ACTION PLAN FOR NORTH-SOUTH ENERGY INTERCONNECTIONS

IN CENTRAL-EASTERN EUROPE

- Final -

I. INTRODUCTION

1. Background

The three energy policy objectives of the EU – 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 Energy Infrastructure Package has identified a range of priorities which must be implemented in order to allow the EU to meet its energy and climate targets. The North-South Interconnections in Central and South Eastern Europe ("North-South East") were identified among these priority corridors.

As part of this approach a High Level Group for North-South Interconnections was set up with the aim of promoting the implementation of energy infrastructure projects and improving security of supply and market development in the region. The High Level Group of representatives comprising six Member States in Central-Eastern Europe (Bulgaria, the Czech Republic, Hungary, Poland, Romania and Slovakia; Croatia was invited to join the group as an observer) and the European Commission (chair) met for the first time on the 9th of February 2011 and agreed to deliver an Action Plan encompassing the sectors of gas, electricity and oil by October 2011. Three working groups have been set up (for gas, electricity and oil) to support the work of the High Level Group, and they have met several times to assess the current and expected situation in the region in terms of market integration, integration of renewable energy sources, diversification and security of supply.

The North-South initiative in electricity aims to strengthen regional networks in North-South and East-West power flow directions, support an appropriate balancing system and solve infrastructure gaps, especially those related to increasing generation from renewable energy sources. In gas, the objective is to enhance security of supply and promote market integration i.a. through diversification of sources and routes to connect gas supply sources of the Baltic, Adriatic and Black Seas, as well as through necessary internal market actions. In oil, the objective is to provide access to the Baltic, Black and Adriatic Seas in order to increase security of supply and a high level of interoperability of the regional oil pipeline network.

The High Level Group also decided to invite Germany and Austria at its meeting in June, as well as Slovenia at its meeting in September to participate in the work of the High Level Group. Without prejudice to future extension of the High Level Group Austria participated in the work related to electricity and oil sectors, Germany participated in the work related to electricity sector and Slovenia participated in the work related to electricity and gas sectors.

In addition to this High Level Group, a regional group that will focus on energy infrastructure projects, enhancing of security of supply and market development in South

Eastern Europe will be established in the coming months following the priority corridor definitions in the Regulation on guidelines for trans-European energy infrastructure.

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 strengthen regional cooperation in Central-Eastern Europe in the areas of development and integration of energy networks, diversification of routes and sources with a view to enhancing security of supply and promote market development and to prepare by October 2011 a comprehensive Action Plan for the future development of the energy market in Central Eastern Europe.

With the above mentioned objectives, in consideration of efficient market functioning, 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 harmonisation of their implementation.

2.2. Working method

The High Level Group of high level representatives was set up. It is chaired by the EU Commissioner for Energy and the Director-General of Energy of the European Commission. The group was launched with the participation of Bulgaria, the Czech Republic, Hungary, Poland, Romania, Slovakia, and as an observer, Croatia. In electricity, Austria, Slovenia and Germany have been invited to join on the working level and were later invited also to the High Level Group.

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

- Electricity
- Gas
- Oil

Germany has been involved in the activities of the Electricity Working Group but has expressed its interest to possibly participate in the future work of the Gas and Oil Working Groups. Austria has joined the Electricity and Oil Working Groups and has expressed its interest to possibly participate in the future work of the Gas Working Group.

In order to be able to analyze 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, Regulators and companies (for oil). The working groups are also chaired by the Commission.

The gas and electricity working groups have been also supported by external consultants, which provided additional assessments, respectively for gas and electricity.

II. ACTION PLAN

The Action Plan describes regional infrastructure projects and actions within the scope of the North-South Interconnections initiative in Central-Eastern Europe in the area of electricity, gas and oil. The High Level Group takes note of the European Commission proposal on guidelines for energy infrastructure¹ which addresses the energy priorities by a new selection method for projects of common interest and a toolbox necessary for their implementation. The High Level Group recognises that the identified regional projects are important to achieve the region's goals in the above mentioned sectors. Some of these, however, also have a considerable added value on the EU's level. The list of the identified regional projects will be reviewed in accordance with the provisions for the selection of projects of common interest. Therefore the list of identified regional priority projects does not prejudge the results of the selection process of the above mentioned regulation.

Aimed at the timely implementation of energy infrastructure projects in order to achieve the EU energy policy objectives, the High Level Group recognises the need for streamlining and improving authorisation procedures, facilitating public acceptance of investment in infrastructure and the improvement, acceleration and coordination of planning and consultation procedures as well as the need for creating the necessary framework and incentives for delivering infrastructure projects under the identified priorities, notably with regard to cross-border allocation of costs and benefits and their reflection in tariffs.

1. Regional priority projects identified

1.1. Electricity

The North South initiative process in Central-Eastern Europe in the field of electricity aims to connect the electricity infrastructure in Northern Europe with the electricity infrastructure in Central Eastern Europe in order to be able to transport electricity in a North-South direction and to deal with infrastructure gaps in this region. Electricity networks must be upgraded and modernised in order to meet increasing electricity flows due to a major shift in the overall energy value chain and mix. In this regard, the North-South Initiative aims to strengthen regional networks in North-South and East-West power flow directions, support an appropriate balancing system and solve infrastructure gaps, especially those related to increasing generation from renewable energy sources. In addition, increasing network capacities provides the necessary foundation for market coupling in the region.

¹ Regulation on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC, COM (2011) 658.

Project ²	Description	Objective	Expected timescale	Project owner(s)
PL - DE interconnec	<u>tion</u>			
(59) Cluster GerPol Power Bridge	-New 400 kV OHL Plewiska (PL)- Eisenh•ttenstadt (DE) -Plewiska Bis new substation -New 400 kV OHL Krajnik (PL) - Baczyna (PL) -Baczyna 400kV new substation -Upgrading Krajnik (PL)- Plewiska (PL) -Miku•owa (PL) - •wiebodzice (PL) -Gubin (PL) 400 kV new substation	Third connection between Germany and Poland, new 2x400 kV OHL together with other necessary investment in the area. Increases market integration between member states and improves network security.	2020 2020 2020 2020 2020 2020 2020	TSO - PSE O/50 Hertz
(16) Interconnector (400-kV) Krajnik (PL) - Vierraden (DE)	This project is the upgrading of existing 220kV double circuit line Krajnik (PSE Operator) - Vierraden (50Hertz Transmission) into a 400kV line	It is expected that the project will decrease the loop flow from DE to PL and to CZ/SK. It will improve the security of supply, increase the power exchange capacity between PL and DE on PL/DE/CZ/SK synchronous profile (i.e. support CCE market development) and support the RES integration.	2015	TSO - 50Hertz T/PSE-O
(60) GerPol Improvements (conditional to the results of an analysis showing cross-border benefits for the project)	Installation of Phase Shifting Transformers (PSTs) on Krajnik (PL)- Vierraden (DE) line and an upgrade of the Krajnik 400/220 kV substation for the PST installation, an upgrade of the Miku•owa 400/220/110 kV substation for the PST installation, as well as an installation of PSTs on existing 2x400 kV line Miku•owa- Hagenverder. The inclusion of this project in the list of	The installation of PSTs on two existing lines on the Polish-German border should increase security of supply in the region due to enhanced power flow control.		PSE-O

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 $^{^{2}}$ Project numbering refers to the map on page 14.

Project ²	Description	Objective	Expected timescale	Project owner(s)
	projects of regional interest is conditional to an analysis which should show the cross-border benefits of the project for neighbouring countries and shall be taken into account when this Action Plan is reviewed according to point V.4.3 of the Action Plan.		umeseate	owner(s)
AT – DE interconne	etion:			
(42/52) St. Peter (AT) – Isar/Altheim (DE)	Strengthens the connection between Austria and Germany with a double circuit 400 kV line	Increases market integration between member states, improves network security and forms an axis between volatile wind production and pump storage in Austria – supply of balance electricity	2017 (partly 2015)	TSO - APG/TenneT TSO GmbH
SK-HU interconnect		,	,	
(35) Cluster reinforcement of the Slovak-Hungarian profile	-New double circuit 400 kV OHL Gab•ikovo (SK) – Göny• (HU) - New double circuit 400 kV OHL Rimska Sobota (SK) – Sajóivánka (HU) - New double circuit 400 kV OHL Gab•íkovo (SK) - Ve•ký • ur (SK) and extension of substation Ve•ký • ur and new substation Gab•íkovo; - 400 kV OHLVe•ký • ur (SK) –Levice (SK) and extension of substation Levice; - Upgrade Gy•r substation (HU) - Upgrade Sajóivánka substation (HU)	in Hungary enhance operational network security and electricity market integration in the region.		TSO – SEPS, a.s./MAVIR ZRt
(50) 400 kV OHL Vel'ké Kapusany (SK) – substation of MAVIR ZRt. (HU)	New double circuit 400 kV cross-border line (OHL) between SK and HU in the eastern part of common profile	Enhances operational network security and electricity market integration in the region in longer term period	2019 - 2021 (no binding agreement between SEPS and MAVIR so far)	TSO – SEPS, a.s./MAVIR ZRt

SI-HU/SI-HR interce	onnection			
(40) Cirkovce (SI) – Pince (Hungarian border)	Double circuit 400 kV OHL presents new interconnection line with Hungary and Croatia	First interconnection line with Hungary and Croatia	2016	TSO - ELES (SI)/MAVIR (HU)/HEP (HR)
		Croatia		(i iiv)
Internal network in	<u>PL</u>			
(62) Cluster PE_DBN	- 400kV 2x1870 MVA OHL double circuit line from Dobrze• to splitted Pasikurowice – Wroc•aw line (Wroc•aw agglomeration area) - Upgrade and extension of 400 kV switchgear in substation Dobrze•	A set of high voltage investments allowing connection of new conventional generation for the supply of Wroc•aw agglomeration area. Development of new infrastructure, integration of conventional generation and enhancing operational network security. Support for CEE market development following the increased power capacity for commercial exchange.		TSO – PSE O
(63) Cluster PE_KOZ	- 400kV 2x1870 MVA OHL double circuit line Kozienice - O•tarzew + upgrade and extension of 400 kV switchgear in substation Kozienice for the connetion of new line - Replacement of conductors (high temperature conductors) on existing 2x220 kV OHL Kozienice-Mory/Piaseczno.	A set of high voltage investments allowing connection of new conventional generation for the supply of Warsaw agglomeration area. Development of new infrastructure		TSO – PSE O

(64) Cluster PE_OST	- 400kV 2x1870 MVA double circuit OHL line Ostro••ka - Olsztyn M•tki after dismantling of 220kV line Ostro••ka - Olsztyn with one circuit from Ostro••ka to Olsztyn temporarily on 220kV.	Export power to the Baltic states The planned interconnection with Lithuania has NTC equal 1000 MW both directions The project allows evacuation of RES (wind) generation from northern Poland and transmission through the Lit-Pol connection or to consumption centers in central Poland.	2017	TSO – PSE O
(61) Cluster Wind Integration	-Dargoleza new substation; -New 400 kV OHL Pi•a Krzewina - Bydgoszcz Zachód; -•ydowo Kierzkowo new substation; -New line •ydowo Kierzkowo-S•upsk; -Gda•sk Przyja•• new substation; -New line •ydowo Kierzkowo-Gda•sk Przyja••; -New 400 kV OHL Dunowo - •ydowo; -400kV OHL Plewiska - Pi•a Krzewina - •ydowo; - New 400 kV Switchgear in existing substation Pi•a Krzewina - Upgrade Dunowo substation; - Extension and upgrade Gda•sk B•onia substation; -New 400 OHL line P•tnów - Grudzi•dz - Pelplin - Gda•sk Przyja••	The project facilitates the connection of 5000 MW of RES generation (wind) and 2900 MW of conventional generation	2020 2016 2018 2018 2018 2018 2022 2022 2022 2022	TSO – PSE O

Internal network in	Internal network in CZ + CZ-DE interconnection clusters				
(4) Cluster – North_South	-Vitkov (CZ)- Mechlenreuth (DE) new 2x 400 kV OHL ³ ; -Vitkov substation -Vernerov substation -Vernerov-Vitkov new 400 kV OHL; -Vitkov-Prestice new 400 kV OHL; -Kocin substation -Mirovka substation -Kocin-Mirovka new 400 kV OHL; -Mirovka - V413 new 400 kV OHL; -Kocin-Prestice upgrade 400 kV OHL; -Mirovka-Cebin upgrade	New double circuit OHL – to accommodate cross- border flows in north-south direction and	2028 2020 2017 2019 2021 2021 2020 2020 2021 2021	TSO - • eps, a.s/ TenneT TSO GmbH • eps, a.s	
(1/27) Cluster – NW_DE_CZ	400 kV OHL; -50Hertz area (DE) – CEPS area (CZ) new 2x 400kV OHL ⁴ ; -Hradec-Reporyje upgrade 400 kV OHL; -Vyskov-Cechy Stred upgrade 400 kV OHL; -Babylon-Bezdecin upgrade 400 kV OHL; -Babylon-Vyskov upgrade 400 kV OHL; -Vyskov-Reporyje new 400 kV OHL	OHL - Network strengthening in western and central area:-reduces infrastructure vulnerability and ensures security of supply; secures sufficient transmission	2028 2019 2015 2017 2018 2025	TSO - • eps, a.s,/50Hertz • eps, a.s	
(7) Cluster – West_East_Industry	-Tynec-Krasikov upgrade 400 kV OHL; -Cechy Stred-Chodov upgrade 400 kV OHL	Strengthening of OHL to secure sufficient transmission capacity for energy sources connections in the region, enhance a security of supply in an industrial areas and load growth in industrial and high populated areas	2022 2020	TSO - ∙eps, a.s	

 $^{^{\}rm 3}$ This cross-border interconnection is currently under consideration.

⁴ This project is currently under consideration.

(56) Prosenice - Kletne	Upgrade 400 kV OHL;	Reduces infrastructure vulnerability, secures reliable grid operation and security of supply, secures sufficient transmission capacity		TSO - • eps, a.s.
Internal network in 1	<u>HR</u>			
(32) Plomin – Melina	connecting new 400 kV switchyard and existing	Facilitates conventional generation integration and increase the security of supply	2015/16	TSO - HEP- OPS

Internal network in	DE			
(18) Cluster North-	-380-kV-connection	Support of RES	2015	TSO - 50
South grid	Halle/Saale-Schweinfurt	integration in		Hertz
reinforcement in	(Südwestkuppelleitung);	Germany, annual		
Eastern DE	-380-kV-grid enhancement	redispatching cost	2015	
	Southern Uckermark	reduction,		
	(Uckermarkleitung);	maintaining of		
	-380-kV-grid enhancement	security of supply	2015	
	Western	and support of the		
	Pommerania/Northern	market		
	Uckermark;	development;		
	-380-kV-grid enhancement	Through its internal	2015-2020	
	and structural change	effects it is		
	Lubmin-Stralsund-Rostock	expected, that the		
	Güstrow-Stendal/West-	projects will help to		
	Wolmirstedt;	avoid loop flows		
	-380-kV south-western	through	2015/2020	
	reactive power	neighbouring grids;		
	compensation devices			
	stage 1 and stage 2;	RES integration		
	-new construction of 380-	offshore;	2015-2020	
	kV-substations mid and			
	short term and			
	new construction of 380-			
	kV-substations long term;			
			2015	
	-380-kV-grid enhancement		2020	
	Northern Berlin		0045	
	(Nordring Berlin);		2015	
	-North/East-South/West			
	Overlay grid DC part for		2015/2020	
	Germany;		2015/2020	
	-380-kV-grid enhancement			
	Southern and Western area			
	of Magdeburg; -380-kV-South West grid			
	<u> </u>			
	enhancement Förderstedt			

(17) Cluster Connection of new power plants in 50HzT north, middle and south	Construction of new substations/lines/extension/reinforcement of devices for integration of planned and/or newly build power plants in northern, central and eastern part of 50HzT control area.	Support of conventional generation integration maintaining of security of supply and support of market development, grid access for new market participants	Projects according to the German energy law, depending on the final investment decisions on the new power plants	TSO – 50 Hertz
	-Lubmin substation; - Brunsbüttel substation -Eisenhüttenstadt substation; - Substation area of Pulgar; -Substation area around Calbe; -Substation area around Premnitz; -Wustermark substation; -Wuhlheide substation;		2014 2016/2019 2013/2014 2018 2015 2016 2015 2015 2015/2018 2018	
(51) Wahle - Mecklar	New 380 KV-OHL between Lower Saxony and Hessen	Integration of RES, enhancing network security	2015	TSO – TenneT TSO GmbH
Internal network in	<u>SI</u>			
(38) Beri•evo – Krško substation	Double circuit 400 kV OHL	Increases level of safe and reliable operation, reduces losses, increases transmission capacity between eastern and western areas (especially Italy) and facilitates market integration		TSO - ELES
(39) Cirkovce - Diva•a	Upgrade of internal 220 kV network to 400 kV voltage level.	Increases level of security of supply, increases transmission capacity between eastern and western areas and facilitates integration of onand off-shore wind and market integration in central and SE Europe	2020	TSO - ELES

Internal network in	<u>AT</u>			
(43) St. Peter - Ernsthofen	Upgrade of existing 220 kV OHL to a 400 kV OHL	Important to achieve the 380kVring structure which will be the backbone of the Austrian transmission grid; elevates the transport capacity of surpluses of wind generation in the Eastern parts of Austria towards pump storage plants		TSO - APG
(41) St.Peter – Tauern (Salzburgleitung)	New 400 kV double circuit OHL (so called Salzburgline) , including new substations		2017/2019	TSO - APG
(44) Duernrohr - Sarasdorf	Additional two 380 kv circuits will be installed on existing towers	Upgrading of existing infrastructure, integration of wind power plants in the east of Austria	2014	TSO - APG
Internal network in	BG			
(53) S/s Dobrudzha - S/s Burgas	New 400 kV OHL	Development of new infrastructure and RES integration	2020	TSO - ESO

Internal network in	RO			
(34) Cluster RO Western Border	-New 400 kV OHL Protile de Fier – Resita, -New 400 kV substation Resita and upgrade of old substation 220/110 kV Resita; -Extension of 400 kV substation Portile de Fier; - Upgrade of the 220 kV DC line Resita-Timisoara-Sacalaz to 400 kV d.c. OHL; -New 400 kV substation Timisoara; Replacement of 220 kV substation Sacalaz with a 400 kV substation; -Extension of 400 kV Arad	Enhancing market integration and/or competition and integration of RES	2016 - 2023	TSO – Transelectrica S.A.
(65) Cluster Tarnita Storage	-New 400 kV substation Tarnita; -New 400 kV OHL Tarnita- Cluj Gadalin; -New 400 kV OHL Tarnita– Mintia;	Integration of storage (e.g. pump storage, other technologies) and integration of RES generation	2017-2019 (assuming year 2012 as estimated start of the project of the pump storage plant)	TSO – Transelectrica S.A.
(33) Cluster network strengthening in eastern part (RO)	-400 kV OHLs Isaccea- Dobrudja and Isaccea- Varna in substation Medgidia S -New 400 kV OHL (1 circuit equiped) Gutinas- Smardan -New 400 kV OHL Cernavoda-Stalpu -Upgrade to 400 kV of the existing line Stalpu- Teleajen-Brazi V - New 400 kV substation Stalpu and Teleajen -Extension of 400 kV substation Brazi V -New 400 kV OHL Medgidia S – Constanta NNew 400 KV OHL G•d•lin – Suceava -Upgrade of 220 kV axis Stejaru-Gheorghieni- Fantanele	Integration of new generators into the system	2015 2021 2017 2019 2019 2019 2021 2022 2016-2020	TSO – Transelectrica S.A.



1.2. Natural Gas

The following projects have been identified as necessary projects of regional importance in order to create or further complete the North-South gas route that connects import sources from the Baltic, Black and Adriatic Seas, to integrate the market and enhance security of supply.

Import sources or projects which allow new sources of gas to enter this region include Southern Corridor projects, such as Nabucco, ITB, IGB (ITGI), IAP (TAP). These projects have been identified as being of importance for the Central-Eastern European region and will be further discussed under the regional cooperation of South-East Europe and the Southern Corridor.

The assessment of the BalticPipe project (Baltic Sea) highlights the potential value it provides for the Central-European region, and it is already a part of the West-Baltic action plan under the BEMIP umbrella. When assessing this project within the BEMIP regional group, this additional aspect will need to be taken into consideration.

Projects with implementation dates prior to 2014 have not been included in the action plan; their implementation is already assumed.

Projects with uncertain implementation dates or dates subsequent to 2020 have not been considered as a low level of maturity has been assumed. These can be reassessed to be included at later stages.

Projects have been assessed on the basis of a list of 43 projects proposed by the members of the Gas Working Group. The evaluation was based on a methodology presented by an external consultant and discussed and agreed by the working group. This included the use of a regional gas flow model of the external advisor and a multi-criteria assessment tool that lead to a preliminary ranking⁵.

As the project assessment is based on the current assessment methodology and the current project list, this will have to be reviewed in the light of the introduction of new projects, the potential cancellation of existing ones but also the adoption of a selection process and selection criteria in the Regulation on guidelines for energy infrastructure.

Project ⁶	Description	Dependency with project	Date of comple -tion ⁷	Project owner(s)
(1) LNG Terminal in • winouj•cie upgrade	LNG Terminal with regasification capacity of 5 bcm/year of natural gas. Further extension to 7,5 bcm/year is planned in the following years (due to 65% of capacity bookings, this seems very likely to be needed). 1st phase under EEPR (€ 80m)		2020 (2 nd phase)	Gaz-System

⁵ See the outcome of the external consultant's assessment in the Annex.

⁶ Project numbers refer to the list of 43 assessed projects by the Gas Working Group and to the map on page 20.

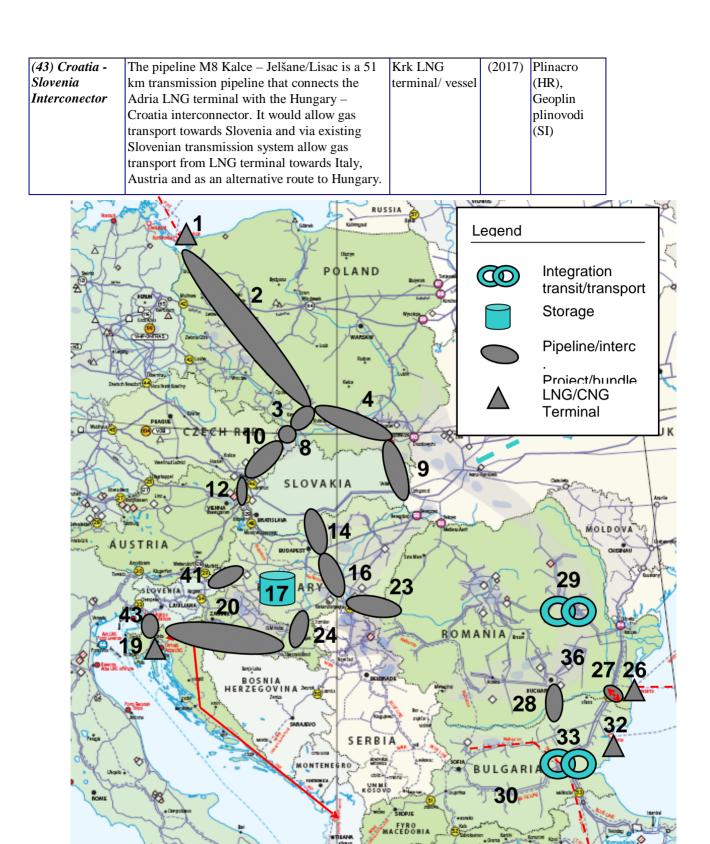
⁷ The completion dates indicated in brackets are the provisional estimates used for the gas flow model

• winouj•cie – Szczecin -	Pipeline sections to connect the LNG terminal to the Polish grid:	LNG Terminal in •winouj•cie	2013/ 2014	Gaz-System (PL)
Szczecin - Lwówek	Ü	iii • wiiiouj•cie	2014	(PL)
	• winouj•cie – Szczecin Connecting Louisunia Connecting Lou			
	Szczecin - Lwówek			
Lwówek – Odolanów	enforcing the transmission capacity in the Polish transmission system in order to transport gas from LNG Terminal in •winouj•cie and Baltic Pipe towards South	LNG Terminal in •winouj•cie	2020	Gaz-System (PL)
Odolanów – Tworze•	enforcing the transmission capacity in the Polish transmission system in order to transport gas from LNG Terminal in •winouj•cie and Baltic Pipe towards South	LNG Terminal in •winouj•cie	2020	Gaz-System (PL)
(3) Polish section	n of the grid towards the Czech Republic			
Tworze• −	Enforcement of the system in order to facilitate		2017	Gaz-System
O•wi•cim	better operational functioning of the PL-CZ interconnector and increased gas flow			(PL)
Skoczów – Komorowice – O•wi•cim	Enforcement of the system in order to facilitate better operational functioning of the PL-CZ interconnector and increased gas flow		2015	Gaz-System (PL)
(4) Polish section	n of the grid towards Slovakia			
Pogórska Wola- Tworze•	The line has limited capacity. This pipeline with access to storage system in UGS Strachocina could serve as safety and reliability enhancing infrastructure in the region, particularly with regards to the Slovak system and the Czech system	PL-SK interconnector	2016	Gaz-System (PL)
Strachocina- Pogórska Wola	The line has limited capacity. The pipeline constitutes an important connection between regional gas storage facility (UGS Strachocina) and main transmission lines in southern Poland	PL-SK interconnector	2015	Gaz-System (PL)
(7) BalticPipe (also relevant under BEMIP)	The interconnector between Poland and Denmark has the potential to provide alternative gas sources for the North-South Gas Interconnections Axis if Norwegian gas fields are reached. The project has additional value in the context of the West-Baltic area under the BEMIP.		2020	Gaz-System (PL)

(8) Czech Republic- Poland Interconnector upgrade	The first phase of the Czech-Polish bi-directional interconnector of 0,5 bcm/y capacity between T•anovice and Skóczow (normal flow direction: CZ • PL) was implemented in 2011, supported by EEPR This project aims at upgrading the interconnector to 2,5 – 3 bcm		(2017)	Gaz-System (PL), NET4GAS (CZ)
(9) Poland – Slovakia Interconnector	First interconnection between Poland and Slovakia and a backbone of the North-South corridor. Gaz-System and eustream are preparing a joint feasibility study; a joint application for TEN-E funding was submitted by both TSOs in 2011.	Polish section of the grid towards Slovakia	2020	Gaz System (PL), eustream (SK)
(10) Project "Moravia": Libhoš• – Tvrdonice	The extension of the pipeline in the Czech Republic to allow larger gas flows from / to Poland. There are also four UGS facilities located along this route. The future extension is estimated to 2.5-3 bcm/y to match the PL-CZ interconnector	PL_CZ interconnector upgrade	2017- 2018	NET4GAS (CZ)
(12) Interconnection Czech Republic - Austria	A new interconnection between CZ and AT would connect the North-South Gas Axis to the existing European Hub in Baumgarten. It can contribute to diversification for CZ if Nabucco is built and also to PL if project "Moravia" and CZ-PL upgrade are implemented.	upgrade; Project "Moravia";	2017- 2018	OMV Gas (AT), NET4GAS (CZ)
(14) Slovakia - Hungary Interconnector (Velký Krtíš - Vecsés)	This new interconnector - with annual capacity of 5 bcm/year - would significantly increase the security of supply through supply and route diversification and market integration in this region. It has major impact stand-alone, but together with PL-SK would create a real North-South corridor Co-financed under EEPR	Standalone, increased value with PL-SK and Nabucco	2015	Eustream (SK), FGSZ / OVIT (HU)
(16) Internal N- S Project (Vecsés – Városföld)	Enforcing of the internal 5-10 bcm pipeline (31+45 km) in Hungary to allow North-South flows across its territory. Százhalombatta-Városföld Vecsés-Pusztavacs	Slovakia – Hungary interconnector, HU-RO reverse flow, Southern Corridor	2015	FGSZ (HU)
	Due to its overall capacity, the Hungarian storages have a strong regional role. Improving injection capacity of the seasonal storage facility to improve balancing ability linked to the N-S projects • Pusztaederics • Zsana		2014	FGSZ (HU)

(19) LNG regasification vessel, Krk	To connect a regasification vessel to the transmission system, with a lower capacity (4 – 6 bcm) and with a phased development.		2014	Plinacro (HR)
(20) Slobodnica – Adria LNG	This 326 km transmission pipeline is to connect the Adria LNG terminal / RV with the Hungary – Croatia interconnector, as well as to allow gas transport towards Slovenia. It includes the following pipeline sections together with the associated equipments:	Krk LNG	2020	Plinacro (HR)
	Slobodnica – Kozarac (planned),			
	• Kozarac – Sisak (studies),			
	• Sisak – Bosiljevo (research activities),			
	Bosiljevo – Zlobin (preliminary design),			
	• Zlobin – Omišalj (preliminary design, EIA done)			
(23) Reverse flow on the Interconnector Romania- Hungary	This is the first interconnection between high pressure pipeline networks of both countries, normal flows are from HU to RO.		(2012)	Transgaz (RO)
(24) Reverse flow from Croatia towards Hungary	Project is technically feasible but the volumes still need to be calculated	Krk LNG or IAP	(2020)	FGSZ (HU), Plinacro (HR)
(26) Constanta LNG import terminal	LNG Terminal to receive gas from Azerbaijan shipped through the Black Sea		(2015)	Romgaz (RO)
(27) Link from the Constanta LNG terminal to the Romanian transmission network	Internal pipeline to link the Constanta LNG terminal of the Romanian Black Sea shore with the national gas transportation system	Constanta LNG	(2015)	Transgaz (RO)
(28) Reverse flow at Negru Voda	Reverse flow from Bulgaria towards Romania that will be implemented with a deliverability of 14 mcm/d	(1) Integration of transit and transmission network – reverse flow Isaccea (2) Integration of transit and transmission network in Bulgaria	2013	Transgaz (RO)

(29) Integration of transit and transmission network – reverse flow Isaccea	With the integration of the transmission and transit network, the country will benefit more efficiently from the gas transiting in the country and open new off-take points. It will increase the capacity of the transmission network.	Reverse flow at Negru Voda	(2012)	Transgaz (RO)
(30) Rehabilitation, modernization and expansion of the Bulgarian transmission system	After the implementation of southern interconnections IGB and ITB the Bulgarian transmission system needs to have the capacity to provide the transportation of Caspian and LNG gas to SEE Region - Romania Serbia, FYR of Macedonia and others through Northern interconnections IBR and IBS and existing gas pipeline to FYROM.	ITB, IGB, IBS	2017	Bulgar- trasngaz (BG)
	CNG Terminal to receive Azeri natural gas from Georgian Black Sea coast shipped through the Black Sea by CNG vessels		2015	Bulgar- transgaz (BG)
(33) Integration of transit and transmission network in Bulgaria	With the integration of the transmission and transit network, the country will benefit more efficiently from the gas transiting in the country and open new off-take points. It will increase the capacity of the transmission network		(2012)	Bulgar- transgaz (BG)
(36) EU section of the AGRI project	The project consists of a new transmission pipeline with a total capacity of 8 bcm/y, connecting the Constanta LNG terminal to the Hungarian transmission system, with an off-take point on Romanian territory having a capacity of 2 bcm/y.	in Constanta	2015	Transgaz (RO), FGSZ (HU)
(39) Interconnection Turkey- Bulgaria (ITB)	ITB will ensure in midterm security and diversification of gas supplies to Bulgaria and SEE Region from Azerbaijan and Turkish LNG terminals Bulgaria and Turkey signed MoU in the beginning of 2010 which supports the implementation of ITB project. ITB is supported by Azerbaijani side according to a Protocol signed between - SOCAR and BULGARTRANSGAZ.		2014	Bulgar- transgaz (BG)
(41) Hungary - Slovenia interconnector with reverse flow capacity	The interconnection Hungary-Slovenia is planned to be a regional entry point for alternative gas supplies into Hungary from LNG terminals in Adria, at the same time means possible use of underground storage capacity in Hungary and connection to Nabucco for Slovenia. Length 72km (SI) + 41 km (HU). Via the Slovenian transmission system supply corridor can be extended further to Italy. (the reverse flow capacity could have a capacity of around 0.5bcm/y)	Slovenian development; Nabucco; Krk LNG terminal/ vessel No additional value if South- Stream is built	2017-18	FGSZ (HU), Geoplin plinovodi d.o.o.(SI)



1.3. Oil

Two of the oil pipeline projects identified in the region would allow the creation of a "Central Eastern European Oil Pipeline Ring" by establishing links between the North and South Druzhba both in the West and East. At the same time other projects would grant the Ring access to the Baltic, Black and Adriatic Seas. Such connections would result in a high level of interoperability of the regional oil pipeline network, thus ensuring continuous oil flows to the depending refineries in case of a supply disruption in the conventional supply route.

Project	Description	Countries
New pipelines to c	connect the North and the South branch of the Druzhba	
1. Litvinov (CZ) and Spergau (DE)	Construction of the pipeline between Litvinov (CZ) and Spergau (DE). This link would close the loop between the Northern and the Southern branch of the Druzhba pipeline system in the West. The capacity increase of the existing TAL pipeline (connecting Trieste to South Druzhba via the IKL pipeline) is an important precondition of this project ⁸ .	
(PL) and Brody	Construction of the new pipeline between Adamowo (PL) and Brody (UA) – the Polish section. This link would close the loop between the Northern and the Southern branch of the Druzhba pipeline system in the East. ⁹	
Pipeline to enforc	e the link from the Baltic Sea to the Northern Druzhba	
pipeline, second line	Construction of the second line of the Pomeranian pipeline from Gda•sk to P•ock. This line would secure the supplies from the Baltic Sea to Poland, Germany and, once the Litvinov Spergau link is built, further to Czech Republic and Slovakia.	
Pipelines to enfor	ce the existing link / establish a new link from the Adriatic Sea to the Southe	rn Druzhba ¹

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⁸ In case of a decision on increasing the transport capacity of TAL crude oil pipeline, to implement the raise in such a way that it will cover the need of refineries within the Czech Republic and eventually in the Slovak Republic. Especially, in case of a partial or complete suspension of crude oil supply via the Druzhba pipeline takes place.

Pomeranian pipeline's existing capacity 30 MTA (from Gdansk to Plock) is sufficient to supply Polish refineries and partly two refineries in Germany. Second line would improve supply to Poland and Germany, help in diversification of crude oil grades. If the reversible pipeline from Litvinov to Spergau is built, second line of the Pomeranian pipeline will be indispensable to secure supplies to Czech Republic and Slovakia and to make the closed loop between North and South Druzhba operational. Therefore in the integrated pipeline supply network of North South Interconnections in the Central Europe two lines of Pomeranian pipeline would constitute one of the main entry points for crude oil. Second line could be also utilized for crude oil exports from Odessa-Brody-Adamowo pipeline to the Baltic region and North Western Europe.

¹⁰ A cost-benefit analysis is to be performed for projects 4 and 5 in order to identify common elements and differences between the projects. See action 2.3.5 on page 27.

Project	Description	Countries
4. JANAF/Adria pipeline	Reconstruction and capacity increase of the existing JANAF and Adria pipelines (including the Sahy-Százhalombatta section) linking the Croatian Omisalj seaport to the Southern Druzhba. This oil pipeline route is already operatinfor 20 years and grants alternative supply route for Hungary and partially for Slovakia. The reconstruction and upgrade would ensure full backup route to Slovakia as well (and potentially can be used by the Czech Republic, too) in the South-North direction; and to Croatia in the North-South direction.	
5. Bratislava Schwechat Pipeline	Construction of new pipeline between Bratislava – Schwechat: This line would give access to the Schwechat refinery to Russian crude oil via the South Druzhba. In case of a disruption in Slovakia, the supply direction of the pipeline could be reversed, thus giving a back-up route to the Bratislava refinery. The existing pipeline capacities from Trieste would make quantities available to Bratislava refinery.	



2. List of Actions

2.1. Permitting process for electricity, gas and oil

The High Level Group recognises that the existing permitting procedures can cause unexpected delays for the implementation of projects and that finding a solution poses certain challenges taking into account the varying legal frameworks and administrative practices in each Member State. Therefore the High Level Group proposes further discussions on possible solutions at Member State level and the sharing of best-practices on regional level in particular addressing obstacles listed below.

However, the High Level Group recognises that some Member States¹¹ have already implemented measures in order to solve particular obstacles mentioned in the list and that measures regarding permitting procedures as well as public acceptance are part of the Commission's proposal on guidelines for energy infrastructure.

Action	Short description of the obstacle	Responsible body
2.1.1 Support public acceptance for electricity and gas projects ¹²	 Lacking public acceptance due to insufficient information campaigns at local, Member States' and European level which address public concerns related to infrastructure projects. 	MS, TSO
2.1.2.5.	 Finding the landowner can cause problems and delays in the process. 	MS
2.1.2 Streamline acquisition process for	 Landowners' consent to right-of-way / negotiations on land compensation are difficult and can cause delays 	MS
land/land related rights ¹³	 Settlement and expropriation procedures can take several years, or they can completely block the project. 	MS
	 Land under the electricity lines is taxed differently which does not incentivise the landowner to give his consent 	MS
2.1.3 Streamline permitting	 Permitting for electricity lines requires often a number of different permits from different authorities which can cause delays 	MS

¹¹ E.g. German Grid Expansion Acceleration Act from 28 July 2011 (Netzausbaubeschleunigungsgesetz); no delays due to permitting in Hungary and in some other countries

Further potential actions for this obstacle which need further investigation include nominating regional coordinators, periodical exchange of experiences in involving affected citizens in the planning process, rules for the use and development of new mast designs and innovative transmission technologies, focus in planning and reduction of the consternations of citizens (peoples preranking), harmonizing limit values (e.g. health exposure - magnetic fields) etc.

Potential action for this obstacle that needs further investigation is the prohibition to build buildings under existing lines.

Action	Short description of the obstacle	Responsible body
procedures	 Inactivity of permitting authorities and/or lack of time limit for the permitting process which can cause delays and create uncertainties 	MS
	 Lack of co-ordination and co-operation of authorities on cross- border projects can cause delays 	MS
2.1.4 Ensure simplified permitting for upgrades / reconstruction / minor modifications	Permits and authorization steps often can not be re-used from the original investment project for upgrades, reconstruction and minor modifications which causes delays	MS
2.1.5 Ensure the uniform application of permitting rules for electricity projects	The application of permitting rules on local level is sometimes different which creates uncertainties for citizens and TSO's and can cause delays	MS
2.1.6 Protection of planned and existing corridors for electricity and gas projects	Lacking protection of planned infrastructure corridors during permitting process can hinder or delay project implementation	MS
	Lacking protection of existing corridors can hinder or delay upgrades or reconstruction of existing lines	MS

2.2. Internal Market Actions for gas and electricity

In liberalized markets, the regulatory framework has a significant impact on the ability to attract private investments as it may influence the level of revenues and the profitability of the projects. Therefore, it is important to implement a regulatory framework that provides returns in adequacy with project risks and that support their rapid implementation. In this context, bilateral agreements of Member States with third countries should also be in full compliance with EU legislation¹⁴. To this end, the High Level Group has identified internal market actions that would enhance the attractiveness for private investments in electricity and gas infrastructures.

The High Level Group acknowledges that in alignment with 3rd energy legislative package some Member States are already enforcing some or all of these prescribed measures.

In order to foster investments in generation and transmission infrastructure, a stable regulatory framework is needed, including:

- the establishment of duly unbundled TSOs, providing fair and non-discriminatory access to all transmission infrastructure, including previously qualified as transit;

¹⁴ Based on article 351 TFEU

- proper incentive based regulation of transmission tariffs;
- independent National Regulatory Authorities (NRA) with all powers entrusted to them under the third package;
- phasing out of retail price regulation, except possibly for vulnerable customers, without delay, ensuring that regulated retail prices allow suppliers to cover efficient costs.

Thus, these tables present a non-exhaustive list of potential actions which are crucial for fostering investments in the region but that might not be prescribed for all the sides in view of their current application of the 3rd energy package. It should also be added that full implementation of the 3rd energy package is key to attracting capital to the energy sector in the region and to getting investments done.

Action	Short description of the Action	Target timescales ¹⁵¹⁶	Responsible body
	 Ensure regulated end-user prices are cost- reflective 		Regulator, MS
2.2.1 Ensure compliance of supply prices with Article 3 of Directives	 Remove regulated end-user prices for non-household customers Eliminate price-caps and/or subsidies for non-household customers 		Regulator, MS
2009/72/EC and 2009/73/EC and therefore phasing out regulated end- user prices	 Remove regulated prices for household customers, except possibly for vulnerable customers Eliminate price-caps and/or subsidies for households as long as they are not in line with the provisions of Article 3 of Directives 2009/72/EC and 2009/73/EC, in particular concerning the protection of vulnerable customers. 		Regulator, MS
2.2.2 Ensure a stable regulatory framework and create incentives for investments	• Create the necessary regulatory framework for fostering investments, especially fixing or approving, sufficiently in advance of their entry into force, the tariffs or the methodology used to calculate or establish the tariffs in line with Article 37(6-8) Directive 2009/72/EC and Article 41(6-8) Directive 2009/73/EC		Regulator, MS

¹⁵ Where no target year has been defined, target timescales follow 3rd energy package timetables

¹⁶ In case of existing timetables for any of the described actions in a Member State, e.g. in legally binding instruments or in MoUs with specific Member States, those deadlines prevail.

Action	Short description of the Action	Target timescales ¹⁵¹⁶	Responsible body
	 Remove existing export and/or import restrictions and abolish any dedicated use of domestic gas and electricity production¹⁷ 		MS, Regulator, TSO (as appropriate)
2.2.3 Remove legal, regulatory and physical barriers for new entrants, in particular concerning the gas market	 Remove obligations to have a compulsory composition of the supply mix to final domestic and non-domestic consumers, such as a gas basket of domestic and import gas¹⁶ Remove preferential tariffs for state-owned companies Remove discriminatory fees which are not in line with EU energy legislation in particular extra fees on export and import 	2012	
	Implement virtual reverse flows on all entry/exit points within the region	2013 ¹⁸	TSO, Regulator
2.2.4 Ensure independent national regulatory authorities	 Ensure independent management of NRAs and entrust NRAs with full powers as required under the third package Ensure that the NRAs are equipped with adequate means to fulfil their tasks and responsibilities as defined in the third package 	2011	MS, Regulator

2.3. Regional co-operation

The actions presented in the following table aim at improving the cooperation between the parties and at supporting the coordinated development of energy infrastructure and the associated regulation. Therefore, those actions are relevant for all the parties. These actions should in particular take account of the existing regional cooperation structures of ENTSO and the regulators.

Action	Short description of the Action	Target timescales	Responsible body
2.3.1 Co- operation on cross-border	Organise regular meetings on planned cross-border projects; perform jointly the studies necessary for the project		TSO, RG ENTSO

^{16,17} For these actions agreed deadlines different from 2012 in legally binding instruments or MoUs for specific Member States prevail

 $^{^{18}}$ Following the timetable of the Regulation concerning measures to safeguard security of gas supply, (EU) No $994/2010\,$

Action	Short description of the Action	Target timescales	Responsible body
projects	 Organise multi-lateral meetings of regulators, TSOs, Ministries and shippers (for gas) on cross-border projects/interconnectors 		TSO, Regulator (GRI could initiate), MS
2.3.2 Market and Grid Studies for electricity	Perform market and grid studies for the necessary investments in CEE region	2012	TSO, RG ENTSO-E
2.3.3 Perform 'Virtual Test Case'	 Perform a 'Virtual Test case' for a regional investment in CEE to identify specific recommendations and best practices for cross-border investments 		Regulator (GRI could initiate), TSO
2.3.4 Enhance regional cooperation in the field of oil emergency response	• Expert group on "Soft elements" to assess how existing national risk assessments; emergency response scenarios and mechanisms could be coordinated at a regional level to enhance security of supply. See attached Work Programme in Annex.	2013	Oil companies (storage and pipeline operators, refineries – Oil working group), MS
2.3.5 Cost Benefit Analyses for two oil projects	• As both the JANAF/Adria and the Bratislava Schwechat links Adriatic Sea to South Druzhba, the aim of this action is to identify the common elements and the differences by performing a cost-benefit analysis. The CBA's main focus is on regional security of supply considerations and will take into account the already existing cost-benefit analyses and studies that were prepared by the project promoters.	Mid-2012	Project promoters

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

One of the necessary elements of a successful action plan is the successful identification of assumptions and risks posed that could jeopardize the plan's implementation and aforementioned objectives as set out at the beginning. Risks are events which <u>fall outside</u> the control of the initiative, but have an impact on its progress and expected outcomes. One of the tasks of the High Level Group is to monitor changes in external environment of the North-South Interconnections Initiative and update the list of risks accordingly.

The following risks have been identified for the North-South Initiative, taking into account that project risks are handled at the level of each project:

- Political shift / lack of cooperation among participating countries can cause a deadlock in project identification and implementation
- Third party projects (competing with high priority project) are a risk mainly in the gas sector

- Obstacles/delays to open the Southern Gas Corridor; in such a case, the necessary
 projects required to support the projected gas flows to and through Central and
 South-East Europe will need to be reassessed
- A lack commitment by shipper's for gas projects; this is especially important because many gas infrastructure projects are only necessary under extreme conditions, for security of supply reasons. This can result in difficulties for financing
- A deteriorating economic situation in the European Union

IV. FINANCING

The bulk of the important financing costs for infrastructure investments will have to be delivered by the market, with costs recovered through tariffs. It is vital to promote a regulatory framework attractive to investment. Particular attention should be given to the setting of tariffs in a transparent and non-discriminatory manner at levels consistent with financing needs and to the appropriate cost allocation for cross-border investments, enhancing competition and competitiveness and taking account of the impact on consumers. However, some projects in the gas and electricity sectors that would be justified from a security of supply/solidarity perspective, but are unable to attract enough market-based finance, may require some limited public finance to leverage private funding. Such projects should be selected on the basis of clear and transparent criteria. Not all identified oil projects are fully commercially viable being simultaneously of paramount importance to ensure the energy security of the region. Without public intervention some of the listed projects will most likely be abandoned. Therefore, Member States shall cooperate to seek appropriate means, including financial, to implement these projects.

The High Level Group takes note of the Commission Proposal for a Regulation of the European Parliament and of the Council establishing the Connecting Europe Facility¹⁹.

V. IMPLEMENTATION AND MONITORING

After the endorsement of the Action Plan, the process of its implementation should be monitored in order to ensure the objectives for which it has been created are met. The implementing bodies of the Action Plan are the owners of the action and projects and responsible for the implementation of the action plan.

1. Organisation

1.1. Structure, roles and responsibilities

• The <u>High Level Group</u>, chaired by the Commission, and the <u>working groups</u> will be maintained in its current composition until a regional group is set up and takes over its tasks after the adoption of the Regulation on the guidelines for energy infrastructure.

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¹⁹ COM (2011) 665

• The High Level Group will follow the progress of implementation, discuss and approve progress reports, as well as solve outstanding issues as they arise. The group can meet maximum twice a year, if necessary. Meetings can be organised back to back to the Energy Council.

After the adoption of the Regulation on the guidelines for energy infrastructure, the list of Projects of Common Interest will need to be defined. The regional group will participate in the selection process for the Projects of Common Interest, according to the procedures defined in the adopted Regulation on the guidelines for energy infrastructure, taking into account preparatory work carried by the working groups.

 The <u>Commission</u> can provide support in gathering progress information from the stakeholders and compile this information into a progress report. One progress report per year is planned.

If necessary, the Commission can support the implementation of possible solutions to issues / obstacles identified during the implementation of the action plan.

• The <u>implementing bodies</u> of the Action Plan are the owners of the actions and projects and responsible for the implementation of the Action Plan. Depending on the specific action or project, this can be the TSO, the regulator, Ministry or any other stakeholder (private company, regional body, etc.)

2. Monitoring activities

2.1. Reporting

The working groups with the support of the Commission will undertake a reporting exercise once a year 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 High Level Group shall make recommendations. The Commission as a chair of the High Level Group can also report to the Energy Council.

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 working groups as part of the reporting activity (issue management).

2.2. Risk management

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

2.3. Review clause

After the adoption of the Regulation on the guidelines for energy infrastructure, the Action Plan and the list of Projects of Regional Interest will be revised according to the provisions on the selection of projects as defined in this regulation. Therefore the list of identified regional priority projects does not prejudge the results of the selection process of the above mentioned regulation.

VI. ANNEXES

- Result of the gas project assessment performed by the external consultant
- Oil Work programme for soft elements