EIB Public Consultation for the review of its Energy Sector Lending Policy

Consultation questions collected together from the issues paper

Chapter 4.1 General energy and economic context

Particularly in the current economic climate, is there a trade-off between promoting a competitive and secure energy supply and which one is environmentally sustainable? Where should the balance lie and what implications does this have for energy sector investments?

*In these difficult times of economic crises investment in the Energy sector needs to be even more effective and it has to be ensured that in particular those solutions are prioritized that serve all three top priorities of European Energy Policy.*

*Current European legislation has identified Energy Efficiency as a key priority, with the recent Energy Efficiency Directive bringing about essential changes for the energy sector. As identified by this Directive, Energy Efficiency on both, the demand and the supply side bring about urgently needed stimulus for Europe by decreasing our businesses’ and citizen’s energy bills, thereby making our continent even more competitive and keeping jobs at home, while at the same time reducing harmful emissions. Therefore Europe but also many member states deem CHP as one of the most important technologies to reduce our primary energy consumption and increase the efficiency of Europe’s energy supply.*

*In order to achieve Europe’s decarbonisation goal, renewable energy becomes more and more important. Hydropower, for instance, is the well-known CO2-free generation technology and provides also balancing services urgently needed for integration of volatile renewables such as wind and PV. The changing surroundings of energy markets, esp. financial support for the new renewables which have low or even zero variable costs in generation, has negatively influenced the business case of some conventional power plants – among others, pumped hydro storage.*

*Anyhow, the current economic climate in combination with rising primary energy costs and low electricity prices, do in many cases not allow anymore for investment in CHP technologies. As a result of this situation and in order to implement the relevant EU sector policy, which has changed due to the Energy Efficiency directive, EIB financing has to put CHP projects on equal footing with renewables and put even more focus on investment in supply side efficiency measurements.*

How does investment in the energy sector contribute to growth and employment? Are investments in all energy sub-sectors equally valuable? And how does investment in the energy sector rank relative to other investments in the economy which support growth and employment?

*The European energy system and the electricity sector with the view on future applications in particular, serve as a backbone to the European economic and social system. Hence, any investment in the energy/electricity system leads either directly or indirectly to growth, employment and prosperity in all sectors of the economy. However, energy costs have become critical for the economy, whether in the industry or service*
sector or the society. This has obviously a serious impact on the job market and national budgets. The more efficient, effective and reliable our energy system of tomorrow is the better for all European citizens.

What impact do you consider the current economic crisis will have on the energy sector (demand, policies, supply)?

If the current unreliable policy framework lingers, the impacts will lead to severe disturbance on energy/electricity demand and supply. Investments in energy/electricity infrastructure and generation are set out due to unbalances among an inconsistent economic framework and environmental concern. Support in energy efficiency could be counter-effective if rebound impacts are not considered adequately. Decentralization without a supporting grid expansion at all levels might lead to stranded investments. Disparities of generation technologies acting either in a liberalized or supportive market impact a fair level playing field.

Electricity prices have fallen while the price of secure, available natural gas has risen. The result is that natural gas-fired co-generation power plants (which are particularly efficient as they produce electricity and useful heat together) are increasingly uneconomical. Existing plants are being brought online more rarely and it is no longer commercially viable to construct new plants. This situation obviously is opposing the purpose of the recently adopted Energy Efficiency Directive (see also comment above), which is why EIB investment should strengthen its funding for CHP projects. The same problem of dramatic negative changes to the business case is valid for pumped hydro storage. New investments are – from today’s point of view – not realistic due to unsecure developments in energy market.

Chapter 4.2 Renewable Energy

The Bank’s economic justification for supporting emerging renewable energy technologies, whose cost is significantly above that of conventional and mature renewable energy technologies, is that continued investments in these technologies will eventually lead to cost reductions and will ultimately be the least-cost approach to meeting the EU’s renewable energy targets. Do you agree with this approach? Is there an alternative approach to the economic justification of these technologies which you consider more appropriate?

Given the changing structure in electricity generation, the support of renewables might deserve another angle to be considered. Given the fluctuation of energy/electricity availability by new renewables (PV, Wind), the system security of qualitative and quantitative supply is at stake. Hence, balancing electricity technologies (renewable where available otherwise traditional technologies should be considered as well) are required. Obviously there also exist a number of (mature) renewable energy technologies, which also require funding in this context. Hydro projects, hydro storage and pumped hydro – all of them offering also balancing services – and onshore wind parks fall under this category and should be prioritized by the EIB.

What evidence is there that the cost of emerging renewable technology is falling?
What level of investment in RE do you expect in the short and medium term?

What are the barriers to investment in renewable energy outside Europe? How might these be overcome?

Do you agree that there is significant scope for investment in renewable heating and cooling?

There is tremendous potential to decarbonise the heating sector by increasing the share of renewables within it and to harness the measures indicated in the EU building directive. At the same time energy efficiency measures such as CHP installations connected to a District Heating network or electrification through the use of heat pumps might come to the same results in a much more cost effective way due to economics of scale. Hence, both efficiency and renewable measures should be seen as complimentary rather than prioritizing one over the other. However, without due consideration of the energy/electricity system the renewable heating and cooling technologies are embedded in, such investments bear significant danger to lead to stranded investments.

What are the barriers to investments in this sector and how might these be overcome?

Chapter 4.3 Energy Efficiency

What do you think are the main barriers to energy efficiency investments? What might be done to overcome these?

Improving energy efficiency is only part of the game if no due consideration is attached to the rebound effects. While theoretically Energy efficiency seems to be the obvious solution to achieve Europe’s threefold Energy policy goal, certain barriers such as high upfront costs, market uncertainties, unawareness of customers and national policies and unbalanced support schemes often stop businesses to invest in theses technologies. Therefore the political framework should be streamlined and financing made available to reduce the immanent investment risks.

What role can Energy Service Companies (ESCOs) play in developing energy efficiency investments?

What is the potential for energy efficiency outside Europe?
Do you consider the criteria used by the Bank to categorise projects as Energy Efficiency projects appropriate (see Annex 1)? What alternative would you propose?

Chapter 4.4 Security of Supply

Is the traditional model for electricity transmission and distribution changing? What implications does this have for future investments in electricity networks?

Decentralization in electricity generation requests a changing approach on the transmission and distribution electricity grid. Secondly, the transmission of huge quantities of electricity over long distances might also require to deeply questioning the "type" of transportation facility (DC instead of AC). Environmental concern could also require a differentiated approach – which might partly be covered by adequate financial support. However, to solve technical difficulties still requires further research and demonstration.

To secure and structure the financing of investment projects until the year 2020 an easy access to suitable financial products with attractive conditions is necessary.

What is the future role of smart grids, offshore grids and energy storage solutions?

Chapter 4.5 Fossil Fuel

Gas is an important bridging fuel source in the transition to a low carbon economy: to what extent and under what conditions should gas-fired generation be supported?

As with any other fuel, whether biomass or natural gas, the efficiency of the transformation process should be the key indicator for support. A primary energy approach would therefore lead to the best results.

As indicated under 4.1 Electricity prices have fallen while the price of secure, available natural gas has risen. The result is that natural gas-fired co-generation power plants (which are particularly efficient as they produce electricity and useful heat together) are increasingly uneconomical. Existing plants are being brought online more rarely and it is no longer commercially viable to construct new plants.

Gas fired generation should therefore be primarily supported where the use of this finite fuel is most efficient and thereby has the best effect on the overall energy system. As a result CHP installations would be at the top of a supporting hierarchy of gas fired installations. Co-generation plants meet the demand for district heating or industrial heat demands – in addition to generating electricity – and therefore make a considerable contribution to reducing the emission of gases such as CO2, SOx and NOx, as well as the concentration of fine dust particles. District heating has become a central element of providing heating in urban areas. The amount of primary energy consumed can be reduced significantly if electricity and heat are generated together (co-generation).
What role will coal and lignite fired generation have in the EU power system in the medium term, with or without CCS, and how is this consistent with the EU’s Climate Action goals and its security of supply objectives?

What will be the role of local coal supplies as input for highly efficient CHPs?

What evaluation criteria should the Bank use to assess the economic, environmental and financial viability of coal and lignite fired generation?

What is the scope for the development of shale gas resources in the EU?

Do you expect the share of natural gas in EU primary energy consumption to grow further?

What would be the best approach to increase security of gas supply and reduce import dependency?

Given the large uncertainty on future gas demand, what is the risk that investment in natural gas infrastructure may be stranded?

**Chapter 4.6 Nuclear**

What role do you expect nuclear power to play in the European energy market?

As nuclear power stations are ageing, should their life be extended (where possible) or should they be replaced with other generation sources?

What will be the impact on electricity generation and climate action of the reconsideration of nuclear policies within EU member states, in particular after the Fukushima accident?

**Chapter 4.7 RDI**

Which are the key innovative energy technologies under development? The development of which key innovative low-carbon energy technologies should receive most financial support?
Currently energy storage, Power to Gas storage technology and geothermal energy are the most important innovative technologies under development.

To have the highest impact the following low-carbon technologies should receive most financial support:

**Hydro** - High efficient pumped storage
- Economic use of small penstock/drop height (1-3 metres)

**Geothermal**
- Exploration and reservoir modeling in large cities to plan the construction of a maximum number of geothermal power plants in the urban area.
- Geomechanic Model: Development und test of procedures to estimate the probability of induced seismicity
- Materials for thermal waters with high salt contents and high temperatures (150-200°C)

**Gas**
- Optimised operation of CHP power plants by implementing a heat reservoir
- Modeling of the operating conditions of the heat accumulator in conjunction with CHP power plants for a Day ahead optimization of the overall system

**Storage general**
- Developments of long term storage for energy (e.g. chemical storage)
- Heat accumulator: Increase of the energy density, ensure optimum operating mode of the storage (efficient and resource conserving operation),
- Optimization of the load distribution

**Power-to-Gas**
- Development and optimisation of the components for Methanation (catalysator)
- Conversion of CO2 and H2 to CH4, optimisation of the Conversion efficiency.
- Optimisation of electrolysis and methanation in respect to the dynamic load conditions
- Industrial-scale demonstration projects for the whole conversion chain (electricity to methan) needed to allow commercialisation.

**Electric vehicles**
- Demand side management for charging infrastructure for parking garages
- Load management to ensure optimum interoperability with electric grid
- Central register of charging points with specifications of charging requirements and integration into route planner
- Batteries
  - Demonstration projects in combination with Photovoltaic for residence buildings and medium-sized enterprises needed to allow commercialization
  - Demonstration of central control of decentral PV-storage needed

Which barrier(s) are hindering the deployment of innovative, low-carbon energy technologies most significantly?
Should financial support be spread across a large number of small research projects or be selective and concentrated on a few promising large research projects?

*A combination of both options would achieve the best results.*

**Chapter 4.8 EIB external and Cotonou mandates**

In a developing market context, where should the balance lie between meeting local energy needs at least cost and reducing global greenhouse gas emissions – the trade-off between affordable energy for all and sustainable energy for all?

What should be the role of the EIB in promoting new technology and helping to transfer existing technologies to new markets?

Where can sources of low-cost finance be more effectively used by the private sector to develop energy projects?

What are the main barriers to developing sustainable energy sources in developing markets?

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