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Comments on the EBRD's 2006 Energy Operations Policy and recommendations for the forthcoming Energy Strategy

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Introduction

Bankwatch welcomes the opportunity to comment on the EBRD's energy operations policy and particularly the fact that the bank has agreed to try out a two-stage consultation process in the development of its new Energy Strategy. Our comments draw heavily on our May 2012 study Tug of War – Fossil Fuels vs. Green Energy at the EBRD[1], which explored the bank's lending in the energy sector during the period of implementation of the current Energy Operations Policy and provided recommendations for the forthcoming new Energy Strategy.

The EBRD's current Energy Operations Policy and its results

The main horizontal operational priorities of the EBRD's 2006 energy policy are:

- increasing the bank's focus on sustainability. The bank adopted a target to invest a minimum of EUR 1 billion in energy efficiency and renewable energy projects during the period 2006 to 2010 (compared to EUR 674 million during the five year period 2001 to 2005).
- putting a stronger focus on the energy sectors of Southeast Europe and CIS, in particular the Early Transition Countries
- putting an increased emphasis on regional cooperation in project selection to achieve greater competition, diversification and economies of scale, while opening up new transport routes and access to new markets for the Region
- increasing the use of equity and equity-type instruments to attract greater private sector interest
- continuing to require adherence to best international transparency, governance and revenue management standards in projects for production, transportation, distribution and processing of oil, gas, and coal.
- requiring project sponsors to enhance environmental performance and adopt measures designed to benefit local stakeholders where practicable.
- continuing to manage the nuclear safety grant funds; continue to apply the existing EBRD policy for the financing of nuclear facilities, with one modification: while the Bank will not consider providing financing to new reactors, it may provide financing to an operating facility in relation to nuclear safety improvements, or for the safe and secure management of radioactive waste and spent nuclear fuel, as well as for decommissioning, without a direct link to the closure of high risk reactors.

Although the EBRD is not solely an EU institution, the concepts which dominated EU energy policy at the time the EBRD energy policy was adopted are highly visible within the bank's priorities: sustainability, security of supply and competitiveness.

The emphasis on sustainability has been a useful step forward and the setting of clear targets has proved to be a useful stimulant for a clear increase in energy efficiency investments. Renewable energy investments have also increased since 2006, as we will see below. The emphasis on sustainable energy, although it can still be improved, as we lay out below, is in our opinion the main success of the 2006 Energy Operations Policy.

However, as with the EU as a whole, too often in trying to pursue the goals of sustainability, security of supply and competitiveness, the EBRD has supported projects which score highly on one or two pillars, but not on the other(s). The bank's current Energy Operations Policy does not exclude from its portfolio projects with a large carbon footprint and does not stipulate ambitious CO2 reductions to be achieved by its projects, which often leads to a clash between sustainability in terms of climate impact and security of supply and/or competitiveness. Examples include the Sostanj Thermal Power Plant project in Slovenia, where security of lignite supply is assured until around the end of the new unit's lifetime, but the plant's operation will prevent Slovenia from reaching its 2050 climate goals, and the bank's investment in the Kolubara coal mine in Serbia, which ensures the continued use of a domestic resource but ultimately enables the expansion of the lignite mine and thus of CO2 emissions.

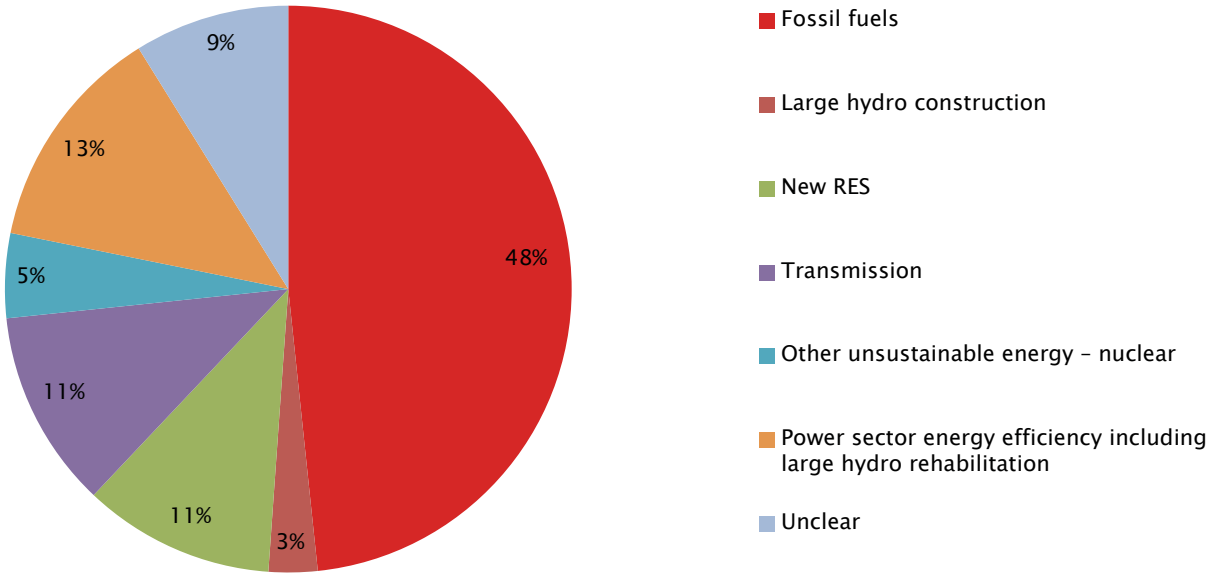
Statistical breakdown of the lending 2006-2011

Taking a closer look at the EBRD's lending since the Energy Operations Policy between 2006 and 2011, the EBRD lent a total of EUR 6.7 billion for energy and energy-related natural resources projects. An examination of the figures reveals some good news and some bad news from the point of view of promoting an environmentally sustainable energy system that will be resilient to commodity price fluctuations and able to function in an increasingly changing climate.

The bad news is that in terms of overall support for different sub-sectors, according to Bankwatch's methodology of project categorisation, explained in our 2012 report Tug of War[2], fossil fuels have been dominant, receiving 48 percent of the financing, or a total of EUR 3.26 billion. Gas has been the largest single recipient sub-sector, with 26 percent of the financing, or EUR 1.7 billion.

A closer look year on year reveals a number of interesting trends. Graph 2 on the following page should be treated with some caution due to certain anomalies caused by large projects being signed in certain years, however, generally:

- Investments in fossil fuels have increased, at a time when exactly the opposite should be taking place.
- Coal and, to a lesser extent, oil investments have risen There was a huge spike in gas lending in 2009, which has since plummeted. It is not exactly clear why the peak took place.
- Support for three new large hydropower plants was approved and signed in 2011. All three projects have been subject to complaints to the bank's Project Complaint Mechanism due to their environmental and/or social impacts.
- On the positive side, however, there is a clear and steady increase in financing for new renewables, as well as for power sector energy efficiency. New renewables lending started from a tiny base of EUR 6.8 million in 2006 and rose to nearly EUR 272.9 million by 2011, while over the same period power sector energy efficiency financing



Graph 1 - EBRD energy investments by volume 2006-2011

more than quintupled from EUR 73.9 million to EUR 394 million.

- New renewables have accounted for 44 percent of the EBRD's electricity generation investments between 2006-2011. This is a significant improvement given its low starting point of only EUR 6.8 million in 2006.
- However, new gas and coal generation together – totalling 45 percent of generation investments – still slightly outweighed new renewables in terms of financing volume.

The uneven regional distribution of the EBRD's new renewables investments is a concern, however 2011 did see some improvements in this direction. While our calculations 2006-2010 showed that 86 percent of the EBRD's new renewables lending was inside the EU, adding 2011 shows that this figure is down to 76 percent. While it is clear that the EU New Member States do need support with the development of renewable energy[3], the countries outside the EU need it equally – if not more – as they are not stimulated by the EU's 20-20-20 targets.

The sub-sectoral distribution of new renewables projects is also very unequal, although also with an improving trend. As graph 4 on the next page shows, from 2006-2010, 82 percent of investments were in wind power, while adding 2011 brings this down to 63 percent. Solar is conspicuous by its absence, and indeed it was only in 2012 that the EBRD financed its first solar project.[4]

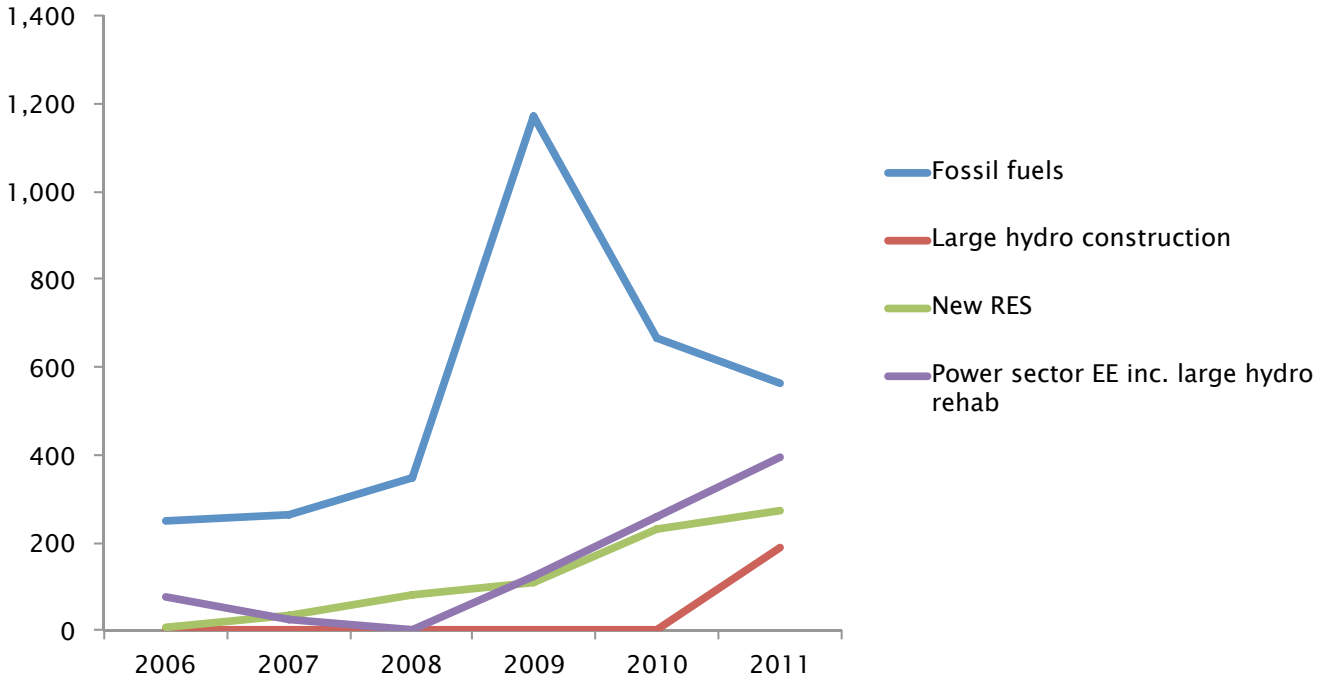
In its new Energy Strategy, the EBRD needs to continue the diversification of its new renewables investments, with a particular emphasis on developing solar projects of various kinds and on ensuring the environmental sustainability of other investments such as small hydro.

How coal slips in by the back door: relative efficiency gains versus overall and lifetime emissions

The EBRD often finances projects that it considers as producing energy efficiency gains by lowering the energy required per unit of output, and as we have seen above, usually includes them in its Sustainable Energy Initiative. However, such projects may lead to an increase in the overall lifetime emissions of the project, and thus two different perspectives collide – increased efficiency vs. large-scale absolute emissions reductions.

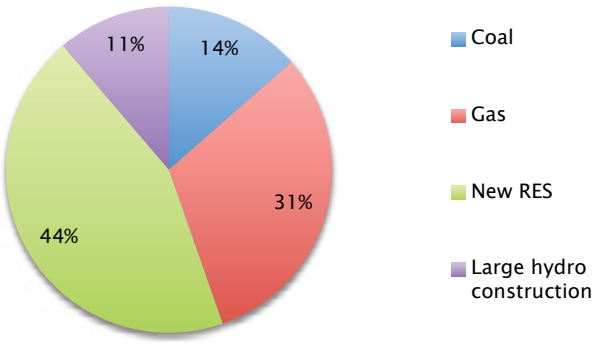
Two categories of project are a good example of that clash. The first category is refurbishment of an existing industrial or power generation facility or efficiency increases in existing mines, and the second category is the replacement of an obsolete generation power unit with the latest best available technology version (based on the same fuel type).

For the first category it is true that a refurbishment can seriously limit the emissions of various types of organic and toxic particles and thus lead to an overall improvement of air quality in the area or region where the industrial or power generation facility is located. However, when it leads to an increase in the absolute lifetime GHG emissions an alternative way to look at it is that it prolongs the time before that generation or production technology is replaced by a more environmentally friendly and less polluting one or that demand is reduced so that it does not need to be replaced. Any lengthening of the lifetime of fossil fuel power plants also means that the owner of the facility is continuing to extract profits from passing the external costs onto society at large (at least in countries not covered by the EU ETS. Even in the EU, the costs of emissions other than CO2 are not fully accounted for and with CO2, the uncertainty of the future CO2 price makes it a difficult task).

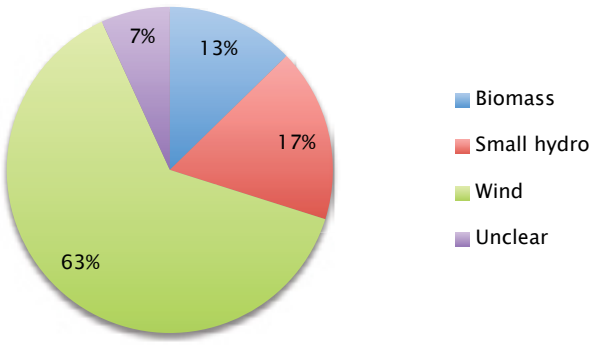


Graph 2 - EBRD energy investments 2006-2011, EUR mln

Graph 3 - EBRD electricity generation investments, 2006-2011



Graph 4 - EBRD renewable energy investments 2006-2011



In order to be included in the EBRD's Sustainable Energy Initiative, refurbished plants must increase electricity efficiency by at least 3 percentage points (e.g. from 30 percent to 33 percent) and reduce specific carbon emissions per kWh generated by at least 10 percent[5]. Let us assume a 206 MWe coal-fired unit built in the 1970s or 1980s is refurbished in the EU. Without the refurbishment it would not meet the requirements of the Large Combustion Plant Directive[6] and its operation would therefore be illegal. In such cases, especially in the EU or accession countries, the EBRD's financing of refurbishments that have unambitious requirements and do not go further than the legislation requires have little added environmental value compared to financing coming from a commercial bank.

Case study: Belchatow II, Poland

The main component of this project was the construction of a new state of the art lignite-fired unit in the Belchatow power plant, the largest absolute emitter of CO2 in Europe[10], situated in the central part of Poland. The new 858 MW unit was supposed to replace two 370 MW blocks, which are not able to meet the requirements of EU environmental legislation and were planned to be closed by the end of 2015[11]. However these two units have been added to the Transitional National Plan as allowed by Art. 32 of the Industrial Emissions Directive that the Republic of Poland submitted to the European Commission at the end of December 2012[12] and this means that if the Plan is accepted the two units will be shut down only in 2016.

With the construction of a new unit and decommissioning of two units, which have to be closed anyway, CO2 emissions per unit of energy produced will certainly decrease. At the same time the new unit alone will emit yearly 5.5 million tonnes of CO2 for at least 40 years of its planned lifetime going beyond the year 2050, when according to the European Commission the EU energy sector should be decarbonised[13]. In addition, for several years the generation capacity of Bełchatów power plant is actually increased by the new unit as no replacement takes place until 2016 and the old units will generate power (and CO2) chimney by chimney with the new unit.

There is also an issue of additionality of the bank's involvement in refurbishing old thermal power plants in connection to the fact that EU Member States need to get their facilities in line with the standards set by the Industrial Emissions Directive (IED)[7]. Older units have either been closed or refurbished to comply with the LCP Directive and the tougher standards set by the IED mean that a new wave of closures is set for 2020, along with new refurbishments. Some EU states have applied for derogations from the IED for the period 2016-2020, to allow units to operate without meeting the emission limits, thus maintaining a higher level of externalized health and environmental costs. In some cases it can be assumed that power plants that are part of the derogations will not meet emission limits by 2020 and will be closed. In any case, the refurbishments are legal requirements in the EU, thus they would take place irrespective of EBRD involvement. From this perspective, the EBRD should not be a part of fossil-based capacity refurbishments in EU countries and accession countries.

The story is similar with replacement or lifetime extension, which is a two-phase process:

- old obsolete technology is coming to the end of its economic or technological life, and thus it needs to be scrapped or closed
- new investment is undertaken that will perform the same functions as the technology/facility that has been scrapped or closed.

Case study: Turceni lignite power plant rehabilitation, Romania

The rehabilitation of unit 6 in Turceni TPP in Romania[8] for which the EBRD approved a EUR 150 million loan in 2008, will enable it to comply with the EU's Large Combustion Plant Directive, regulating emissions of sulphur dioxide, nitrogen oxides and dust from installations burning various types of fuels. Without this intervention the plant would have to be closed by the end of 2015, but with it it will continue polluting for next 15 years with slightly lower CO2 emissions per unit of energy produced. In this way, an EBRD intervention classified as 'sustainable' is radically increasing the lifetime CO2 emissions of the given unit.

Case study: Kolubara B, Serbia

The EBRD is currently considering a EUR 400 million loan for the 750 MW Kolubara B lignite power plant in Serbia, to be built and operated by a project company consisting of Serbia's state-owned EPS and Italy's Edison. The EBRD justifies this with the involvement of the private sector in Serbia's power sector, and with the fact that the plant will provide replacement capacity and not additional capacity. While it is true that existing units in Serbia will have to be closed in order to comply with EU requirements, it is far from clear that replacing them with more lignite units is the answer. Although the CO2 emissions forecasts for the project have not been published yet, it is clear that if the unit operates for the next 40 years, which would be comparable with the projected lifespan of Sostanj unit 6 for example, then the chances for Serbia to reduce emissions by 80-95 percent by 2050, as it will be required to do once in the EU, will be very low.

However, it is often treated as one process, choosing a new plant at the same site as a default option and presenting it as a continuation of the old plant.

In order to meet the EBRD's criteria for a replacement classified as part of the SEI, it has to be state of the art in efficiency and CCS-ready in line with the requirements of the relevant EU Directives[9]. Additional environmental value added is missing here for plants in the EU or EU accession countries, as they would have to meet these requirements anyway.

What is also missing here though is a real link with climate policy targets. The so-called replacement of a large-scale fossil fuel generation unit from the 70s or 80s with a BAT unit ignores the developments in climate science and the cumulative knowledge indicating the urgency and scale of the challenge posed by climate change. If the new unit does not bring an increase in CO2 emissions, but maintains them on a similar level to the current ones, the EBRD tends to assume that this is good enough, without analysing the unit's impact on long-term climate goals such as the EU 2050 goals.

Thus, in practice, the EBRD does not show enough ambition during the process of climate impact assessment of replacement projects. Such an approach leads to maintaining overall emissions levels and thus undermines the achievement of sustainability and climate targets. Closing the old facility down and either replacing it with industrial-scale sustainable renewable energy investments, or even better working with the local authorities or local communities to reduce energy consumption by investing in demand-side energy efficiency measures and decentralised, locally-owned small-scale renewables would be a more sustainable and climate friendly option than a replacement. Replacements of old plants with more modern versions of the same technology endanger the below two-degree Celsius

Case study: Sostanj Unit 6, Slovenia

In 2009, the European Council, the highest decision-making body of the EU, called for aggregate developed country emission reductions of at least 80-95 percent by 2050[14]. In the case of Slovenia, a small country that in 1990 emitted 20.2 million tonnes of CO2 per year[15], an 80 percent reduction, if extrapolated for one country, means that by 2050, Slovenia can emit only around four million tonnes of CO2 – from all sectors – annually. A 95 percent reduction means that Slovenia can emit only around one million tonnes of CO2 by 2050.

Yet in 2010, the EBRD approved a EUR 100 million loan for a new unit at the Sostanj lignite-fired power plant in Slovenia. The claims about the apparent emissions reductions that will result from this project vary widely[16]:

- Unit 6 will utilise state of the art high energy-efficient technology and will lead to significant carbon emissions reduction of around 1.2 million tonnes CO2 p.a. in the long run. This carbon reduction represents around 8% of the total GHG emissions of Slovenia."[17] However, it is not clear whether this relates to 1990 levels or the most recent levels of emissions – there is a difference of nearly a million tonnes of CO2 in these estimates.[18]
- In the fourth version of the Investment Plan CO2 emissions for unit six range between three Mt in 2015 and 2.2 Mt in 2054 per year[19]. The latter figure is based on an assumption that the plant will decrease its operations towards the end of its lifetime. However, the environmental permit for the power plant issued by the Slovenian Environment Agency on 16 February 2011 does not restrict the scale of operation, so in theory the plant can work on full load emitting up to 3.4 Mt as described in the Environmental Impact assessment[20].

Even the largest of these possible reductions comes nowhere close to helping Slovenia fulfill its part in the EU's 2050 targets, if extrapolated to the level of individual countries. According to the European Commission if 80-95 percent reductions are to be achieved, the energy sector needs to be almost totally decarbonised. This has been confirmed by European Commission policy documents[21]. Even if the emissions are 2 248 000 tonnes by 2050 – a scenario we find rather unlikely as it would require the plant to voluntarily work at less than full capacity – this single unit would at best emit more than 56 percent of Slovenia's total emission quota. In the worst case, it would emit 300 percent. In both cases it would be virtually impossible for the country to meet the EU targets as even in the best case Slovenia would have to make extremely large emissions reductions in areas such as transport where it is much harder to reduce emissions than in the energy sector.

Case study: Ombla HPP, Croatia

Consisting of an underground dam and reservoir situated in a karst cave complex, this 68 MW plant's impacts on the rare subterranean cave fauna at the future Ombla Spring – Vilina Jama Natura 2000 site is unclear, as is its impact on the complex and poorly understood karst water system which stretches over the border into neighbouring Bosnia and Herzegovina. The Environmental Impact Assessment study for the project dates from 1999. While the EBRD did set an additional Natura 2000 impact study as a condition for its financing, it remains unclear why the bank was in such a hurry to approve its EUR 123 million loan for the project in November 2011 before it was proven whether it was in compliance with EU legislation or not. The most likely explanation seems to be political – the contract was signed four days before an election ejected the ruling HDZ party from government. However more than a year later the Nature Impact Assessment report still is not completed.

Case study: Boskov Most HPP, Macedonia

The project Boskov Most HPP involves the construction of a 33 metre high dam and a hydro power plant with a total capacity of 70 MW. It is mostly located in the territory of the Mavrovo National Park, one of the oldest and most valuable protected areas in the country – also a future Natura 2000 site – and home to the endangered Balkan Lynx. The EBRD approved a EUR 65 million loan for the project in November 2011, in spite of the Environmental Impact Assessment having covered the impacts on mammals in just one insufficient page. Additional bio-monitoring is now being undertaken, however no guarantees have been provided that preparatory works will not begin at the same time, thus undermining the whole point.

Case study: Paravani HPP, Georgia

In 2001, the EBRD approved a EUR 38.8 million loan and EUR 3.8 million equity investment in Turkish company Georgian Urban Energy (GUE) for the Paravani HPP, an 86 MW plant using a 14 km derivation tunnel. The main concerns around the project arise from the benefits compared to the considerable costs for the downstream ecosystems and population. The electricity is planned to be exported to Turkey, with the only benefits for Georgia being some minor tax contributions. At the same time, according to the Environmental Impact Assessment 90 percent of the water will be diverted from the Paravani river to the Mtkvari, thus leaving as little as 10 percent of the usual amount in the Paravani river at certain times of the year and endangering its downstream ecosystems, while exposing people in the village of Khertvisi on the Mtkvari river to increased flood risks.

trajectory and in the near future will go against the recommendation by the IEA that all investments after 2017 should be in zero-carbon utilities, unless existing infrastructure is scrapped before the end of its economic life-span.

Ensuring that renewables are sustainable

The main sustainability concern in the EBRD's renewable energy investments in recent years has come from the bank's decisions in 2011 to back the construction of three new large hydropower (>10 MW) plants. All three of these projects attracted complaints to the EBRD's Project Complaint Mechanism, related to the bank's assessment of their sustainability.

Our recommendations for hydropower sustainability criteria are in Annex 1.

As for other forms of renewable energy, according to the EBRD, its environmental safeguards for renewable energy are based on the relevant EU regulations[22]. EU regulations, although a good start, may not be enough to ensure real sustainability in the renewables sector in reality, as the case of Bulgaria shows.

In order to address concerns about the environmental impact of renewable energies, Bankwatch has developed a set of criteria for renewable energy which, if adopted by financing institutions and governments, should help to ensure that renewable energy remains a positive tool in fighting climate change and that its environmental credentials do not further deteriorate as a result of poorly-sited or badly co-ordinated projects. These criteria can be found in Annex 1.

The EBRD can be of assistance in supporting the development of sustainable renewable energy in its countries of operation not only by financing projects directly, but also by insisting on proper planning and participating with technical assistance projects. There has already been some work in this direction, but it should be expanded and improved.

Remaining gaps in the EBRD's demand-side energy efficiency investments

As outlined above, various issues have been identified regarding the EBRD's classification of energy efficiency projects in various sectors, as well as the bank's criteria for including projects or parts of projects in its Sustainable Energy Initiative. These have also been expanded on for sectors such as transport, industry and property in a December 2011 Bankwatch paper on the Sustainable Energy Initiative.[26] However, overall the bank's energy efficiency lending is still heading in a very positive direction, almost quadrupling between 2006 and 2011.

There are also signs that the bank further plans to increase its energy efficiency investments,

Case study: Renewable energy in Bulgaria

The experience in Bulgaria is a good example of the insufficiency of using EU law as the only criteria for renewable energy development, for three reasons:

1. problems in enforcement
2. lack of co-ordination between different regulations leading to holes in implementation
3. EU law in some cases not going far enough to prevent environmentally harmful investments.

The general problems of enforcement of EU environmental legislation in Bulgaria resulted in a situation in which the sponsors of larger individual projects such as St. Nikola wind farm attempted to implement suitable mitigation measures on the project level, but at the same time many smaller renewable energy projects moved forward in an uncontrolled way. Combined with other pressures, e.g. for tourism development and urban infrastructure, the cumulative effect of RES projects was beyond mitigation, especially in Natura 2000 areas[23]. For example it is practically impossible for the responsible authorities to monitor the implementation of mitigation measures on numerous small hydropower projects on rivers which are practically dry in the summer and where all remaining water is diverted away from the fish passages in order to generate power.

Only after it was abundantly clear that there was a problem, in 2009, the European Commission intervened[24], threatening Bulgaria with an infringement procedure, and only then the government decided to develop a renewable energy strategy, putting a temporary moratorium on renewable energy development. Grid access problems also contributed to this situation. This of course hit investors hard – both responsible and irresponsible ones. In June 2012 the Ministry of Economy, Energy and Tourism decided to decrease the preferential purchasing price from RES companies by 22% for the period July 2012-July 2013. Then in September 2012 the Ministry published a new National RES Action Plan, and additionally introduced a fee for access to the grid. The Bulgarian Wind Energy Association is appealing the two decisions - for price drop and access fee - in court[25].

Additional concerns are now being raised by energy consumers, both households and industries, which started feeling the weight of their energy bills after the deepening of the economic crisis in the country. For example, the Bulgarian Industrial Chamber called for a RES law that will consider both realistic targets and a diverse mix of renewable sources, in order to deliver accomplishment of RES development goals at optimal costs for consumers. For this some sources like biomass should be given more attention, and the tendency of focusing on wind and solar (the most expensive ones) should be balanced in the future.

The lesson from Bulgaria is that strategic planning must go first, before many RES projects are developed. There is a need for Strategic Impact Assessment and development and enforcement of a set of sustainability criteria. This requires a real departure from the business as usual approach of developing 'green' projects - like any project that impacts on the environment, they need to be accorded with River Basin Plans (complying with the Water Framework Directive), N2000 site management plans or protected areas management plans

Case Study: Unfulfilled energy efficiency potential in buildings in Kazakhstan

The EBRD's Sustainable Energy Action Plan (SEAP) for Kazakhstan signed in 2007 recognises that the problem with sustainable energy use in the country is not only the power generation sector, but also distribution and end use by customers.

The SEAP says that "A significant proportion of public buildings (e.g. schools and hospitals) and urban housing stock is equipped with inefficient energy systems and requires major refurbishment". It also says that "public services and residential buildings require significant investment". Since 2010, the EBRD has approved various projects on district heating in Kazakhstan[34], but still no investments have been made to improve efficiency of energy use by end users.

For example in Karaganda and also in Astana the usual way to regulate the temperature in houses is to open windows – even in the 5 month-long winter when houses are overheated. There are no regulators on radiators. At the same time in some parts of the city the heating does not meet demand and the local authorities have come to the conclusion that power generation should be increased – which has been supported by the EBRD in the form of loans for the district heating companies. Thermal energy consumption is not metered, so bills are paid according to the heated area. The authorities, with the support of institutions like the EBRD, should assess the capacity for increasing energy efficiency on the demand side before making decisions on increasing generation in district heating. There have been some projects financed by UNDP in Kazakhstan aimed at reduction of GHG emissions and improvement of energy efficiency in the municipal infrastructure. This experience should be taken into account by the EBRD.

The EBRD says that it is willing to provide technical assistance with regard to metering and also to finance private sector energy service companies (ESCOs) which can lead energy saving measures. Here the successful example of UkrEsco in Ukraine is often mentioned. However, no sign of such loans is in the bank's Kazakh portfolio yet.

indicated for example in its new draft Municipal and Environmental Infrastructure strategy. All this is good news, as action to improve energy efficiency is still needed on a massive scale in the EBRD region, particularly in the residential sector. This is because of climate change and resource efficiency, but also to reduce energy poverty.

Energy or fuel poverty is defined in many different ways, however in the transition region it mainly relates not to a lack of access to infrastructure per se, but to difficulty in maintaining sufficient warmth at an affordable cost. Although data for much of the EBRD region is lacking, one does not have to search far to find indications that fuel poverty is a serious problem in some of the bank's countries of operation. For example the Macedonian state statistical office states that in 2010 only 52.6 percent of households reported being able to keep their home adequately warm[27]. As these statistics do not focus on cost, it should be borne in mind that there are also additional households connected to district heating systems who can keep their home warm – sometimes stiflingly so – but have no thermostat or meters and have to pay very high bills because of this, and thus under some definitions would qualify as fuel poor.

Accelerating high-quality energy efficiency retrofits of residential buildings presents well-known challenges, but helps to eradicate fuel poverty if undertaken on a large scale. It also brings numerous other benefits, for example the Institute for European Environmental Policy[28] in 2010 examined the costs and benefits of an expanded housing renovation programme to improve the energy efficiency of the housing stock across the EU (not only the EBRD countries).The expected energy savings from the programme (and related GHG emissions) would by 2022 amount to around twelve percent of the EU-27 final energy consumption in 2007 or up to fifty percent of the final electricity consumption of the EU-27 in the same year. By 2022, the renovation programme contributes to the avoidance of up to 276 Mt CO2 emissions. These savings continue on an annual basis thereafter.

Based on the study, the GHK consultancy later made an estimate of the annual EU employment impact of investing one billion Euros in improving energy efficiency in the housing stock in the EU and concluded that there would be an addition of around 25 900 direct and indirect jobs, with 15 000 of them being direct[29].

Meanwhile in the Czech Republic, real-life results for job creation have started to be visible from two government energy efficiency schemes. The Green Light for Savings programme is a green investment scheme launched in April 2009, which has been so successful that the total amount available under the programme, about EUR 780 million, was disbursed more than two years ahead of schedule. The 'Panel' scheme, a joint project of the Ministry for Regional Development and the State Housing

Case study: Residential energy efficiency in Bulgaria: Good idea, but more benefits need to be passed onto customers

The EBRD approved the continuation of the Residential Energy Efficiency Credit Line (REECL-2, www.reecl.org) in the summer of 2011. The credit line offers a grant subsidy ranging from 20-35 percent of the amount of the loan to the borrowers. It is 20 percent for individual households and individual energy saving measures and 30-35 percent for multifamily buildings that apply as homeowners' associations. It is forbidden under the new credit line to do patchwork insulation and renovation in multifamily buildings, which is a positive step forward as the previous phase of the same credit line that was active 2005-2010 had a flat subsidy rate of 20 percent for all applicants and also supported patchwork insulation in spite of its questionable effectiveness.

The credit line is managed by a consultant who acts on behalf of the EBRD and evaluates each application to approve the subsidy part of it. Much of the criticism by applicants and potential applicants towards the first credit line, apart from the patchwork renovation that was stimulated, related to the high interest rates of the banks – some people were even joking that this is a programme for stimulation of the banks and not of energy efficiency. Indeed even under the shortest loan term the bank was able to get nearly half of the 20 percent grant due to various fees. Many people actually preferred to avoid applying under the complex bank requirements and just save 20 percent by asking builders and installers to apply the energy saving measures without declaring VAT.

The banks participating in REECL-2 are Procredit Bank and Raiffeisen Bank[36]. They offer generally the same conditions – minimum 6 months loan term, and around 12 percent annual interest rate. When applying for a credit one is asked to present a labour contract(s), all sorts of documents related to the registration of the homeowners' association if applying as such, and in individual cases a condition that one's salary is transferred to the bank applies.

Genady Kondarev from CEE Bankwatch Network decided to apply for a loan to install solar water heaters on his parents' family house. The loan was for 3112 BGN (roughly 1590 EUR). Just days before signing the contract with Procredit Bank he learned that in case he wants to pay back his credit before the termination of the contract, which would save him money on the interest, he would have to pay a penalty of 500 BGN (approx. 250 EUR). A 20 percent grant calculated from 3112 BGN is 622 BGN. Considering that 30 BGN are paid as a fee to the bank to consider the credit and 78 BGN are paid to release the loan to the customer, paying this fee together with the fine would practically eat up the entire grant part.

So in this case the customer is tied to the bank and has to continue paying the loan for at least six months even if s/he could cover the loan in advance. Out of curiosity Genady checked if this loan condition applies with the other bank in the credit line – Raiffeisen. Raiffeisen did not have such a condition. So this is purely the policy of one of the commercial banks that distributes the loan.

In response to a question to Procredit on why it enforces this condition, its representatives explained that this credit line is meant for people who actually need it. Most "needy people" though would not be able to present a proper labour contract or their credit history might not be ideal. In our case the client explained that the grant comes from the closure of nuclear power plants and every Bulgarian citizen should be able to benefit from that as well as the fact that the energy efficiency and small scale renewable energy applications require a lot of upfront investments and this is a deserved incentive no matter if you are rich, middle class or poor. Mr Kondarev was also asked if he could have his deposits blocked to the extent of the amount of the loan as a form of guarantee. The contract was signed.

It is strange how these banks can require such a high percentage of interest if they have their loan covered with an amount of money kept in their banks that covers 100 percent of the risk. In our case covering the interest of this loan for 6 months + all bank fees decreases the grant from 622 BGN to 388 BGN and the 20 percent grant has suddenly come down to less than 12.5 percent. The bank has kept 7.5 percent for 6 months for a risk-free loan, for capital that is provided by the EBRD and does not represent capital that the bank has made much effort to attract. On top of that a large portion of bad loans are actually guaranteed under the credit line under a risk-sharing first loss cover scheme[37], thus reducing the risk even further for the banks.

Development Fund for thermally insulating multi-family prefabricated houses, was launched in 2001, and provided EUR 490 million in interest subsidies and nearly EUR 286 million in bank guarantees by 2010, mobilising nearly EUR 1.92 billion in private investment. The 'Panel' scheme helped to retain or created an average of 6 553 jobs annually in the Czech Republic. In total in its first nine years, the 'Panel' scheme retained or created 58 980 annual job opportunities. Between April 2009 and July 2010 after the launch of the 'Green light to savings' programme, the increased support for thermal insulation generated another 19 059 job opportunities[30].

In Hungary, a great deal of work has been undertaken on energy efficiency by the Center for Climate Change and Sustainable Energy Policy at the Central European University. A 2009 paper by Aleksandra Novikova and Diana Ürge-Vorsatz concludes that efficient lighting, heating and water flow controls are the most cost-effective measures for energy

Case Study: The Kazakhstan Sustainable Energy Action Plan

The SEAP in Kazakhstan has contradicting goals. On one hand, it plans a transition to a low carbon economy, but on the other hand it supports fossil-fuelled power generation projects. Six out of eight priority power generation projects in the SEAP are coal-fired power plants.

In its Kazakhstan country strategy, the EBRD plans to "channel financial investment into projects that comply with SEAP and support the transition to a low carbon economy by meeting the following key selection criteria:

- Utilise the best available techniques (BAT) structured to meet EU environmental and energy efficiency performance for new and existing coal-fired power plants with strong industry sponsors
- Target significant efficiency improvements and power supply reliability through rehabilitation of existing plants or construction of new plants"

However, under existing conditions supporting coal in Kazakhstan will smother opportunities for the development of renewable energy sources. Currently no known significant RES projects are being implemented in Kazakhstan, with a potential EBRD-financed project having been cancelled[38]. According to the data of the Ministry for Environmental Protection the share of RES in power generation in the country is only 0.03%, and according to the Ministry of Industry and New Technologies – 0.46 percent (taking into account small HPPs). This share is planned to be increased to 1.5 percent by 2015 and to more than 3 percent by 2020, but even this small increase seems very ambitious if the EBRD continues to support fossil fuels. The volume of coal extraction is expected to increase by 42 percent (123 million tonnes) by 2014 and to 158.35 million tonnes by 2020. The focus in the SEAP is on power generation projects in the north of the country and transmission to energy deficient regions, which involves significant energy losses caused by the huge distances.

The EBRD has already recognised that the energy tariffs in Kazakhstan remain low and some are still not cost reflective, and that they generally do not include environmental costs, so price signals do not provide incentives to use energy efficiently. This is possible because of the relatively cheap and abundant coal resources. The Government has not demonstrated political will in the real development of RES. The electricity and heating tariffs is a sensitive social issue and the Government is interested in keeping control over them. Therefore, the EBRD will face a challenge in changing the situation with the tariffs. RES will never be cost-effective in this situation. That means the bank needs to think about a different approach if it is keen to improve energy efficiency and develop renewable energy sources in Kazakhstan. It should not only provide direct support to true RES, but also cease investments to the coal sector and coal fired power plants.

The EBRD's involvement in the development of the Renewable Energy Law signed in 2009 was welcome, but the law needs to be supplemented by an enhanced legal and regulatory framework and there may be opportunities for technical assistance here. Considering that the SEAP does not give adequate coverage to new renewables and energy efficiency in Kazakhstan, additional action plans on RES and energy efficiency need to be developed, and more importantly implemented, for the country. For example, the National Program on Wind Power Development for 2015 drafted by the Ministry of Energy and Mineral Resources and the UNDP in 2007 has still not been adopted.

However, the method of developing strategic programmes should be changed. The current practice of energy efficiency planning in the Kazakh regions is based on collecting suggestions/projects from stakeholders to be included to the programme/plan. Upon receiving them, the programme designer develops the plan of activities. In parallel, s/he works with the state regional finance departments to consult about the availability of state funds for these activities, and only then does s/he formulate the objectives, tasks and indicators for the programme. Therefore, the goals and objectives of the programme are adjusted to the suggested projects and initiatives and not the other way around. This approach to planning does not allow the authorities to identify the key problems with energy efficiency and find ways to solve them.

savings and that fuel switch to low carbon heating solutions and improvement of the thermal envelope in old buildings provide the largest potential. The application of cost-effective measures would result in a reduction of approximately 29 percent of the total sector baseline CO2 emissions in 2025 (5.1 Mt CO2). Investments of EUR 9.6 billion over 2008-2025 are needed, but would result in energy cost savings of EUR 17.1 billion. The total maximum potential achievable if all investigated measures were to be implemented is around 50 percent of the baseline CO2 emissions in 2025 (8.7 Mt CO2)[31].

A World Bank Group study[32] has concluded that, in total, Russia can achieve energy savings equivalent to roughly 300 million tons of oil per year, or 2.1 tons of oil per inhabitant, and that the largest reductions in end-use energy consumption are achievable in residential energy consumption (53.4 mtoe), electricity generation (44.4 mtoe), manufacturing (41.5 mtoe), transport (38.3 mtoe), and heat supply systems (31.2 mtoe). In the residential sector, the sector offering the greatest potential, the technical potential to reduce energy consumption is 53.4 mtoe. Of this technical potential, over 80 percent is achievable through investments that are economically viable and 46 percent is achievable through investments that are financially viable with 2008 domestic fuel prices. Most of the potential energy savings come from improvements in space heating and water heating[33].

There is therefore little doubt that energy efficiency in residential and other buildings needs to be given a higher priority by the EBRD in order to realise the massive potential that exists.

Energy efficiency investments through financial intermediaries

One of the main ways that the EBRD has undertaken small-scale energy efficiency projects is through financial intermediary credit lines. According to the EBRD's definition, "These are dedicated credit lines to local banks specifically designed to finance small to medium size sustainable energy projects (with upper limit varying from case to case but typically of up to 2.5 million per project). Minimum performance criteria (such as a minimum improvement of 20% in specific energy use) are set for sustainable energy projects, relating to the requirements of the different sector and countries. Alternatively, for smaller projects lists of eligible technologies are developed, again country/sector-specific, based on good standards[35].

In principle, the use of financial intermediaries to reach smaller scale projects may seem like a reasonable approach, especially when well targeted towards specific and measurable policy goals. However, as previously discussed with the EBRD, there is a worrying lack of transparency about where the financing is actually going and whether it achieves the stated goals. The only project so far for which we have obtained any meaningful information – an energy efficiency credit line in Kazakhstan – suggests that our concerns have some justification. In this project, the bank had to decrease its interest rates in 2011 in order to attract clients. Its clients also found the loan period of 36 months rather short. It is not yet clear whether, with the lower interest rates, the credit line has found a greater uptake or not. The EBRD therefore needs to work on better reporting about the success of its financial intermediary projects, both in terms of disbursement of the loans and about the actual work undertaken and its GHG emissions reductions results.

Another issue is the interest rates charged for the loans and whether the benefits are sufficiently passed on to borrowers. This issue is notable for example in the case of the Bulgarian Residential Energy Efficiency Credit Line Facility 2010-2014 (REECL-2), which also benefits from a grant amounting to approximately EUR 14.57 million from the Kozloduy International Decommissioning Support Fund. The grant is being used for technical assistance to support project development and incentive grants paid to the sub-borrowers after verification of completion of each sub-project, as well as funding consultancy services associated with REECL-2.

In summary, the bank is on the right track with its residential energy efficiency investments but needs to make further improvements and expansions to make sure that opportunities are not missed,

especially on the demand side. When a supply-side project is offered to the bank for financing, it should also discuss with the sponsor and other relevant stakeholders the potential for demand-side measures which are inherently more efficient than supply side efficiency because they automatically decrease the demand for the whole chain of activities through which energy loss can take place, such as extraction, transportation, generation, transmission and distribution.

The EBRD also needs to do more to ensure that banks do not charge high interest rates for its financial intermediary credit lines, especially where the loans are partly guaranteed by grant funding. Additionally, where grant funding is available to supplement energy efficiency credit lines the EBRD needs to look for ways to ensure that it is not eaten up by high bank fees. If this proves difficult, the EBRD should consider supporting alternative means of lending for energy efficiency such as municipal funds that would be able to offer lower interest rates.

One example is the EBRD's efforts in Kazakhstan. The bank has made welcome steps towards the development of ESCOs in Kazakhstan and launched the KAZSEFF - Kazakhstan Sustainable Energy Finance Facility initiative, which is the part of the Sustainable Energy Action Plan (SEAP) signed between the EBRD and the Government of Kazakhstan. Each country should have a Renewable Energy Action Plan and an Energy Efficiency Action plan or a Sustainable Energy Action Plan combining both. However proper public consultations must be organised in the process of preparation of such action plans and the content of the plans must truly concentrate on sustainable energy – new renewables and energy efficiency.

In 2011, the EBRD informed Bankwatch that is participating in financing strategic environmental assessments for renewables development in some countries[39]. This move is welcome, however so far no such processes have been visible within the countries that Bankwatch works in, so we anticipate more efforts to increase the coverage and visibility of these processes.

Implications of these findings regarding the EBRD's Energy Operations Policy

In our opinion the investments that have resulted from the 2006 Energy Operations Policy reflect the following three features of the policy:

The Energy Operations Policy's prioritisation of sustainable energy and setting of clear targets has led to a significant increase in energy efficiency investments and new renewables investments. However some sub-sectors are still under-represented, such as residential sector energy efficiency and solar energy. New targets need to be set in the new Energy Strategy, along with stricter sustainability criteria for ensuring that the bank's Sustainable Energy projects really earn their label.

However the policy does not set clear greenhouse gas emissions reductions goals for the EBRD's energy portfolio, nor does it restrict lending for fossil fuels. While the SEI sets goals for the energy efficiency and renewables parts of the portfolio, there are no clear targets for other investments by which EBRD staff can judge which ones have acceptable climate impacts and which ones do not.

In spite of a lack of any formal goals, the EBRD claims that since 2006 its overall investment portfolio has been carbon neutral or better[40]. As explained in our Tug of War study, we find it difficult to agree with this claim. However, even if it is true, the question remains, what next? If there is to be a global reduction of 50-70 percent of CO2e by 2050, and most of the EBRD's countries of operation are among those who, as so-called 'developed' countries, should be contributing significantly to those reductions due to their high energy intensity and significant historic emissions then the bank's goals need to be specific and ambitious. Carbon neutral is no longer enough. For countries of operation which have aspirations to join the EU, nothing less than almost total decarbonisation of the sector is required, while others also need to speed up their transition to a low-carbon economy in order to avoid being late starters in developing their domestic low-carbon industries. This will not happen without a significant push that could be provided among other things by the EBRD adopting stringent portfolio-wide GHG reduction targets.

According to calculations by the International Energy Agency (IEA), 80 percent of the cumulative CO2 that can be emitted between 2010 and 2035 if the world is to have a chance of keeping the global mean temperature rise below two degrees centigrade is already locked into existing capital stock. For a two-degree scenario, all investments after 2017 will need to be in zero-carbon utilities, unless existing infrastructure is scrapped before the end of its economic lifespan.

It is likely that the IEA study underestimates the existing capital stock lock-in, not taking into account the capital stock whose life will be extended beyond the planned lifetime, as is the case in a number of the EBRD's countries of operation. In such cases, investments that prolong the overall lifetime emissions of a project actually add to the cumulative total annual GHG emissions of the country, thus taking up space in the country's GHG emissions quota.

Such investments limit the already short time for action against climate change. According to the IPCC Fourth Assessment Report: Climate Change 2007[41], "delayed emission reductions lead to investments that lock in more emission-intensive infrastructure and

development pathways". This significantly constrains the opportunities to achieve lower stabilisation levels and increases the risk of more severe climate change impacts.

One way to tackle this would be for the EBRD to develop a climate policy, which, among other things, could clarify what the bank regards as the quota of GHG emissions "available" to each country of operations, both within and outside of the EU. This could be based on the country's historic share of GHG emissions, the necessary reductions up to 2050 for that country, and the distribution of the allowed emissions between different sectors of the economy, including refurbishments that lead to lifetime extensions. This would require close cooperation with each country of operations/the UNFCCC and would need to take account of updated developments of each of the sectors of the economy rather than just concentrating on any given investment separately. Investments by the EBRD, whether within the scope of SEI or outside, should fit the quotas established in this way. However, it may be much simpler for the EBRD to just phase out investments into high carbon intensity sectors.

One has to bear in mind that any investment that will start construction from 2014 (2013 for coal and lignite) onwards in order to drastically reduce emissions needs either to include CCS technology (highly unlikely given that experts project CCS to be commercially viable in the late 2020s at the earliest[42]) or to be renewable given that the time necessary to construct a gas power plant is at least four years and the construction of a coal or lignite power plant takes at least five years.

From that point of view, any replacement in energy generation after 2013 for coal and 2014 for gas and all greenfield fossil-fuel-based projects should be turned down by the EBRD on the basis of climate science.

Relative energy efficiency gains do little to limit the climate impact of oil refineries and gas, oil and LNG infrastructure as these types of infrastructure are designed to last decades, thus intrinsically generating demand for fossil fuels by lowering their costs or by the need to recover the investments in such infrastructure. They also hamper efforts to decarbonise the power sector by using up a portion of the resources that are needed to transform the economy into a resource-efficient new renewables-based one and are at risk of ending up as stranded assets.

Thus, the EBRD needs to look much more critically at planned fossil fuel refurbishment and replacement projects and examine whether they are compatible with 50-70 percent global GHG reductions by 2050 and 80-95 percent reductions in the EU. It also needs to tighten up its project selection criteria accordingly, to ensure that it brings real added value with its investments rather than financing projects which may bring plants into compliance with current legislation but may inhibit the transition to an energy efficient new-renewables-based economy.

Like the EBRD's other sectoral policies, it does not sufficiently take account of the bank's role as a public financing institution

It cannot be emphasised enough that the role of the EBRD is to support those projects which could not otherwise access financing from other sources at reasonable rates. It also cannot be emphasised enough that the bank's mandate requires it to promote environmental sustainability in all its activities. These two facts together mean that the bank should lead new markets and take on additional risk for promising environmentally acceptable energy projects which are not well-established commercially as yet, as well as providing technical assistance to ensure that the regulatory framework is in place to support and regulate those projects and others like them.

However, instead of choosing projects that combine all the desired features, the bank looks at the goals separately and finances projects which fit any of them. A look at the bank's sub-sector priorities in the Energy Policy shows that, with the clear exception of the construction of new nuclear power plants, it allows the EBRD to finance basically any project in the energy sector which is financially viable and follows the bank's safeguard standards. Although the bank has an Environmental and Social Policy that should stop projects slipping below a certain level of sustainability, it has very weak provisions on climate issues for example. Most of the projects which have attracted complaints to the Project Complaint Mechanism so far have also been energy projects, which suggests that even the sustainability provisions in the existing Environmental and Social Policy are not being properly implemented or not being seen to be properly implemented.

Leaving the field wide open on which energy projects to finance in its Energy Operations Policy certainly makes it easier for the bank to find projects to lend to, however such a broad spread of goals that allows lending to almost every type of energy production (other than nuclear new-build) does not really constitute a strategy, and certainly not one for bringing about a transition to a low-carbon economy.

Given the EBRD's role as a public financing institution, the bank has no reason to spread itself thinly across all energy sub-sectors in its countries of operation, as it attempts to do in its current energy policy. Most of the energy sector consists of well-established operations that should not be prioritised for public support from European funding sources. Therefore, the 2006 policy's emphasis on sustainable energy is a suitable one, but the bank's continued investments in unsustainable sub-sectors such as coal and oil undermine this good work.

The EBRD is very fond of arguing that countries are going to burn coal anyway as a means of justifying its involvement, however this is unacceptable for three reasons. First, the bank is mandated to finance projects where other sources of financing are not available at reasonable rates, thus if it is financing projects that would happen anyway, then it is competing with commercial banks and contravening its mandate. Second, the fact that something is going to happen anyway is not an excuse for actively contributing to it. And third, whatever is invested in fossil fuels is diverting limited resources away from energy efficiency and new renewables, as well as other worthwhile investments.

During discussions, bank representatives have sometimes argued that the bank has no right to dictate its beneficiary countries' energy mix. However, the bank certainly does have the right to decide what it will and will not finance on the basis of its statutes and sustainability standards and the criteria resulting from it. Anyone who administers a fund or bank of any kind has priorities and limits to what they will fund. While it is to be expected that this would have an influence on a country's investment plans, it is hardly the same as dictating. It is simply about making a policy decision and supporting what needs to be supported on the basis of a clear and transparent policy, rather than just lending to a bit of nearly everything.

What has changed in the world since the Energy Operations Policy was approved and needs to be taken into account in the new Strategy?

Climate change and the need for decarbonisation have moved up the political agenda, yet so far, the majority of the EBRD countries of operation have not made substantial steps to mitigate climate change. This will have to change soon if we want to avoid the effects of catastrophic global warming and to leave a habitable planet for future generations. Minor improvements in energy efficiency and carbon markets, weak or virtually non-existent for the most part in the EBRD region, will not lead us to these goals.

Although in the Kyoto Protocol the majority of post-Communist transition countries were included into the Annex-I group, and therefore theoretically obliged to reduce GHG emissions, the way the base year for calculating reductions was defined exempted them from undertaking serious efforts[43]. Economic downturn and the restructuring of economies at the end of the Communist era did the job for them, substantially reducing GHG emissions. In the 1990s and 2000s, market-driven improvements in the energy intensity of many sectors did lead to a decrease in the carbon intensity of the post-Communist economies. At the end of the 2000s, the regional leaders in this area - Latvia, Hungary, and Slovenia - reached the average level of carbon intensity of the EU-15. Despite these improvements, several EBRD countries, namely Kazakhstan, Mongolia, Russia, Ukraine and Uzbekistan are still among the most carbon intensive in the world, performing much more poorly than the EU-15, but also emitting between 50 and 200 percent more CO2 per unit of GDP than China[44].

While changes in the relative carbon intensity of the EBRD region give reasons for optimism, the situation is much more bleak when one looks at absolute GHG emissions in the context of the reductions that are necessary in order to reach the internationally recognised goal of keeping the temperature rise below two degrees compared to pre-industrial levels[45].

Achieving this goal is no easy task. If we discard geo-engineering[46] there is no other way than to limit the overall level of GHG emissions globally by 50-70 percent by 2050 compared to 1990 levels[47] and then to gradually decrease the level of their concentration in the atmosphere. The level of CO2eq in the atmosphere accepted by the EU authorities and the scientific community as a level that allows for an acceptable degree of certainty for humanity not to face the most dire consequences of climate change is 450 PPM (with 350 PPM concentration being safer especially for the countries in the Global South).

According to the IPCC, the most authoritative source in the area, this would require dramatic GHG emissions reductions in the Annex-I countries – at least 80 percent emissions decreases in 2050 compared to 1990 levels[48]. According to the European Commission's predictions the most technologically and economically feasible scenario for achieving this means the almost total de-carbonisation of the energy sector by 2050[49].

A major part of the EBRD region belongs to the states included in Annex I. Outside of this group are the countries of Central Asia, Southern Caucasus, the Western Balkans[50], the MENA region and Mongolia. However, in the two-degree scenario these countries will also have to start tackling emissions. In the IPCC documents, reductions in the Non-Annex-I countries are presented not in the form of absolute reductions compared to the base-year, but deviation from the baseline or a business as usual scenario, i.e. one without any climate policy interventions. The deviations from the baseline necessary to stay within a two-degree rise until 2020 are not large initially (between fifteen and thirty percent), but substantially increase with time, reaching the level of 80 per cent deviation from the baseline in 2050[51].

While the IPCC global emission reduction scenarios do not give specific figures for individual countries or regions, these may be found in the reports of other organisations. In the Greenpeace Energy [R]evolution scenario transition economies can reduce CO2 emissions by 2050 by 80 percent compared to 2007

levels. This result is achieved with net employment gains and reduced electricity prices in the long-term, when compared to the reference scenario[52].

The complicated IPCC calculations, on which the post-Kyoto agreement will have to be based, become more tangible when looking at the practical implications for newly constructed infrastructure. According to the most recent International Energy Agency World Energy Outlook, the total energy-related CO2 permissible to keep the temperature rise below two degrees[53] is already "locked in" in existing capital stock. If stringent new action is not forthcoming by 2017, the energy-related infrastructure then in place will generate all the CO2 emissions allowed up to 2035, leaving no room for additional power plants, factories and other infrastructure unless they are zero-carbon, which would be extremely costly[54].

Waiting for fossil fuels' scarcity to drive prices up and trigger this change is not an option. Burning all the fossil fuels, whose extraction is already technically and economically feasible, would emit 10 times more CO2 than we can afford to emit in the two-degree scenario[55].

One of the most commonly repeated answers to calls for radical action against climate change is its supposed high costs. However, this does not take into account the huge potential for reducing demand through demand-side energy efficiency measures, which is cheaper, faster and cleaner than expanding generation capacity. Moreover, increasing evidence is showing that even where there are incremental costs, giving up or even delaying action will be even more costly. The most well-known study concluding that the costs of inaction will radically outweigh the costs of mitigation was prepared for the British government by Lord Nicholas Stern and his team. The report, published in 2006, said that stabilising the climate through mitigation measures would cost 1 percent of world's GDP per year. Failure to do this would lead to damage costing at least 5 percent and perhaps more than 20 percent of global GDP. In 2008, Stern increased the estimated costs of mitigation at two percent of world GDP[56].

The situation of the EBRD region in this regard is specific. A 2011 report by the Grantham Research Institute on Climate Change and the EBRD (EBRD/LSE report) concluded that, "while climate change mitigation will entail higher economic costs in the transition region than in advanced OECD economies, particularly in resource rich countries, ambitious mitigation measures are strongly aligned with the long-term economic interests of the region. The end-result of successful mitigation efforts will be reduced resource dependency, and likely higher long term growth."[57]

In the economics of climate change mitigation, the speed of action is crucial. According to the International Energy Agency every dollar of investments in the power sector avoided before 2020, corresponds to an additional USD 4.30, which will have to be spent to compensate for higher emissions after 2020. "Delaying action is a false economy" concludes the report[58]. The authors of the EBRD/LSE study also accept this logic. They write, "Although mitigation may be costly, particularly for the energy exporters in the region, it is in the best interests of these countries to undertake mitigation policies, in order to adapt production and exports to the lower future global demand for fossil fuels and to maintain economic competitiveness. The sooner this occurs, the lower the costs of mitigation. "[59]

Both the EBRD/LSE study and the IEA's calculation concentrate on the costs of mitigation. They do not capture significant co-benefits like avoidance of the so-called 'resource curse' in the fossil fuel exporting countries and reduced costs of air pollution. If Russia reduces emissions in line with the two-degree scenario costs of air pollution in this country would be reduced by USD 2.2 billion per year by 2030[60]. Neither do these models take into account the costs of damage, if catastrophic climate change happens. The EBRD region has already experienced the effects of extreme weather events associated with a changing climate, like the large scale fires in Russia during the heatwave in 2010[61]. It is difficult to precisely predict the consequences of decreasing water availability and the switch and movement of climate areas in some of the EBRD region, but in the already water-stressed region of Central Asia they may be severe. The river runoff is estimated to decline there by about 20 percent in the next 50 years[62] and will seriously increase the risk of political and armed conflicts over water.

At the end of 2011 the EBRD expressed its intention to start lending for projects contributing to adaptation to climate change. In the long-term adaptation to the results of climate change will be much more expensive than mitigation and may even reach 20 percent of world GDP. It is true that adaptation measures are becoming increasingly necessary, and some measures bring both mitigation and adaptation benefits. However lending for adaptation measures without first giving up support for projects which increase or maintain emissions levels is economically reckless – especially in these times when public finances need to be scrutinised even more carefully than usual – and morally questionable given that climate change will most affect those who did not cause it.

Stopping fossil fuel subsidies is a priority There is a growing consensus that a reduction of subsidies for fossil fuel projects, including loans from public banks[63], is one of the most urgent tasks. In 2009 during the G20 summit in Pittsburgh world leaders called for the phasing out of fossil fuels subsidies, which would reduce overall human induced GHG emissions by 10 percent by 2050[64]. Calculations by the International Energy Agency, which focuses on

subsidies for consumption, estimate that phasing out fossil fuel subsidies by 2020 would reduce growth in energy demand by 4.1 percent and cut growth in CO2 emissions by 1.7 Gigatonnes[65].

Fossil fuels subsidies via public banks recently became a target of criticism by Lord Nicholas Stern, a former World Bank chief economist, and advisor on the EBRD/LSE low-carbon study. During the Durban climate conference in December 2011, he said that rich economies waste money and disadvantage renewable energy by giving away tax breaks, loans, and other subsidies to the fossil fuel industry. Cutting them would bring about USD 10 billion a year, which should be directed towards helping poor countries on climate change[66].

Firstly, the EBRD's continued support for fossil fuel projects, starting with coal, needs to be halted. While most of the bank's energy efficiency investments are highly welcome, a deeper look at some of them reveals them to involve extending the lifetime or the capacity of fossil fuel generation or production, as outlined above in section 2.

Secondly, there is a need for an increase in the quantity and sustainability of the EBRD's investments into new renewables. We believe that a phase-out of fossil fuel lending would send a clear signal to those countries, which have so far been unenthusiastic about new renewable energy that they should start to take it more seriously. However, at the same time, investments in renewable energy need to be carefully planned to avoid potentially serious environmental impacts, and here the EBRD has a key role to play, through technical assistance and planning advice.

A set of legal documents, known as the Climate and Energy Package, was adopted by the EU in 2008. It gave clear guidance on the direction of development of the energy sectors of EU countries and candidates joining the block. This 2020 perspective addressed in the climate and energy package is not reflected in the EBRD's energy policy, but also, as pointed out in the introduction, it is increasingly recognised, including in the EU Roadmap to a Low Carbon Economy and the EU Energy Roadmap to 2050, that an 80-95 percent reduction in greenhouse gas emissions is needed in the so-called 'developed' countries, with significant reductions needed elsewhere compared to "business as usual".

There is a growing understanding of the implications of these debates on the lending of International Financial Institutions. In October 2011, the European Parliament and the European Council legally obliged the European Investment Bank to develop a strategy for the portion of its lending outside of the EU to be covered by an EU guarantee aimed at increasing the percentage of projects promoting the reduction of CO2 emissions and phasing out financing projects detrimental to European Union climate objectives. The strategy should have been ready by the end of 2012[67].

Although the EBRD energy policy does recognise that "In the long-term a switch to carbon-free technologies is also needed to address the threat of climate change", it has become clear even to relatively conservative bodies such as the International Energy Agency[68] that change is needed not in the long-term, but right now, and the EBRD's current strategy does not address this sufficiently.

The EU now emphasises almost total decarbonisation of the economy, particularly the energy, residential and industrial sectors, by 2050 as a policy goal, and while the EBRD has made efforts to look at this issue in separate publications such as its 2011 Low Carbon Transition report[69], its energy policy does not explore this goal at all.

It mentions mechanisms such as the Kyoto Protocol, the EU Emissions Trading Scheme (EU ETS) and carbon markets, but does not sufficiently analyse the extent to which these mechanisms are effective or not in bringing about real GHG emissions reductions. In addition, with the expiry of the Kyoto Protocol, low carbon prices in the EU ETS and considerable uncertainty about what will happen next, relying heavily on market based climate mitigation mechanisms is very risky.

Biodiversity protection is becoming increasingly urgent. Biodiversity protection has been subject to several international agreements. For example, in 2000, a goal of achieving a 'significant' reduction in biodiversity loss by 2010 was set as one of the Millennium Development Goals, but was not met[70]. In October 2010, participants in the Convention on Biodiversity COP 10 meeting agreed on the so-called Aichi Targets, committing to at least halve and where feasible bring close to zero the rate of loss of natural habitats including forests during the next 10 years[71]. In May 2011, the European Commission adopted a Biodiversity Strategy to 2020 with a headline target of "Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss". By 2050, the goal is that: "European Union biodiversity and the ecosystem services it provides – its natural capital – are protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human wellbeing and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided."[72] Much of the transition region has relatively rich biodiversity compared to western Europe, however it is under constant threat from a variety of activities including infrastructure construction, and decision-makers often do not make sufficient effort to protect it. In the energy sector there are a variety of threats to biodiversity but among those the region is least well prepared for are the relatively new threats of climate change and the uncontrolled spread of renewable energy installations at inappropriate sites (see section on renewable energy).

Oil prices have risen significantly. The EBRD energy policy states: "As of May 2006, oil prices had risen to over US$70/bbl and many predict that prices will remain well over US$30/bbl for the foreseeable future." At the time of writing, the dated Brent spot price for oil is USD 111.24[73]. Oil price fluctuations should be an excellent incentive at least for non-oil producing countries to hasten their transition to a low-carbon economy and to reduce demand for energy overall. At the same time, as the EBRD points out in its Low Carbon Transition report, if oil producing or coal-dependent countries wait until later to make their transition, they will disadvantage themselves in the development of low-carbon and highly energy efficient technologies and become second-class players in the field.

The development of unconventional natural gas sources has dramatically transformed the US gas market within the last couple of years and continues to transform the electricity generation sector. With news of exploratory drilling in the EBRD region, some decision-makers have high expectations for the technology and for easing dependence on Russian gas imports to countries like Poland, Hungary, Romania and the Baltic states. The new 'fracking' technology is accompanied by numerous controversies – water pollution and excessive use of water, climate impacts, air pollution, noise, soil pollution, impact on seismic activity – leading to the introduction of moratoria on use of this technology in Bulgaria, France and some regions of Germany, the United States and Canada, while a precautionary approach has also been taken in the Czech Republic, Denmark and Romania, where legislation to introduce moratoriums is being prepared. In the Netherlands, the Dutch government has put shale gas drilling on hold while the environmental risks are investigated.

The EBRD needs to develop a coherent position towards financing gas in the coming years. Although gas is undoubtedly less carbon intensive than coal and oil, it is still a fossil fuel that has severe environmental and social impacts on the territory where it is extracted, is ultimately unsustainable, and the existing gas infrastructure will still last for many years to come, making it unwise to build more without carefully considering how much gas technology is already 'locked in' to the energy system, potentially contributing to preventing stringent climate targets from being reached. Gas energy production technologies are also mature and do not need to be supported by public financing institutions. Given the high risks and controversial nature of shale gas extraction, the EBRD should treat this as a no-go area. In any case, financing gas takes up valuable public resources that should be dedicated to leading new markets in new renewables and energy efficiency – especially considering the costs of infrastructure needed for transportation and storage – and ultimately leads us further away from the decarbonisation of the energy sector rather than closer to it.

Case study: shale gas development

Shale gas with its high-carbon intensity cannot fit with the EU's commitment to a low-carbon economy (reducing greenhouse gas emissions to 80-95% below 1990 levels by 2050) and the agreed aim of almost full decarbonisation of the power sector by 2050. An increased rate of EU shale gas investments would mean a continued fossil fuel lock-in during such a decisive period (for the next 25-40 years) for European climate objectives. The myth of low-carbon unconventional gas is untrue, as "compared to coal, the footprint of shale gas is at least 20% greater and perhaps more than twice as great on the 20-year horizon"[74].

Secondly, the exact extent of Europe's unconventional gas reserves is unknown, although the IEA has estimated it as 35 tcm of "technically recoverable" gas[75]. Given that updated estimates of Polish reserves (originally thought to be the biggest in the EU) are only 1/10 of the early estimates, there is very likely much less shale gas in EU than needed to regard it as a 'game changer' in energy supply. Moreover, the European situation is much different from the US one: the shale reserves are geologically different, the EU population is much higher, and the legislative environment is more complex. Not surprisingly, scepticism is widespread about the financial and technical viability of developing and extracting shale gas in Europe[76].

Thirdly, according to several studies, including European Parliament reports[77], the potential social-environmental impacts of unconventional gas exploration and exploitation are unbearable – high risk of leakage, air pollution, high water use (15 million litre/fracking), water and land contamination, extra traffic generation and noise, risk of earthquakes and vibrations.

Financially, shale gas could "substitute not for coal but for renewables", stifling the growing renewable sector and leaving us facing a looming energy gap[78]. Unconventional gas investments distract IFIs, investors, operators from the real opportunity to develop the renewable sector, guaranteeing long term supply, and to invest in greater energy efficiency, both of which will bring added long-term benefits in terms of jobs. A UK cost comparison between gas and wind power found that investing in offshore wind would generate 17% more electricity compared to the same level of investment in shale gas. If the same amount is invested in onshore wind, it would generate up to twice as much power[79].

In June 2011 a study of the European Parliament's Committee on Environment, Public Health and Food Safety found that "it is very likely that investments in shale gas projects might have a short-living impact – if any - on gas supply which could be counterproductive, as it would provide the impression of an ensured gas supply at a time when the signal to consumers should be to reduce this dependency by savings, efficiency measures and substitution."

Because of all these problems listed above, not mentioning the obvious inadequacy of the current European environmental and other relevant legislation to address unconventional gas issues, we recommend that no further shale gas activities should be financially or politically supported, and any operational ones should be revised[80].

The global financial and economic crisis has challenged assumptions about the quantity of energy needed over the coming years and has made it more essential than ever that investments not only offer good value for money but also create jobs and stimulate local economies. It has been widely recognised[81] that the transition to a low-carbon economy can play an important role in mitigating the impacts of the crisis, by encouraging new technologies, creating new 'green-collar' jobs, opening up new opportunities in fast growing world markets, keeping energy bills for citizens and businesses in check, and reducing Europe's dependence on foreign energy[82]. The recent years of economic uncertainty have also proved that energy sector planning, often driven by corporate interests, has a tendency to overestimate future energy demand. However, as the EBRD's policy was approved before the crisis these aspects were not analysed for the EBRD region in this policy.

At the same time, national energy strategies are disconnected from the current state of facts, using pre-crisis forecasts for energy demand and consumption, as well as erroneously linking energy consumption to GDP growth. The EBRD's policy dialogue with national and regional bodies needs to redefine what is 'realistic' and 'gradual' in terms of reform away from centralized style energy planning.

The so-called 'nuclear renaissance' is dead. While the EBRD's current energy policy refrains from financing the construction and regular operation of nuclear power stations, concentrating on decommissioning and safety improvements, it does make some relatively positive noises about nuclear as a source of power. "The debate on nuclear power has intensified in recent months as a response to both climate change and security of supply issues. Since nuclear power stations emit relatively small amounts of GHG and other pollutants into the atmosphere, the development of nuclear power (which also can be carried out on a large scale while exploiting relatively small areas of the landscape) is being re-evaluated in some countries around the globe, including in the Bank's region, as a potential solution that balances growing demand for energy, security of supply and climate change issues." Both Fukushima and the increasingly costly, late and problem-ridden construction of 4th generation reactors in Flamanville in France and Olkiluoto in Finland should put a stop to any ideas at the EBRD about widening the circle of its activities in relation to nuclear.

Despite this, the current policy is, in practice, allowing the bank to consider investments that

Case study: Ukraine nuclear power plant safety upgrade programme

In November 2010 the EBRD, together with the European Union, announced its plans to support the EUR 1.2 billion Nuclear Power Plant (NPP) safety upgrade programme (SUP) for Ukraine, each with EUR 300 loans. The SUP covers upgrades on all 15 operating Ukrainian nuclear reactors, twelve out of those designed to finish operation by 2020. The Ukrainian government plans to extend the lifetime of all those nuclear reactors.

A careful assessment of Energoatom's Complex (Consolidated) Nuclear Power Plants Safety Upgrade Programme (as of 2011) reveals that more than half of the proposed activities are necessary for lifetime extensions to enable the operation of the reactors for another twenty years. Priority II activities of the Complex (Consolidated) Nuclear Power Plants Safety Upgrade Programme "...are planned as part of the lifetime extension preparatory programme with the possible completion of the project after the end of operation..."[84] All Priority II activities are part of the project proposed by Ukraine for EBRD and Euroatom financing and are listed in technical appendixes to the 'Ecological Assessment Main Report'[85].

However this report prepared as per EBRD due diligence requirements omits this objective of the SUP and downplays the pivotal role that SUP activities will play in the process of lifetime extension. "The SUP involves safety improvements at existing NPPs, with no new construction, no capacity increase and no life extension"[86].

Nuclear reactors operation beyond the technical design lifetime contradicts the EBRD's intention of increasing nuclear safety in the region as the number of incidents and risk of large accidents is increases exponentially after the technical design lifetime. In 2012, while public opposition to the project was growing, its preparation continued although the process was delayed and board approval decision postponed to 2013.

Meanwhile at the end of December, the Ukraine state nuclear regulator issued a decision to close the South Ukrainian NPP unit-1 after the end of current fuel cycle and consider the possibility of its operations lifetime extension only after an extensive list of measures - including 43 from the safety upgrade programme – are implemented. Thus it is no longer possible to deny the loan's role in enabling nuclear unit lifetime extension into the over-design period.

The current Energy Policy allows the bank to make investments in the nuclear energy sector "without a direct link to the closure of high risk reactors"[87]. It is said in the policy that "... while the Bank will not consider providing financing to new reactors, it may provide financing to an operating facility in relation

to nuclear safety improvements..."[88] The NPP SUP demonstrates that the current policy, although saying nothing about lifetime extension financing, in fact allows the bank to finance nuclear sector programmes which enable the prolongation of old units' operation beyond their designed lifetime. This constitutes direct support to the nuclear industry, especially in situations when the nuclear electricity tariff is kept below the full production cost as in the case of Ukraine. The EBRD should not invest in nuclear energy, as it is neither a sustainable energy source nor a new innovative technology in need of public support. The new energy operations policy should contain a clear formulation that in the nuclear sector the bank can support only decommissioning and safe and secure management of radioactive waste and spent nuclear fuel.

would allow the operating company to extend the lifetime of nuclear reactors under the name of "safety upgrades", thus contributing to higher nuclear risks in the region[83]. Instead, the EBRD should narrow down its investments into the nuclear sector to safe closure and decommissioning, as well as for the safe and secure management of radioactive waste and spent nuclear fuel, to exclude any basis for the bank to support the further expansion of nuclear energy.

Climate change is already having a significant impact on hydropower generation, for example, in southeast Europe. In late 2011, Serbia's hydropower plants were operating at their lowest level since 1926 due to a prolonged drought, and other countries in the region were seriously affected as well, including of course Albania, which is extremely dependent on hydropower[89]. However other energy sources are also being affected by changing weather conditions, for example in 2011 a close eye was being kept on nuclear power stations in France to see whether they would need to be temporarily shut down, as they are mainly situated on rivers and use river water for cooling[90].

Last but not least, the EBRD's expansion to the southern and eastern Mediterranean region represents a huge change that has arisen since the bank's last energy policy was written and now needs to be addressed. While the region has huge renewable energy potential, this must be harnessed first and foremost for the needs of the local population. It has been disappointing to see that the bank's first energy investment in the region, Jordan's Al Manakher thermal power plant is not only in a high-carbon energy source, but it also requires a derogation from EU environmental standards.

Conclusions and recommendations

Addressing the climate crisis by drastically reducing GHG emissions of 80-95 percent in developed countries and 50 percent globally is becoming ever more urgent. While the developed countries need to take the lead on this, all of the EBRD's countries of operations need to make significant reductions in emissions compared to business as usual and need to develop their renewable energy and energy efficiency sectors to avoid becoming uncompetitive in these areas.

International bodies such as the IEA are warning that carbon-based energy consumption is already to a large extent locked into existing energy facilities and that building new fossil fuel facilities risks completing this lock-in to an extent that it is impossible to achieve the needed reductions in emissions without technologies such as CCS or geo-engineering. However as CCS and geo-engineering are as yet unproven as well as being questionable in terms of their safety, they should not be relied on and it needs to be made clear, including by bodies such as the EBRD, that there is currently no real and economically viable option except to make the necessary emissions reductions.

However, while the EBRD's current energy policy, approved in 2006, brought a much-needed emphasis on sustainability and laid the ground for increased lending for energy efficiency and renewables, it did not sufficiently address other challenges such as the need to examine long-term requirements for emissions reductions and plan energy investments that would be compatible with these, and it is now in need of urgent revision. Since the Energy Policy was approved, a whole host of other issues have arisen that require a new approach, such as rising oil prices, the bank's expansion to the southern and eastern Mediterranean region, the death of the nuclear renaissance, and the impact of increasingly frequent droughts on hydropower generation.

During the past few years there have been some very welcome developments in the EBRD's energy lending, such as a large increase in its energy efficiency and new renewables investments, and the bank should continue to develop these areas, and especially to expand demand-side energy efficiency.

However, this good news is spoiled by the bank's continued financing of fossil fuels, which made up almost half (48 percent) of its overall energy lending in the period. In particular, its increasing financing of coal and oil projects is problematic, as each of these received investments equal to the amount of new renewables financed in 2011.

The EBRD is often prone to argue that the countries would burn fossil fuels anyway, as a means of justifying its involvement in such projects. However, the bank – a public institution – must

finance projects where other sources of financing are not available at reasonable rates. Thus if it is financing projects that would happen anyway, then it is competing with commercial banks and contravening its mandate. In addition, whatever is invested in fossil fuels is diverting limited resources away from energy efficiency and new renewables, as well as other worthwhile investments. Finally, the idea that something is going to happen anyway is not an excuse for actively contributing to it.

Too often the bank counts fossil fuel projects as energy efficiency projects due to a decrease in emissions per unit of output, without properly taking into account the fact that without the project a different alternative may have been implemented that may have brought significant absolute decreases in emissions. The bank is too accepting of projects that maintain current overall emissions levels, when in fact massive absolute emissions reductions are needed, particularly in countries that are already in the EU or have aspirations of joining.

For other EBRD countries of operation, it is not sufficient to wait for the outcomes of global climate negotiations, which may or may not bring conclusions in several years time. The bank needs to develop a cross-sectoral climate policy, in accordance with IPCC guidance, and assess the degree to which emissions need to be reduced, and it needs to ensure that its investments follow this trajectory. Given the IEA's warnings regarding carbon lock-in of infrastructure, even before developing a climate policy the bank will need to phase out lending for carbon-intensive sectors of the economy altogether starting with an immediate halt in support for the extraction and combustion of the most carbon intensive-energy source, coal. This needs to be clearly stated in its new Energy Strategy.

Given the problem of carbon lock-in in energy infrastructure, any replacement in energy generation after 2013 for coal and 2014 for gas should be turned down by the EBRD on the basis of climate science.

The second broad issue is that the increase in renewables lending brings with it new challenges that need to be addressed if renewable energy is to retain its integrity as an environmentally acceptable means of energy production. The example of Bulgaria shows that the rapid but poorly planned expansion of renewable energy can be environmentally damaging. The fact that the EBRD once again began to finance large hydropower plants in 2011 after a long time is a concern given the high environmental impact of the three projects approved. The EBRD needs to adopt strict sustainability criteria for renewable energy and to contribute to careful planning of these technologies with national and local authorities.

It is encouraging that the EBRD's financing for energy efficiency has almost quadrupled since 2006 and that the bank has indicated its intentions to undertake more residential energy efficiency projects, which can contribute substantially to emissions reductions as well as reducing energy or fuel poverty as well as creating jobs. Demand-side energy efficiency is always more efficient than supply-side and as such the bank needs to increase its efforts to finance this challenging sector.

Recommendations

Fossil fuels

- Any replacement in energy generation starting construction from 2013 for coal and 2014 for gas must be turned down by the EBRD on the basis of climate science.
- The bank should completely phase out investments into expansions of the fossil fuel sub-sectors, including extraction, transportation, storage and electricity generation and limit its investments in these carbon-intensive sectors only to energy efficiency or safety projects that neither increase the lifetime nor increase the capacity of the facility.
- The bank needs to tighten up its definition of energy efficiency in power generation for the purposes of inclusion into the Sustainable Energy Initiative. Efficiency improvements need to be more ambitious and based on climate science calling for a worldwide decrease of CO2 emissions of 50-70 percent by 2050.

Nuclear

- The bank should only finance the decommissioning of nuclear reactors and nuclear waste management.

Renewable energy

- The EBRD needs to adopt more stringent sustainability criteria for its renewables projects. Our proposals on what should be regarded as sustainable renewable energy are in Annex 1.
- The bank should continue diversifying its renewables portfolio so that new renewables other than wind are more heavily supported, especially solar.
- The spread of renewables investments across the countries of operation needs to continue to be improved.
- The EBRD should ensure that its investments contribute towards a more balanced and diverse RES mix on the country level, so some RES sources are not favoured excessively, e.g. hydropower or wind projects, particularly in countries that already have an imbalance e.g. Albania, Georgia.
- Renewable energy installations, as with all energy installations supported by the EBRD, should primarily be aimed at satisfying local needs, in order to avoid situations where countries' best potential are developed for export needs, leaving limited potential for domestic needs.

The EBRD should assist in the development and financing of the following:

- assessments of the potential for improving energy efficiency for end-users
- Sustainable Energy Action Plans or Renewable Energy Action Plans + Energy Efficiency Action Plans.
- Strategic Environmental Assessments of the above plans
- creation of structures for investments in public buildings
- creation of markets for energy efficiency companies
- supporting producers of energy efficiency and RES equipment
- continuing support to ESCOs
- providing technical assistance in the creation of legal and regulatory frameworks for RES and EE legislation
- assessments of future energy consumption and development of demand management plans

Energy efficiency

- The EBRD needs to expand its demand-side energy efficiency investments, particularly residential energy efficiency.
- Credit lines need to have reasonable interest rates and it is to be expected that these would be lower if the loan were partly guaranteed.
- The EBRD needs to publish information on the results achieved through its energy efficiency and renewables credit lines, in terms of loans disbursed, CO2 emissions reduced, and projects that were supported.
- Benefits from grant co-financing for the projects must be passed on to the end users, not eaten up by bank fees and high interest rates.
- Where local banks are not willing to offer low interest rates, the EBRD should consider launching municipal funds for energy efficiency investments.

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Annex 1: Bankwatch's sustainable renewables criteria

All renewables

- Must be part of a renewable energy development plan that is subject to a Strategic Environmental Assessment,
- Must be in line with River Basin Plans and protected area management plans,
- Must not be in (planned) Natura2000 sites without a compatibility assessment and a cumulative impact assessment.

Biogas, if:

- By-products from the biogas plants should be used as a fertiliser only after independent certification (for example in case of biogas plants which use wastes from slaughter and meat processing factories as an input material).

Solar, if siting avoids valuable agricultural land and the potential impacts on wildlife have been addressed.

Wind, if:

the project is not developed in a protected natural area;

- the project is not developed along a bird migration route;
- the project does not impact bat populations (besides collision and habitat disturbance, the issue of ultrasound emissions is to be dealt with);
- wind farm projects will be based on biodiversity baseline studies and will undergo an environmental impact assessment, as any large industrial project;
- wind projects will have post-commissioning monitoring programmes to ensure there is no negative impact on communities and wildlife;
- the project will use state-of-the-art equipment, in order to minimise noise, vibration and electric and magnetic fields; old, used installations will not receive funding from IFIs;
- off-shore wind projects will be based on a thorough analysis of potential impact on both birds and mammals, including their habitats and feeding areas and sources.

Water, if the project meets international standards, including the recommendations of the World Commission on Dams and:

- the project is under 10 MW;
- the project does not involve dam, reservoir and resettlement;
- the project does not affect the water flow regime and wildlife circulation;
- the project does not affect biodiversity, nor people's water needs;
- the project does not affect possible investments

to rehabilitate and increase efficiency of existing units in the project area;
- the project is not situated in a protected area (included in IUCN category IV);
- small hydro plants (below 10 MW) with derivation channels if the water intake is relatively small and does not negatively affect biodiversity and livelihoods downstream.
- not more than 30-50 percent of rivers in a catchment area are developed with small hydropower (exact boundary to be determined by experts).

Geothermal, if:

- the project injects the water back to the ground, there are no discharges that could thermally pollute river or lake systems;
- equipment is in place to eliminate harmful emissions of greenhouse gases, hydrogen sulphide and other gases in the thermal water.

Biomass and biofuel, if:

- the design and layout of plantations promotes the protection, restoration and conservation of natural forests, and does not increase pressures on natural forests or nature protected areas;
- a biomass origin certification system is in place;
- the plantations do not have a negative impact on natural habitats;
- the crops exclude genetically modified organisms;
- native species are preferred over exotic species in the establishment of plantations and the restoration of degraded ecosystems. Exotic species, which shall be used only when their performance is greater than that of native species, shall be carefully monitored to detect unusual mortality, disease, or insect outbreaks and adverse ecological impacts;
- the project brings about improvements in soil structure, fertility and biological activity;
- the project does not involve the use of harmful fertilisers and insecticides;
- the project does not bring about adverse impacts on water availability and quality, or impact on river and lake systems for that matter;
- no species is planted on a large scale until local trials and/or experience have shown that they are ecologically well-adapted to the site, are not invasive, and do not have significant negative ecological impacts on other ecosystems;
- the project does not raise land ownership, use or access issues;
- the project is not a threat to food security on any level (energy plantations drastically reducing/ eliminating food crops in the area);
- the project does not involve a net increase in GHG emissions when biogenic emissions from the biomass are also included;
- the biomass resource is of local origin (no imports of biomass from the Global South);
- the project must not create social conflicts;
- biomass production must have a substantial positive energy balance (energy output versus input);
- exploitation of energy biomass from production forests has to be in accordance with rules of sustainable forestry (all lopping and 30 cubic metres per hectare should not be removed from the forest).

End notes

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19. Amended Investment Plan, Rev. 4, 18 August 2011. Unofficial translation, page 140-1.
20. Environmental Impact Assessment: p.530
21. European Commission: A Roadmap for moving towards a low-carbon economy in 2050, 08 March 2011; European Commission: Energy Roadmap 2050, 15 December 2011.
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36. The project summary document on the EBRD's website also mentions CIBank, but this is not mentioned on the REECL's website http://www.reecl.org/partbanks.php
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40. EBRD: Sustainability Report 2010, May 2011, p.28 http://www.ebrd.com/downloads/research/sustain/sr10ed.pdf
41. IPCC Fourth Assessment Report: Climate Change 2007, part D. Mitigation in the long-term (after 2030), Art. 21, available at: http://www.ipcc.ch/publications_and_data/ar4/wg3/en/spmsspm-d.html
42. The CCS Directive provides no indication by when the technology has to be implemented, instead leaving it to the market. Art. 38 of the CCS Directive opens the possibility for the CCS Directive to be revised in 2015. At the same time NGOs warn that most newly built gas CCS plants will be unready or unable to build CCS by 2030: http://www.europeanenergyreview.eu/site/pagina.php?id=3614
43. Turkey, where GHG emissions increased by more than 100 percent between the base year and 2009, is an exception compared to most countries in the EBRD region.
44. The Low Carbon Transition, The Grantham Research Institute on Climate Change at London School of Economics and the EBRD, April 2011.
45. This goal was recognised by parties to UNFCCC in the Copenhagen Accord as well as in the Durban Platform.
46. This is so far not anywhere near being proven to work and as such should not be taken for granted. Relying on such 'techno-fixes' also appears to diminish the urgency of taking action against climate change now, and provides fodder for those who wish to ignore the problem. An additional issue appears regarding the control and application of such technologies, which may, if controlled by a few, not be applied for the benefit of all of humanity but only for certain groups or regions.
47. 50 percent comes from the European Council Conclusions 29/30 October 2009. Paragraph 7: "The European Council calls upon all Parties to embrace the 2°C objective and to agree to global emission reductions of at least 50%, and aggregate developed country emission reductions of at least 80-95%, as part of such global emission reductions, by 2050 compared to 1990 levels; such objectives should provide both the aspiration and the yardstick to establish mid-term goals, subject to regular scientific review." However more recent scientific work points to the necessity to reduce emissions by 70 percent globally: Meinshausen, M. et al. (2009) Greenhouse-gas emissions targets for limiting global warming to 2° C, Nature, 458, 1158-1162 and Allen, M.R. et al. (2009) Warming caused by cumulative carbon emissions towards the trillionth tonne, Nature, 458, 1163-1166.
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