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COMMISSION DELEGATED REGULATION

amending Regulation (EU) No 347/2013 of the European Parliament and of the Council as regards the Union list of projects of common interest

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1. Introduction

A well-interconnected energy infrastructure is a pre-condition for establishing an integrated, competitive and sustainable internal energy market in the European Union. It is also a pre-requisite for a resilient Energy Union which provides EU consumers with secure, sustainable, competitive and affordable energy.

Development in good time of the projects of common interest (PCI) – that are critical energy infrastructure projects – is indispensable for the achievement by the Union of its ambitious climate and energy policy objectives laid down in the Paris Agreement, the 2020 Energy and Climate Strategy, the 2030 Framework for Climate and Energy, the Energy Union Strategy and the Clean Energy for all Europeans.

The TEN-E Regulation adopted in 2013 by the Union provides for a set of tailor-made measures that aim at ensuring development in good time of PCIs, in particular by, facilitating and accelerating their permit granting process, allowing for early integration of environmental assessment, enhancing involvment of the public in development process, improving regulatory treatment, and providing, under specific conditions, for Union financial assistance under the Connecting Europe Facility (CEF).[1,2] The CEF support, particularly to the smart energy storage and transmission systems, has been complemented by the EU cohesion policy, and in particular the European Regional Development Fund (ERDF).

A new Union list of PCIs is adopted every two years. So far, three Union lists have been prepared in cooperation of the Commission, Member States, promoters, regulators and stakeholders. The (first and second) Union lists adopted in 2013 and 2015 included 248 and 195 PCIs respectively in all the concerned sectors, including electricity, gas, oil, smart grids deployment and electricity highways.[3,4] The new (third) Union list of PCIs adopted in 2017 includes 173 PCIs.

The experience gained in the first four years of the application of the TEN-E Regulation confirms that the legal framework has great potential, and that it has already started delivering tangible results. With the appropriate legal framework in place, and the well-established and effective means for cooperation at regional level strenghened by the establishement of the High-Level Groups, in the next two-three years priority should be given to the enhanced

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1 Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure (OJ L 115, 25.4.2013, p.39).

2 Regulation (EU) No 1316/2013 of the European Parliament and of the Council of 11 December 2013 establishing the Connecting Europe Facility, amending Regulation (EU) No 913/2010 and repealing Regulations (EC) No 680/2007 and (EC) No 67/2010 (OJ L 348, 20.12.2013, p.129).

3 Commission Delegated Regulation (EU) No 1391/2013 of 14 October 2013 amending Regulation (EU) No 347/2013 of the European Parliament and of the Council on guidelines for trans-European energy infrastructure as regards the Union list of projects of common interest (OJ L 349, 21.12.2013, p 28).

4 Commission Delegated Regulation (EU) 2016/89 of 18 November 2015 amending Regulation (EU) No 347/2013 of the European Parliament and of the Council as regards the Union list of projects of common interest (OJ L 19, 27.1.2016, p 1).

enforcement of the TEN-E Regulation and to the close monitoring of PCIs to ensure their timely implementation.[5]

2. The (third) Union list of PCIs

The (third) Union list identifies 173 PCIs which are deemed necessary to implement the TEN-E priority corridors and the priority thematic areas, including 106 electricity projects, 53 gas projects, six oil projects, four smart grids deployment projects, and four cross-border carbon dioxide network projects. Furthermore, in total 35 electricity projects have been labelled as electricity highways.

To meet the EU's climate and energy policy objectives and to honour it's obligations under the Paris Agreement, the energy sector needs to be decarbonised. A part of this challenge is addressed by the Commission Clean Energy Package for All Europeans package, which sets the necessary market rules.[6]

A strong and resilient electricity network will be vital to enable the necessary decarbonisation. This will require sustained high amounts of investment in the power grid. The high number of **electricity** PCIs is in line with these objectives. When completed, electricity PCIs will allow for the integration of amounts of renewable energy and its transportation over long distances as well as will reinforce security of supply through increased grid resilience and flexibility. They will also contribute to exceeding the 10% interconnection target for 2020 and to meeting the 2030 interconnection target.[7]

The selected electricity PCIs will address the specific infrastructure needs of the priority regions, as follows:

(a) In the Northern Seas region the projects will further integrate the markets around the North Sea, which used to act as a natural barrier to interconnection. The expected future development of significant additional offshore wind capacity further underlines the importance to ensure that power can flow freely throughout the region.

The interconnector between Ireland and France (Celtic Link) will provide a first connection between Ireland and Continental Europe. The interconnectors between Denmark and Germany and the related internal grid reinforcements in Northern Germany will further enable the integration of significant amounts of offhsore wind. A number of storage projects will increase system flexibility.

(b) In Western Europe the electricity PCIs will further help complete the integration of the Iberian Peninsula with the European electricity market and thus help reach the European energy and climate objectives. In particular, the implementation of the Biscay Bay

5 https://ec.europa.eu/energy/en/topics/infrastructure/high-level-groups.
6 https://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition.
7 https://ec.europa.eu/energy/en/topics/projects-common-interest/electricity-interconnection-targets/expert-group-electricity-interconnection-targets.

interconnector will be the next step after the Arkale phase shift transformer was put into operation this year.

The internal German lines will contribute to a better integration of renewable energy and will enhance security of supply through increased grid resilience and flexibility.

Other PCIs in Western Europe will address specific grid bottlenecks at the Belgian northern border including between Belgium and Gemany as well as they will increase electricity exchange capacity between Italy and France, and between Ireland and Northern Ireland contributing considerably to a better market integration.

(c) In Central Eastern and South Eastern Europe the electricity PCIs will strengthen the existing electricity grid and provide for additional cross-border transmission capacity needed for the integration of renewable energy sources.

To address the issue of uncontrolled energy flows ("loop-flows") in Poland and the Czech Republic, two projects on the German-Polish border (phase shifter) were completed, other projects in Poland and the Czech Republic remain to be implemented. In this regard, the scope of the project on the German-Polish border was changed and now it includes internal lines in Poland with the aim of significantly increasing the grid transfer capacity between the two Member States.

In South Eastern Europe several clusters of projects containing interconnectors as well as internal reinforcements will increase the trans-border transmission capacity and increase the stability and resilience of the national grids, e.g. between Bulgaria and Greece (Black Sea Corridor), from Italy to Romania via the Balkans (East-West corridor comprising of 3 project clusters), and the Slovenia-Hungary interconnector.

(d) In Baltic Sea region (BEMIP) the key objective of electricity PCIs is to further integrate the three Baltic States into the European networks and to remove the existing bottlenecks on the borders between them. This will be achieved notably by building internal reinforcements in Poland, Latvia and Sweden, which are necessary for the full utilisation of the LitPol Link (between Lithuania and Poland) and the Nordbalt interconnections (between Lithuania and Sweden), as well as by building the Estonia-Latvia third electricity interconnection. In recognition of the significant regional benefits to be brought by these projects, the Commission has supported several of them with grants for works under the CEF programme and the ERDF.

The synchronisation of the Baltic States' electricity systems with the European networks by 2025 has been a long-term objective of the Baltic States in view of achieving independence in the operation of their electricity systems. A cluster of PCIs aiming at the integration of the Baltic States' electricity network into the European networks and their synchronisation will contribute to reinforcing the Baltic system and addressing some of the technical conditions which are required for the extension of the European networks to the Baltic States.

The insufficient transmission capacity creates congestions and efficiency losses also on the Northern border, especially between Finland and Sweden and determines high price differences between the two areas. The third interconnection Finland – Sweden will add up to 800 MW capacity on the border, decreasing the existing bottleneck and increasing the security of supply in Finland.

When compared to the previous Union lists, the third Union list provides for fewer but better focused **gas** projects addressing the critical infrastructure bottlenecks.

In line with the Union's ambitious long-term decarbonisation objectives, and to provide for a greater consistency with regard to the assessment scenarios between the electricity and gas sectors, the gas regional groups have assessed benefits of the candidate gas PCIs against the so-called "green revolution" scenario.[8] The "green revolution" scenario is one of the four assessment scenarios presented in the TYNDP 2017, and is the one which assumes the lowest gas demand by 2035. In this respect the "green revolution" scenario is the closest to the EUCO30 scenario underpining the Commission Clean Energy for All Europeans package.

Furthermore, the gas regional groups took due account of the analysis by ENTSOG indicating that the current gas infrastructure is in general already today well equiped to face the challenges of the future, it allows for a wide range of supplies and is resilient to a number of disruption cases.[9] The remaining and already well-identified infrastructure needs primarily in the Eastern Baltic Sea region, the Central and South-Eastern part of Europe and in the Iberian Peninsula can be effectively addressed by a limited number of projects.

The good state of the infrastructure (particularly in the Western part of Europe), together with the potentially decreasing gas demand, high investment and operating costs of new infrastructure, and long lifetime of (large-scale) energy infrastructure projects require a cautious approach to new investments in the gas sector in order to avoid over-investment and additional costs for consumers. Priority should be given to the more efficient use of the existing infrastructure at regional level and to better enforcement of the existing market and regulatory-based measures, including the gas network codes.

In general the selected gas PCIs will contribute significantly to meeting the EU's key energy policy objectives and will address the remaining infrastructure bottlnecks identified by the regional groups. They will bring to an end the gas isolation of the three Baltic States and Finland, they will provide for diversified sources and routes by developing the Southern Gas Corridor and the Norwegian Corridor. The gas PCIs will develop missing interconnections to increase security of gas supply, cross-border trade and competition particularly in the Central and South-Eastern part of Europe.

The selected gas PCIs will address the specific infrastructure needs of the priority regions, as follows:

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8 Pages 64-73 of the TYNDP 2017. https://www.entsog.eu/public/uploads/files/publications/TYNDP/2017/entsog_tyndp_2017_main_170428_web_xs.pdf .

9 https://www.entsog.eu/publications/tyndp#ENTSOG-TEN-YEAR-NETWORK-DEVELOPMENT-PLAN-2017.

(a) In Western Europe gas interconnections will increase the short term gas deliverability and further diversify routes of supply.

PCIs include projects to better integrate the Iberian Peninsula with the internal gas market as agreed in 2015 in the so-called Madrid Declaration by the President of France, the Prime Ministers of Spain and Portugal and the President of the European Commission.

In addition, in terms of connections with the internal gas market, a pipeline project between Malta and Italy was identified.

Furthermore, PCIs have been identified in France and Belgium in order to address the issue of the adaptation from low to high calorific gas which has become an important challenge for the region due to the decreasing low calorific gas production from the Groeningen gas fields (the Netherlands).

(b) In Central Eastern and South Eastern Europe the PCI projects address important challenges such as security of supply, market integration and competition. The PCIs include priority projects agreed within the High-Level Group on Central and South Eastern Europe Gas Connectivity (CESEC) that was established to speed up the construction of missing gas infrastructure links, and to tackle the remaining technical and regulatory issues to ensure three supply sources for the countries in the region.

Hence gas PCIs, such as LNG terminals in Croatia (Krk) and Northern Greece will address the limited diversity of gas supply sources in the region. Other projects, such as the Poland-Slovakia, Bulgaria-Serbia (IBS) and Greece-Bulgaria (IGB) interconnectors will expand the existing transmission capacity and diversify gas supply.

(c) In the Southern Gas Corridor PCIs will allow to connect the EU energy market to new sources of gas in the Caspian region, Central Asia and the eastern Mediterranean.

In particular the integrated system of gas pipelines including a trans-Caspian pipeline (between the shores of Turkmenistan and Azerbaijan), the expansion of South-Caucasus Pipeline (linking Azerbaijan, Georgia and Turkey), Trans Anatolia Natural Gas Pipeline (east-west across Turkey) and Trans-Adriatic Pipeline (stretching from the Greek-Turkish border, across Albania to Italy) will give the EU access to natural gas from the fields in the gas-rich Caspian Sea region. The construction works are now advancing and the first gas from Azerbaijan will reach the EU in 2020.

With the Eastern Mediterranean region now emerging as an important producer of natural gas, the EU could further diversify its supply sources. The primarily offshore pipeline between Cyprus and Greece (EastMed Pipeline) together with an offshore interconnection between Greece and Italy (Poseidon Pipeline) and the corresponding reinforcements of transmission capacities in Italy (Adriatica Line) will now provide an integrated transportation solution which allows the EU to tap into the EastMed gas resources.

Furthermore, together with the development of gas transmission infrastructure in Cyprus, the PCIs will end the isolation of the island from the EU gas market and allow the country to reduce its carbon footprint from electricity production.

(d) In the Baltic Sea Region (BEMIP) the key objective of PCIs is to end the gas isolation of the three Baltic States and Finland by connecting their networks with the Continental European gas grid. This will be achieved notably by building two new gas interconnections between Poland and Lithuania (GIPL), and between Estonia and Finland (Balticconnector), as well as by reinforcing existing gas interconnections between the three Baltic States. In recognition of their significant regional benefits, GIPL, Balticconnector, and other projects including, the LNG terminal in Świnoujście (Poland) have received financial support from the EU funds.

In the Western part of the BEMIP region, two important diversification PCIs are proposed. The LNG terminal in Gothenburg aims at increasing the security of gas supply of Sweden that still remains dependent on a single interconnection point with Denmark. Furthermore, the Norwegian Corridor project aims at delivering Norwegian gas to the BEMIP and CESEC regions - via Denmark and Poland - which are still (largely) dependent on one supplier.

The six **oil PCIs** will address the need of the Central Eastern European region for diversified oil supplies. These projects enhance the energy security of the countries in the region by (a) interconnecting the Eastern and Western European crude oil pipeline systems; (b) increasing the capacity of sea imports of crude oil from the Baltic Sea, Adriatic Sea and the Black Sea; (c) linking the different arms of the Druzhba pipeline and, (d) creating South-North pipeline connections.

The four **smart grids** projects involving eight Member States have different focus areas and reached different status of maturity. In general, they will allow for more resilience of the networks, the deployment of more renewable generation, and involvment of the demand response.

For the first time the Union list will also provide for four PCIs that aim at developing **carbon dioxide transport infrastructure** between Member States and neighbouring third countries. The transport infrastructure is a vital chain in carbon dioxide capture and storage and, so far, in Europe, no transport infrastructure for CO_2 has been developed. The projects are all located around the North Sea and involve Belgium, Germany, the Netherlands, the United Kingdom and Norway.

Although the PCI status signifies the importance of a project for the attainment of the Union's ambitious climate and energy policy objectives and implies its significant regional socio-economic beneftis, the status itself does not gurantee the sucesfull development of that project. In the PCI selection process some PCIs were identified as being able to address the same infrastructure needs. These projects are marked on the (third) Union list as (potentially or fully) competing, and the market is to decide if and which of them will be developed. Furthermore, each of the PCIs need to sucessfully undergo a full permit granting process, including environmental impact assessments and public consultations, as well as to obtain regulatory approvals. All PCIs must also be developed in full compliance with the EU *acquis*, including internal energy market legislation, environmental rules, public procurement and

competition law. The selection of a given project as a PCI does not prejudge in anyway the outcome of these processes.

3. The work leading to the (third) Union list of PCIs

The Union list adopted on 23 November 2017 was prepared following a rigorous, transparent and inclusive process involving numerous organisations.

The identification process of PCIs was based on regional cooperation and it was managed by the regional groups established under the TEN-E Regulation. The regional groups for electricity, smart grids, and gas comprise representatives of the Commission, the Member States, national regulatory authorities (NRAs), transmission system operators (TSOs), European Networks of Transmission System Operators for gas and electricity (ENTSOG and ENTSO-E), the Agency for the Cooperation of Energy Regulators (ACER), and the Commission. The regional groups for oil and carbon dioxide transport projects comprise representatives of the Member States, and project promoters. All parties involved in the PCI process brought their knowledge and expertise with regard to the technical feasibility of projects and market conditions.

The PCIs identification process was launched in May 2016 and ended on 23 November 2017 with the adoption of the delegated regulation that is subject to the scrutiny of the European Parliament and the Council.

The PCIs identification process started with the identification of the specific and most pressing infrastructure needs and bottlenecks in the electricity and gas priority corridors that could not be effectively addressed by more efficent use of the existing infrastructure and/or market measures, and thus require an investment in a new infrastructure. The lists of the infrastructure needs prepared and agreed by the regional groups with the involvment of the broad spectrum of stakeholders, constituted the basis of the 2017 assessment process of the PCI candidates.

The calls for gas and electricity PCI candidates took place between December 2016 and January 2017 resulting in numerous submissions. PCIs candidates in the electricity and gas sectors originated from the 2017 10-year network development plans (TYNDP) developed by ENTSO-E and ENTSOG. For oil PCI candidate projects the call took place in March 2017. For Smart Grid candidate projects the call was announced in September 2016 and ended in April 2017.

Each regional group carried out a comprehensive assessment of candidate PCIs proposed for its priority corridor. Projects were assessed with regard to their compliance with the general criteria - laid down in Articles 4(1) of the TEN-E Regulation – including, their contribution to the objectives of the corridor and their cross-border dimension. Subsequently, the regional groups assessed the projects' contributions to the specific criteria - laid down in Article 4(2) of

the TEN-E Regulation - according to the dedicated assessment methodologies agreed by the regional groups.

To allow for the assesment and comparison of projects, electricity and gas candidate PCIs were subject to cost-benefit analysis (CBA) carried out according to the methodologies developed by ENTSO-E and ENTSOG.[10,11] In the priority thematic area of smart grid deployment, the cost-benefit analysis was prepared by the Commission's Joint Research Center on the basis of input from the promoters in accordance with the agreed assessment framework.[12]

Following the assessment, the decision-making bodies of the regional groups at technical level (composed of the Commission and Member States representatives) agreed on the draft regional lists and the preliminary ranking of candidate PCIs. Meetings of the technical decision-making bodies of the regional groups were held on 13 July for electricity, smart grids and gas projects, and on 27 September for oil projects. In the case of cross-border carbon dioxide network projects, the draft regional list was agreed in written form by 21 September.

Following the quantitative assessment, the regional groups identified some electricity and gas candidate PCIs that would require further assessment according to the qualitative criteria laid down in Article 4(4) of the TEN-E Regulation, including urgency of projects, Member States affected, contribution to territorial cohesion and complementarity with other proposed projects.

The process of assessing the PCI candidates in all the priority corridors and priority thematic areas was concluded on 17 October 2017 with the adoption of the regional lists of the PCI candidates by the (high-level) decision-making bodies of the regional groups.

Recognising the important role of the energy regulators in the process of developing energy infrastructure, the Commissioned invited ACER and the NRAs – being statutory members of the regional groups – to actively engage into the process. The process guaranted the regulators a possibility to provide input at every stage of the process, including at the infrastructure needs identification, at the development of the PCI assessment methodologies, and at the assessment of the PCI candidates on the basis of the CBA analysis. Both ACER and the NRAs were provided with an unrestricted access to all data produced within the processs, including the results of the CBA analysis and costs data.

The overwhelming majority of the PCI candidates received the positive opinion of ACER and the NRAs, and only a handful of projects were subject to the regulators' concerns. Detailed

10 https://www.entsoe.eu/Documents/SDC%20documents/TYNDP/ENTSO-E%20cost%20benefit%20analysis%20approved%20by%20the%20European%20Commission%20on%204%20February%202015.pdf.

11 http://www.entsog.eu/public/uploads/files/publications/CBA/2015/INV0175-150213_Adapted_ESW-CBA_Methodology.pdf.

12 https://ses.jrc.ec.europa.eu/sites/ses.jrc.ec.europa.eu/files/publications/assessment_framework.pdf.

findings of ACER and the NRAs were presented to the regional groups and were considered by the latter in the process of agreeing on the regional lists.[13]

The 2017 PCI identification process provider for greater transparency. In addition to the statutory members of the regional groups, the process involved relevant stakeholders acting in the field of energy, such as consumer and environmental protection organisations that actively participated in the regional group meetings. Meetings of the regional groups were open to stakeholders allowing consumer and environmental protection organisations to obtain information on the PCI candidates and to provide their feedback in principle at every stage of the selection process.

Furthermore, public consultations were organised to obtain views of the public on the necessity of the proposed projects from the point of view of the Union's energy policy. The public consultations were organised according to the Commission's consultation standards. Public consultations on gas and electricity candidate PCIs were carried out between 27 March and 19 June 2017, on smart grids and oil between 3 April and 26 June 2017, and on cross-border carbon dioxide transport projects between 22 May and 15 August 2017.

In addition to the online consultation process, several bilateral meetings were held between the interested stakeholders and project promoters which allowed for indepth and constructive discussions on the projects characteristics and their potential impact on the sociaty and environment.

The increased transparency of the PCI process, and the greater involvement of stakeholders, allowed consumer and environemental protection organisations to prepare several positions papers that were shared with the regional groups.

4. The new assessment methodologies and other improvements of the 2017 PCI identification process

The workflow and structure of the process which led to the adoption of the (third) Union list of PCIs was organised in compliance with the relevant provisions of the TEN-E Regulation. The process provided for all the mandatory stages and involved all the required parties.

The 2017 process was built on experience from previous Union lists of PCIs and was subject to several improvements, addressing recommendations in the previous selection processes by the Member States, ACER, NRAs and stakeholders. These improvements resulted in a more enhanced selection process, greater transparency and clarity.

In December 2015 a new cooperation body know as the PCIs Cooperation Platform (CP) was established. This informal entity consisting of the representatives of the Commission, ACER

[13] http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2013-2017.pdf. http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2014-2017.pdf.

and ENTSOs was providing support to the PCI process by preparing concrete proposals for improvements of the process that were subsequently submitted to the approval by the regional groups.

The 2017 PCI identification process in the area of gas and electricity was explicitly based on the specific infrastructure needs and bottlenecks that had been identified at the beginning of the process by the regional groups. This new approach allowed the regional groups to identify the remaining bottlenecks that cannot be addressed by the existing infrastructure and market measures and which require new investments.

Furthermore, the 2017 process built on new, improved methodologies for assessing benefits of the PCI candidates in the electricity and gas sectors and for measuring their contributions to the energy policy criteria, i.e. market integration, security of supply, competition and sustainability. The improved methodologies, which provided for multi-criteria analysis, allowed the regional groups to identify among the PCI candidates those projects which in the best way can address the infrastructure needs identified within each of the priority corridors and thus remove the remaining bottlenecks. The methodology also allowed for better identification of competing projects. The electricity and gas regional groups agreed within their sectors on one well-defined assessment case/scenario that was used to evaluate the benefits generated by each of the PCI candidates.

With regard to Smart Grid project assessment, the Regional Group improved the Smart Grid Assessment Framework between September 2016 and April 2017 and endorsed the Evaluation Report on project candidates in September 2017.[14] The improved Assessment Framework includes a monetised/quantified evaluation on the contribution of smart grid candidate projects to the criteria of Article 4(2)(c) and Annex IV to the TEN-E Regulation (smart grid specific criteria only) and provides for an approach to societal cost–benefit analysis of smart grid projects.

Annexes:

I. Examples of grants allocated to projects under the Connecting Europe Facility (CEF) programme and the European Regional Development Fund (ERDF)

II. Implementation of projects of common interest (PCIs). Overview of the evaluation questions according to Article 17 of the TEN-E Regulation

[14] https://ses.jrc.ec.europa.eu/sites/ses.jrc.ec.europa.eu/files/publications/assessment_framework.pdf. http://publications.jrc.ec.europa.eu/repository/bitstream/JRC107348/jrc_smart_grid_pci_science_for_policy_report_2017_gk_final.pdf.

Annex I. Examples of grants allocated to energy infrastructure projects under the Connecting Europe Facility (CEF) programme and the European Regional Development Fund (ERDF)

PCI name	PCI number 2017	Member State (or third country) of origin of the project promoter	Action type	Year	Amount awarded (EUR)
Northern Seas Offshore Grid (NSOG); total funding allocated to projects under this corridor: € 185.2 million, including the following examples:					
PCI France – Ireland interconnection between La Martyre (FR) and Great Island or Knockraha (IE)	1.6	FR - IE	Study	2015/2016	7,860,332.00
France - United Kingdom interconnection (UK) (1.7)	1.7	FR - UK	Study	2014/2015	15,382,700.00
Interconnection between Revsing (DK) and Bicker Fen (UK) [currently known as "Viking Link"]	1.14	DK - UK	Study	2016	14,824,179.00
NSI West Electricity and Gas; total funding allocated to projects under this corridor: € 107.9 million, including the following examples:					
PCI France - Spain interconnection between Aquitaine (FR) and the Basque country (ES) (2.7)	2.7	ES - FR	Study	2014/2016	9,500,000.00
PCI Germany internal line between Brunsbuttel-Grossgartach and Wilster Grafenrheinfeld (DE) to increase capacity and Northern and Southern borders	2.10	DE	Study	2016	40,250,000.00
PCI Twinning of Southwest Scotland onshore system between Cluden and Brighouse Bay (United Kingdom) (5.2)	Construction ongoing (not a PCI on the third Union list)	IE	Works	2014	33,764,185.00

PCI Eastern Axis Spain-France – interconnection point between Iberian Peninsula and France at Le Perthus [currently known as Midcat]	5.5.2	FR - ES	Study	2015	5,627,125.00
NSI East Electricity and Gas; total funding allocated to projects under this corridor: € 668,2 million, including the following examples:					
Cluster Bulgaria — Greece between Maritsa East 1 and N. Santa and the necessary internal reinforcements in Bulgaria	3.7.1/3.7.2/3.7.3/3.7.4	BG	Study	2014	925,000.00
		BG	Works	2015	28,996,650.00
Internal line between Dobrudja and Burgas (BG) (3.8.1)	3.8.1	BG	Study	2014	315,000.00
		BG	Works	2016	29,857,500.00
Cluster Israel — Cyprus — Greece [currently known as "EUROASIA Interconnector"]	3.10.1/3.10.2/3.10.3	CY	Study	2014	1,325,000.00
North South Gas Corridor in Eastern Poland (ERDF)	6.2.2	PL	Study/Works	up to 2017	336,287,784
Development of a LNG terminal in Krk (HR) up to 2.6 bcm/a– Phase I and connecting pipeline Omišalj – Zlobin (HR)	6.5.1	HR	Study	2014/2016	6,197,000.00
		HR	Works	2016	101,400,000.00
Cluster Croatia — Slovenia — Austria at Rogatec	6.26.1	HR	Study	2015	4,825,000.00
Rehabilitation, modernization and expansion of the Bulgarian transmission system	6.8.2	BG	Study	2015/2016	1,032,000.00
PCI Gas interconnection Bulgaria — Serbia [currently known as "IBS"] (ERDF)	6.10	BG-SRB	Study	2012	2,288,917.64
Cluster phased capacity increase on the Bulgaria — Romania — Hungary — Austria bidirectional	6.24	HU - RO	Study	2014/2016	3,818,842.00

transmission corridor (currently known as "ROHUAT/BRUA") to enable 1.75 bcm/a in the 1stphase, 4.4 bcm/a in the 2ndphase, and including new resources from the Black Sea in the 2ndand/or 3rdphase		RO	Works	2015	179,320,400.00
Pipeline system from Bulgaria via Romania and Hungary to Slovakia [currently known as "Eastring"]	6.25.1	SK	Study	2016	1,000,000.00
Infrastructure to allow the development of the Bulgarian gas hub	6.25.4	BG	Study	2016	920,500.00
BEMIP Electricity and Gas; total funding allocated to projects under this corridor: € 1147,1 million, including the following examples:					
Cluster Estonia — Latvia between Kilingi-Nõmme and Riga [currently known as "Third interconnection"]	4.2.1/4.2.2	EE - LV	Works	2014	112,301,701.00
Internal line between RigaCHP 2 and RigaHPP (LV)	4.2.3	LV	Works	2016	9,990,000.00
Internal line between Ventspils, Tume and Imanta (LV) (4.4.1)	4.4.1	LV	Works	2014	55,089,000.00
PL part of interconnection LitPol link I; (ERDF)	Projects completed (not a PCI on the third Union list)	PL	Works	2014	204,930,984.24
LT part of interconnection LitPol link I;	Project completed (not a PCI on the third Union list)	LT	Works	2015	27,376,500.00
Further infrastructure aspects of the synchronisation of the Baltic States' electricity system with the European networks	4.8.9	LT - LV - EE	Study	2014/2016	250,010.00
Interconnector between Estonia and Finland "Balticconnector"	8.1.1	EE - FI	Study	2014	5,400,586.00
		EE - FI	Works	2016	187,500,000.00

(8.1.1)					
Enhancement of Estonia — Latvia interconnection	8.2.2	EE	Works	2016	18,625,000.00
Capacity enhancement of Klaipeda- Kiemenai pipeline in Lithuania (8.2.3)	Project completed (not a PCI on the third Union list)	LT	Works	2014	27,592,500.00
PCI Poland - Denmark interconnection "Baltic Pipe"	8.3.2	DK - PL	Study	2015	400,000.00
Poland-Lithuania interconnection [currently known as "GIPL"]	8.5	LT - PL	Study	2014	10,595,988.00
		LT - PL	Works	2014	295,386,600.00
Świnoujście LNG terminal (ERDF)	Phase I of the project completed; further extention foreseen 8.7	PL	Works	2013	223,740,269.00
Southern Gas Corridor (SGC); total funding allocated to projects under this corridor: € 207.6 million, including the following examples:					
Gas pipeline from Greece to Italy via Albania and the Adriatic Sea [currently known as "Trans-Adriatic Pipeline" (TAP)], including metering and regulating station and compressor station at Nea Messimvria	7.1.3	EL	Study	2016	14,261,597.00
Smart Grids; total funding allocated to projects under this corridor: € 40.5 million, including the following examples:					
SINCRO.GRID (Slovenia, Croatia) - An innovative integration of synergetic, mature technology-based solutions in order to increase the security of operations of the Slovenian and Croatian electricity systems simultaneously	10.3	HR - SI	Works	2016	40,489,013.00

Annex II. Implementation of projects of common interest – overview of evaluation questions according to Article 17 of the TEN-E Regulation

This annex provides an overview of key information evaluated in conformity with Article 17 of the TEN-E Regulation. The TEN-E policy, implemented through the TEN-E Regulation which identifies Projects of Common Interest (PCIs), is still in its early days as less than four years have passed since their entry into force in 2013. The first conclusions can, however, be already drawn about the impact for the advancement of the key energy transmission infrastructures.

The TEN-E Regulation introduced a comprehensive approach to planning and implementation of energy transmission projects which are key for the European Union - PCIs. It in particular defines infrastructure priorities, sets out a process to identify PCIs, requires allocating to them the status of the highest national significance possible[15] for permit granting and special planning, and introduces instruments to support project promoters in all the stages of the implementation of their PCIs. In particular the projects can benefit from strengthened transparency and improved public consultation, accelerated permit granting procedures (binding three-and-a-half-years' time limit), better streamlined environmental assessment and a single national competent authority that act as a one-stop-shop for permit granting procedures. Moreover, PCIs should have access to improved regulatory treatment by allocating costs according to the net benefits, and regulatory incentives as well as a possibility of receiving financial assistance under the CEF and easier access to the financing of public development banks. The key information and statistics collected in this annex provide evidence on the effectiveness of the individual instruments under the TEN-E Regulation and the TEN-E framework as the whole.

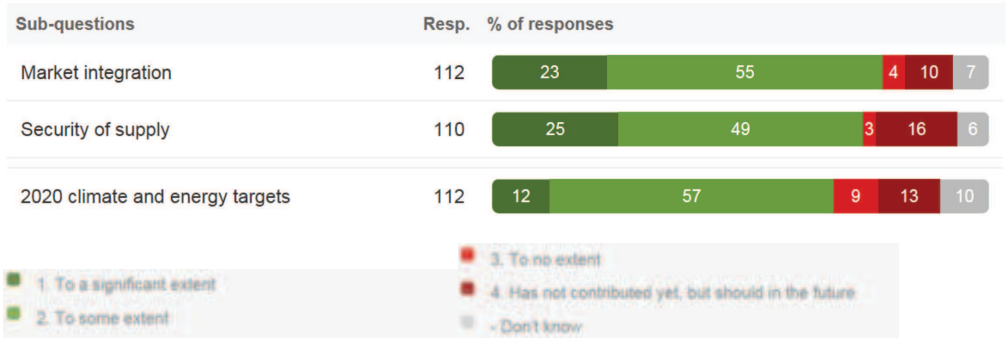
1. Projects identified and implemented under **the TEN-E Regulation effectively contribute to the goals for market integration, the climate and energy targets set for 2020 and to the move toward a low-carbon economy by 2050**.

The Commission analysed the implications of all electricity and gas PCIs from the 2nd PCI list on the energy system in the 2030 time perspective. The analysis has been conducted with the METIS[16] model (which was equally used to inform the Commission's proposals for a new electricity market design) calibrated to the PRIMES EUCO30 scenario as an input for generation capacity, prices or overall electricity or gas demand. The impacts of all PCIs was assessed by comparing a scenario which assumes that only projects already implemented[17] are available in 2030 versus a scenario assuming that all projects included in the 2nd PCI list are implemented. The results in particular confirm very important impacts on market integration. In electricity sector, number of price divergence hours[18] in the EU would be reduced by 38%, additional trade in electricity across the EU would be enabled (net exchanges among EU28 MS increase by 26.3% and 28.7% for important and export respectively), and energy flows in

15 Where such status exist in national legislation, Art 7(3) of the TEN-E Regulation.
16 For more information, please refer to http://ec.europa.eu/energy/en/data-analysis/energy-modelling/metis.
17 This also included projects for which a final investment decision has been made.
18 Number of hours for which the marginal electricity costs on both sides of a given interconnector are different.

the system would be better optimised as higher cross-border flows would occur even if on average the overall transmission usage would be reduced (by 6.27%). Additional interconnection capacity would also translate into a more optimal use of electricity generation capacities[19] across the EU and therefore result in nearly 30% decrease in average wholesale price for electricity generation. In case of gas, net flows between countries would also increase (a symptom of functioning, integrated market) even though the average transmission usage would be reduced (by 8.29%). The number of congestion hours would decrease across Europe and the overall network would be more optimised. The analysis also show important reduction of energy curtailment (5.05 TWh) allowing for increased renewable energy transmission through the grid, hence contributing to the sustainability objective. In particular the Iberian Peninsula would see the curtailment reduced even it would not yet be eliminated completely (in Portugal the curtailment would be reduced by half (to 0.67 TWh), while in Spain by 67% to still high 1.83 TWh). Furthermore, the analyses confirm that with the gas PCIs[20] implemented, nearly all of Europe's security of gas supply concerns would already be addressed. In particular, the overall loss of load in the entire EU28 gas system in case of a yearlong supply disruption from the main gas exporter would only be 0.137 TWh, down from 404 TWh (when PCIs are still not there yet). The EU overall would be resilient to such disruption.

The contribution of the TEN-E Regulation to reaching the 2020 targets, to market integration and security of supply has is also broadly recognised by energy experts. According to the recent survey[21] among them, 69%, 78% and 74% considers that TEN-E contributes to the 2020 climate and energy targets, market integration and security of supply respectively (overview below).



Furthermore, a recently completed study[22] on the impacts of individual PCIs confirms that projects are expected to benefit the markets in the short and mid-term, that electricity will

19 Relying more on baseload producers and less on back up "peakers" which tend to be more expensive.

20 Those included in the 2nd PCI list.

21 Targeted survey carried out for DG ENER by Trinomics between 17 May and 14 June 2017. The total survey sample consists of 115 submissions including a broad range of stakeholders, with the largest group (30%) being TSO/project promoters for a PCI, 18% represented an energy company or association and 12% identified as a Member State Authority.

22 Study contracted by DG ENER: "Evaluation of the impact of PCIs implementation" carried out by Institute of Communication & Computer Systems of the National Technical University of Athens ICCS-NTUA in cooperation with VIS Economic & Energy Consultants S.A., D'Appolonia S.p.A., November 2016. The impact of electricity and gas PCIs was examined for the 13 and 18 Member States respectively

have a positive impact in improving market interconnectivity and integration, facilitating RES integration and enhancing security of supply and that gas PCIs are expected to have a strong impact in facilitating diversification of supply sources and accessibility to LNG. The study also estimated that the delays in implementation of electricity PCIs lead to an average foregone benefit of socio-economic welfare per project in the order of €500 million. The study also informs about quantified benefits of individual PCIs.

2. The **interconnection level between the networks of individual Member States is increasing, energy prices continue to converge and there was no major network system failure**[23] in recent years.

   12 Member States improved their interconnection levels[24] between 2014[25] and 2017 as a result of the commissioning of PCIs. The improved interconnectivity, and enabled increase in electricity trade across borders, is considered among the key factors for the overall decrease of the wholesale electricity prices in the corresponding period[26].

   Table: Comparison of average wholesale baseload electricity prices across the EU between 2014 and 2016[27]

in EUR/MWh	DE	NL	FR	BE	AT	SE	FI	DK	EE	LT	LV	ES	PT	IT	PL	CZ	SK	HU	RO	SI	GR	UK	IE	EU Average
2014 average	32.78	41.20	34.77	40.85	33.14	31.64	36.00	31.45	37.58	50.14	50.07	42.60	41.68	52.06	44.09	33.02	33.70	40.53	34.64	40.40	57.54	52.60	57.42	40.91
2016 average	28.96	32.24	36.95	36.82	29.22	29.22	32.43	27.93	33.06	36.51	36.06	40.23	39.38	42.74	36.64	31.24	31.51	35.42	33.23	35.56	42.83	51.45	40.27	38.74
Decrease *(in %)*	**11.7%**	**21.7%**	**-6.3%**	**9.9%**	**11.9%**	**7.7%**	**9.9%**	**11.2%**	**12.0%**	**27.2%**	**28.0%**	**5.5%**	**5.5%**	**17.9%**	**16.9%**	**5.4%**	**6.5%**	**12.6%**	**4.0%**	**12.0%**	**25.6%**	**2.2%**	**29.9%**	**5.3%**

3. The Regulation is **expected to contribute to shortening the permitting procedures.**

   When the TEN-E Regulation was proposed total average duration of an energy transmission project (including planning and construction) was estimated to last between seven and thirteen years, with an average of up to ten years of this time required for the permit granting process[28]. There are very few PCIs that went through the complete permitting process hence it is not yet possible to draw definite conclusions about the impact of the TEN-E Regulation in this respect. There is, however, evidence that the promoters of PCIs expect acceleration of the procedures in their individual cases. According to the analysis of ACER, the average duration of permitting expected by PCI promoters in the pool of 96 electricity PCIs is 3.5 years[29]. For gas, the average permit granting duration for the pool of assessed 54 PCIs was 3.2 years. Importantly, the effective permitting duration is expected to be significantly lower for the PCIs which follow the provisions in the permit granting Chapter of the TEN-E Regulation

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23 There is no common registry for electricity and gas transmission networks failures but ENTSOs together with TSOs keep track and exchange information about the events. In particular ENTSOG publishes on its Transparency Platform both planned and unplanned maintenance resulting in interruption of capacity (TSOs have the obligation to disclose inside information via Urgent Market Messages, as defined by ACER guidance document on REMIT). At ENTSO-E level there is Incident Classification Scale which stems from Regulation 714/2009. The last report can be accessed: https://www.entsoe.eu/Documents/SOC%20documents/Incident_Classification_Scale/ICS_Annual_Report_2015.pdf#search=Incident

24 This refers to electricity interconnection. In the gas transmission a level of interconnection is not measured.

25 2014 values reported in COM(2015) 82 final, Communication from the Commission to the European Parliament and the Council Achieving the 10% electricity interconnection target; Making Europe's electricity grid fit for 2020.

26 Other factors include regulatory (e.g. network codes) and non-regulatory measures (e.g. market coupling).

27 Source: Electricity market reports, DG ENER https://ec.europa.eu/energy/en/data-analysis/market-analysis.

28 SEC (2011) 1233.

29 ACER (2016a), Consolidated report on the progress of electricity and gas projects of common interest for the year 2015.

than for those which are exempted from their application, having started permit granting before 16 November 2013[30].

4. Public opposition **continues to constitute the key factor delaying projects, however,** aggregated statistics on the level of opposition faced by PCIs (notably number of written objections or legal recourse actions) are not available as such information is collected by individual project promoters. In line with Article 9(4) of the Regulation the Competent Authorities designated by Member States to facilitate and coordinate the permit granting process[31] receive from the promoters reports summarising the results of activities related to the public consultation. The reports, however, do not capture the acts of opposition during later stages of project preparation and implementation.

5. Project promoters are actively developing **innovative solutions to improve and advance the dialogue with stakeholders** and therefore to improve public acceptance. The exchange of best practices and concepts is actively promoted in the context of the Regional Groups but also a recurrent element of the Energy Network Infrastructure Forum[32] held annually in Copenhagen. At the Forum in particular the winners of the 'Good Practice of the Year' award[33] (by the Renewables Grid Initiative) are announced. Furthermore the Commission launched the Grid Infrastructure Communication Toolkit[34], which aims to "facilitate and inform the stakeholder dialogue necessary to implement European grid development project with the highest possible acceptance". The list of best practices includes in particular:

    - Early-stage town hall meeting to create trust and to establish a spirit of transparency and openness, by 50Hertz (Germany)
    - Mobile exhibition "A highway behind the wall socket. Electricity from the power station to your home" by REE (Spain)
    - Tennet grid development initiative including early stage stakeholder dialogue (Germany)
    - School science programme: "From power to playstation" by Eirgrid (Ireland)

    There are also examples of good practices for mitigation of environmental impact of PCIs which are applied by the promoters, e.g. LIFE-ELIA[35] – Using electricity transmission network routes as active vectors for positive developments in biodiversity – jointly run by the Belgian and French electricity TSOs.

6. The solutions for improved **regulatory treatment of PCIs introduced by the TEN-E Regulation are effectively used.**

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30 For these projects, in particular the time limits of 2 and 1.5 years for respectively pre-application and statutory permit granting procedures does not need to be followed.

31 Under Art 8(1) of the TEN-E Regulation.

32 https://ec.europa.eu/energy/en/events/energy-infrastructure-forum.

33 https://renewables-grid.eu/activities/good-practice-award.html.

34 See website on "Grid Infrastructure Communication Toolkit" (https://webgate.ec.europa.eu/multisite/gridcommunicationstoolkit/en).

35 www.life-elia.eu.

TEN-E Regulation introduced new regulatory tools, namely the coordinated decisions across borders on the investment requests and specific incentives in case of higher risks of PCIs, to facilitate the implementation of the PCIs. One of the key obstacles to the development of energy transmission projects is that their geographical location does not necessarily coincide with where their benefits are. In order to address such asymmetry across the borders of project costs and benefits the Regulation provided rules for regulatory cross-border cost allocation (CBCA). To date 25[36] investments requests submitted by promoters of PCI projects resulted in a regulatory decision on how to allocate the costs across the border[37], 8 in electricity and 17 in gas sector. One further CBCA decision (concerning 3 electricity PCIs) is currently pending. With time and the expertise built among the national regulatory authorities as well as project promoters, the CBCA is emerging as an important enabler to PCI investments[38]. It is considered important to enhancing cross-border cooperation and stabilising the regulatory framework of PCIs[39] and serves as a factor when determining the effective level of EU financial assistance under the CEF programme.

Article 13 of the Regulation sets out that in case a PCI involves higher risks than a comparable project, it should be granted appropriate regulatory incentives. The effective use of the incentives is monitored by the ACER and the relevant statistics published annually in its Report on the progress of electricity and gas PCIs[40]. According to the 2017 edition, until 31 January 2017, eight gas PCIs, 5 in NSI West and 3 in NSI East, applied for specific incentives; and for all but two 2 NSI East projects the incentives have already been granted. Moreover, 5 electricity PCIs received specific incentives, all of them in the NSOG corridor. Further 7 electricity PCIs intended to seek investment incentives in the course of 2017 (6 in NSI East and 1 in NSOG). Despite some first examples of Article 13 being used in practice, further work is needed with the National Regulatory Authorities to effectively enable access to incentives to all PCIs that could be concerned.

7. **The Connecting Europe Facility is proving an effective programme** to advance and trigger the construction of PCIs which cannot be financed by the regulatory approved tariffs alone[41]. In total 93 actions corresponding to the implementation of 74 PCIs have been selected to receive grants for works and studies worth in total € 1.6 billion. The overall cost of these PCIs which benefit from grants amounts to € 48 billion.

8. Individual **Projects of Common Interest are advancing well,** although continuous work is needed to ensure that delays are avoided. The progress of every project of common interest is closely monitored by the ACER in line with the provisions of Article 5(3) of the TEN-E

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36 ACER regularly provides an update on the CBCA decisions; state of play as of January 2017 can be accessed at: http://www.acer.europa.eu/official_documents/acts_of_the_agency/publication/overview%20of%20cross-border%20cost%20allocation%20decisions%20-%20status%20update%20as%20of%20january%202017.pdf.

37 A single CBCA decision may cover more than one PCI therefore the total number of PCIs concerned by CBCA decisions to date is higher: 22 of gas PCIs and 8 of electricity PCIs.

38 In the recent survey 57% of PCI stakeholders confirmed the enabling function of CBCAs, while only 18% considered differently.

39 The importance was confirmed by 50% of the enquired stakeholders.

40 In line with Art 5(5) of the TEN-E Regulation.

41 Because of the specific externalities that they generate, including to actors in other countries.

Regulation. The monitoring is carried out in particular to, wherever necessary, make recommendations to the Regional Groups on how to overcome the delays and difficulties in implementation of the projects. The ACER issues a yearly report which provides a solid overview of the progress achieved in the development, construction and commissioning of the PCIs in the area of electricity and gas. The report is available to the public[42]. The first PCIs having already been completed and the preparation of the remaining ones advancing well is the evidence that the improved cooperation and specific mechanisms introduced by the TEN-E Regulation have positive impact on the development of the key transmission projects.

[42] The most recent version of the ACER's Consolidated Report on the progress of electricity and gas projects of Common Interest (for the year 2016) is available at http://www.acer.europa.eu/official_documents/acts_of_the_agency/publication/consolidated%20report%20on%20the%20progress%20of%20electricity%20and%20gas%20projects%20of%20common%20interest%20for%20the%20year%202016.pdf