

BALTIC ENERGY MARKET INTERCONNECTION PLAN

- Final report –

I. INTRODUCTION

1. Background

The three priority objectives of the EU's energy policy competitiveness, security of supply and sustainability can only be achieved through a well-interconnected and well-functioning internal energy market backed up by coordinated action by Member States to enhance their solidarity.

The 1st Strategic Energy Review set a direction for change in Europe's energy system, with the 2020 targets: "20-20-20 by 2020"¹. The 2nd Strategic Energy Review followed up on the 1st Review, focusing primarily on concerns about energy security in the changing EU and global situation. The Commission holds that in the long-term, the EU's 20-20-20 strategy makes sense from an energy security as well climate protection and competitiveness viewpoints. In the short and medium term, however, the EU is vulnerable to supply disruptions because of its still high reliance on fossil fuels.

Therefore, one of the priorities of the Commission in the framework of the Second Strategic Energy Review is to connect "energy islands" with the internal market. In this context, the Baltic region has been identified as the first of six major sets of infrastructure projects. The integration of the Baltic States into EU energy networks is seen as one of the main objectives that will contribute to the stability and economic growth of the Baltic Sea Region. This view is also shared by the Council which clearly endorsed this in its conclusions of the European council of October 2008.

President Barroso, following the agreement of the Member States of the Baltic Sea Region, has decided to set up a High Level Group (HLG) chaired by the Commission on "Baltic Interconnections". The HLG began to meet on November 20, 2008 and agreed on a very ambitious objective to provide by July 2009 a comprehensive plan on energy interconnections and market improvement in the Baltic Sea Region.

2. Terms of Reference

2.1. Scope

According to the Terms of Reference agreed during the first meeting of the High Level Group, the objective of this initiative is to prepare by July 2009, a comprehensive action plan for the future development of the energy market in the Baltic Sea Region. In terms of priority of the Interconnection Plan, the focus was first put on the electricity sector, then gas, making reference to other topics of high importance (oil and clean energy).

¹ Reduction in greenhouse gas emissions to 20% below 1990 levels, 30% in the context of a global agreement on climate; 20% contribution of renewables to final energy consumption; reduction in primary energy use to 20% below the baseline projection for 2020.

It also has to be underlined that as energy efficiency is forcefully promoted on EU, as well as national level, energy efficiency projects are not covered by the BEMIP initiative. It is however, tackled within the framework of the EU's Baltic Sea Region Strategy and through the BASREC energy cooperation.

The final Action Plan should feed into the Baltic Sea Region Strategy and be endorsed by the Member States concerned during the Swedish Presidency starting on 1st July, 2009.

The Baltic Energy Market Interconnection Plan brings together in a coordinated way the (mostly existing) projects involving all countries around the Baltic Sea – namely, Finland, Estonia, Latvia, Lithuania, Poland, Germany, Denmark, Sweden and as an observer, Norway - for the development of:

- Internal market for electricity and gas;
- Electricity interconnections;
- New electricity generation capacity;
- Gas diversification of routes and sources;
- Oil

With the ultimate goal of market integration and efficient market functioning in mind, the Action Plan should also provide a broader view on relative sequencing and potential dependency of specific actions, projects and/or workstreams and, thus, facilitate the coordination and harmonization of their implementation.

2.2. Working methods

A **High Level Group** of high level representatives from the involved countries has been set up. It is chaired by the Director General of the Energy and Transport Directorate General of the European Commission. It is composed of representatives nominated by the Prime Ministers of Kingdom of Denmark, Republic of Estonia, Republic of Finland, Federal Republic of Germany, Republic of Latvia, Republic of Lithuania, Republic of Poland, Kingdom of Sweden, as well as an observer, the nominated representative of the Kingdom of Norway.

In order to support its activities, the High Level Group has launched **working groups**; three working groups deemed necessary for the development of the Plan on the following topics:

- "Internal Market of electricity"
- "Electricity Interconnections and power generation"
- "Gas internal market and infrastructure"

In order to be able to analyse issues and define proposals in all areas necessary, the working groups have been set up in addition to representatives from the concerned Ministries, with the participation of TSOs and Regulators. The working groups are also chaired by the Commission.

The working groups have also been supported by the involvement of external **consultants** with relevant experience in the respective areas. This provided a value added in terms of technical knowledge as well as an objective view on the region's issues and capabilities.

II. ACTION PLAN

This section describes all projects and actions within the scope of the BEMIP in the area of electricity market, interconnections and generation, as well as gas market and infrastructure showing their main characteristics as well as their dependency from other projects. In order to cover the wider spectrum of energy in the region, a descriptive chapter on oil has also been added.

1. Energy efficiency

Energy efficiency is one of the key elements of the sustainability 'leg' of the energy policy triangle, in addition to also contributing to security of supply by easing the pressure on the demand side. It is the cheapest source of energy and the most cost-effective way to reduce CO₂ emissions. The untapped potential to save energy is significant and exists in almost all sectors in the Baltic Sea region.

The BEMIP has been developed assuming energy efficiency measures are taken by the Member States in accordance with the EU's 20/20/20 strategy through their national energy saving targets and acknowledging its role in security of supply.

As specific actions in this area are already defined within the Baltic Sea Region Strategy and also dealt with within working groups of BASREC, in order to avoid duplication of actions, we make reference to these actions without including them within the scope of the BEMIP. They do form part of the external environment of our Action Plan, however, and as such, they will be followed by the Commission.

In the Action Plan of the Baltic Sea Region Strategy, energy efficiency actions contribute both to mitigation of the impact of climate change, as well as to the increased energy security of the region.

Specific actions described are the promotion of efficient heating systems by the renovation of district heating and combined heat and power systems. The promotion of energy efficiency in housing, with special attention to the residential sector and public buildings is also a major way to mitigate the effect of climate change.

The full implementation of the EU-Russia energy efficiency initiative, particularly the Action Plan 2008-09 is also proposed in this area. In this regard, efforts to reach full implementation of the EU-Russia energy efficiency initiative will be made by all parties involved in the current BEMIP initiative.

2. Electricity

2.1. Market integration

The Action Plan is based on a comprehensive approach to connect the "Baltic energy island" with the internal electricity market. It aims at developing sufficient interconnections to the grids of Finland, Sweden and Poland, as well as at integrating the Baltic area with the Nordic power market.

The roadmap towards an integrated power market between the Baltic Member States and the Nordic Countries consists of a stepwise process accompanying the progressive development of the power market in the Baltic area up to its full integration with the Nordic Power market. The following main steps have been identified and already agreed:

1. Decision to start Baltic market integration - summer 2009
2. What must be completed by Day 1 - Q1 2010
3. How to continue the process - 1-3 years
4. Actions to finalize the market - 3-5 years

Some points shall be clarified in more detail during the implementation of the roadmap, namely the consolidation of the Lithuanian Power Exchange area into the Nord Pool Spot Baltic price areas, but the main actions have been agreed.

Electricity market integration actions are critical and crucial for the physical integration and development of interconnections in the region, therefore monitoring of progress in this area will be key for the timeline of the roadmap.

The steps can be realized earlier if agreed between the relevant parties.

Project	Short description of the Project	Target timescales	Dependency with project	Responsible body
Step 1. Take preliminary political and business decisions on market integration	<p><i>Political</i></p> <ul style="list-style-type: none"> • Baltic Prime Ministers decision to start the Baltic electricity market integration on the basis of the indications forwarded by the HLG • Estonian and Lithuanian governments abolish the regulated tariffs for eligible customers at wholesale market (at least 35% of electricity consumption in each of the Baltic countries). <p><i>Business</i></p> <ul style="list-style-type: none"> • Decision by Nord Pool Spot to start NPS Baltic preparation for opening of Estlink price area • Decision by Estlink Shareholders to change Capacity Purchase Agreement and Shareholders Agreement for implicit auction by Day 1. In case the owners of Estlink1 cannot agree on opening, regulators will decide about changes in Estlink1 derogation. 	Summer / Autumn 2009		Prime Ministers, Three Baltic States' Governments Nord Pool Spot Estlink shareholders Finnish and Estonian regulators

Project	Short description of the Project	Target timescales	Dependency with project	Responsible body
<p>Step 2.</p> <p>What must be completed by Day 1: fulfilment of market opening requirements</p>	<ul style="list-style-type: none"> Regulated tariffs have been removed for eligible customers Subsidized renewable energy can enter the market without losing subsidies Separation of TSO activities/roles Basic transparency rules (Nord Pool Spot rules) Congestion management method between Estonia-Latvia-Lithuania and a common position towards Russian and Belarus TSO's Common ITC treatment of the perimeter countries for Estonia, Latvia, Lithuania and Finland Removal of cross-border restrictions, such as license and tariff in three Baltic States Introduction by Nord Pool Spot of price area Estlink. 	Q1 2010	Preliminary political and business decisions	<p>Three Baltic States' and Finnish Regulators and TSOs;</p> <p>Nord Pool Spot;</p> <p>Governments</p>
<p>Step 3.</p> <p>How to continue the process: market functioning fine tuning</p>	<ul style="list-style-type: none"> Baltic common day ahead market (based on Nord Pool Spot trading platform) Stepwise introduction of Intra-day market Market based congestion management, implicit auction between Baltic countries managed by NPS Estonia, Latvia, Lithuania and Finland have a common position and trading principles towards non EEA third countries Transparency according to the ERGEG's North European Electricity Regional Initiative Common reserves and balancing power market Harmonized imbalance settlement and imbalance pricing Common market monitoring and surveillance rules Development of financial markets (OTC) 	2011-2013	Fulfilment of market opening requirements	<p>Governments, Regulators, TSOs, Nord Pool Spot</p>
<p>Step 4.</p> <p>Actions to finalize the market: Fully functioning market integrated</p>	<ul style="list-style-type: none"> Full opening of the retail market Common power exchange for physical trade in Nordic and Baltic area Market place for financial products Network tariff harmonization for generators 	2013-2015	Market functioning fine-tuning	<p>Governments, Regulators, TSOs</p>

2.2. Generation development

The need for and viability of electricity interconnections is determined by the future distribution of power generation, levels of adequacy and expected power flows within the region. There is a direct interdependency with specific power generation projects and plans for

many interconnections; therefore it is important to cover these – though without the need of completeness.

The Baltic Sea Region is particularly well-positioned to further increase penetration of renewable energy sources. Hydropower and biomass cover the largest part of the economic potential. In the Baltic Sea Region bioenergy will be able to cover about 30 % of the gross energy demand of the region as opposed to 16% for the EU27. Balancing wind power plants with hydro generation on a regional basis provides opportunities to become a leading macro-region in this area within the EU.

One of the main advantages of a regional approach to energy security and energy network development is, thus, the possibility to connect an increased amount of wind power and other new sustainable energy sources to the Baltic grid. Infrastructure projects need to be as supportive to the development of these resources to the extent possible. Kriegers Flak is an excellent example for this approach (project included under Interconnections below).

Plans differ from country to country but in general it can be said that wind is given a prominent role in the region as one of the most important renewable energy sources. Wind power already plays an important role in Denmark and Germany. Plans for installed capacity for 2020 for the Baltic Sea Region exceed an overall 10 GW. The planning and evaluation of undersea electricity interconnections also take into account the possibility of using these interconnections to connect off-shore wind farms to the regional grid.

We have made a differentiation based on the implementation timeline for these projects and can be seen in the tables below.

Projects

Project	Short description of the Project	Target timescales	Target cost	Dependency with project	Responsible body
Belchatów Poland	858 MWe pulverised – supercritical unit lignite-fired (with CCS installation)	2010	N/a		
Łagisza power plant, Poland	457 MW – hard coal-fired	2009	N/a		
Częstochowa CHP, Poland	62 MWe/120 MWt –hard coal-fired	2010	N/a		
New CCGT in Lithuania	New Combined Cycle Gas Turbine block of 444 MW in Lithuania	2012	€328m	none	Lietuvos Elektrine
Narva PP, Estonia	deSOx and deNOx equipment for 4 units in Narva PP	2009-2012	€100m		Eesti Energia
CHPs in Estonia	Several CHPs on wood, peat, and waste incineration CHP with overall planned capacity of 110-120 MW	2009 - 2013			Fortum, Eesti Energia, others
Nuclear Reactor in Finland	3rd nuclear reactor with 1600 MW capacity at Olkiluoto (FI).	2012	€3bn		Teollisuud en Voima Oyj (TVO)

Project	Short description of the Project	Target timescales	Target cost	Dependency with project	Responsible body
Lubmin, Germany	New hard coal power plant (capacity 1600 MW)	2012	€1,5bn		DONG Energy
Oil-shale CFB-s in Estonia	Up to 600MW new CFB units on oil-shale	2010-2015	€1bn	Visaginas NPP	Eesti Energia, others
Kurzeme TPP	Coal and bio-mass thermal power plant in Western Latvia. The first unit 400 MW	2016	€450m	Latvian grid reinforcement	Based on tender
TPP in Latvia	CHP Riga2 the second unit 420MW, gas fired CCP unit	2016	€450m	none	Latvenergo
Visaginas NPP	New nuclear power plant in Visaginas, Lithuania with stakeholders from Poland and the other Baltic States. Maximum power generation capacity 3400 MW	2018	€2,5 – 4bn	LitPolLink; Lithuanian grid reinforcement	UAB "Visagino atominė elektrinė"

Long-term plans

Project	Short description of the Project	Target timescales	Target cost	Dependency with project	Responsible body
Swedish wind development plan	Yearly expansion of 500-700 MW to reach 8500 MW by 2020. Main limitations: national transmission capacity, lack of local planning, NIMBY effect	2020		Grid reinforcements	
Finnish wind development	This corresponds to some 2000 MW of wind power, most of which will be located along the western coast of Finland	2020	n/a	Introduction of feed-in tariff system; grid reinforcements	
Estonian wind development	Fastest growth is expected in wind power generation, electricity sector development plan foresees up to 900 MW of wind power by 2018	2020	n/a	Shadow generation (gas turbines, hydro-pump), 3 rd LV-EE interconnection	
Latvian wind development	By 2020, 550 MW of wind generation can be connected to the grid	2020	n/a	3 rd LV-EE interconnection, generation for balancing	
Lithuanian wind development	The target for 2010 is to increase this capacity to 200 MW. A level of 500 MW could be achievable by 2020	2020	n/a	Development of reserve capacity; NordBalt	

Project	Short description of the Project	Target timescales	Target cost	Dependency with project	Responsible body
Polish wind development	Though currently the biggest part of energy generated in renewable energy sources comes from biomass, the biggest potential for development is seen in wind farms. Plans on wind generation development exist especially in the regions close to the coast, and also in midland and in areas close to mountains.		n/a		
Wind development plans in Germany	Onshore wind power generation is expected to reach up to 37000 MW in 2020. In addition, Germany aims to have a capacity of 20000 to 25000 MW offshore wind power installed by 2030 (combined North and Baltic Sea)	2020/2030	n/a	Grid reinforcement	
2 new nuclear power plants in Poland	Government plans the commissioning of a first nuclear bloc ab. Year 2020	Ab. 2020	n/a		

2.3. Interconnections to support market development

The main objective of developing physical infrastructure in the region is to enable market integration and efficient market functioning. Together with power generation development, it will also enhance energy security in the region. With a well-functioning market, incentives for the right infrastructure investments will be in place without the need of public intervention. For this reason, the construction of new electricity interconnections is dependant on market development in the new Member States of the region. However, it has also been agreed that due to longer timeframes for infrastructure development, these two workstreams need to run in parallel.

Interconnection projects have been identified to address the following gaps and criteria:

- Cross-border congestion
- Missing links
- Power generation evolution and system adequacy

To alleviate the present fragmentation among the power systems of the Member States surrounding the Baltic Sea and to allow effective power market integration, the following projects have been proposed²:

² Reinforcements between Sweden, Norway, Denmark and Finland are well coordinated among the concerned TSOs. Already decided projects and new proposals are described in the Nordic Grid Master Plan which is periodically updated.

Project	Short description of the Project	Target timescales	Target cost	Dependency with project	Responsible body
Krajnik (PL) - Vierraden (DE) (including PST installation in Krajnik (PL) and Mikulowa (PL))	This project is the conversion of existing 220-kV double circuit line into a 400-kV line together with phase shifting transformers installation on 400 kV lines: Krajnik (PL) – Vierraden (DE) and Mikulowa (PL) – Hagenwerder (DE) (was agreed by TSOs: PSE Operator and VE Transmission)	Before 2013			VE Transmission (DE) & PSE Operator (PL)
Baczyna/ Plewiska (PL) - Eisenhüttenstadt (DE)	This is the 3 rd 400 kV interconnection between Poland and Germany	After 2015		Polish grid reinforcement	VE-T (DE) and PSE-Operator (PL)
LitPolLink: Elk (PL) - Alytus (LT)	The interconnection line construction (2009-2015) Alytus – Lithuanian frontier (Double circuit 400kV interconnection line with construction of 2x500MW BtoB converter station with reconstruction of Alytus substation.) The interconnection line construction (2014-2015) Elk – Poland frontier (Alytus direction).	2009-2015	€261 m	Lithuanian grid reinforcement; Polish grid reinforcement; Visaginas NPP	PSE Operator (PL) & Lietuvos Energija (LT)
Lithuanian grid reinforcement (for LitPolLink)	Construction of Alytus-Kruonis and Visaginas – Kruonis	2010-2020	€93 m	LitPolLink	Lietuvos Energija
Lithuanian grid reinforcement (for NordBalt)	Construction of Klaipeda – Telsiai and Musa - Panevezys	2012 - 2013	€43 m	NordBalt	Lietuvos Energija
Latvian grid reinforcement (Kurzeme loop for NordBalt)	Construction of several new 330kV lines in the central and Western part of Latvia: Grobina-Ventspils, Ventspils-Dundaga, Dundaga-Tume, Tume-Riga	2009-2016	€200m	Wind PP in Western regions of Estonia and Latvia	Augstsprieguma tīkls
Polish grid reinforcement (Elk – Alytus)	Internal PL transmission grid reinforcements (2010-2015) to make possible power import capacity of 600MW from Lithuania to Poland. Additional PL transmission grid reinforcements (2016-2020) to make possible power transfer capacity of 1000MW.	2010-2020	€799 m	LitPolLink Elk (PL) - Alytus (LT)	PSE Operator
Byczyna (PL) - Varin (SK)	This is a new 400kV interconnection between Poland and Slovakia with reinforcement of Polish internal grid.	After 2018			SEPS (SK) and PSE-Operator (PL)

Project	Short description of the Project	Target timescales	Target cost	Dependency with project	Responsible body
Rzeszow (PL) – Khmelnytskaya (UA)	The project is the modernisation and resumption of existing 750 kV interconnection between Poland and Ukraine. Installation of back-to-back 2 x 600 MW-converters in the Rzeszow 750 kV (PL) substation.	After 2010			PSE Operator (PL) & Ukrainian TSO
NORD.LINK	HVDC link of 700-1400 MW between Norway and Germany	<i>proposed</i>			
Estonia – Latvia third interconnector	An interconnection between Estonia and Latvia	2020 earliest	€67m	Latvian grid reinforcement	Augstsprieguma tīkls, Pohivork
Estlink2	2 nd undersea cable of 650 MW capacity between Püssi (EE) and Porvoo (FI)	2014	€300m	Timetable for the opening of the wholesale market in Estonia including opening of Esink1 for Nord Pool Spot	Fingrid, Pohivork
NordBalt	HVDC submarine cable of 700 – 1000 MW capacity between Hemsjö/Nybro (SE) and Klaipeda (LT).	2016-2017	600 – 750m	Lithuanian grid reinforcement; Latvian grid reinforcement; Fully functioning market in three Baltic States	Svenska Kraftnat, Lietuvos Energija, Augstsprieguma tīkls (final parties to be clarified)
Kriegers Flak combined solution	Regionally combined solution to connect 1600 MW offshore wind power in the Baltic Sea to Germany, Sweden and Denmark, as well as to provide additional transmission capacity between these countries				Energinet.dk, Svenska Kraftnät, Vattenfall Europe Transmission
FennoSkan II	HVDC submarine/overhead link between Finnböle (SE) and Rauma (FI)	2011	€300m		Svenska Kraftnät, Fingrid
Great Belt	HVDC submarine link between West and East Denmark	2010			Energinet.dk
Skagerrak IV	HVDC submarine link between Norway and Denmark	2014	€375m		Energinet.dk,

Project	Short description of the Project	Target timescales	Target cost	Dependency with project	Responsible body
South Link (SE-SE) and South Western link (SE-NO)	Combination of two interconnectors between Hörnby (SE) and Jönköping / Oslo (SE / NO)	2015-2016	€700m		Svenska Kraftnät,
Orskog (SE) – Fardal (NO)	Strengthening the Swedish-Norwegian North – south capacity	2013	€300m		
Ofoten Balsfjord Hammersfest	Overhead line in the Arctic region - to face expected increase in consumption and production	2014-2016	€500m		

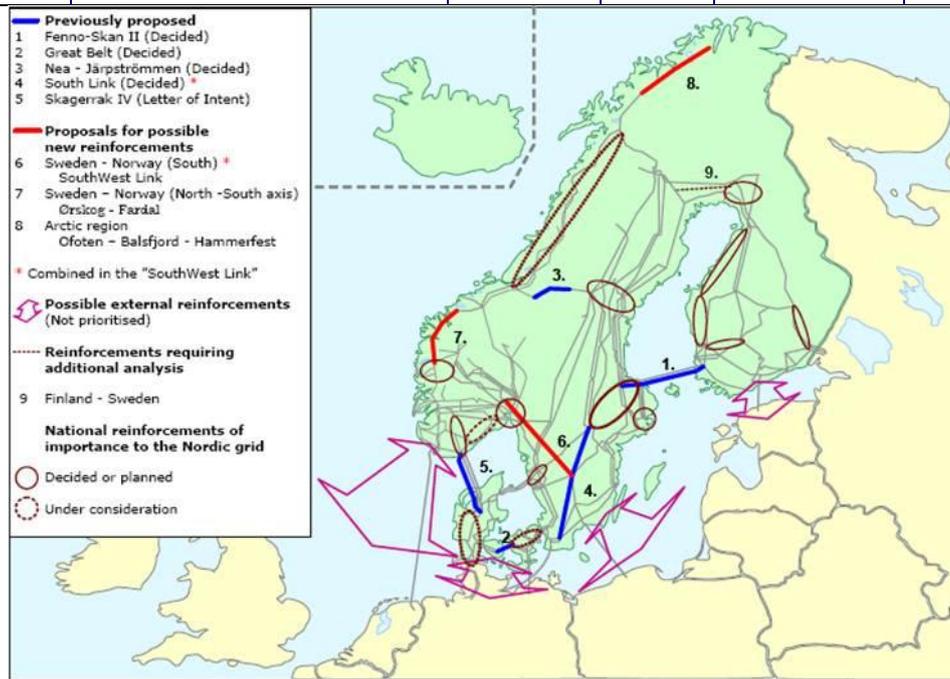


Figure 1: Nordic Master Plan projects



Figure 2: Interconnections between Poland and neighbouring countries



Figure 3: Interconnections in the Baltic area

3. Gas

Further analyses and discussions on specific topics within the gas sector will be needed in the close future in order to define detailed steps and specific timeline for market development, as well as to identify and refine the most suitable infrastructure projects that could support further integration and enhance security of supply for the whole region.

Any developments in the gas sector both on the internal market as well as on the infrastructure side will be followed closely and the action plan will be updated accordingly.

3.1. Current requirements for market integration³

Gas market integration should continue efforts to find the most economical solution to connect Finland and the three Baltic States to the integrated European gas network and give preference to these infrastructure projects with the aim to accelerate market opening. In parallel to these efforts, actions to improve the regulatory framework in the derogated countries and to bring national rules in compliance with applicable EC-legislation will be necessary for a smooth transition from a derogated regime to full market opening. This may imply that countries follow changes to EU legislation⁴ actively and remain flexible to join new

³ The current table do not follow up on the legislative changes introduced by the Third legislative package. The update of the table in that context will be part of the follow up work under the BIP initiative.

⁴ Reference is made to the Third legislative package.

rules⁵ on a voluntary basis if that improves the regional cooperation despite the derogations they may have.

The countries commit to respect the freedoms of the Treaty as set out in the (4) preamble of the Directive 2003/55/EC. Clauses limiting the four freedoms are foreseen to be dealt with by the European Commission, the national authorities or the national courts respecting the principle of subsidiarity and existing legal provisions.

Requirements ⁶	Short description of the issue	Target timescales	Dependency with project	Responsible body
Commit to phase out derogations on market opening on the Baltic gas markets	Finnish derogations will end when: - A new supply source has at least 25% share of the market - There is a connection from Finland to the integrated European gas network	To be followed up		
Efficient use of the infrastructure in place	Yamal-Europe line - Offer TSO services as foreseen by the Regulation 1775/2005, including offer of maximum capacity, taking into account system integrity and efficient network operation and availability of firm and interruptible capacity to third parties, - as far as possible - offer of capacity in both directions on the transmission line ⁷ , - possible discussion on the issue of delivering points for gas imports, Inčulkans UGS – review of the allocation mechanisms together with congestion management rules	To be followed up	Reverse pumping station on Yamal-Europe pipeline (Concerning unused as foreseen by the Regulation 1775/2005; Concerning supply agreements subject to the agreement of parties to the agreement) Extension of Inčukalns storage	

⁵ Reference is made to future Framework Guidelines and Codes under the Third Legislative Package.

⁶ The table is not reflecting yet the requirements of the Third Legislative Package, which requires further reflection.

⁷ In cases where a pipeline system allows physical gas flows in both directions, it is clear that capacity - firm and interruptible - can be offered to market participants in both directions. However, also in cases where it is technically not possible to physically transport gas in both directions, it is still possible for a TSO to offer capacity as a "counter flow" or "backhaul" in the other direction, on a virtual basis. Counter flow transports can be offered up to the maximum of the main flow, however generally only on an interruptible basis, as a TSO cannot guarantee the shipment of the counter flow gas under all circumstances.

Requirements ⁶	Short description of the issue	Target timescales	Dependency with project	Responsible body
Integration of the gas markets in the East Baltic Sea countries, including Finland, Estonia, Latvia and Lithuania ⁸	<p>Third party access to all pieces of infrastructure, but in particular transmission and storage. For storage and linepack access of third parties should be provided when technically and/or economically necessary for providing efficient access to the system for the supply of customers. The procedures to access shall operate in accordance with objective, transparent and non-discriminatory criteria according to applicable European legislation.</p> <p>Cooperation between regulators to allow for investment incentives in the region.</p> <p>Offer maximum capacity taking into account system integrity and efficient network operation, with the provision of firm and interruptible capacity to third parties. Through non discriminatory and transparent capacity allocation mechanisms, with unused contracted capacity offered to the market.</p> <p>Implement of the minimum rules on capacity allocation and congestion management (reference Regulation 1775/2005)</p> <p>Capacity trading (reference EASEE-gas recommendations)</p>	To be followed up		
Improvement of TSO cooperation at regional level	<p>Cooperation in open season procedures</p> <p>Allow for daily or hourly communication between TSOs and shippers in the region, if not implemented in the MS concerned</p> <p>TPA for all lines should be provided along with Regulation 1775/2005 where applicable⁹.</p>	To be followed up		

⁸ Third party access shall be non-discriminatory. Services should be offered on non-discriminatory basis to all network users that accommodate market demand. (under the Third Legislative Package).

⁹ Third country clause will be taken up in the discussions on the implementation of third package in the region (see ft 6).

Requirements ⁶	Short description of the issue	Target timescales	Dependency with project	Responsible body
TSO independence and improvement of TSO services	Unbundling ¹⁰ Network Codes in place Non-discriminatory access TSO services to be improved – where necessary – allowing for short term services (e.g.. daily services) at the end of the process Addressing balancing rules	To be followed up		
TPA in all SSOs of the region ¹¹	Non-discriminatory access to storage, when technically and/or economically necessary for providing efficient access to the system for the supply of customers. Access procedures shall operate in accordance with objective, transparent and non-discriminatory criteria, as foreseen by Art 19(1) of the directive Transparent pricing Non-discriminatory allocation mechanisms for storage, when access to storage is technically and/or economically necessary for providing efficient access to the system for the supply of customers (according to Internal Energy Market Directive and Guidelines on Good Practice for Storage System Operators; GGPSSO) Access procedures shall operate in accordance with objective, transparent and non-discriminatory criteria, as foreseen by Art 19(1) of the directive	To be followed up		

¹⁰ Some solutions offered by the Third Legislative Package may be of use to increase the independence of the TSOs in the region.

¹¹ Third party access shall be non-discriminatory. Services should be offered on non-discriminatory basis to all network users that accommodate market demand. Storage system operator shall provide firm and interruptible third party access services, both long and short-term services, bundled and unbundled services for storage space. Allocation mechanisms and congestion management procedures shall be able to provide appropriate economic signals for the efficient and maximum use of capacity and facilitate investment in new infrastructure, compatible with market mechanisms including spot markets and trading hubs, while flexible and capable to evolve to market circumstances (under the Third Legislative Package).

Requirements ⁶	Short description of the issue	Target timescales	Dependency with project	Responsible body
Market based supply contracts	The need to ensure EU conformity of supply contracts and ensure that intergovernmental agreements as a framework and/or a precondition for supply contracts are negotiated in full respect with the EC Treaty	To be followed up		
Market based and transparent procedures to be instituted as a general practice for all infrastructure development and information to be published and shared with all potential participants in the region	Infrastructure development shall be executed in accordance with relevant provisions in applicable EU legislation, in particular the four freedoms of the EC Treaty.	2010	New infrastructure projects in general	
Non-discriminatory public service obligations to avoid obstacles to market opening and new investments in infrastructure	Measures to protect final customers and public service obligations for the purpose of security of supply should not create obstacles to market opening and infrastructure development	2010		
LNG services should be in line with the legislation in force at the date of starting up operations	Rules set down in the Third Package should be followed for the new LNG infrastructure	To be followed up		

3.2. Infrastructure development

Gas infrastructure development projects in the region are necessary to allow the creation and strengthening of the internal market, but at the same time, pending market issues and existing market constraints also have an influence on infrastructure development decisions. With this in mind, there are four main objectives that gas infrastructure development serves in the Baltic Sea Region:

- To end the energy isolation and decrease dependency from a single external gas supplier of the Eastern Baltic Sea States, namely Finland, Estonia, Latvia and Lithuania, as well as of the Western Baltic State of Poland.
- Secondly, to define and strengthen the role of Poland as an "energy bridge" to the other countries. Supply systems to Poland from Germany, Denmark or LNG are necessary in order to bring gas from Poland further on to the East Baltic Sea area.
- Third, to assess the potential of LNG infrastructure for diversifying supply sources in the Baltic Sea region.
- Fourth, to compensate for the decline in the Danish gas reserves and provide new gas sources to Denmark and Poland, new infrastructure projects in the West Baltic Sea area are necessary.

While recognizing that a comprehensive assessment (incl. a cost/benefit evaluation) of the projects is not feasible at the current state, more detailed analysis will need to be performed at a later stage after the Action Plan has been concluded to allow further investigation and later prioritization of this preliminary list of projects, and to optimize the individual projects with respect to capacity and routing. Further analysis of these projects will also need to take into account the 10-year network development plans¹², expected developments in security of supply standards, as well as the different approaches Member States may take in order to comply with these.

The recent decision to suspend the Skanled project does not affect the projects in the East Baltic Sea area, it may, however, affect the ranking and recommendations on the West Baltic Sea region. As a way of mitigating the risk the suspension of the Skanled project brings, we have proposed an additional action to assess available options for a Norway – Denmark – Poland gas interconnection.

¹² Under the third energy package the European Network of Transmission System Operators for gas shall publish regional and Community-wide 10-year network development plans every two years

3.2.1. East Baltic Sea – bridging the “gas islands” to the integrated EU gas transmission system and securing alternative gas supply

East Baltic Sea - summary of investments recommended for further analysis

Project	Short description of the Project	Target timescales	Target cost	Dependency with project	Responsible body
Amber PolLit	Amber PolLit pipeline connecting Lithuania to Poland via the Yamal-Europe pipeline or national Polish system. (330 km / Capacity: at least 3 bcm/year)	2014	€292 m	(Reverse flow on Yamal-Europe) Yamal-Europe II-nd line	GazSystem Lietuvos Dujos
BalticConnector	Off-shore gas pipeline connecting Finland and Estonia (100 km / capacity: at least 2 bcm/year) (Feasibility study, co-financed from the TEN-E, to be completed by 2010)	n/a	n/a	Upgrade of three Baltic states internal system Finn Gulf LNG Expansion of Inčukalns storage	Gasum Oy
Latvia - Lithuania upgrade of cross border capacity and internal systems	An increase in the capacity of existing systems by establishing new meter stations and upgrade of pipeline capacity, (2 extra bcm/year) including repair and upgrade of internal network.	Start: 2010	N/a		Lietuvos Dujos, Latvijas Gaze
Latvia – Estonia upgrade of cross border capacity and internal systems	An increase in the capacity of existing systems by establishing new meter stations and upgrade of pipeline capacity including repair and upgrade of internal network.	2012	N/a		Latvijas Gaze Eesti Gas
Finn Gulf LNG	An LNG terminal in Finland in Inkoo or Skoldvik (2-3 bcm/year) (Feasibility study is ongoing)	N/a	n/a	BalticConnector Expansion of Inčukalns storage	Gasum Oy
New LNG terminal in Lithuania	LNG terminal (3 bcm/year)	2012-2018	€270-320m		

Project	Short description of the Project	Target timescales	Target cost	Dependency with project	Responsible body
Assess options for gas storage in Latvia or Lithuania	One of the following options: a) Expansion of Inčukalns storage (from 2,3bcm to 3,2 bcm).	N/a	€140m (plus €250m-€350m for cushion gas)	Upgrade of three Baltic states internal system; Change in operational regime	Latvijas Gaze
	b) New strategic storage in Lithuania – Syderiai (0.5 bcm)	2015	€347m	Upgrade of three Baltic states internal system	Ministry of Energy of Lithuania
	c) New storage in Latvia - Dobeles UGS (6 bcm active gas) (feasibility study 2009-2010)	2022	€230m	Upgrade of three Baltic states internal system	Ministry of Economy of Latvia
New LNG terminal in Estonia	An LNG terminal in Estonia in Paldiski or Tallinn (2.5 bcm/year)	2015	€480m	Balticconnector Expansion of Inčukalns storage	Eesti Gaas, others
LNG terminal in Latvia		2012-2018			
Amber	Amber pipeline connecting Russia and Germany via Estonia, Latvia, Lithuania and Poland	N/a	N/a		Interested countries' TSOs (Project left aside for the moment due to lack of interest by the relevant stakeholders in the region)

Project	Short description of the Project	Target timescales	Target cost	Dependency with project	Responsible body
Yamal-Europe II ¹³	Project to double the capacity of the existing Yamal-Europe pipeline, (the existing infrastructure of Yamal-Europe pipeline could be easily used for Yamal-Europe II)	N/a	N/a		Project left aside for the moment due to a lack of interest by the relevant stakeholders in the region (except Poland)

Concerning LNG projects, it is recommended that one LNG terminal is built in the East Baltic Sea area as the relative small gas markets in Finland, Estonia, Latvia and Lithuania do not generate scope for more than one. However, as feasibility studies on LNG projects have not yet been completed, there is no certainty in terms of feasibility of such an investment in one or the other country. In addition, new technology developments, such as regasification on ships provide further options that could be considered when assessing the best possible solution for an LNG installation in the Baltic Sea region.

In general pipeline projects should be established before the LNG and storage projects in order to avoid cementation of the countries as energy islands.

In the current situation, gas will need to be imported from further away, and diversification of sources to ensure security of supply for the East Baltic Sea region can be achieved through LNG or long direct pipelines requiring high investments in the region¹⁴.

In addition, in order to ensure supply of gas from new sources in the medium-longer term (after 2014) there will be a need of more direct pipeline connections to the East Baltic Sea region. These proposals can be found in Annex 4¹⁵.

¹³ Yamal – Europe II may serve as additional capacity for gas imports for the whole Baltic Region and as potential reverse flow route, particularly during gas crisis (as Yamal-Europe pipeline capacity is fully booked for many years).

¹⁴ In case reverse flow on Yamal-Europe pipeline is possible, the options and necessity for investments in the region may differ. However the current contractual situation does not allow contractual reverse flow to be implemented. Those operations need to be discussed with the shareholders of EuRoPol Gaz s.a (incl. Gazprom) as owner of the pipeline.

¹⁵ Future development of the Energy Gas Market in the Baltic Sea Region, *Ramboll* Report June 2009

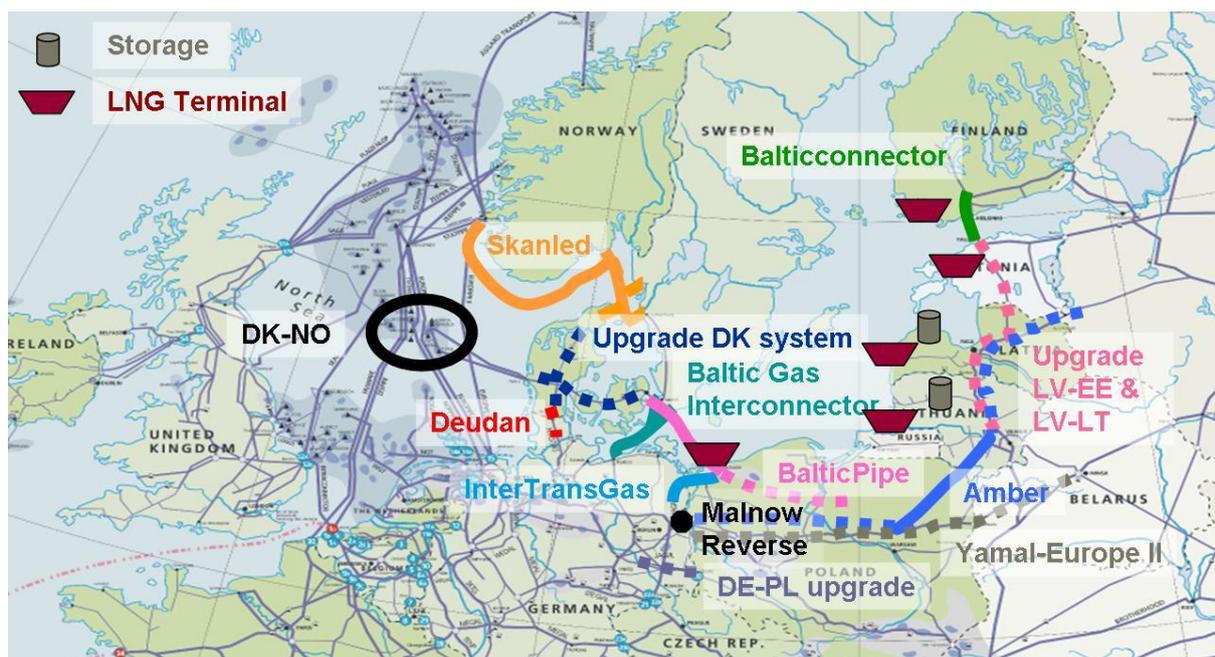


Figure 1: Gas infrastructure projects in the Baltic Sea Region relevant for the BEMIP

3.2.2. *West Baltic Sea – new supplies to Denmark and diversification of supplies to Poland*
 Due to the suspension of the Skanled project, there is also a focus of the West Baltic Sea on alternatives for supplying additional gas to Denmark and Poland in line with depletion of the Danish gas reserves and to diversify Polish gas supplies. In addition, for this area it also has to be taken into account that energy policy priorities for Sweden are strongly focused on the promotion of renewable energy and as such, the role of gas is expected to remain relatively unimportant in its future energy-mix. These circumstances should be considered when analysing gas infrastructure related to the needs of the Swedish market.

West Baltic Sea - summary of investments recommended for further analysis

Project	Short description of the Project	Target timescales	Target cost	Dependency with project	Responsible body
Reverse pumping stations on Yamal-Europe pipeline	Reverse flow station in Mallnow (DE) (and further necessary station along the Yamal-Europe pipeline within Poland as far as necessary)	N/a	N/a		Wingas and shareholders of Yamal-Europe
Increase capacity of existing PL-DE interconnector	Increase capacity of existing PL-DE interconnector Lasow-Zgorzelec (up to 2 bcm/a)	Possible within short time (2011)	N/a	Independent	GazSystem
Deudan	Strengthening of the connection between Germany and Denmark	2013	€200m	Strengthening of the Danish system	E.On Gas Transport, Gasunie Deutschland Transport Services, DONG

Project	Short description of the Project	Target timescales	Target cost	Dependency with project	Responsible body
LNG terminal in Poland	LNG terminal at port of Swinoujscie. Capacity 2,5bcm in first phase, 5bcm in second phase	2014	€500m	Independent	GazSystem Group-Polish LNG
Interconnector between Germany and Poland	Interconnector from Börnicke (Netra network - DE) to Szczecin (GazSystem network - PL) with reverse flow possibilities	2013	€180m	Independent	Currently known as IterTransGas but to be reconsidered according to the unbundling requirements in Poland
New German-Polish interconnection and strengthening of existing grids in Eastern Germany (Brandenburg) and Western Poland (Lubuskie)	1) connection of the German and Polish networks in the city of Kostrzyn (0,2 bcm/a) 2) interconnector Germany - Poland (with reverse flow possibility) from Sulecin to Brzozowiec (0,63 bcm/a)	1) 2010 2) 2012	1) € 5m 2) € 45m plus 15m for network expansion in Eastern Germany and Western Poland		EWE AG, and EWE Polska Sp. z o.o.
Strengthening of the Danish system	Strengthening of the Danish system to bring gas to Denmark in the short term, and also possibly from Norway to Poland (two compressor stations and a looping of the pipeline from Ellund to Egtved)	2013	€280m	BalticPipe; Assess options for NO-DK connection	Energinet.dk
BalticPipe	Gas pipeline connecting Poland to Denmark (3 bcm + 3 bcm/a)	2013	€430-450m	Assess options for NO-DK connection; Strengthening of the Danish system;	Gaz-System

Project	Short description of the Project	Target timescales	Target cost	Dependency with project	Responsible body
Assess options for Norway – Denmark – (Poland) connection	One of the following options: a) revival of Skanled ¹⁶ b) North Sea connection c) direct pipeline from Kartsø in Norway to Denmark (all accompanied with BalticPipe)	2010	N/a	Strengthening of the Danish system	
Assess options to bring gas to Denmark from eastern direction	One of the following options: a) BalticPipe b) Baltic Gas Interconnector gas from Nord Stream (3bcm/a)	a) 2013 b) N/a	N/a		

Different options exist for combining these projects, and these may be developed in an optimisation effort, therefore concerned stakeholders are encouraged to take an active role in optimising the solution. Though the role of gas in Sweden is expected to remain less important, commercial actors are free to undertake market-driven gas investments and actively participate in the above effort.

4. Oil

Oil related issues and projects in the region have been discussed and considered important, however, they are already tackled by other programmes or initiatives, such as the Baltic Sea Region Strategy or the revision of the TEN-E Guidelines. For this reason, no specific actions in this area are defined within the scope of the BEMIP, nevertheless, progress of these initiatives will be followed by the HLG closely. The specific issues in this field with relevance to the Baltic Sea Region are described below.

Druzhba pipeline facing technical problems. An increasing part of the Russian oil is exported via harbours in the Baltic Sea and the Druzhba pipeline the northern branch of which reaches Poland and Germany transiting Belarus. Due to technical problems (a leak/break in the pipeline) the oil supply to Mazeikiiai refinery (in Lithuania) was cut off in 2006. Despite repetitive efforts on EU- and on concerned Member States' level offering concrete actions and support in reconstructing the pipe, oil supply has not been restored. Since then, crude oil to the refinery is pumped through the Lithuanian Butinge harbour oil terminal.

Increasing oil transport via the Sea. Due to unavailability of pipelines, oil is transported via ports of the Baltic Sea. In addition, the plan to build a 2nd pipeline (BPS2) to the port of Ust-Luga – together with the upgrading of the latter - oil transport by tankers will increase,

¹⁶ It is recommended that Norway, Denmark and Poland create a special task force on Skanled with government involvement.

increasing also the risk of accidents and ecological damage to the Baltic Sea. This issue of increasing number of oil tankers and their negative impact on the environment is already dealt with by the EU's Strategy for the Baltic Sea Region. Nevertheless it will be followed also by the HLG closely.

Caspian Oil Corridor. With diversification of supply in mind, an important infrastructure project with an impact on the region is the development of a Caspian Oil corridor (Odessa-Brody-Plock-Gdansk) for which a feasibility study has already been completed. The project company named Sarmatia includes Ukrainian, Lithuanian, Georgian, Azerian and Polish companies. Results of the study were presented to the Commission.

A Commission Staff Working Paper on oil infrastructure¹⁷ has been published as a supporting document for the green paper on energy infrastructure¹⁸ where the above issues are also raised. In this latter, a recommendation on including oil infrastructure in the TEN-E guidelines has also been made.

¹⁷ [Oil infrastructures: An assessment of the existing and planned oil infrastructures within and towards the EU \[SEC\(2008\)2869\]](#)

¹⁸ [Green Paper "Towards a secure, sustainable and competitive European energy network" \[COM\(2008\)782\]](#)

III. RISKS AND ASSUMPTIONS IDENTIFIED TOWARDS THE SUCCESSFUL COMPLETION OF THE PLAN

One of the elements of a successful programme plan is the identification of the assumptions and risks that could jeopardize implementation and reaching the objectives set out at the beginning. Risks are events that fall outside the control area of the initiative but have an impact on its progress and expected outcome. One of the tasks of the monitoring body is to monitor changes in the external environment of the BEMIP and update the list of risks accordingly.

The following risks have been identified for the Baltic Energy Market Interconnection Plan taking into account that project risks are handled at the level of each project:

- Shifts in planning / energy policy: Current actions and infrastructure projects have taken as an assumption a set of plans with regards to generation capacity, fuel choice, energy efficiency, etc. as well as general energy policy priorities in each country and the EU as a whole. A shift away from these plans and/or priorities in any direction or slower implementation of the same can have an impact on the viability, priority and timeline of certain projects in the BEMIP.
- Financial risk (insufficient investment, monetary loss, etc.): Following the current economic crisis, the global financial environment proved to be more difficult to predict. The overall tightening of credit as well as worsening conditions for loans can have an impact on the commercial viability of the projects in the BEMIP.
- Environmental / authorization issues
- Conflicts / inconsistencies in policy development with Russia: Several issues have been identified and delegated to the EU-Russia Energy Dialogue (see Annex I.). Progress achieved or not achieved on this forum can have considerable impact on actions and projects defined in the BEMIP.
- Political shift away from market integration and/or regional cooperation: this risk has considerably decreased thanks to the Joint declaration signed by the Prime Ministers of the three Baltic States at the end of April. However, following the current financial and economic crisis, we can observe a slight tendency towards more nationally focused steps in other parts of the EU, so the risk remains valid.
- No ownership on implementation level
- Estlink is owned by independent power companies having their own business interests. Opening of Estlink1 cable for Nord Pool Spot needs unanimous decision of the Estlink1 owners

IV. FINANCING

Financing the energy infrastructure projects is primarily the responsibility of the companies / project owners concerned. In addition, however, it is also one of the objectives of the BEMIP to allow for channelling and focusing financial resources to projects with highest priority for the region. For this purpose, a workshop on "Financing the Baltic Energy Market Interconnection Plan" has been organized. The following financial institutions and "instruments" were represented at the event:

- European Investment Bank
- Nordic Investment Bank
- European Bank for Reconstruction and Development
- Structural and Cohesion Funds (Directorate General Regional Policy)
- Trans-European Networks for Energy (Directorate General Energy and Transport)
- European Energy Programme for Recovery (Directorate General Energy and Transport)

The objectives of the workshop were:

- to present the energy infrastructure projects that form part of this macro-regional Plan agreed by the eight participating countries,
- to bring around the table potential financial players who could be interested in taking part in this initiative, and
- to discuss plans and financing options that could be available for the infrastructure projects in the region.

Key Conclusions

Based on the outcome of the workshop, the following conclusions can be drawn:

- Presence of these institutions in the energy sector is considerable and is expected to grow in the coming years. They are ready to play a bigger role and support the process to open the market.
- IFIs can be seen to help with financing on the remainder part of the investments after the Structural Funds, TEN-E and/or the Recovery Plan; their role should be considered as additional to these. EBRD also has grant facilities. Constraints on co-financing have to be taken into account, e.g. no combination of Recovery Action Plan and Structural Funds is possible for the same action ("action" and "project" as defined in the TEN-E Guidelines).
- The presence of International financing institutions in the financing of these projects is considered by many commercial banks as an element of security.
- Among the criteria for investment not only commercial viability of the projects is important but also maturity is taken into consideration. An additional requirement is compliance with EU directives and regulations, especially for EIB support.
- Financial instruments available are determined on a case by case basis.
- Providing financing in nuclear is gaining interest where EIB and EBRD work closely together. One of the main difficulties in this area is that due to strict environmental requirements only those plants can be financed where long-term storage of used fuel is part of the project. EC structural assistance to nuclear

power generation may become a point of discussion in the negotiations for the future (post-2013) EU cohesion policy framework.

- There is a general interest from IFIs for regular meetings with the projects represented in this Plan.

For **EIB**, in the electricity sector investment programs are being financed as opposed to projects. In gas, their approach is to develop a balanced blend of network reinforcement, LNG and storage investment projects in their portfolio. There is a big interest in financing energy efficiency and renewables. Financing for generation development projects is also available (though it is worth mentioning that lignite and coal plants are more difficult to finance due to strict environmental requirements), there is usually also an energy efficiency requirement going hand in hand. The ceiling for financing is 50%.

Though bigger projects are in favour, smaller projects can also have access to financing through intermediaries.

For **NIB**, the focus is on competitiveness and environment when assessing financing. Its geographical field of action is the wider BSR, including Ukraine, Belarus and north-West Russia. Maturity of projects is important; conditions are favourable, its margins are between those of EIB and commercial banks. NIB is already present in several projects covered by the BEMIP.

EBRD, for new projects, can generally support up to 35% of total cost. Its geographic scope for financing is Poland, the three Baltic States, Ukraine and Russia. Financial viability plays an important role in all modes of financing: project, sovereign and corporate lending. In addition to loans, it has also grant facilities available, as well as equity participation.

The **Structural Funds** and the **Cohesion Fund** provide substantial amounts of energy sector assistance in Poland and the Baltic States, in proportional terms particularly in Lithuania. Germany, Sweden and Finland have also earmarked part of their Structural Funds allocation for energy sector investment. There is an emphasis on the part of the Member States on energy efficiency projects, especially renovation of buildings. The use of energy sector assistance can be considered flexible in terms of reallocating resources within the relevant priority axes of the support programmes. The maximum average Community co-financing rate of operations is set at 50%, 75% or 85%, depending on the Member State and the Objective.

TEN-E financing is also available for projects included in the TEN-E Guidelines with an approximate budget of €20 m per year.

Several projects from this Action Plan are already proposed to be co-financed by the **European Energy Programme for Recovery (EEPR)**, for details please refer to Annex I. The financial envelope for the implementation of the EEPR for 2009 and 2010 in the Baltic Sea Region amounts to around €650m. According to conditions, funds have to be committed by 2010 and be spent until 2012. This timeframe is extremely challenging and it seems for the Group there is a risk that all the money cannot be used for the BEMIP projects.

V. IMPLEMENTATION AND MONITORING

The BEMIP covers projects and actions in a number of different areas involving several actors from business, ministries and TSOs from 9 countries. The network of interdependency between projects and issues is very complex and, thus, it needs a constant and accessible structure to follow and keep its implementation in motion but without creating any new institutions.

In the light of these conclusions, in terms of organisational aspects, we propose the following monitoring solution.

1. Organisation

1.1. Structure, roles and responsibilities

- The implementing bodies of the Action Plan are the owners of the actions and projects and responsible for the implementation of the BEMIP. Depending on the specific action or project, this implementing body can be the Transmission System Operator, a Regulatory body, Ministry or any other stakeholder (private company, regional cooperation, etc).
- The Commission provides a constant focal point for the BEMIP initiative with the main task of monitoring of and reporting on progress with the involvement of the implementing bodies and stakeholders on the ground. Follow-up to the Plan will be based on verifiable content.
- The High Level Group will be maintained in order to discuss and endorse progress reports, as well as solve outstanding issues regularly. The High Level Group will also be responsible for scope management and as part of this task it can also decide that a specific issue falls outside the scope of the BEMIP proposed to be tackled on a different forum.

The group shall be convened twice a year or when necessary. These meetings will, where desirable, possible and/or necessary, be held back-to-back with meetings of the spring and autumn European Council. The meetings will be chaired by the Commission. The HLG may also report to the Ministers at the Council. In order to underpin the work of the HLG, some of the working groups may need to continue and/or workshops on specific issues may be organized.

2. Monitoring activities

2.1. Reporting

The Commission will undertake a reporting exercise twice a year during the first year of implementation of the Action Plan based on verifiable information provided by the implementing parties and other relevant stakeholders. Thus, the report shall be submitted to the High Level Group for discussion. Where appropriate, the Commission and/or the High Level Group shall make recommendations. The Commission can also report to the Energy Council. Reporting periods and frequency of HLG meetings after the first year will be agreed after the second report.

The report will describe the expected and real status of actions and projects in terms of activities and timeline. Issues and difficulties as well as measures / decisions taken as a response will also form part of the report. Identification of issues that need to be

escalated to the High Level Group will also be gathered by the Commission as part of the reporting activity (issue management).

2.2. Risk management

Risk management is one of the tasks of the Commission which includes the monitoring of changes in the external environment that can have an impact on the implementation of the BEMIP; this activity involves updating the list of risks, as well as taking the necessary steps in order to mitigate them. If the risk is considered having a great impact (e.g. political decision is needed, or it affects the scope of the BEMIP initiative), the Commission may decide to escalate the issue to the High Level Group for a decision on steps to be taken for its mitigation.

VI. ANNEXES

- 1. External environment of the BEMIP**
- 2. CESI report on market integration, market design**
- 3. CESI reports on interconnections**
- 4. Ramboll report on gas market and infrastructure**