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Electricity exports from the eastern neighbourhood and Western Balkans

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List of abbreviations

BOO	Build-Operate-Own
CGES	Crnogorski elektroprenos
CO2	carbon dioxide
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
ENPI	European Neighbourhood Partnership Instrument
ENTSO-E	European Network of Transmission System Operators for Electricity
EPCG	Elektroprivreda Crne Gore
ESIA	Environmental and Social Impact Assessment
EU	European Union
FSU	former Soviet Union
GHG	greenhouse gas
HPP	hydropower plant
IEA	International Energy Agency
IFC	International Finance Corporation
IFI	International financial instution
IPCC	Intergovernmental Panel on Climate Change
KfW	Kreditanstalt für Wiederaufbau
KWh	kilowatt hour
MANS	Transparency International Montenegro
MoU	memorandum of understanding
Mtoe	million tonnes of oil equivalent
MW	megawatt
NIF	Neighbourhood Investment Facility
NPP	nuclear power plant
NPP SUP	Nuclear Power Plant Safety Upgrade Programme
PSD	project summary document
RES	renewable energy source
SEA	strategic environmental assessment
SEE	Southeast Europe
TPP	thermal power plant
TWh	terawatt hour
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe

Executive summary

Cooperation in the energy sector is one of the European Union's key priorities in its relationships with neighbouring states. Although the strategic documents and polices suggest that the promotion of energy efficiency, energy savings and the use of renewable energy sources should be the primary areas of cooperation along with "energy security"[1], **it is the latter that receives the lion's share of attention from the EU side**. In several cases **"energy security" also receives a disproportionally large amount of financial support** both directly from the European Commission, through the Neighbourhood Investment Facility (NIF) and from the international financial institutions (IFIs), namely the European Bank for Reconstruction and Development (EBRD) and the European Investment Bank (EIB).

The EU's ambitious target to cut its greenhouse gas emissions by 80-95 percent in 2050[2] requires significant efforts as a major shift in thinking is needed to ensure a rapid transition away from modes of living based on constantly increasing energy consumption. The apparently easier path to "solve" this problem involves securing more energy imports in order to cover the gap between demand and internal production. **Securing increased electricity imports from neighbourhood countries** has already received a great deal of EU attention in the Western Balkans, Ukraine and Georgia.

An analysis of EBRD investments in the Ukrainian energy sector shows that export-oriented infrastructure projects accounted for roughly **61.6 percent of the bank's total lending to the power and energy sector between 2006 and 2011**[3]. During this period the EBRD financed two high-voltage transmission lines in Ukraine, forming different parts of an ambitious plan for the "second backbone" transmission corridor running from the east to the west of the country, up to Ukraine's borders with the EU. Currently the EBRD is considering a EUR 300 million loan (with a further EUR 300 to 500 million accompanying loan expected from Euratom) for the upgrading of old Soviet type nuclear reactors so as to achieve "current standards in nuclear safety [that] should lift the nuclear safety related embargo and allow Ukraine greater flexibility to trade with the EU".[4] In reality this means **lifetime extension of old nuclear units** and creation of a physical connection with the EU to transmit electricity generated by them. As a side effect this would lead to an increase of coal generated electricity as the gap in domestic consumption would be covered by it. This in turn would lead to **doubling of CO2 emissions from coal by 2030 and an increase of total CO2 emissions by 58 percent**[5].

In 2009 in Georgia, the EBRD and the EIB each approved EUR 80 million for the Black Sea Transmission line project. In 2011 the EBRD approved financing for the Paravani hydropower plant (HPP) and is currently considering further financing for the Georgian government's mega-plan involving a series of large-scale hydro plants to provide electricity through the aforementioned transmission line in order to increase electricity exports to Turkey and Europe.[6] The construction of the Paravani greenfield hydropower plant will likely lead to the physical destruction of the ecosystem of the river Paravani due to lowered water levels and may lead to flooding in Khertvisi village, thus putting at risk the very livelihoods of the local community. At the same time the benefits of this project for Georgia are quite doubtful as the plant will be owned and operated by a Turkish company and the electricity will exported to Turkey as well.

For Georgia, **around 86 percent of the EBRD's projects in the power and energy sector since 2006 have been export-oriented**.[7] Meanwhile neither the EBRD nor EIB have ever financed any project in Georgia aimed solely at energy efficiency[8].

In the case of the Western Balkans, Italy plans to **import energy from these countries derived from renewables and large dams so as to meet its renewable energy targets**, as set out in its Renewable Energy Action Plan[9]. There are a number of projects involved in this, some designed to enable transmission to Italy (for example, via an undersea cable from Tivat in Montenegro to Italy) and others at actually producing electricity for export (such as the hydro plants cascade on the River Drina on the border between Serbia and Bosnia and Herzegovina). The total amount

of electricity to be exported to Italy from Albania **is not much less than the amount that is produced right now**. Both the transmission lines and many of the planned generation projects are highly controversial due to their impacts on biodiversity. To date the EBRD is planning to be involved in the transmission line to connect the north of Montenegro with its coast and to the planned undersea cable.

These export-oriented projects have a number of negative implications for the environment and people: the degradation of ecosystems, the risk of flooding, the risk of accidents and uncompensated impacts from nuclear power plant operation, negative impacts on the livelihoods of local people, etc. The question of benefit distribution is also important – in some of these projects the conditions under which private companies are involved, leave the majority of revenues going into private hands, with ordinary people having to deal with the real risks.

It is important to stress that people in the EU are also at risk of being exposed to some of the negative impacts that may arise from these "energy grabbing" ambitions. Most significant of course is the risk of nuclear accident – seeing an end to their own nuclear programmes while at the same time supporting the lifetime extension of nuclear generating capacities in their own backyard does not help protect people living in the EU from the risks that nuclear energy poses.

Introduction

The European Neighbourhood Policy (ENP) Strategy Paper[10], the EU's baseline document for building cooperation between the EU and adjacent countries[11] underlines that the "Neighbouring countries play a vital role in the security of the EU's energy supply".[12] Although the ENP and bilateral strategic documents suggest that the promotion of energy efficiency, energy savings and the use of renewable energy sources should be the primary areas of cooperation along with energy security, the latter receives the lion's share of attention from the EU and international financial institutions, namely the EBRD and EIB.

The EU has set an ambitious target to cut its greenhouse gas emissions by 80-95 percent in 2050.[13] This will require significant efforts as a major shift in thinking is required to ensure a rapid transition away from modes of living based on constantly increasing energy consumption. It is already becoming more and more difficult to build new fossil fuel power plants within the EU due to eg. uncertainty surrounding their economic viability and public and expert opposition, yet most EU member states are still in the early stages of developing a well-balanced renewable energy sector, so the option of going down the "easier" path remains very tempting. This easier path involves securing more energy imports in order to cover the gap between demand and internal production. Money from the EBRD and the EIB is already fueling the utilization of this option. The EBRD and the EIB are two major foreign investors in the east European countries, the former Soviet Union (FSU) and southeast Europe.

The Agreement Establishing the EBRD – the bank's founding charter – directs the bank to "promote in the full range of its activities environmentally sound and sustainable development".[14] For energy and power projects, the EBRD translates this into the following: "It is, therefore, incumbent upon the Bank to support economically sound energy projects where environmental, social and local concerns are also properly addressed and mitigated, as well to use its influence to foster progress on these issues during project development."[15] The EBRD also states that it "will support transition countries in exploiting their energy resources and transporting them to market, thereby improving security of supply."[16]

Being the European Union's financing institution, the EIB follows EU policy in relations with non-EU countries. While inside the EU the EIB sees as one of its tasks the "sustainable, competitive and secure energy: producing alternative energy and reducing dependence on imports", outside the EU its task in the energy field is too often focused on the "security of energy supply"[17]. In practice this sometimes translates into so-called "energy grabbing"[18] from non-EU countries. Although it remains to be seen whether the EBRD and EIB will finance the EU's most notorious current energy grab project, the ill-fated Nabucco gas pipeline, the banks are already involved in export-oriented energy projects in the EU pre-accession countries and the EU neighbourhood region.

As for the Neighbourhood Investment Facility, this has been designed to finance capital-intensive infrastructure projects in partner countries. The European Union "backs its neighbours' priorities and supports them in carrying out necessary investments for the future. This will have a significant positive impact on their population as well as on European citizens given our common interests in stability and welfare"[19]. The reality – for example with the Ukrainian or Georgian transmission lines – shows that NIF rarely gets into the details of the proposed projects, instead taking at face value the project promoters' assurances regarding their "significant positive impact" on the people of the country.

The ENP declares that Action Plans, the bilateral agreements on cooperation with each ENP country, will "promote good environmental governance in partner countries to prevent environmental degradation and pollution, protect human health, and achieve a more rational use of natural resources".[20] Meanwhile the pre-accession countries of southeast Europe are expected to align their legislation with the EU *acquis communautaire* and prepare themselves for contributing to EU policy goals. As the case studies below on Ukraine, Georgia and Western Balkans show, however, it seems that some EU policies are more equal than others, with environmental concerns being overshadowed by the quest for energy imports.

Case studies

Ukraine – dirty nuclear and coal electricity

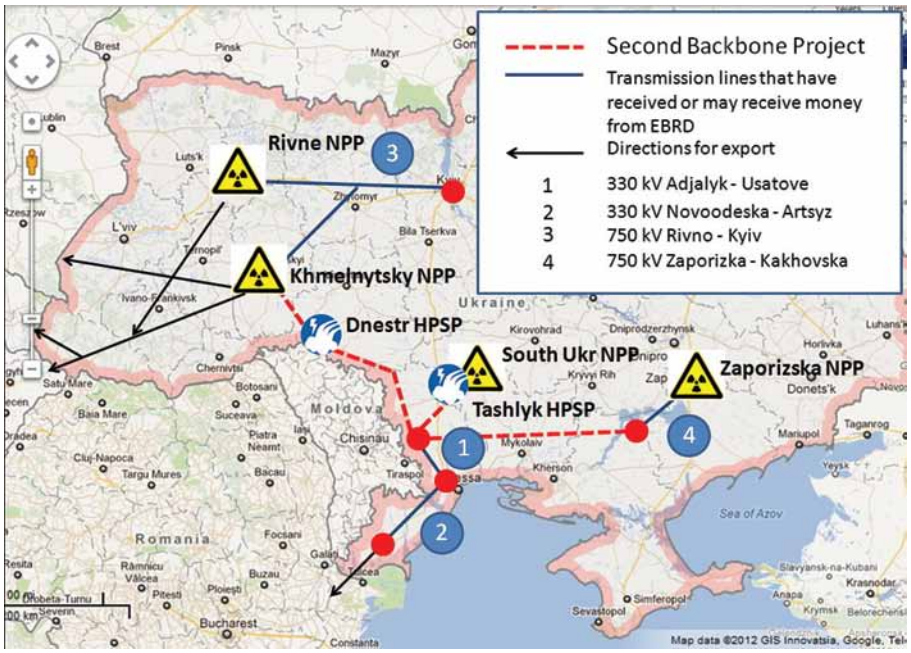
Second Backbone Project (EBRD, EIB) and Nuclear Power Plants Safety Upgrade Project (EBRD, Euratom)

In 2005 Ukraine and the EU signed a Memorandum of Understanding on co-operation in the field of energy,[21] according to which "the EU and Ukraine share convergent interests and both could benefit from the integration of their respective energy markets, thereby enhancing the energy security of the European continent." In 2010 Ukraine became a member of the Energy Community of Southeast Europe.

Between 2005 and 2010 the EBRD and the EIB invested approximately EUR 650 million in a number of high voltage transmission line projects (Rivne-Kiev[22], Ajalyk-Usatove[23], Zaporizhya-Kakhovka[24]) developed by the Ukrainian state-owned utility Ukrenergo. The EBRD claims that these transmission line projects aim to "increase the overall stability of the grid system in Ukraine, as well as the quality, efficiency and reliability of the electricity supply in the Odessa and Kyiv regions".[25] In 2010 the EBRD indicated its interest in supporting the "second backbone" ultra high-voltage corridor[26] (total approximate cost EUR 2.6 billion) that is to connect the substations at Kakhovska and Primorska with the Dnistrovska pumped storage plant and the Khmelnitska nuclear power plant (NPP).

The NIF is also actively involved in the process of upgrade and construction of high-voltage transmission lines in Ukraine, as well as in the development of other transit energy infrastructure. The grants for such types of projects count for 54 percent of all financing from the NIF in Ukraine[27]. Looking at Map 1 below, it is apparent that once all of the planned transmission line projects are completed, a continuous 750 kV transmission corridor over 1000 kilometres in length from east to west will connect three Ukrainian NPPs (totalling twelve nuclear reactors) and two hydro pumped storage plants, enabling their physical connection with the EU. According to the Ministry of Energy and Coal Industry of Ukraine no imports of electricity are envisaged up to 2030, so there is no doubt about the export orientation of the projects[28].

Map 1. Ukrainian transmission lines for export.



According to the banks, these projects will also contribute to reducing CO2 emissions and will help foster the development of renewable energy sources. At the same time no renewable energy roadmap exists for Ukraine[29], although it was promised almost seven years ago when the Ukrainian government signed a Memorandum of Understanding on co-operation in the field of energy with the EU in 2005. So it is difficult to imagine how transmission lines that were planned 20 years ago as part of the nuclear infrastructure can contribute to the development of renewable energy sources when no-one even knows where most of the renewables facilities will be located. In this context the Ukrainian Energy Strategy up to 2030 (adopted in 2006),[30] which that indicates that the "second backbone" and the Rivne-Kyiv-Donbass (the "first backbone") corridors will "create conditions for the integration of the Ukrainian grid into the European network and significantly increase electricity exports"[31] sounds more realistic.

According to the same Energy Strategy, Ukraine plans to become a major electricity exporter to Europe. Currently Ukraine exports electricity to the EU only from the Burshtyn Energy Island, which is connected to the EU network, while exports from other power plants (including nuclear) are limited because of a lack of necessary infrastructure. The Government of Ukraine has ambitious plans to increase electricity exports from to 25 TWh in 2030[32] (in 2010 Ukraine exported 4.2 TWh).[33]

There are several aspects of this plan that raise serious concerns. In the next ten years, ten out of fifteen nuclear reactors in Ukraine will reach the end of their designed lifetime and are to be closed and decommissioned. The Ukrainian government, instead of collecting funds for decommissioning, decided in 2004 to approve a plan to extend the lifetime of reactors[34] for another 10-15 years. Old, worn-out equipment needs to be refurbished and replaced, and modernization measures are envisaged within the Complex (Consolidated) Nuclear Power Plants Safety Upgrade Program (NPP SUP).

In 2010 the EBRD and Euratom announced their intention to finance the NPP SUP. The EBRD describes the aim of the programme as "safety upgrades only, at all 15 operating nuclear power units in Ukraine to bring them in line with internationally accepted safety standards and the Ukrainian requirements."[35] It is a seven year programme with a noble objective: safety upgrades, but these upgrades will enable Energoatom, Ukraine's state operator of NPPs, to prepare old reactors for lifetime extension. However, ample evidence supports the idea that when operating nuclear reactors beyond their intended lifespan, the number of incidents rises sharply with the age of the units.[36] Although the EBRD denies its involvement with the lifetime extension of the reactors, the Ukrainian side has no problem with admitting that the measures from the EBRD project are a necessary component of lifetime extension.[37] The other part of the problem is that Ukraine's nuclear electricity is perceived to be cheap. The tariff is kept low (currently at about 2 euro cents) by the National Electricity Regulatory Commission and covers neither safety upgrades and modernization costs, the management of radioactive waste, nor the full cost of decommissioning.

The second major concern is the impact on CO2 emissions levels. Currently Ukraine has excessive electricity generating capacities, though mostly old and outdated[38]. Due to the fact that priority to work as base load capacities is given to nuclear plants, many of the country's thermal power plants (TPPs) stand idle, thus do not emit. This would change and emissions would increase rapidly as soon as exports from these TPPs become technically possible. This will happen as soon as the "second backbone" transmission corridor becomes operational and Ukraine's energy grid is synchronized with the European Network of Transmission System Operators for Electricity (ENTSO-E).

It is planned to extend the lifetime of old NPPs, but no new units will be built until at least 2020. NPPs produce about half of all the electricity in the country, and despite the claims of Energoatom, even with new transmission lines they will not be able to produce substantially more than they do now[39]. The capacity of lines under construction opens a much wider "window" for electricity exports than the nuclear industry in its current state can provide. This means that part of the electricity for export should be generated by other types of generating capacities and, in the case of Ukraine the only candidates for this are thermal power plants. In the Energy Strategy of Ukraine an increase in electricity generation from TPPs is indicated, from 33.5 GWh in 2005 up to 180.4 GWh in 2030. It is also worth mentioning that a significant number of the TPPs are or are supposed to be privatized, i.e. all the export revenues might go to private companies while the infrastructure for transmission will be built at public expense. DTEC, one of Ukraine's biggest private energy companies that owns TPPs, is already exporting electricity to EU member states, and for 2012 has new contracts signed with EDF (France) and CEZ (Czech Republic)[40].

If all these programmes and projects are implemented, by 2030 Ukraine will be producing by 58 percent more CO2 emissions[41] (compared to 2005), will accumulate piles of spent nuclear fuel, as well as increased foreign debt. At the same time it is not guaranteed that the Ukrainian public will benefit, as the lion's share of revenues from exported electricity is liable to end up in private accounts (so far it is private companies that are involved in electricity export). At the same time, Ukraine will have an increasingly ageing fleet of nuclear reactors, right on the doorstep of the European Union.

As well as the overall purpose and impacts, the implementation of the projects is also of concern and does not appear to fulfill EU requirements. According to the EBRD's project procurement notice, an environmental impact assessment of the NPP safety upgrade programme should have been done in line with the requirements of United Nations Economic Commission for Europe (UNECE) Strategic Environmental Assessment (SEA) protocol and the EU SEA Directive[42] to follow the best practices in the field. The ecological assessment carried out by Energoatom lacks a number of important principles of an SEA[43] – eg. it is misleading regarding the programme's objectives and lacks assessment of decommissioning plans for reactors, and therefore cannot be a basis for decision-making on this particular project.

It is also important to note that the process of extending reactor lifetime is already underway, which appears to be in violation of the requirements of the Espoo Convention. In 2010 the Ukrainian government prolonged the lifetime of Rivne-1 and Rivne-2 NPPs without consultations with neighbouring countries Poland and Belarus and the Espoo Implementation Committee is currently examining whether a violation has taken place in this case.

Regarding transmission lines, the state company Ukrenergo is considering constructing one of the lines (330 kV Novoodeska-Artsyz transmission line, financed by the EBRD)[44] right across a natural area of international importance. These meadows are protected under the Ramsar Convention as site 3UA007 – Northern Part of Dniester Liman (estuary). The area forms a significant part of the wetland ecosystems of the Pan-European Ecological Network. Alternatives to the project were not properly considered during the project appraisal process.

Georgia – an electric plug for Turkey and Europe

Paravani HPP (EBRD), Black Sea Transmission System (EBRD, EIB, KfW, NIF)

As a country with a predominantly mountainous landscape, rich water resources and a strategic geographical position, Georgia is striving to maximize these attributes and become a regional energy hub.[45]

Although the "Main Directions of State Policy in the power sector of Georgia" (2006)[46] indicates energy independence, energy efficiency and the development of the most progressive technologies as the most important long-term objectives, in reality the Georgian government is focused mainly on the option of exporting electricity. The government is promoting the construction of new large and medium-size HPPs with an overall installed capacity of up to 3000 MW, (despite the fact that country has overcapacity and fully covers its internal demand[47]) as well as the construction of high-voltage transmission lines. The international financial institutions, such as the World Bank, the EBRD and the EIB, are providing support for these projects. Most notably in this context, in the EBRD's portfolio for Georgia export-oriented projects in the power and energy sector account for approximately 86 percent[48] of all energy projects since 2006. Meanwhile neither the EBRD nor the EIB have ever financed any project in Georgia solely concentrating on energy efficiency[49].

One example of an EBRD project is the Paravani hydro power plant. In June 2011 the EBRD signed a USD 49 million (project and equity) loan for the Paravani HPP. With total project costs of approximately USD 160 million, it is an 86 MW run-of-river facility with a derivation tunnel. The Paravani HPP has numerous social, environmental and economic deficiencies. The construction of this HPP will lead to the physical destruction of the ecosystem of the river Paravani as up to 90 percent of its water will be diverted to the river Mtkvari upstream of the Khertvisi village. It also has the potential to lead to the disastrous flooding of Khertvisi village, thus putting at risk the very livelihoods of the local community.

In its efforts to attract foreign investors, the Georgian government tries to make their life as easy as possible, including by: "optimization of all types of licenses and permits and simplification of

the procedure for their issuance[50]." It is perhaps because of this that there is no indication either in the Memorandum of Understanding (MoU)[51] between the project sponsor (the Turkish-owned Georgian Urban Energy) and the Government of Georgia or elsewhere about where responsibility lies in case of flooding. Only in the official Environmental and Social Impact Assessment is it mentioned that "if negative impacts are observed" the project sponsor will start to develop measures to mitigate them[52]. This would appear to allow for flooding taking place and only subsequently will something be done, though it is not clear at whose expense.

The rationale for the construction of this greenfield project is rather dubious as there is no strategic development plan for Georgia's energy sector, so a broader picture of the country's energy balance is not available. However, the rehabilitation of existing HPPs (for example, Vardnili HPP cascade, Enguri, Lajanuri and many others)[53] alone would increase the capacity of the currently operating dams by more than 500 MW,[54] more than five times as much as the construction of Paravani HPP would provide. Moreover there is great development potential for small hydropower, new renewables (wind power of about 1500 MW[55]) and energy efficiency measures.

As for the Paravani HPP project's economic feasibility, the project's ESIA report states that in addition to generating USD 36.6 million per year for Georgia,[56] the project will decrease electricity imports in winter and will help to improve the country's balance of payments. However, given that the project will use a BOO (Build-Operate-Own) scheme, it is not clear how generated income will end up in the state budget rather than benefiting the private Turkish company.[57] According to the contracts and MoU[58] signed between Georgia's Ministry of Energy and potential investors, neither bonuses, royalties or compensatory free electricity for the state from the HPPs are foreseen. The state budget will receive only the money from state taxes[59] on the project. Even if the project sponsor sells the electricity to Georgia during the winter months, it has the right to negotiate the tariff up to the price of thermal generation. Although it may be argued that the investor is taking the financial risks and can therefore take the rewards as well, this view overlooks the fact that it is local people who are taking the real risks, being exposed to greater flooding on the river Mtkvari and water shortages on the River Paravani.

Moreover, in the winter the River Paravani is often frozen, so it may turn out that the electricity produced in winter will be significantly less than estimated, and thus not decrease the deficit of the energy system, making the justification of the project for Georgia's electricity needs even less convincing.[60]

It should also be mentioned that the Georgian government is attempting to present the Paravani HPP, as well as a number of other large HPP projects with potential EBRD participation (Khudoni, Namakvani, Oni HPP Cascade, and Namakvani), as being eligible for the Clean Development Mechanism under the Kyoto Protocol.[61] It is claimed that the Paravani HPP can provide about 130,000 tonnes of CO2 reductions per year. While this may be true for derivative types of HPP like Paravani that do not require reservoirs, for large hydro projects such as Namakhvani that would have a reservoir of over 900 hectares, the methane emissions will be significant as Georgia covers subtropical areas.[62]

Another area of concern is transmission lines. In 2009 the EBRD signed a loan for the EUR 260 million Black Sea transmission line project.[63] The project is being co-financed by the German development bank KfW with EUR 100 million (a EUR 75 million loan plus a EUR 25 million grant), the EBRD and the EIB have earmarked EUR 160 million (an EUR 80 million loan each), and the NIF has provided a EUR 8 million grant for project preparation.[64] The aim of the project is the rehabilitation and construction of a *"315 km high voltage grid connecting the Georgian and Turkish power networks, to connect the power grids of the Southern Caucasus countries and increase electricity exports to Turkey and Europe, while bolstering energy security in the region."*

According to the documentation the project will increase domestic grid reliability, something that does need to be addressed, and it would also give Georgia the possibility to address the issue of excess water from already operating dams in the summer months.

The new line would have a capacity of up to 1,000 MW, excessive for Georgia's current demand, but pertinent in the face of increasing investment. The Georgian government hopes to export existing excess electricity outside of Georgia. It is expected that by 2018 the big HPPs will have been constructed, and that this line would then be fully utilized.

Unlike a number of planned HPPs such as Khudoni, Namakhvani and Adjaristskali, the Black Sea transmission line project is a public sector project, so that all the burden of loan repayments will fall on the state budget. Thus, the electricity produced by Georgia's new large HPPs will be exported to Turkey, while the revenues will go to the private owners of the HPPs (who have already been promised that they will receive the land for construction and permanent use for a symbolic USD 1[65]). While Georgian taxpayers will pay for this costly electricity transmission line infrastructure, Georgia will rack up increased foreign debt and will have to contend with a depletion of its water resources, endangered cultural heritage, potentially catastrophic floods and the erosion of its Black Sea coast as the consequences of unsustainable development of hydropower plants.

The Georgian authorities, then, are doing their utmost to attract foreign investors, in particular to the energy sector. However, it appears that these efforts will result in great costs. In the case of the Paravani HPP, the Turkish company is receiving land for a symbolic price, not to mention the revenues from generating capacities, while the Georgian state is likely to receive social tension, possible floods, the destruction of natural sites and benefits only in the form of low taxes.

The benefits of attracting foreign investment in this way are far from clear. In order to ensure the development of Georgia's power sector in a sustainable way, what is needed is: a strategic development plan of Georgia's power sector to address the ways in which existing electricity demand can be satisfied using existing potential and technological options; addressing the issue of existing dams[66] as well as developing the most sustainable solutions for the sector; ensuring inflows for the country budget, and; presenting a cost-benefit analysis of these alternatives, along with a cumulative impact assessment of the planned projects.

How the Western Balkans' renewables potential may be eaten up by Italy

Montenegro: Lastva-Pljevlja transmission line (potentially financed by the EBRD)

Italy has big plans to import electricity from the southeast European countries, and it is receiving support from international institutions such as the European Commission and the EBRD to do so. Much of this electricity would come from renewable energy and large[67] hydropower.[68] However, while the deals being struck across southeast Europe are being hailed by their proponents as a great way to generate income from clean energy, independent media and civil society organizations across the region are less impressed, citing environmental damage, irregularities in the deals struck, and damage to the region's ability to meet its own renewable energy needs and reduce its CO2 emissions.

Of course Italy is not the only country involved in energy imports from southeast Europe. Almost all southeast European countries have declared their intentions to remain or become energy exporters, with destinations including Greece and central Europe. However the Italian case is currently attracting a great deal of attention because of the new greenfield infrastructure it would require and the lack of transparency of the deals struck so far.

By 2020, according to its EU targets, Italy's share of renewable energy in gross final energy consumption must reach 17 percent. By 2009 it had managed just 8.9 percent.[69] According to the country's Renewable Energy Action Plan, taking the efficient scenario as a reference point, this means that in 2020 the final consumption of renewable energy must be 22.62 Mtoe.[70] Part of this will be made up by imports of energy from sources deemed renewable, mainly hydropower, as follows:

Country	Start of imports	TWh from RES/year	Mtoe from RES/year
Switzerland	ongoing	4	0.344
Montenegro and Balkan states connected to the Montenegrin network	2016	6	0.516
Albania	2016	3	0.258
Tunisia	2018	0.6	0.052

Source: Italian Ministry for Economic Development: Italian National Renewable Energy Action Plan, 30 June 2010

Disproportionate amounts of electricity to be exported

While the proportion of Italy's total renewables requirement may not be very large, for the small countries of southeast Europe the figures mentioned above are huge. Assuming that the imports will comprise electricity only, it is worth bearing in mind that Albania in 2009 produced only 5.3 TWh of electricity[71] *in total* – in other words, **Italy intends to import the equivalent of more than 2/3 of Albania's 2009 production**. This is all the more alarming when we consider that Albania is very reliant on energy (including electricity) imports, and that 2009 was a "good year" for Albanian electricity generation. The country is extremely dependent on hydropower and has to import electricity in (increasingly frequent) dry years such as 2008 when Albanian electricity generation yielded just 3.8 TWh of electricity – not much more than Italy now wants to import annually.

At first glance, 6 TWh from other Balkan states[72] does not look such an alarmingly high amount. Bosnia's electricity production in 2009 was 15.7 TWh, while Serbia's was 37.4 TWh.[73] Montenegro produced around 2.7 TWh,[74] and suffers from an electricity deficit. However, it is worth bearing in mind that both Bosnia and Serbia are currently very dependent on coal for electricity production. Of Bosnia's 15.7 TWh in 2009, 9.4 were from coal, while of Serbia's 37.4 TWh, 26.9 were from coal.[75] This means that as they attempt to make a transition to renewable energy and become subject to EU targets during the coming decades, exporting the electricity from their renewable resources may not prove to be such a wise idea.

In addition, most of the planned projects for export so far involve hydropower, a useful resource in stabilising the energy supply. The International Energy Agency agrees that electricity exports to Italy involve risks: *"This approach could lead to a drain of capacities (particularly peak hydropower) to the Italian market and create instability in the regional Western Balkans market. Supply is already relatively tight in the region due to the closure of capacities due to obsolete equipment/facilities or for safety requirements (e.g. the EU-Bulgaria agreement to shut down two nuclear reactors at Kozloduy in December 2006); a further drain on capacities would risk driving prices up. Summer droughts have also reduced hydropower generation over the past few years. In winter months, high use of electricity for space heating in the Western Balkan region has led to increasingly high peak demand levels, adding major stress to the electricity systems."*[76]

A further cause for concern is that Italy may in reality choose to increase the amount of imported energy, although not necessarily from renewable sources. This is because, until 2011, it was planning to relaunch the use of new generation nuclear power as part of its strategy to reduce its high dependence on fossil fuels.[77] However a national referendum in June 2011 put a stop to this approach. Thus lignite plants such as Kolubara B in Serbia, which are supposedly planned for domestic consumption, may end up exporting energy to Italy.

Where exactly in the Balkans is the electricity expected to come from?

Unfortunately the Italian government has not yet been so transparent as to lay out a comprehensive plan regarding how it intends to import electricity from the Western Balkans and which generation facilities are involved, so the information so far has dripped out bit by bit in relation to specific agreements signed and projects launched.

Montenegro has so far been at the centre of the plans, due to its importance in getting the electricity to Italy via an undersea cable planned to run from Tivat in Montenegro to Pescara in Italy. In December 2007 the respective Montenegro and Italy Ministers of the Economy signed an agreement to start a working group with representatives of the Italian energy transmission company Terna,[78] and Montenegrin national energy provider, Elektroprivreda Crne Gore (EPCG), to examine the possibility of laying an undersea energy cable. In March 2009 then Italian Prime Minister Silvio Berlusconi visited Montenegro and announced ambitions for Italy to become one of Montenegro's top investors. As the Balkan Insight media outlet has pointed out, at the time Italy was not among even the ten largest investors in Montenegro, but a year later it was number one.[79] Italian utility company A2A won a tender for shares in EPCG in a procedure that was criticised by a disqualified Greek competitor, while Terna was able to gain shares in transmission company Crnogorski elektroprenos (CGES), without a tender at all, due to a law passed especially for the undersea cable.[80] As a result of its shareholding in EPCG, A2A has also been involved in the Moraca Canyon HPPs cascade. Both of these projects have been highly controversial.

The plans to build four hydroelectric plants in the Moraca Canyon have been the subject of a civil society campaign for several years due to the environmental damage it would cause, along with its questionable economic benefits for Montenegro. The World Bank Group's International Financial Corporation (IFC) was involved in providing technical assistance for the project preparations, but in spite of this the project suffered a massive setback on 30 September 2011 when the tender closed unsuccessfully, having received no bids from the previously qualified companies, Enel from Italy and EPCG. It is now unclear whether the project will be abandoned or whether a direct concession will be awarded to A2A/EPCG. The latter option has drawn criticism as the possibility of the government awarding the concession directly to A2A/EPCG should the tender fail had already been included in a Memorandum of Understanding (dated 4 August 2011) between the government and A2A,[81] thus giving A2A every incentive to ensure the failure of the tender. It is questionable whether such deals are in line with EU procurement law.

The EUR 760 million[82], 1000 MW Tivat – Pescara cable promoted by Terna, supposed to be completed by 2015, has also faced problems. Designed to run for 390 kilometres under the Adriatic Sea with an additional 25 kilometres onshore, the costs are mostly to be covered by Terna, with Montenegro to contribute approximately EUR 100 million.[83] It is estimated that Italy will save EUR 225 million a year by importing cheaper energy from Montenegro and its neighbouring countries through the cable, while Montenegro hopes to earn EUR 10-40 million annually. Montenegro and Italy signed the final agreement on the laying of the cable on 23 November 2010. Just one day later the Italian daily "La Repubblica" announced that a corruption investigation related to Terna's submarine cable was ongoing. No results appear to have been reached so far. The watchdog organization MANS has gathered evidence that the undersea cable deal between Montenegro and Terna was not conducted in the public interest and mostly favoured Terna, and has submitted a request to the Montenegro public prosecutor to start an investigation into the deal.[84] Local opposition also arose on the Italian side in Pescara, and a construction permit for the project that had already been issued by the local authorities was initially annulled,[85] although it was finally issued in 2011.

In order to bring the electricity to the cable, CGES is planning to construct a EUR 105 million overland transmission line from Pljevlja in northern Montenegro to Lastva on the Montenegrin coast. Around EUR 50 million of the financing is planned to be provided through a loan from the EBRD.[86] Although pointing out that the transmission line will stabilize the Montenegro electricity network, the bank makes no secret of the project's main "advantages":

- *"it will link the electricity markets of Italy and South Eastern Europe, providing a significant stimulus for regional integration and facilitating market liberalisation.*
- *it will provide an opportunity for the development of renewable energy in the region and for EU member states to meet their targets for renewable energy through the purchase of this energy.*
- *it will strengthen the Montenegrin grid, especially in the overloaded costal region, and create a 400kV ring in the Montenegrin network. It will thus improve energy security for Montenegro and its neighbours and increase the opportunities for electricity flows within the Balkans."*[87]

The transmission line, like the undersea cable, is already controversial within Montenegro, as it is planned to cross two national parks, Lovcen and Durmitor, as well as a precious Mediterranean salt meadow habitat due to be protected under Natura 2000[88], and is barely present in any of the relevant spatial planning documents.[89] The compensation measures mentioned in the project Environmental Impact Assessment for the Mediterranean salt meadow habitat are extremely vague and it is unclear that they would ever really be carried out, while the study does not even list non-bird species that would be affected by the transmission line's route through the National Parks. Such a vague analysis cannot be considered enough to properly fulfill the requirements of the EU Environmental Impact Assessment Directive[90] nor the Habitats Directive.[91]

Pljevlja may seem like a rather strange centre for exporting renewable energy as Montenegro's only thermal power plant is situated there. This points to the problem that once the infrastructure is built Italy may be interested in importing dirty energy from plants like Pljevlja or Kolubara B in Serbia as well as that from renewable resources and large HPPs. This would not help Italy to meet its renewables quota but it may save Italian companies from having to pay for Emissions Trading Scheme permits for as long as the Western Balkan countries are not members of the EU.

However Pljevlja is also the centre of the already existing transmission infrastructure in Montenegro, and its location in the north of the country also makes it an ideal spot for transmitting electricity generated in Bosnia and Herzegovina, particularly from the River Drina on the border with Serbia.

Serbia and Bosnia and Herzegovina are the other two main expected sources of electricity exports through Montenegro. During recent years the Serbian government has signed a series of agreements with the Italian government and Seci Energia S.p.A. agreeing to jointly develop HPPs on the Drina and Ibar rivers, with the Italian side committing to buy the electricity for EUR 155 per MWh, one of the highest tariffs in Europe according to the Serbian Ministry of Infrastructure and Energy.[92] It is not clear why Italy has agreed to pay so much. An agreement was also signed in 2009 on ensuring certificates of origin of the generated energy in order to be eligible to be considered renewable energy in the EU.[93]

Ten hydroelectric plants are planned on the River Ibar (cost EUR 270, 84.2-103 MW installed capacity, 418 GWh annually), along with one of 140 MW on the River Sava at Kupinovo, 500 MW of wind power and an unspecified amount of small hydro and other renewables in unspecified locations, with investors to be determined through "regular procedure".[94] On the Drina, three plants (Dubrava, Tegare and Rogacica) with about 321-265 MW installed capacity are planned, with 1197 GWh annual production and an investment cost of EUR 819 million.[95] As part of the River Drina forms the border between Bosnia and Herzegovina and Serbia, the agreements on the Drina have also been signed with the government of the Republika Srpska entity of Bosnia. However, this has caused political disagreements as decision-makers from the Federation of Bosnia and Herzegovina entity say that the hydro plants cannot be built without agreement at the state level.[96]

The Ibar and Drina plants are also extremely controversial for other reasons. First, there is no sign that there was a public tender for these projects. Also, although Seci Energia is part of the long-established Maccaferri Group, it seems that it is not experienced in building hydro plants. Thus, suspicions of corruption in the deals are rife.[97]

Second, the impact on biodiversity and landscapes is likely to be severe, and some of the projects are likely to face strong public opposition. The River Drina, for example, is stunningly beautiful with beautiful clear blue-green water, rich biodiversity and high tourism potential.

These are just two of the dozens of HPPs planned in Serbia and Bosnia and Herzegovina. It is beyond the scope of this paper to go into the details of all of these plants, and these two have been highlighted here due to the widely publicised export focus. In other cases, such as the Ulog HPP on the River Neretva (for which the EBRD is also reported to be considering financing[98]), export is mentioned as a possibility in project documents but never clearly stated as a goal.[99]

Albania

The Moncada Energy Group from Italy is constructing what is planned to be Europe's largest onshore wind farm around the Albanian coastal city of Vlore.[100] With part of the 500 MW wind farm to be sited on the pristine Karaburun peninsula, and the electricity destined for export to Italy, the plans are highly controversial. The same company plans a 400 kV power cable from Vlore to Brindisi in Italy.

Croatia

Italy's Renewable Energy Action Plan also mentions the possibility of a further 380 kV undersea cable from Konjsko near Split in Croatia to Candia (Ancona) in Italy.[101] However, other than the carrying out of feasibility studies,[102] it is not clear whether these plans are progressing. Croatia is not self-sufficient in electricity, so exports seem relatively unlikely any time soon, but like all other countries in the region it nevertheless has ambitions to become an electricity exporter.

Why energy exports between states with unequal environmental and safety standards can be damaging, both for the exporter and importer

For a number of reasons (CO2 emissions reduction obligations, the decommissioning of nuclear generation units, the alleviation of dependency on gas imports, etc) the generation of electricity in EU countries from traditional sources is facing limits. The EU is looking for ways to meet energy demands in its member states, and one of the apparently attractive options is to increase electricity imports from neighbouring states. The EU and the European IFIs are financially supporting the construction of necessary interconnections (such as transmission lines and underwater cables) as well as the construction of new or the lifetime extension of old power generating capacities.

Although interconnections between countries are a standard, accepted way of stabilizing electricity supplies, caution needs to be applied when the country producing the electricity does not have adequate environmental standards in place, does not apply meaningful public participation procedures, does not have adequate safeguards against corruption, and has not developed its own renewable energy resources. Such imbalances turn the widely accepted practice of cross-border electricity transfer into what can more appropriately be termed an "energy grab", with a number of environmental, social and economic consequences that are left to be dealt with by present and future generations.

In its race to report good numbers on CO2 emissions cuts, the EU is ready to finance infrastructure that will import electricity generated at old nuclear power plants in Ukraine, however practice shows that nuclear energy is neither cheap nor safe.

The myth of affordable nuclear energy has been created by governments and companies looking only at the costs of operation, not at the lifetime costs. The low electricity prices promised to European consumers by Ukraine do not include externalities such as nuclear waste management and decommissioning of old nuclear units. Those expenses will be covered by Ukrainian taxpayers in the form of subsidies from the budget to the nuclear industry.

The Ukrainian nuclear operator is not properly insured to cover liabilities in case of a nuclear accident. The "safety upgrade" of old nuclear reactors will lead directly to their life-time extension, while what is needed is their decommissioning. Wind carrying radioactive contamination does not distinguish between countries that import nuclear electricity and ones that do not. Too fast the EU has forgotten how farmers as far away as the USA (8 000 km away from Chernobyl), as well as many in Europe, had to throw away their milk because of radioactive contamination as a result of the Chernobyl accident in 1986. Brussels is only 2 000 km away from Kiev.

Apart from an additional burden for ordinary people in Ukraine, further support for the nuclear industry will only lead to an increase of the country's dependence on Russia, as Ukraine does not have its own full nuclear cycle. In fact Ukraine has only some minor deposits of uranium, but all the processing is done in Russia. Nothing prevents Russia from blackmailing Ukraine (and consequently Europe) with by temporarily halting nuclear fuel delivery.

Moreover the export plans of Ukraine will lead to a considerable increase of CO2 emissions of the country (by 58 percent by 2030), due to the fact that additional electricity to cover domestic consumption will be generated at coal thermal plants. In this context the idea of electricity exported from Ukraine is even more controversial. It is not sustainable in any way. On one hand it will create a potentially hazardous situation with old reactors operating over their designed lifetime,

and on the other the very practical problem of spent nuclear fuel and waste, all at the same time as aggravating climate change. So why not import renewable energy? In an era when reducing greenhouse gas emissions is one of the most important overarching policy goals, it may seem indulgent to criticize large hydropower and renewable energy projects like in Georgia and Western Balkans. However there are some major catches here.

First, undersea cables and transmission lines do not distinguish between dirty and clean energy. Although the hydropower from the Balkans will have to be certified to meet EU requirements, once built any other electricity which Italy is willing to pay high enough prices for can go through the cable(s) as well, depending on the line's capacity. This means that the construction of undersea cables will stimulate the continued operation of – or even construction of – thermal power plants in the region as well as renewables and large hydropower. While Italy is most likely to be more immediately interested in renewable energy and large hydro in order to fulfill its EU 2020 targets, obtaining additional cheaper electricity from no matter what source is also likely to be attractive, as there is still a large portion of Italy's electricity needs not subject to obligations to be from renewable sources for another 20 to 30 years.

Second, while climate change rightly grabs the headlines, biodiversity loss represents an equal challenge. The EU has committed to halt biodiversity loss by 2020,[103] but this will be an enormous challenge. Southeast Europe and Georgia have rich biodiversity and clear rivers that people in many countries can only dream of. Yet they appear intent on destroying valuable natural areas and increasingly scarce sources of clean water, as well as beautiful landscapes, in order to build HPPs and other infrastructure that are not even for their own use. Climate fluctuations in southeast Europe have also already had a heavy impact on water levels in the region's rivers during the last few summers and made hydropower noticeably less productive than previously.[104] New renewables are definitely much needed in the Balkans, as elsewhere, but without good planning and restrictions on siting and the size of projects, such moves will lead to widespread environmental destruction.

Third, the southeast European countries need to develop renewable energy for themselves, not to sell it to others only to discover later that many of the potential sites have already been developed and that the remaining sites are less productive. While some of the sites mentioned above are in our opinion too environmentally sensitive to build energy infrastructure at all, there is clearly high potential in the region, particularly for appropriately sited wind, solar thermal, solar photovoltaics and less developed renewables such as biogas, and these need to be developed in order for southeast Europe not to fall even further behind in the development of local capacity for the development of renewable energy. As gas and oil prices continue to be unstable, the development of renewable energy is not just a matter of fulfilling EU targets but is a matter of economic necessity. However, if they concentrate on exporting renewable electricity (for a higher price than domestic consumers would pay), as long as these countries are not EU members they will most likely rely on fossil fuels for domestic consumption, thus simply leading to the displacement of emissions rather than their reduction – a process known as "carbon leakage".

Making short-term moves with long-term disadvantages is often justified by the need for income, attraction of foreign investments, and development of the energy sector. At first sight the projects mentioned above look set to generate much-needed income for national budgets. However, while some concrete numbers (EUR 155 per MWh[105] promised by Italy to Serbia for hydropower energy, EUR 10-40 million of income annually[106] from the Italy-Montenegro cable or USD 36.6 million per year from Paravani HPP) are quoted in the media or in agreements, there has been remarkably little public debate in Georgia or Ukraine about what these numbers really mean, although electricity production has become an increasingly hot topic in Montenegro in recent months. Exactly how much of this will end up in state or local budgets, how much will simply go to private investors, and where will the rest of the money end up? The situation in Georgia shows vividly the problem: a foreign investor gets the land almost for free, builds environmentally and socially harmful infrastructure, generates electricity for export, and pays income tax of only 12 percent to the state budget.

Private investors putting their capital into construction projects expect high returns due to the risk they take. However, government officials are rarely so insistent on obtaining returns consistent with the risks to the environment and local people that the projects often entail. Due to the lack of public discussion and disclosure of documents concerning these projects it is mostly unclear what

the detailed conditions of the deals are. In Ukraine the ratio of income and covering of externalities will never be balanced. Such crucial elements as storage of nuclear waste and decommissioning will never be included into the tariff, because they will automatically make the price uncompetitive. Instead of promoting and supporting truly sustainable renewable energy projects, distributed generation and consumption management, the IFIs often support national governments in squeezing energy and resources out of their respective countries.

The European Parliament has criticized the World Bank's promotion of large-scale and export-oriented energy models and has urged the bank to support alternative, small-scale, decentralized energy projects that take account of the needs of local communities and the economic realities of different countries, and to set specific targets and monitoring guidelines to ensure that energy lending benefits the poor.[107] It is therefore highly inappropriate that European public money – via the EBRD, the EIB and NIF – is still being used for the type of projects that have been criticized by the Parliament.

At the end of the day, such practices may lead to the transformation of the neighbouring countries into the "resource appendices" of the EU, with all the associated problems being shouldered by local people and future generations. As most of these countries also have ambitions to join the EU within the next few decades, these trends will also make their accession more difficult if, instead of selling their electricity to others, they do not start to develop their own renewable energy resources for local consumption.

Recommendations

To the European Commission

As it is far from clear that the current hydroelectric plans in Georgia and the Balkans and the Ukrainian nuclear safety project and transmission lines will be compatible with EU law, ensuring that projects for the import of energy from third countries are subject to all aspects of EU legislation – including procurement law and environmental legislation – would be a good start. This should be made a condition for the import of renewable energy as part of meeting EU targets. However, experience shows that this is not enough in practice to prevent the construction of environmentally unacceptable projects, as much rests on provisions such as the absence of better alternatives, which are easily subject to manipulation. The simple label "renewable energy" should not be an automatic green light: the devil is always in the details and it is up to the EU and the IFIs to pay attention to these details. The European Commission needs to do more to ensure that the growth in renewables leads to greater sustainability by adopting sustainability criteria for renewable energy projects.[108] The EU also needs to ensure that its policies – especially those as valuable and important as renewable energy targets – do not lead to undesirable results in neighbouring countries, such as the destruction of biodiversity, the inability to meet future renewable energy targets etc.

However the EU also needs to look wider than safeguard standards. In the long term all the countries covered in these case studies have aspirations of joining the EU, and will have to follow the bloc's decarbonisation agenda. This cannot happen if the EU imports energy from those countries, leaving them to cover domestic demand partly with fossil fuel resources. Thus the EU needs to examine all the consequences of its planned energy imports, and to develop planned trajectories of greenhouse gas emissions reductions for aspiring EU members up to 2050. Any financial support from the EU must be compatible with this trajectory and must avoid financing fossil fuel use in the neighbouring countries.

On Ukraine

The physical connection of the Ukrainian electrical grid with the ENTSO-E, is an important element of integration of Ukraine with the European Union and its markets. New transmission lines are needed to make Ukrainian grid compliant with ENTSO-E requirements but they should be designed to address regional and local distribution needs, to decrease losses and to provide sufficient output for the regions with high new renewable energy potential. The current high-voltage transmission line projects were developed more than 20 years ago and have always been an inseparable part of the nuclear infrastructure. Financing their construction means indirect support for the nuclear industry in Ukraine and a green light for exports of nuclear energy to the EU. **European money should not directly** (NPP Safety Upgrade) **or indirectly** (high-voltage transmission lines) **support the development of the nuclear industry** in Ukraine as it poses risk for the whole continent.

In particular special attention should be paid to the fact that the current ecological assessment of the NPP SUP is insufficient and does not fully elaborate the objectives and consequences of the SUP. The ecological assessment should have been done in accordance with the requirements of the United Nations Economic Commission for Europe (UNECE) SEA protocol and the EU SEA Directive[109] As the Ukrainian government prolonged the lifetime of the Rivne-1 and Rivne-2 NPPs without consultations with the neighboring countries Poland and Belarus and the Espoo Convention Implementation Committee is currently establishing whether there has been a violation in this case, corrective action may also need to be taken in this regard.

The EC should not approve the Euratom loan for the NPP SUP in its current form, as this may directly support the export of nuclear electricity from Ukraine. The Commission should insist that Europe's financial support to Ukraine's nuclear industry must be conditioned on a decrease in the number of old nuclear reactors in the country and shall in no case stimulate nuclear electricity exports plans. European public money must not be used for the lifetime extension of old nuclear reactors. With regards to renewable energy development, the European Commission should insist on a

more committed approach by Ukraine. In particular the development and implementation of the Renewable Energy Sources Development Roadmap needs to be speeded up and made coherent with the Energy Strategy of Ukraine until 2030, which is currently under revision. This roadmap is particularly required as it should define the most appropriate design of high-voltage transmission lines so that they really favour the development of renewable energy sources. At the same time the EC and NIF (as they provide grants for documentation) should pay special attention to the physical routing of the transmission lines in order to avoid protected natural areas.

On Georgia

Taking into account the aspirations of Georgia regarding EU membership, the EC should ensure that Georgia develops **a comprehensive long-term strategic plan of energy sector development** that includes a roadmap for energy efficiency and renewable energy and not only export and transit of electricity and oil and gas. As with the Western Balkan countries is the EC needs to ensure that future member states can reach EU long-term climate targets and biodiversity conservation targets.

On the Western Balkans

The European Commission should call for the renegotiation of Italy's Renewable Energy Action Plan and insist that Italy must meet its own renewable energy targets without importing from countries where EU environmental standards have not necessarily been adhered to. In this case the corruption allegations may also provide grounds for canceling the plans to import electricity from the Western Balkans. While Italy's financial situation certainly makes investment into renewable energy more difficult than usual, it also provides an opportunity to recalculate the country's energy needs for the coming years and to save on any portions of the financing for the undersea cable projects that are intended to be provided by the public sector in Italy.

If, on the other hand, the Renewable Energy Action Plan is not renegotiated, then the European Commission needs to take responsibility for the results of its policy and to ensure that: a) all corruption investigations are investigated thoroughly and that any deals found not to have been conducted through fair competition are annulled; b) a clear programme is produced by Italy detailing the projects that it intends to invest in and import from in southeast Europe in the coming years,[110] and c) that a Strategic Environmental Assessment is carried out by Italy on this programme, with opportunities included for stakeholders from southeast Europe to provide input.

The European Commission also needs to do more to ensure that the southeast European countries are aware of their coming obligations in terms of meeting renewable energy targets, decarbonising their energy sectors in line with the EU's 2050 climate targets, and halting biodiversity loss, and that they begin to plan for this immediately. The Energy Community of Southeast Europe, with the participation of the EU as well as countries of the region is the proper forum to start this process. A useful tool in halting biodiversity loss could be a biodiversity map of the EU accession and candidate countries including no-go zones where construction should not take place.

To the international financial institutions

When financing individual projects, the IFIs must pay more attention to the development component of their mandates. The prosperity of one country must not come about at the expense of others. Project assessments should be carried out with a wider lens in order to evaluate the project's likely influence on the future of the country. In the case of projects associated with nuclear electricity exports, all the associated problems and potential risks (such as issues of long-term treatment of spent nuclear fuel, cooling water availability, decommissioning) should be part of the assessment. The issue of importing nuclear energy is controversial in the EU, so it is important for the European Commission and the IFIs to openly and honestly state the main objectives of the planned projects and all the risks and benefits associated with them.

The banks should not use the "salami" approach in implementing projects because one relatively acceptable project in combination with other relatively acceptable projects can lead to highly damaging consequences in the longer term. For the Second Backbone Project and Nuclear

Power Plant Safety Upgrade Project in Ukraine a thorough Strategic Environmental Assessment (SEA) of the whole Ukrainian nuclear sector needs to be carried out and the final decision should be taken on the basis of its outcomes. In if the loan for the Nuclear Power Plant Safety Upgrade does not go ahead, and the old reactors are instead decommissioned, as they should be, the EBRD as an institution with experience in decommissioning of Soviet designed reactors is well positioned to participate in such a programme for Ukraine.

The same strategic approach should be taken regarding energy projects in Georgia. The IFIs must enforce a **moratorium on the funding of any large hydro** construction in Georgia until a comprehensive energy strategy is developed. The EBRD could provide policy advice in the development of the plan in accordance with best international practice based on wide public participation. In the meantime the IFIs can encourage the Georgian government and others to plan more carefully by not financing projects which have not been the subject of a satisfactory SEA. Until such criteria have become standard on the EU level, the banks should **develop their own sustainability criteria** for renewable energy projects in order to ensure that they are built only where environmentally acceptable, and ultimately to ensure public acceptance of important EU policies.

In the Western Balkans the EBRD should take a precautionary approach to possible financing for CGES' transmission line from Pljevlja to Budva due to its serious environmental impact and the unresolved corruption allegations hanging over some of the export projects. Although it has received relatively little coverage so far compared with the notorious undersea cable or the Moraca hydro plant, the bank needs to investigate the circumstances of Terna's shareholding in CGES, which – at the very least – does not appear to have followed the principles of fair competition. Similarly, the EBRD needs to avoid investing in export-oriented energy projects in south-east Europe until a programme has been produced by Italy stating exactly which facilities it plans to import energy from and been subject to a full SEA.

To governments in the neighbourhood and candidate countries

National governments need to start taking their responsibilities concerning sustainable energy much more seriously, as this would enable their fulfillment of the obligations that automatically apply to countries accessing the EU.

In Ukraine, priority needs to be given to developing energy efficiency and renewable energy, but at the same time safely closing old nuclear reactors and securing the means for their safe decommissioning. Transmission lines should be developed and built with a view to renewable energy development, and not to support the further development of the nuclear industry. The country needs to seriously tackle **demand management**, **rehabilitation of existing capacities** (excluding NPPs that should be decommissioned) **and measures against losses in the electrical grid**, rather than escalating production in an attempt to become a major electricity exporter.

Particular attention in all countries should be paid to the need to carry out decarbonisation in the coming decades – stipulated both by EU policy and climate science.

In Georgia the government needs to prioritize energy efficiency investments and the rehabilitation of existing HPPs, together with developing local new renewables for local needs. It must take a serious look at water basins as a whole, in line with the Water Framework Directive, and carry out research on all their functions including fresh water provision, irrigation and biodiversity before deciding on whether to build new HPPs, and if it does this needs to happen on the basis of transparent criteria, with meaningful public and expert participation. New generating capacities and in particular new HPPs should be built only as a last resort, and only after research on the expected impacts of climate change on the levels of production.

Footnotes

1 A highly contentious term which is often interpreted as security of energy supply for the prosperous economies of the EU, rather than real, long-term security that would enable us to avoid dangerous climate change and make a transition to an energy-efficient, new renewables-based economy.
2 Energy 20/20, pages 3-4 http://ec.europa.eu/energy/publications/doc/2011_energy2020_en.pdf.
3 Calculations on the basis of list of the signed power and energy projects from the EBRD database: Rivne Kyiv High Voltage Line Project (EUR 150 million), South Ukraine Transmission Project (EUR 175 million), Hydro power plant rehabilitation project (EUR 200 million) and the Ukrainian portion of the EnerCap private equity fund (EUR 2.5 million)
4 Nuclear Power Plant Safety Upgrade Programme, EBRD's PSD, available at http://www.ebrd.com/pages/project/psd/2011/42086.shtml, accessed 23.03.2012
5 "Problems of the coal industry in Ukraine and emissions of GHG as a result of extraction and consumption of coal", p. 24-5 http://climategroup.org.ua/wp-content/uploads/2010/06/Ukraine_coal-sector_web201011.pdf
6 See, for example, European Times: Minister Alexandre Khetaguri, undated, http://www.european-times.com/sector/energy-basic-materials/minister-alexandre-khetaguri; Maia Edilashvili: South Caucasus united by common electricity grid, ENPI Info Centre, 2010 http://www.enpi-info.eu/files/features/FT28%20east%20Georgia%20EN.pdf
7 Source: EBRD project database 1991-2011, available at: http://www.ebrd.com/pages/research/publications/flagships/annual.shtml
8 Some projects may have had an energy efficiency element.
9 Italian National Renewable Energy Action Plan (in line with the provisions of Directive 2009/28/EC and Commission Decision of 30 June 2009), http://ec.europa.eu/energy/renewables/transparency_platform/doc/national_renewable_energy_action_plan_italy_en.pdf
10 Communication from the Commission: European Neighbourhood Policy Strategy Paper, Brussels 12.05.2004, http://ec.europa.eu/world/enp/pdf/strategy/strategy_paper_en.pdf
11 The countries of the ENP region are: Algeria, Armenia, Azerbaijan, Belarus, Egypt, Georgia, Israel, Jordan, Lebanon, Libya, Moldova, Morocco, Occupied Palestinian Territory, Syria, Tunisia and Ukraine.
12 European Neighbourhood Policy, p.17 http://ec.europa.eu/world/enp/pdf/strategy/strategy_paper_en.pdf.
13 Energy 20/20, pages 3-4 http://ec.europa.eu/energy/publications/doc/2011_energy2020_en.pdf.
14 Basic Documents of the EBRD http://www.ebrd.com/downloads/research/guides/basics.pdf
15 Energy Operations Policy (As approved by the Board of Directors on 11 July 2006), p. 2
16 Energy Operations Policy (As approved by the Board of Directors on 11 July 2006), p. ix
17 Web site of the EIB, http://www.eib.org/about/index.htm, last accessed 30.03.2012
18 "Energy Security or Energy Grab?" Counter Balance submission for the public consultation on the external dimension of the EU's energy policy – http://www.counterbalance-eib.org/wp-content/uploads/2011/05/Energy_Security_Submission_CB.pdf.
19 Web site of the NIF, http://ec.europa.eu/europeaid/where/neighbourhood/regional-cooperation/irc/investment_en.htm, last accessed 30.03.2012
20 European Neighbourhood Policy, p. 18
21 Memorandum of Understanding on co-operation in the field of energy between the European Union and Ukraine http://ec.europa.eu/dgs/energy_transport/international/bilateral/ukraine/doc/mou_en_final_en.pdf
22 Rivne-Kyiv High Voltage Line Project http://www.ebrd.com/english/pages/project/psd/2007/37598.shtml. accessed 23.03.2012
23 Odessa High Voltage Grid Upgrade http://www.ebrd.com/english/pages/project/psd/2005/33896.shtml, accessed 23.03.2012
24 South Ukraine Transmission Project http://www.ebrd.com/english/pages/project/psd/2009/40147.shtml accessed 23.03.2012

25 See the project summary documents of the Odessa High Voltage Grid Upgrade and Rivne-Kyiv High Voltage Line Project
26 By publishing a procurement notice on its website – a standard sign that the EBRD is considering a project but has not yet approved the financing.
27 NIF website: http://ec.europa.eu/europeaid/where/neighbourhood/regional-cooperation/irc/nif_ukraine_en.htm, last accessed 27.03.2012
28 The response of the Ministry of Energy and Coal Industry of 14.03.2012, # 04/18-1430 to the request of National Ecological Centre of Ukraine.
29 The response of the State Agency on Energy Efficiency and Energy Saving of Ukraine of 16.12.2011, # 1275-01/10/4-11 to the request of National Ecological Centre of Ukraine.
30 Energy Strategy of Ukraine up to 2030 http://zakon.rada.gov.ua/signal/kr06145a.doc
31 Energy Strategy of Ukraine up to 2030, p. 30
32 Energy Strategy of Ukraine up to 2030, p. 25
33 Data of State Statistic Service of Ukraine, http://www.ukrstat.gov.ua/, accessed 23.03.2012
34 Complex Lifetime Extension Program for operating blocks of nuclear power stations, approved by Cabinet of Minister's decree from 29.04.2004. Available upon request.
35 NPP SUP http://www.ebrd.com/english/pages/project/psd/2011/42086.shtml, accessed 23.03.2012
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41 "Problems of the coal industry in Ukraine and emissions of GHG as a result of extraction and consumption of coal", p. 24-5 http://climategroup.org.ua/wp-content/uploads/2010/06/Ukraine_coal-sector_web201011.pdf
42 http://www.devex.com/en/projects/235147/print
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44 Issue Paper High voltage power lines, Ukraine, May 2009 http://bankwatch.org/documents/UkraineTransmission_IssuePaper_EBRD_AGM2009.pdf
45 According to the Ministry of Energy and Natural Resources, the first stage task is to ensure the harmonization of Georgia's energy system with that of Turkey, and to gain subsequently access to the South-East European market by 2015-2017 http://csrdg.ge/upload/editor/file/ENPI/dokumentebi/ENP%20Report%202010%20-Geo.doc
46 Resolution of the Parliament of Georgia on "Main Directions of State Policy in the Power Sector of Georgia" http://www.menr.gov.ge/common/get_doc.aspx?doc_id=6985
47 Electricity produced / consumed in Georgia (Total million KWh): 2011: 10 104.5 / 9 256.6; 2010: 9 220.2 / 7 619.8 http://www.esco.ge/index.php?article_id=94&clang=1
48 Source: EBRD project database 1991-2011 available at: http://www.ebrd.com/pages/research/publications/flagships/annual.shtml
49 Some projects may have had an energy efficiency component
50 Resolution of the Parliament of Georgia On "Main Directions of State Policy in the Power Sector of Georgia" p.4
51 A hard copy of the Memorandum of Understanding signed on 29.05.2007 is available upon request.
52 Paravani HPP Non-Technical Summary, p.9 http://www.ebrd.com/english/pages/project/eia/38940nts.pdf, accessed 23.03.2012

53 For example, the installed capacity of Vardnili I, located downstream of Enguri, is 220 MW, while the operational capacity is 110 MW; the 120 MW Vardnili II-IV HPPs are fully flooded and not functioning.
54 "The Khudoni Dam: A necessary solution to the Georgian Energy Crisis?"; Chapter 6 "Alternatives to Khudoni" calculated from table on p. 22, excluding Enguri which is already undergoing rehabilitation See: http://bankwatch.org/publications/khudoni-dam-necessary-solution-georgian-energy-crisis Accessed 23.03.2012
55 Ministry of Energy of Georgia http://www.menr.gov.ge/en/4366, accessed 23.03.2012
56 Chapter 11 of the ESIA of Paravani HPP
57 "Georgian Urban Energy" is majority owned and controlled by Anadolu Kafkasya Enerji Yatırımları A.Ş., which in turn is majority owned and controlled by Anadolu Endustri Holding A.S (AEH).
58 A hard copy of the Memorandum of Understanding signed on 29.05.2007 is available upon request.
59 Income tax of 12 percent to the state budget; tax on property of 1 percent to the local budget.
60 The deficit of the Georgian Energy system is around 5 percent in winter which is compensated during the summer time by exporting electricity from HPPs, so decreasing the deficit in winter is not an argument.
61 http://www.iges.or.jp/en/cdm/pdf/regional/20110906/Session4_G2_2b_GLazriev.pdf.
62 The emission of CO2 from reservoirs is already part of the mandatory reporting formats of the IPCC. The reporting of methane emissions is suggested, but not mandated. Subtropical areas, in a country such as Georgia, have climates with warm temperature that speed up decomposition of remnants of vegetation and wood comparing to countries with a cool climate. Thus methane emissions from large hydro reservoirs will also be higher here than in the north.
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64 South Caucasus united by common electricity grid http://www.enpiinfo.eu/files/features/FT28%20east%20Georgia%20EN.pdf
65 The total area of land plots that will be granted to investors for a symbolic USD 1 is over 3000 hectares.
66 While Georgia has approximately 1600 MW of hydropower capacity that actually generate electricity at the moment, the installed capacity is around 2700 MW. The rehabilitation of these sites could bring around 2.2-2.5 TWh of additional hydro electricity. According to expert estimates, energy efficiency measures would decrease Georgia's dependence on gas by 10-20%.
67 Larger than 10 MW, following the definition in the Communication from the European Commission to the European Council and the European Parliament: An Energy Policy for Europe, Brussels 10.01.2007.
68 While the exports from the Western Balkans may not be limited to renewable electricity and that from large hydro plants, there are many more potentially export-oriented projects in these sectors than in the other electricity production sectors. Italian-backed fossil-fuel projects, such as the Porto Romano coal power plant in Durres, Albania, do not seem to be moving forward, while others such as the Kolubara B thermal power plant near Belgrade in Serbia are not necessarily directly for export purposes (although they may "free up' renewable capacity for export). Bosnia and Herzegovina also plans to construct new coal thermal power plants. Renewables and large hydropower projects are also more likely to receive financing from EU or other international public sources, under the justification that they are environmentally acceptable. Hence we focus on these in this paper.
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70 Italian Ministry for Economic Development: Italian National Renewable Energy Action Plan (in line with the provisions of Directive 2009/28/EC and Commission Decision of 30 June 2009), 30 June 2010, p.5
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72 It is not clear exactly which countries are included here, but Montenegro, Bosnia and Herzegovina and Serbia seem most likely. While the Italian transmission operator Terna includes Romania and Bulgaria on its map of planned connections in south east Europe at: http://www.terna.it/default/home_en/the_company/about_terna/terna_group_abroad/terna_balkans_en/submarine_interconnections_balkans.aspx, it is unlikely that they will have surplus renewable energy to export due to their already having to adhere to EU renewables targets, so it is more likely that they would export thermal or nuclear energy.
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Notes

"Although interconnections between countries are a standard, accepted way of stabilizing electricity supplies, caution needs to be applied when the country producing the electricity does not have adequate environmental standards in place, does not apply meaningful public participation procedures, does not have adequate safeguards against corruption, and has not developed its own renewable energy resources. Such imbalances turn the widely accepted practice of cross-border electricity transfer into what can more appropriately be termed an "energy grab", with a number of environmental, social and economic consequences that are left to be dealt with by present and future generations"

National Ecological Centre of Ukraine
www.necu.org.ua

Green Alternative
www.greenalt.org

CEE bankwatch network

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