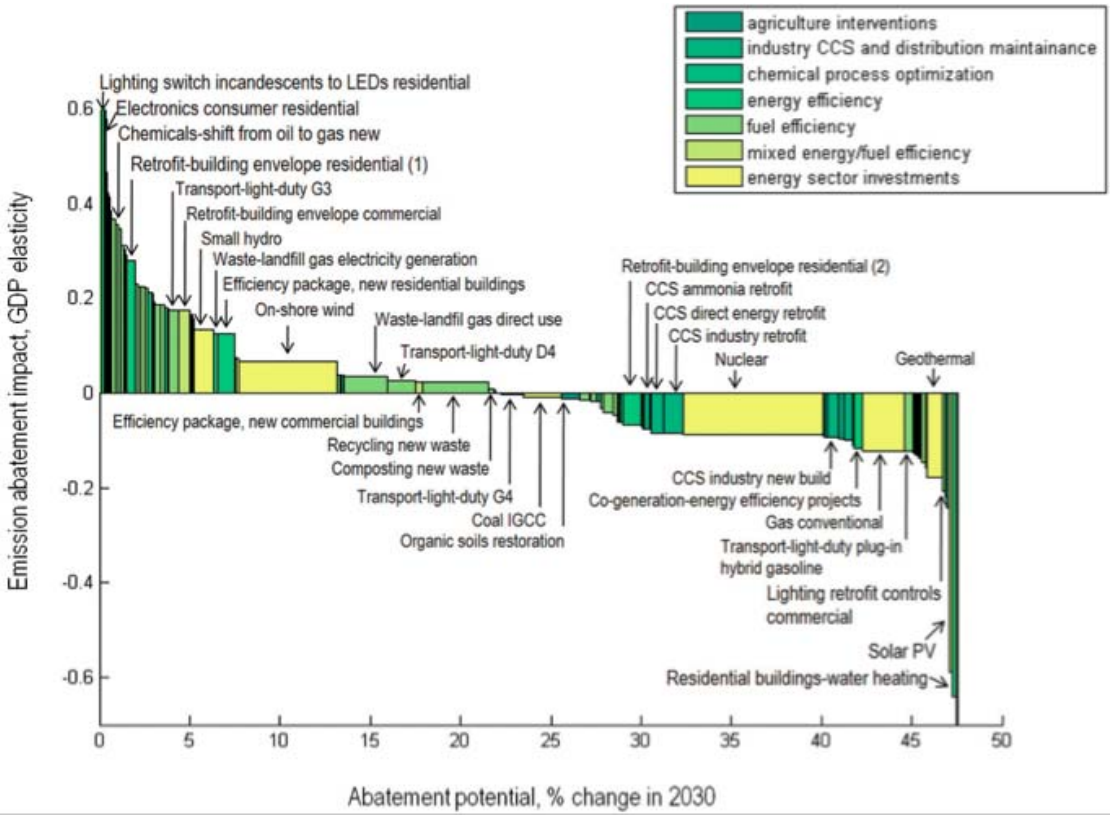
conclusions stated that "…[a]ll common policies, including the common agricultural policy and cohesion policy, will need to support the strategy".[10] Therefore, when examining EU treaty principles and the high political priority given to climate change, there seems to be a sound argument for considering the role of EU fiscal policy in implementing climate policy goals.

Climate policy interventions can also be considered compatible with cohesion policy objectives. As stated above, the goals of the convergence and regional competitiveness and employment objectives are respectively to *stimulate growth potential* and *anticipate and promote economic change*.[11] Climate change policy represents a long-term process of economic change from high- to low-carbon modes of production. The Commission argues that "…[s]igns of the transition towards a low-carbon economy are emerging across the world…".[12] Likewise, the sustainable growth objective of the EU 2020 Strategy sets out to "… help the EU to prosper in a low-carbon, resource constrained world".[13]Anticipating the change and preparing the EU economy to thrive while conducting the shift to a low-carbon economy would seem, *prima facie*, consistent with cohesion policy. This may be particularly relevant for the CEE Member States, which have a significantly lower level of carbon/energy efficiency, in other words a potentially greater risk exposure to systemic trends of energy and carbon constraints.

Finally, it has been increasingly argued that climate/environmental policy interventions can boost economic growth, also in the shorter term.[14] While the objective of public policy should be to balance short-term and long-term objectives and payoffs, there does seem to be scope for exploring short-term win-wins. This may be the case in particular for interventions of interest in the CEE region, such as efficiency in the building sector, biomass, waste-to-energy, and on-shore wind. For example, Figure 1 below shows a macro marginal abatement cost curve for Poland; positive values on the vertical axis indicate the impact of each intervention of GDP. The number of interventions with a positive impact on GDP suggests an under-recognized potential to explore synergies between existing cohesion policy objectives, namely stimulating growth potential, and climate policy implementation. On examining the cohesion policy objectives, there seem to be arguments for considering stronger strategic integration of climate policy in EU fiscal policy.

[10] European Council Conclusions, June 2010, p. 3.
[11] European Commission, "Cohesion Policy in Support of Growth and Jobs: Community Strategic Guidelines 2007-2013", COM(2005) 0299, 8 ff.
[12] European Commission, COM (2010) 265, p. 4.
[13] European Commission, "A strategy for smart, sustainable and inclusive growth", COM (2010) 2020, 2010.
[14] See e.g. the discussion in the EU 2020 Strategy, 12 ff.

Figure 1: Macro marginal abatement cost curve for Poland[15]



We turn now to the final strand of the argument, namely the need for an intermediary instrument to support the implementation of the Climate and Energy Package in CEE Member States. The 2008 EU Climate and Energy Package (CEP) contained a complex portfolio of targets and instruments. The reform of the emissions trading scheme (ETS) entailed both a binding, EU-wide target and the instrument to reach it, namely the allocation and trading of a fixed quantity of emissions allowances. However, in the non-ETS and renewable energy sectors, binding targets were agreed but flexibility largely left to the Member States regarding the policy instruments to reach them.[16] Only an indicative, imprecise target for energy saving was agreed, and discretion again left to the Member States regarding the policy instruments to achieve it.[17]

However, in the context of the global recession and the EU debt crisis, as well as the debate around a potential move beyond a 20% reduction target by 2020, there is a need to reassess the balance of targets and instruments contained in the CEP. Within

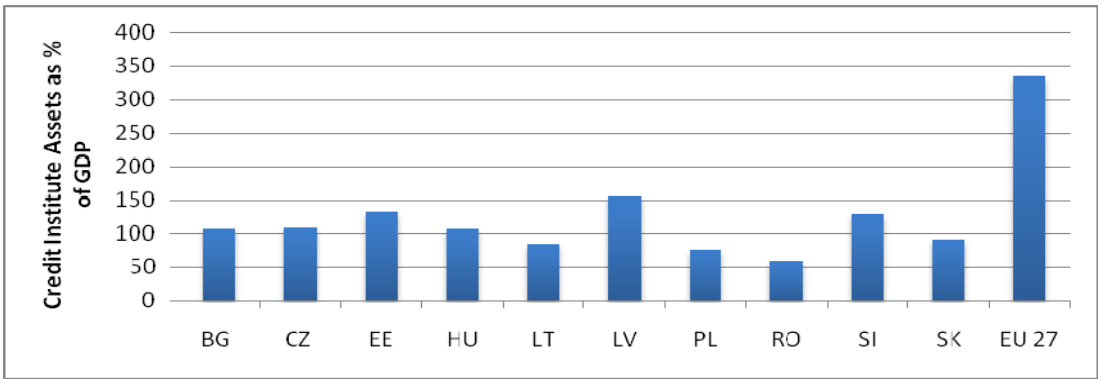
[15] The World Bank, "Transition to a Low Emissions Economy in Poland", 2011, p. 78.
[16] In both cases some flexibility is offered to Member States via the flexibility mechanisms established in Decision 406/2009/EC (non-ETS sector), and Directive 2009/28/EC (renewable energy).
[17] Although the EU's policy on CO_2/energy performance in cars, buildings and appliances will shape Member State policy approaches.

the ETS sector, the downturn has allowed a sizable buffer of allowances to build up, meaning that the ETS could be over-allocated until around 2018-2020. Conversely, it is calculated that the energy efficiency target will not be met under current policies, which may in part be due to diminished public and private sector resources for investment following the economic downturn.[18] Likewise, the RES target will be challenging, particularly if the energy savings target is not met.

A low carbon price entails a need for a level of national fiscal support that is difficult to maintain in the current budgetary climate. At the same time, developing EU-level fiscal instruments may be an important policy tool to achieve EU climate goals in Central and Eastern European (CEE) Member States, particularly if the EU moves beyond the 20% reduction target.[19] With its ability to guide domestic policy and investment, the EU budget functions as an intermediary instrument between EU- and domestic-level policies. As such, it may be especially suited to helping the CEE Member States achieve the targets of the CEP that are currently not backed by EU-level instruments for implementation.

Several systemic characteristics of CEE capital markets and fiscal situations may be worth highlighting here. CEE financial markets are structurally very different from those of Western Europe. In 2007 the total assets of credit institutes in the new EU Member States accounted for just 2% of the total assets of credit institutes active in the EU27.[20] CEE Member States score significantly lower in the degree of intermediation, which shows the relationship between the total assets of credit institutes versus GDP, and hence offers a snapshot of the depth of the financial sector (Figure 2).

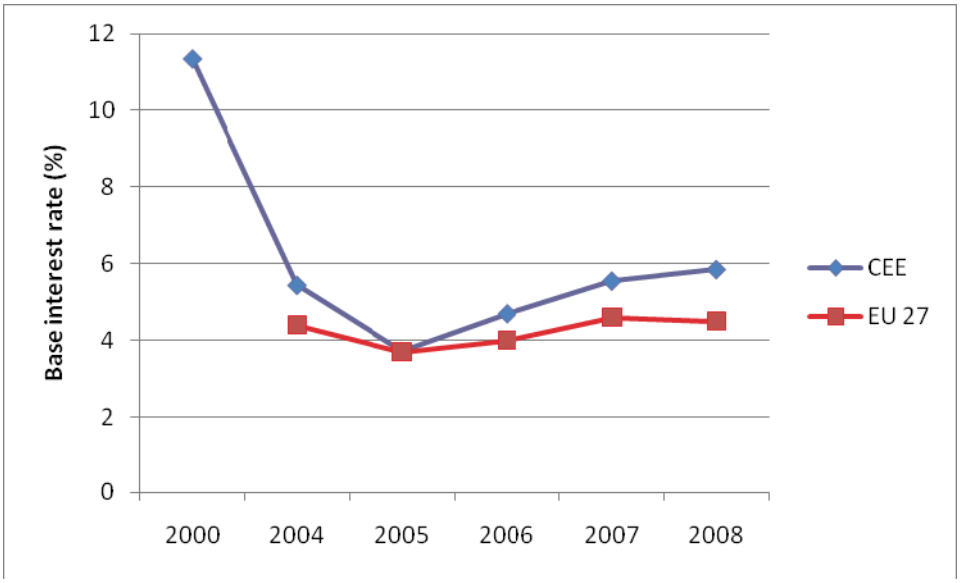
Figure 2: Degree of intermediation, 2007[21]



[18] See e.g. Ecofys and Frauenhofer Institute, "Energy Savings 2020: How to Triple the Impact of Energy Savings Policies in Europe", 2010.
[19] See e.g. The European Commission, "Analysis of options to move beyond 20% greenhouse gas emission reductions and assessing the risk of carbon leakage", COM (2010) 265: "The EU could continue to encourage Member States, regions and cities to step up low-carbon investment by directing a greater volume of cohesion policy funding towards green investments".
[20] European Central Bank, "EU Banking Structures", 2008.
[21] European Central Bank, "EU Banking Structures", 2008.

A potential obstacle to financing energy and climate goals is the cost of capital. One can assume that the cost of capital for projects with a long amortization period correlates with long-term interest rates, although in practice the low-carbon sector exhibits specific risk patterns which impact upon the cost of capital. Low- carbon capital stock is, in general, characterized by higher capex costs, meaning that obtaining funding can pose a significant hurdle. As shown in Figure 3, CEE Member States, the cost of capital is significantly higher than the EU27 average (with the exception of CZ, SK, and SI); in times of restrained liquidity, the access to and cost of capital may be an important factor in determining investment in the low-carbon transition. Here the EU budget may play a catalytic role in leveraging private capital.

Figure 3: Central bank interest rates (%) in the CEE Member States and the EU27[22]



In 2009, CEE public deficits were below the EU average, despite being hit hard by the recession. In spite of lower average deficits, CEE average bond yields were only slightly lower than the old cohesion country average, 6.0% versus 6.1%. This may be due to lower investor confidence in the robustness of CEE fiscal policy.[23] Reflecting the importance of public investment in the economy, we see a higher government gross capital formation as a percentage of GDP in CEE countries, relative to both the EU average and the old cohesion country average. Budgetary constraints could potentially impact climate policy, given the relatively greater importance of public investments in the economy generally. Cohesion policy, which makes up more than 50% of public expenditure in some CEE Member States, could help to fill this gap.

[22] wiiw Handbook of Statistics 2009; Eurostat, 2010.
[23] Darvas, S. and V. Kostyleva, "The Fiscal and Monetary Institutions of CESEE Countries", Bruegel, 2011.

Table 1: Public budgets in CEE, old cohesion countries, and the EU 27

	Public deficit, % GDP, 2009	Government bond yields, %, Jan - Dec 2010	Government gross fixed capital formation, % GDP, 2009
EU27	-6.8	3.9	2.9
CEE	-6.6	6	4.4
Old cohesion countries	-12.6	6.1	3.7

Finally, the EU budget could potentially compensate CEE Member States for the loss of surplus AAUs under the Kyoto Protocol. The Commission argues that these surplus allowances threaten the environmental integrity of the Protocol, and must be dealt with if a second commitment period is to be agreed. CEE Member States are notably opposed to giving up these surplus allowances, the sale of which can provide a useful source of revenue for climate-friendly projects.[24] From the CEE perspective, they also tangibly represent the "early action" undertaken by CEE Member States. In addition, the budget could form an important element of negotiations around a higher 2020 target by facilitating "soft"[25] effort sharing between Member States, and within Member States between the ETS and non-ETS sectors. Linking the issues of "early action", effort sharing and intra-state flexibility may help progress negotiations around the EU's 2020 target.

In the following sections we discuss specific sectoral interventions that the EU budget could make to support the implementation of the climate and energy package in CEE Member States. Each sector was chosen for its importance for the low-carbon transition in CEE Member States, as well as its potential to exhibit synergies with other goals of EU cohesion policy and/or energy policy. In each section we follow a case study approach, discussing an example of a financing instrument currently deployed in the given sector, and drawing on lessons learned from past experience to inform the up-coming debate around the EU budget and cohesion policy.

The analysis found that the ability of such interventions to support the goals of EU cohesion policy seems, in general, poorly recognized in existing EU fiscal policy. Second, the case studies underscored the importance of the funding gap for low-carbon projects; here the EU budget could play a role in bridging the gap and guiding the development of more supportive policies, which are currently lacking. Finally, it was noted that in the current fiscal climate, relying solely on budgetary support will be neither feasible nor desirable. A combination of a stronger carbon price and targeted fiscal support will be important for achieving the Climate and Energy Package and setting up the CEE economies for the decarbonisation pathway post-2020.

[24] See Tuerk, A. et al, "Green Investment Schemes: First Experiences and Lessons Learned", Joanneum Research Centre, 2010.
[25] That is, not requiring new legislative proposals or flexible mechanisms.

The building sector

- The building sector has a large abatement potential in CEE Member States.
- Retrofitting the existing building stock is a key challenge for the long-term decarbonization of European economies.
- Climate policy interventions in the building stock are likely to overlap with other policy goals, such as combating energy poverty, and job creation.
- The existing building stock is largely untouched by European-level policy instruments.
- Multiple market failures, such as capital market failures, imperfect information, and private debt aversion (i.e. very high private discount rates and/or social aversion to debt), may warrant coordinated intervention in this sector under the EU budget.

Some CEE Member States have made significant progress in improving the energy efficiency of the household sector, with Romania, Poland, Estonia, and Lithuania achieving a greater than 2%/yr improvement during 1997 to 2007.[26] Adjusted for climate, the CEE Member States also consume 27.5% less energy per dwelling than the EU27 average.[27] However, low energy consumption may in part reflect a restriction in consumption due to relatively lower incomes. In addition, the actual heat enjoyed by the building's occupants depends on the condition of the building. Table 2 sets out this problematique for a selection of CEE Member States and the EU 27.

Table 2: Energy consumption and savings potential in the housing sector for EU27 and selected CEE countries

Country	Consumption per dwelling scaled to EU average climate, toe/dwelling 2005[a]	% of the population reporting inadequate heat, 2008[b]	Economic savings potential in the household sector in 2020, % of projected BAU final energy consumption in 2020[c]
Bulgaria	0.75	34%	5.3%
Poland	1.26	20%	4.6%
Latvia	1.25	17%	6.4%
Romania	1.05	20%	4.9%
EU27	1.61	8%	5.9%

Sources: [a]Odyssee database; [b]Survey on Incomes and Living Standards, Eurostat; [c] Own calculations from Ecofys (2010), Energy Savings 2020

[26] Odyssee Database, 2009.
[27] Odyssee Database, 2009.

Hence the CEE Member States have a significant potential for energy savings in the building sector. In absolute terms, this potential is even larger, but it appears smaller relative to the high growth in final energy consumption projected to 2020 in CEE countries.[28] For example, according to McKinsey, energy efficiency makes up about 30% of Poland's abatement potential to 2030, 65% of which, or 44 Mt CO_2e, is in the building sector.[29] The Economies in Transition also have a high cost-effective potential for CO_2 mitigation from the building sector, 37% to 2020.[30]

In 2004-2006, the Visegrád countries pushed the Commission to allow energy-efficiency refurbishments in the residential building stock to be included as an intervention under the European Regional Development Fund; in the end, the level of expenditure was capped at 2%.[31] Prior to that, there was no EU-level instrument to support energy efficiency measures in the residential building stock; during the negotiations, the Commission argued that such interventions were Member States' own responsibility and not in line with the goals of cohesion policy.

In contrast, in the 2008 adjustment of the EU budget, developing it as an instrument of the European Economic Recovery Plan, the ERDF Regulation was amended to allow 4% of Member States' allocation to be spent on energy efficiency and renewable energy in existing housing.[32] In its preceding Communication, the Commission argued that "…[t]he key to maximising benefits and minimising costs is to target opportunities to boost energy efficiency, for example, of buildings, lighting, cooling and heating systems… [m]ajor positive effects for households and businesses can be harvested in the short term".[33]

Case study 1:
The Estonian revolving renovation loan for apartment buildings

In response to these changes in the ERDF Regulations and motivated also by European energy and climate commitments, the Estonian Ministry of Economic Affairs and Communications established, in cooperation with the German public bank KfW, a revolving fund for energy efficiency in apartment buildings. This fund is capitalized with €17 million from the ERDF, combined with a loan from the Council of Europe Development Bank as well as some funds from the Estonian government (€32m), and is managed by the Credit and Export Guarantee Fund KredEx.

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[28] BAU growth in FEC to 2020 is 136% in CEE countries, compared to 116% in the EU27.
[29] McKinsey and Company, "Assessment of Greenhouse Gas Abatement Potential in Poland by 2030", 2009, p. 38.
[30] Diana Ürge-Vorsatz and Aleksandra Novikova, "Potentials and costs of carbon dioxide mitigation in the world's buildings", *Energy Policy*, 36, 2008, pp. 642–661. The Economies in Transition here are Hungary, Russia, Poland, Croatia, Latvia, Lithuania, Estonia, Slovakia, Slovenia, Hungary, Malta, Cyprus, Poland, and Czech Republic.
[31] Iván Tosics, "Negotiating with the Commission: the debates on the 'housing element' of the Structural Funds", *Urban Research & Practice*, 1, 2008, pp. 93 -100.
[32] REGULATION (EC) No 397/2009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 6 May 2009.
[33] European Commission, "A European Economic Recovery Plan", COM (2008) 800 final, p. 13.

This revolving fund allocates soft loans to the housing sector through authorized commercial banks (Swedbank and SEB). The banks receive a margin of a maximum of 2% from the lending for independently[34] evaluating and managing loan applications. The loan term is up to 20 years, with the interest rate fixed for 10 years. A grant scheme covers the first 15% of project costs. The interest rates offered are favourable, 4.05%, compared to the commercial rate of approximately 7-8% (July 2010). The requirements for a loan application consist of an energy audit and a building-specific application plan that would improve energy efficiency by at least 20%;[35] a contract with an independent building master; and a consensus within the general assembly of the housing association (or amongst the private owners if there is no housing association). In addition, the borrowers are required to deliver an annual report on energy consumption directly to KredEx. The Estonian government previously supported a training scheme for auditors, and as a result, the domestic capacity to conduct the required audits is adequate; KredEx also provides financial support of up to 50% for energy audits and project documentation.

Interviewees identified three main problems with the scheme, related mainly to interactions with the Commission, rather than actual implementation. First, the EU rules of funding residential sector projects from the Structural Funds were not applicable to Estonia; the lower limit of the loan was too high to make more than just a couple of the largest cities eligible. To solve the problem, the Commission amended its rules to accommodate the Estonian case. The second problem was caused by the high rate of private ownership in the Estonian housing sector (96% of all dwellings); the EU structural funds are normally focused on the social housing sector, which by definition hardly exists in Estonia. Third, the idea of establishing a revolving fund contradicted the standard practice of grant-based distribution of EU structural funds; it took almost a year for the Commission to approve this distribution method, and due to this delay loans that had already been agreed had to be renegotiated with additional state guarantees, which led to a further delay.

The main practical problems are linked to the control and management arrangements in the residential sector. Buildings not organized under housing associations have caused problems due to the lack of a legal arrangement acceptable to lenders; contracting owners individually would be a complicated administrative task in comparison to the centralized solution of a single contract with a housing association. However, KredEx provides guarantees to encourage banks to lend under this management structure as well. Some practical problems have been experienced in the decision-making processes of the housing association assemblies; the financial situations of flat owners typically differ, especially when comparing flats privatized in the early 1990s with those bought based on commercial mortgages more recently. Previous energy- efficiency improvements may also make it difficult to come up with the required threshold of energy saving to be eligible for the loan. Finally, the

[34] The commercial banks are allowed to apply some of their own criteria to the lending decisions. For instance, one of the banks only lends to apartment buildings larger than ten flats.

[35] The minimum requirement for energy efficiency improvement is 20% for buildings up to 2,000m², and 30% for buildings larger than 2,000m².

economic downturn has reduced the urge to borrow, and thus the fund started more slowly than expected.

As of October 2010, 189 contracts had been signed and €15.5 million allocated. Various benefits have been recorded. The tenants have experienced an improved standard of living in the refurbished flats. The refurbishments have also provided jobs for entrepreneurs conducting energy audits and for renovation designers. According to interviewees, the full allocation of the fund will also support the construction sector in the longer term. Commercial banks have also received additional profits from co-financing the renovations through commercial loans, and, importantly, further experience with a relatively novel lending sector: interviewees reported increased interest in the housing sector among banks active under the scheme.

In addition to cohesion funds, the government has made the loans from the fund more attractive by including an additional grant share based on revenue from the sale of Assigned Amount Units (AAUs) under the Kyoto Protocol. In practice, applicants will receive a minimum of 15% of the project costs in addition to the soft loan when the basic threshold is fulfilled. Applicants can receive a 25% grant if they conduct a more complete refurbishment generating an energy saving of 40% and bring the energy consumption below 150 KWh / m^2 / p.a., and a grant of up to 35% if a 50% energy saving is achieved by installing heat recovery ventilation systems, and if energy consumption is brought below the benchmark of 125 KWh / m^2 / p.a. Because of delays getting the scheme off the ground, the history of grant-based schemes, and the reluctance of flat owners to borrow due to the current economic crisis, the uptake of this particular scheme has been slower than expected so far.

Discussion

The Estonian fund provides a useful example of an innovative intervention in the housing sector, and of the multiple benefits identified by participants, in terms of significant energy saving, social welfare improvement, job creation, and capacity-building in the financial sector. Yet the Estonian experience also highlights several difficulties of intervention in this sector. Firstly, the reluctance of flat owners to take out loans, arising from a cultural aversion to debt, the financial crisis, and previous accustomedness to grant-based schemes. One interviewee described beneficiaries as being “quite spoiled” by previous experience with grant-based schemes, and highlighted this as a major barrier to increased use of leverage via loans or guarantees. By combining loans with grants from AAU sales, the Estonian scheme is seeking to increase absorption. At the same time, CEE interviewees involved with EU funds or AAU-funded Green Investment Schemes (GIS) in the housing sector consistently voiced the desire to increase the leverage effects by reducing the grant threshold; mixing grants and loans, or moving towards a solely loan-based scheme.

Secondly, the Estonian case highlights the importance of “soft measures”, such as supporting project documentation, co-financing energy audits, and outreach to publicize the scheme. For example, public engagement and capacity was described as a major obstacle at the beginning of the Czech GIS. After negotiations with the buyers, the Czech GIS now typically offers support of 5-6% of the project costs for project documentation, while the ceiling in agreements with buyers is set at 10%.

The scheme was also publicized by extensive advertising in cooperation with heat pump associations, for example.

The demand for financing products in the residential building sector varies among CEE countries.[36] However, in order to tap the high potential in the countries with high demand, the next financial perspective should place higher priority on energy efficiency interventions in the building sector; this would be in line with the focus of the Energy Efficiency Action Plan, and the recommendations of the IEA on crucial policy interventions for a low-carbon Europe by 2050, which states that "[p]articular emphasis should be put on improving the efficiency of Europe's existing housing stock".[37] Likewise, the cohesion fund could also finance efficiency improvements in the housing sector, and the European Social Fund could fund "soft measures" like training and outreach. This would facilitate the integration of this intervention in sectoral Operational Programmes, alongside regional Operational Programmes financed by the EFRD. Regarding consistency with the goals of cohesion policy, energy efficiency interventions are recognized in the literature as among the most effective in terms of job creation and economic stimulus,[38] and the multiple benefits highlighted by the Estonian case support this view.

The electricity grid

- Climate policy, growth in demand, and rapid asset depreciation rates will necessitate a large-scale expansion and upgrade of electricity grids in CEE.
- Grid investments can be hindered by market failures, such as network externalities or new technology risk aversion among private actors.
- Catalytic public investment may be justified to contribute to the supply of public goods, such as energy security and climate change mitigation.
- In particular, smart grid pilots and large-scale grid expansion/upgrades to support the expansion of renewables may be appropriate targets of public support.

The electricity grid is another key area for intervention to drive the low-carbon transition in CEE Member States. According to the ten-year network development plan drawn up by the European Network of Transmission System Operators for electricity (ENTSO-E), €11-13 billion will need to be invested between 2010-2014 in projects of "European significance" in the Baltic region; €8-9 billion in Continental Central East, and €4-5 billion in Continental South East.[39] This also gives an idea of the scale needed in the longer term. The main driving forces for this investment are increased international market integration and the associated need for

[36] For example, the Czech GIS has received 50,000 applications for building refurbishment, several times more than anticipated under the initial tranche. "Czechs to suspend allocation of AAU cash", Point Carbon, 27.10.2010. Available at: http://www.pointcarbon.com/news/1.1482487. Date accessed: November 1 2010.
[37] IEA, "Energy Technology Perspective 2010", p. 297.
[38] See e.g. Diana Ürge Vorsatz et al, "Employment Impacts of a Large-Scale Deep Building Energy Retrofit Programme in Hungary", Centre for Climate Change and Sustainable Energy Policy, 2010.
[39] ENTSO-E, "Ten Year Network Development Plan", 2010, p. 16.

domestic grid reinforcement; obsolescence of existing generation and transmission infrastructure, and the new geographical location of (renewable) generation.[40]

At the same time, there is a substantial need for investment in run-down domestic energy grids across many CEE Member States. Poland is a case in point here. Around 70% of transmission lines in the latter are seriously depreciated. Although TSOs are statutorily required to connect new RES plant to the grid and give priority transmission to electricity from renewable sources, in practice grid connection procedures have been identified as a major barrier to scaling up RES. Poland applies a "deep" grid connection charging system, meaning that the costs of connection and associated reinforcements are borne by plant operators, and are not "socialized" among all grid users. In addition, the application procedure for grid connection is lengthy and complex.

Case study 2:
Polish Green Investment Scheme in the electricity grid sector

In this context, the Polish Green Investment Scheme is an interesting case study of the needs and solutions for upgrading the electricity grid and integrating RES into the electricity system. According to URE (the Energy Regulator's Office), the planned wind-farm installation in Poland would reach about 16 GW by 2030, or 45% of national nameplate capacity.[41] As in Germany, generation potential is largely found in the north, while demand centres are located in the south, necessitating significant growth of north-south transmission capacity.

Originally, the aim of the Polish GIS was to finance wind farms directly. However, the decision was made to support grid upgrades because 1) wind is fairly competitive in the market already (it is also financed from the Structural Funds), and 2) the bottleneck caused by the capacity of the grid makes it difficult to exploit the best wind potential available. The potential problem with financing grid upgrades through the GIS is the indirect nature of the emission reductions generated. Even though the positive effect of such investments on low-carbon development is obvious, it can be difficult for the AAU buyers to agree on supporting something that will generate the emission reductions only indirectly. The Polish approach to this problem seems practical, and more importantly, has been acceptable to some buyers.

The Polish GIS requires the supported grid upgrades to be linked directly to wind power; the finished project will be rewarded with a 200-zloty premium per kW of wind power connected to the grid, to cover up to 20% of the total investment. The premium can be paid only after the wind capacity has been connected. As a result, the grid projects must coordinate their investments with wind power developers; this indirectly incentivizes wind capacity development.

One of the project selection criteria under this GIS priority is the density of the 110 kV grid; this also incentivizes the updates of the grid in remote areas, namely those

[40] ENTSO-E, "Ten Year Network Development Plan", 2010.
[41] Figure quoted in Roland Berger, "CEE Grid Study: On the Road to Efficiency", 2009, p. 14.

with poor grid connections and the largest wind potential. In this manner, the scheme has the potential to contribute to rural development through better grid connection and supply, and potentially land-use revenues from the wind projects themselves. The emission reduction is measured based on the number of additional green certificates generated as a result of the grid upgrade; using this existing institutional system seems practical and straightforward.

Time is a crucial factor with regard to the grid upgrade investments; the Polish GIS requires the upgrades themselves to be finalized by the end of 2012, and the wind power connected a year later. As a result, the significance of the scheme may be limited. However, grid upgrades and especially connecting RES into the national grid is also supported through the EU Structural Funds (Infrastructure and Energy programme), which may add to the significance. One of the main goals of the Polish government in relation to these schemes is to fulfil its 15% RES target under the EU Climate and Energy Package; the GIS, more particularly, is aimed at adding 2,000 MW of wind capacity by 2012.

Discussion

The pressure to upgrade electricity grids in CEE Member States stems from several factors: obsolescence of the existing grid; increased integration of RES; international market integration; and regulatory pressure to increase efficiency and decrease operational expenditure.[42] Grid improvements should be financed on the "user pays" basis, namely from network operators' balance sheets fed by appropriate regulation of grid-use tariffs. However, in some instances there will be a clear need for public finance, for example where there are high-technology risks, network externalities, or political reluctance to pass costs on to consumers. As argued by Bowen et al, "there is a tendency for the social benefits of investing in network expansion to exceed the private benefits considered by potential new members, especially when the network is just being set up to take advantage of a new technology. Without public intervention, the market response is an underinvestment in expanding the network…".[43]

In the case of CEE Member States, there is perhaps an especially strong argument for public intervention to help prepare the electricity grid for the low-carbon transition. This was already recognized in the 2006 Community Strategic Guidelines on Cohesion Policy, albeit not specifically in the context of increasing the use of RES or improving energy efficiency. Rather, the guidelines state "Investment in traditional sources of energy is also needed, so as to ensure security of supply. In particular, the Funds should concentrate — where there is evidence of market failure and where it does not go against the liberalisation of the market — on the completion of interconnections, with special emphasis on the Trans-European networks, [and] the improvement of electricity grids".[44] Arguably, there is a case for integrating the goals of energy efficiency and diversification of energy supply into

[42] Roland Berger, "CEE Grid Study: On the Road to Efficiency", 2010.
[43] Alex Bowen et al, "Meeting the Climate Challenge: Using Public Funds to Leverage Private Investment in Developing Countries, Section 2 - Analytical framework: The case for public sector action", 2009, p. 4.
[44] 2006/702/EC, p. 18.

such guidelines: the case study of the Polish GIS shows that such interventions can bring significant value added in terms of facilitating climate and energy goals.

Key technologies for low-carbon generation: Biomass and CCS

- Bioenergy and CCS are likely to be key low-carbon energy generation technologies for CEE.
- Bioenergy refers to numerous technologies applied in different sectors: any intervention in this sector should seek the largest added value for EU support.
- Potential interventions could look at overcoming supply-chain and technology-related market failures in centralized heating systems; and demonstration of second-generation bioenergy technologies.
- In the case of CCS, the EU has already established significant support for demonstration.
- However, further support may be warranted to bridge the commercialization "valley of death", and to develop the transit networks for CO_2, which have a 'public good' character.

Biomass

Biomass exploitation has been consistently identified as a key option for delivering EU climate and energy goals in CEE Member States.[45] Studies show significant biomass resource potential, at relatively low costs.[46] Table 3 below shows the waste biomass potential by Member State, expressed in ktoe and as a percentage of gross inland energy consumption in 2008. It should be noted that as this excludes dedicated energy crops, the actual potential could be significantly higher.

[45] See e.g. Camilla Adelle et al, "Action Taken to Address Climate and Energy Priorities in the EU Member States, and Prospects for Implementation of the Climate Action and Renewable Energy Package", A Review for the European Climate Foundation, Institute for European Environmental Policy, 2009.

[46] See e.g. J. van Dam et al, "Biomass production potentials in Central and Eastern Europe under different scenarios", *Biomass and Bioenergy*, 31, 2007, pp. 345–366; Calliope Panoutsou et al, "Biomass supply in EU27 from 2010 to 2030", *Energy Policy*, 37, 2009, pp. 5675–5686.

Table 3: Waste biomass potential in CEE Member States in 2020 in ktoe and relative to gross inland energy consumption in 2008 (Source: Calliope et al, 2009)

	Total waste biomass potential in 2020, ktoe[a]	Total biomass potential in 2020 as a % of gross inland energy consumption in 2008
BG	3948	19.7
CZ	1801	4
EE	1336	22.8
HU	1946	7.3
LT	1549	16.9
LV	1776	38.6
PL	7074	7.2
RO	7907	19.5
SI	459	5.9
SK	797	4.3

[a]*This includes agricultural residues; forest by-products and refined wood fuels (pellets, briquettes, etc.);industrial biomass (solid industrial residues and black liquor); gas from sewage, and biodegradable municipal waste.*

Biomass potential should be rationally allocated between sectors in order to maximize the economic efficiency of the low-carbon transition across the whole economy. Given the size of the heat demand in CEE Member States and the higher conversion efficiencies, the key focus should arguably be placed on the renewable heating sector. Reviews of the policy environment for renewable heat in each Member State,[47] stakeholder surveys in CEE Member States,[48] as well as our own interviews highlight significant barriers: the inadequacy of financial/market instruments for renewable heat in many Member States; the underdevelopment of the supply chain, and the lack of an integrated approach to the biomass and heating/power sectors. Cohesion policy makes available about €894 million for dedicated biomass support in the current financial perspective, which is in many cases an important source of support.

The Community Strategic Guidelines on Cohesion mention biomass once in the context of guideline 1.1.3, "Address Europe's intensive use of traditional energy sources", but not in the context of guideline 1.3, "more and better jobs", nor in the context of guideline 2.2, "economic diversification of rural areas, fisheries areas and areas with natural handicaps".[49] This is surprising, given for example that the EU-funded MITRE project estimated that 80-90% of the direct and indirect jobs from the RES expansion would come from the biomass sector. Such findings are supported by other studies.[50] For example, a study of the regional employment and

[47] See e.g. Ecofys et al, "Renewable Energy Policy Country Profiles", 2009.
[48] See e.g. Bankwatch draft discussion paper, "Funding Instruments for Energy Efficiency and Renewable Energy", 2010.
[49] 2006/702/EC, "Community strategic guidelines on economic, social and territorial cohesion, 2007-2013-2014".
[50] Göran Berndes and Julia Hansson, "Bioenergy expansion in the EU: Cost-effective climate change mitigation, employment creation and reduced dependency on imported

welfare benefits of biomass expansion for East Styria, Austria, found for example a 1.18% increase in regional GDP and a net gain of 620 jobs for the substitution of 2000 TJ of woodchips in the district heat sector.

Regulation (EC) No 1782/2003 allowed specific support for the bio-energy sector under the Common Agricultural Policy (CAP). This was repealed by Regulation (EC) No 73/2009 on the grounds that market- based incentives deriving from global demand and the EU's RES and biofuels targets were sufficient to drive supply; biogas and biomass production and utilization remain applicable under the indicative list of measures under the European Agricultural Fund for Rural Development.[51] However, there is arguably a place under the future CAP for financial incentives for the provision of biomass resources where markets are emerging and uncertain, specifically in the case of feed-stocks for second-generation bioenergy technologies.

The EU-funded REFUEL project found that, firstly, the importance of first-generation bioenergy technology as a transition to second-generation has been overstated, and can lead to a lock-in of vested interests, physical capital and production practices. Secondly, there is significant potential in underutilized existing agricultural land, particularly in CEE Member States. Thirdly, higher capex costs and technological uncertainties will require policies to support investment and feedstock production, for example under the Strategic Energy Technology (SET) Plan and CAP.[52] Given the significant resource potential in CEE Member States, and the potential for job creation and economic stimulus,[53] there are clear overlaps between EU agricultural, climate and cohesion policy. Arguably, this should find recognition in the formulation of future EU fiscal policy in the next financial perspective, particularly as regards cohesion and CAP policy.

CCS

Carbon capture and storage (CCS) is likely to be an important technology in the CEE decarbonization strategy. Many CEE Member States have significant coal reserves, with coal already making up 59% of Polish, 45% of Czech, 23% of Romanian and 35% of Bulgarian primary energy supply. According to the World Bank, under a BAU scenario electricity generation from coal is likely to rise from

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fuels", *Energy Policy*, 25, 2007; Thomas Trink et al, "Regional economic impacts of biomass based energy service use: A comparison across crops and technologies for East Styria, Austria", *Energy Policy*, 38, 2010; Bloomberg New Energy Finance, "Next-generation ethanol and biochemicals: what's in it for Europe?", 2010.

[51] (EC) No 74/2009

[52] Marc Londo et al, "The REFUEL EU road map for biofuels in transport: Application of the project's tools to some short-term policy issues", *Biomass and Bioenergy*, 34, 2010, 244–250.

[53] A 2010 study by Bloomberg New Energy Finance, "Next-generation ethanol and biochemicals: what's in it for Europe?", finds that an aggressive expansion of second-generation bio-ethanol to 2020 could generate €10 billion/yr in revenues for CEE Member States by 2020; 290,000 man-years of employment between 2010-2020, and between 18.9 and 22.7 billion litres of bio-ethanol in 2020.

30% currently to 34% by 2030 in the CEE/FSU region.[54] The EU is already making efforts to develop and commercialize CCS technology. In the section below we assess the impact of EU support policies, taking the Bełchatów demonstration plant in Poland as a case study. We then draw conclusions concerning the role of EU fiscal policy in further supporting CCS commercialization.

Case study 3:
CCS in Poland and the Bełchatów demonstration plant

CCS is likely to be a crucial bridging technology for Poland. There are other potential bridging technologies available, such as conventional, LNG or shale gas, but CCS combines the advantages of allowing continued use of domestic resources while being relatively advanced compared to shale-gas exploration and development in Poland. Nonetheless, CCS implementation in Poland will be a very challenging task. Challenges include establishing the legal, political and financial frameworks required for CCS; dealing with technical issues relating to CO_2 capture, transport and storage; gaining public acceptance for CCS; mobilizing human resources and expertise; and strengthening ties between CCS stakeholders.

The first Polish CCS demonstration project in Bełchatów (carried out by the Polish Energy Group – PGE) envisages the construction of a post-combustion installation to remove CO_2 from the 858 MW lignite-fired plant. Advanced amine technology will be used for this purpose, and there are plans to capture more than 2.1 million tonnes of CO_2 per year. With respect to the choice of technology, collaboration has commenced with Alstom, the firm constructing the 858 MW block, and Dow Chemicals, a global supplier of chemical products, with more than 40 years' experience in amine processing.

Regarding the project's financial specifications, PGE estimates that the capture of one ton of CO_2 in the plant at Bełchatów will cost about €67. Under the European Energy Programme for Recovery (EEPR), PGE signed a grant agreement for €180m with the European Commission. In addition, PGE intends to apply for €125m from the auction revenues of the New Entrants Reserve (NER300). However, PGE says that it may have difficulties winning the NER300 tender because at the moment there are no funds available at the national level to support the project, and it is required to demonstrate national co-financing in the NER300 application. PGE also hopes for support from the Norwegian Financial Mechanism (€60 million), but if these funds were to be allocated to the two Polish CCS projects (PGE Bełchatów and PKE-ZAK in Kędzierzyn-Koźle), €60 million would not be enough. PGE also estimates that it can obtain some financing on the concessional terms from the European Investment Bank and the European Bank for Reconstruction and Development. In all, PGE estimates that the CCS demonstration project will cost 2.5 billion PLN, or €626 million. This means that even with the support from EEPR and NER300 PGE will have to find an additional €321 million for this investment.

Conducting tests on one of the geological structures identified as a potential storage site turned out to be impossible due to protests from local organizations. Despite its

[54] The World Bank, "Lights Out? The Outlook for Energy in Eastern Europe and the Former Soviet Union", 2010, p. 29.

own efforts to provide the public with accurate information regarding the storage of CO_2, the Polish Geological Institute (carrying out the tests) was forced to begin work on a different geological structure. Given this social antipathy towards CCS, building social acceptance of it is a priority. The Ministry of Economy and the Ministry of the Environment decided to create a special CCS public information task force. The Ministry of Economy also drew up a letter to the Marshal of the Łódźvoivodship and to the ŁódźVoivode asking for assistance in overcoming public opposition to both the geological tests and to any potential storage of CO_2 in geological structures in the district in the future. However, no decision to conduct a public information campaign about CCS has been taken.

Several possible sources of future financial support for CCS in Poland are being considered, both from the EU and at the national level. These include:

- the EEPR and NER300 discussed above
- the EU Structural Funds Operational Programmes "Infrastructure and Environment" and "Innovative Economy" and possibly even regional programmes – these are currently in the process of mid-term evaluation
- revenue from the sale of surplus AAUs under the Kyoto Protocol
- revenue from phase three auctioning of EAUs
- resources from the National Fund for Environmental Protection and Water Management
- the EEA and Norway Grants financial mechanism[55]

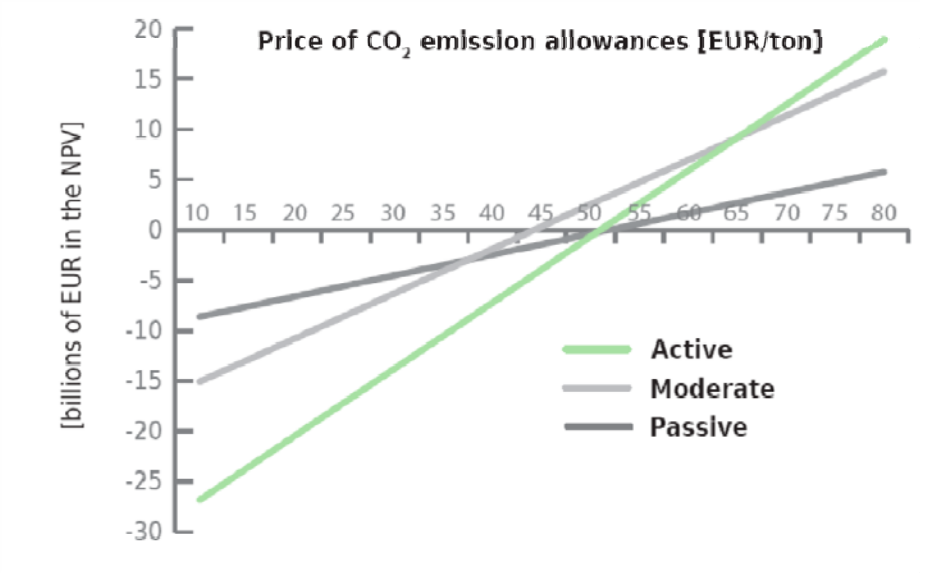
In addition, several new instruments are being considered by the Ministry of Economy. These include special certificates similar to a green certificate scheme for renewable electricity; mandatory or auctioned quotas for electricity from clean coal;[56] tax credits for energy from power plants with CCS; loan guarantees or loans from the European Investment Bank (EIB). No money from the national budget is available so far. The Ministry of Finance is not in favour of spending money on any low-carbon technology (hence the reliance on certificate-based support schemes for RES, as opposed to feed-in tariffs).

In this context, the carbon price will be crucial in the discussion on large-scale CCS development in Poland. The importance of the carbon price in rolling out CCS is borne out by micro-economic analysis of CCS investment in Poland. Figure 4 shows the difference in Net Present Value (NPV) of a coal plant with and without CCS in Poland, assuming some government and EU co-financing. The project reaches a positive NPV only at an allowance price of 45-55 EUR/ton, with variations between scenarios describing the aggressiveness of CCS R&D in Poland (Active, Moderate and Passive).

[55] Namely Norway, Lichtenstein and Iceland's contribution to reducing economic and social disparities in the European Economic Area. Over the period 2009-2014 a substantial part of this will be directed to CCS. See http://www.eeagrants.org/id/1938.0

[56] For a discussion on clean electricity reverse auctions as a financing mechanism to support emerging technologies, see Bloomberg New Energy Finance, "Crossing the Valley of Death: Solutions to the next generation clean energy project financing gap", 2010.

Figure 4: Relationship between carbon prices and NPV for coal plant with CCS, Poland[57]



Discussion

If CCS is to be widely diffused in the EU, then the rapid proving of its commercial and technical viability is a necessary focus for EU support. The next financial perspective could address this issue. As Poland is one of the biggest recipients of cohesion policy, it will most probably not be in favour of creating any new instruments, but it might consider a reorientation of cohesion policy. In this approach, cohesion policy could be reoriented to help the less developed Member States tackle the challenges of the low-carbon transition and in this context help with the implementation of low-carbon technologies such as CCS. Having said that, Poland is neither a supporter of greening the EU budget nor convinced that CCS large-scale implementation is possible. Therefore it is unlikely that Poland will be at the forefront of the discussion on allocating a significant amount of financial support to CCS in the next financial perspective. At the same time, if the decision to do so is taken at the EU level, Poland will no doubt use it to increase the potential of CCS implementation.

The discussion above highlighted the importance of striking the right balance between public fiscal support and market-based incentives, namely the carbon price. According to the European Commission, under current conditions the projected " ETS [allowance] price is not sufficient to allow additional investments in CCS technology".[58] Government support may drive the initial demonstration plants, but a stronger carbon price CCS would not be deployed on a large scale post-2020. This is also apparent in the micro-economic analysis of CCS in Poland above. Even with a

[57] See Agata Hince (ed.), "How to Effectively Implement CCS in Poland? Financial Framework", demosEUROPA, 2010, p. 29.
[58] The European Commission, "EU Energy Trends to 2030 – Update 2009", 2010, p. 49.

higher carbon price and the effective completion of the demonstration phase, there may be a role for additional public support to bridge the valley of death between demonstration and commercialisation.[59] The EU budget could play a role here via loans and/or loan guarantees, or potentially innovative mechanisms such as capacity auctions, as is being considered by the Polish government. In addition, the development of transit infrastructure, which has a 'public good' character, would be an appropriate target of public support. This is recognized, albeit somewhat vaguely, in the 2010 Communication on EU energy infrastructure priorities to 2020 and beyond.[60]

Energy market interconnection and external energy policy

- Climate policy, energy security and the single market agenda are driving the interconnection of EU energy grids.
- These three agendas should be approached in a coherent manner, acknowledging the synergies between them.
- Enhanced market integration may allay fears that climate policy could lead to a reduction in energy security; while energy efficiency and renewables expansion may substitute for a wholesale shift to gas, this fuel is likely to retain an important role in the EU decarbonization pathway.
- Cross-border interconnectors can have a 'public good' character in terms of delivering energy security; however, policy decisions should take into account the contribution of RES and energy efficiency to moderating gas demand.

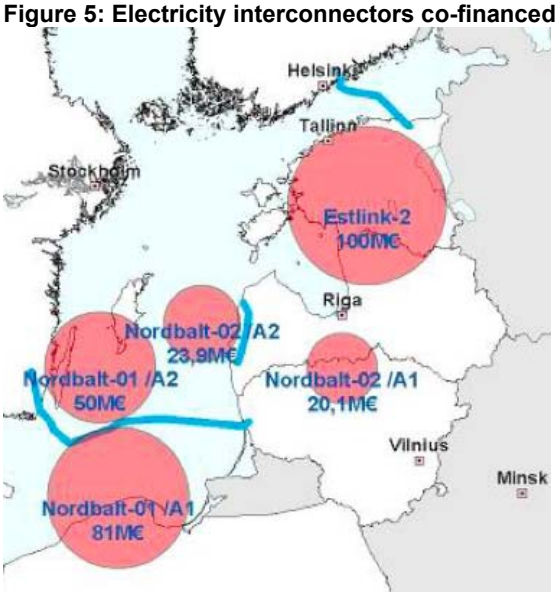
In 2011 the Commission will make a legislative proposal for a new EU Energy Security and Infrastructure Instrument to replace the Trans-European Networks for Energy. The Commission's review of the latter instrument concluded that it "has neither the resources nor the flexibility to make a full contribution to the delivery of the ambitious energy and climate goals" of the EU.[61] It seems likely that the new instrument will follow a more targeted approach, focusing on a manageable number of high-priority projects/regional initiatives, and offering a greater role for public co-financing thereof. A political debate remains to be conducted on the definition of priority regional corridors, and/or specific projects.

A role clearly remains for public support of EU market integration, in order to achieve the goals of energy security, climate policy and the competitive internal energy market. Concrete co-financing of interconnection under the European Energy Programme for Recovery (EEPR) demonstrated the added value of EU intervention, particularly in the case of the Baltic states, whose isolation from the EU energy

[59] See e.g. Bloomberg New Energy Finance, "Crossing the Valley of Death: Solutions to the next generation clean energy project financing gap", 2010.
[60] The European Commission, "Energy infrastructure priorities for 2020 and beyond - A Blueprint for an integrated European energy network", COM (2010) 677 final, 2010.
[61] The European Commission, "Report from the Commission on the Implementation of the Trans-European Energy Networks in the Period 2007-2009", COM (2010) 203 final, 2010, p. 9.

system led them to be labelled the "energy islands" of Europe. Figure 5 shows the electricity interconnection projects financed by the EEPR in the Baltic region.

Figure 5: Electricity interconnectors co-financed by the EEPR in the Baltic region[62]



Arguably, consideration also needs to be given to the interaction of EU-level instruments for energy market integration and EU climate policy. Analysts have seen the opportunity for a "grand bargain" between old and new Member States in the field of climate and energy policy, emerging through the political debate around the priority corridors of the new EU Energy Security and Infrastructure Instrument on the one hand, and future EU climate policy on the other.[63] Such a deal could allay fears that strengthening EU climate policy would threaten the energy security of CEE Member States, through, for instance, an increased reliance on Russian gas imports. Indeed, analysis suggests that a stronger 2020 emissions target could have positive impacts on EU energy security, highlighting that tools for improving energy security go beyond "traditional" pipelines, interconnectors and storage facilities.[64] At the same time, strengthening market interconnection is necessary to allow greater integration of RES at a lower cost. In summary therefore, exploring synergies between the EU fiscal instruments for market integration and EU climate policy may

[62] European Commission, "ANNEX: To the Report from the Commission to the Council and the European Parliament on the implementation of the European Energy Programme for Recovery", COM (2010)191 final.
[63] See e.g. Thomas Spencer and Dr Anna Korppoo, "Tools for Building EU Climate Consensus: Bringing the CEE Member States on Board", UPI Briefing Paper no. 61, 2010; Martin Kremer and Dr. Kai-Olaf Lang, "Polen – Vom Bremsklotz zum potentiellen Klimapartner Deutschlands?" SWP Aktuell 65, 2010.
[64] Thomas Spencer et al, "Linking an EU emission reduction target beyond 20% to energy security in Central and Eastern Europe", FIIA Working Paper 69, March 2011.

allow issue linking to take place in the political process, giving greater scope for a more optimal balancing of interests.

Conclusions

This paper has provided an overview of the rationale and options for better integration of the EU climate, energy and cohesion policy. The EU Climate and Energy Package contains a portfolio of targets, some of which are not backed by EU-level instruments for implementation. The macro-economic shock of the global recession, as well as the continuing debate around the EU 2020 emissions target and climate policy beyond 2020, provide the opportunity to reassess the balance of targets and instruments contained in the Climate and Energy Package. For CEE Member States in particular, there is a case for the deployment of EU-level fiscal instruments in order to support the implementation of EU climate policy, both in view of the potential to move beyond a 20% reduction target and the need to set their economies on a feasible decarbonization path in the longer term.

In this regard, this paper examined key areas of intervention for the low-carbon transition in CEE Member States. These included the building sector, electricity grids, CCS and biomass, and energy market integration. It assessed existing financing instruments in these sectors, and the extent of their integration in EU fiscal policy. It found that the ability of such interventions to support the goals of EU cohesion policy was in general poorly recognized in existing EU fiscal policy guidelines. Further, the case studies underscored the importance of the funding gap for low-carbon projects; here the EU budget could play a role in bridging the gap and guiding the development of more supportive policy frameworks, which may be lacking currently. Finally, it was noted that in the current fiscal climate, relying solely on budgetary support will be neither feasible nor desirable. A combination of a stronger carbon price and targeted fiscal support will be important for achieving the goals of the Climate and Energy Package in CEE Member States and setting up their economies for the decarbonization pathway post-2020.

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