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**OPINION OF THE AGENCY FOR THE COOPERATION
OF ENERGY REGULATORS No 14/2015**

of 30 October 2015

**ON THE DRAFT REGIONAL LISTS OF PROPOSED ELECTRICITY PROJECTS
OF COMMON INTEREST 2015**

THE AGENCY FOR THE COOPERATION OF ENERGY REGULATORS

HAVING REGARD to Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009¹, and, in particular, Annex III.2(12) thereof,

HAVING REGARD to the favourable opinion of the Board of Regulators of 30 October 2015, delivered pursuant to Article 15(1) of Regulation (EC) No 713/2009 of the European Parliament and of the Council of 13 July 2009 establishing an Agency for the Cooperation of Energy Regulators² (the Agency),

WHEREAS:

- (1) On 11 May 2015 and on 13 July 2015, the draft regional lists of proposed projects of common interest (PCIs)³ (cf. Annex I) falling under the categories set out in Annex II.1 of Regulation (EU) No 347/2013 (for smart grids and for electricity priority corridors, respectively) were submitted to the Agency;
- (2) The Agency did not receive opinions of Member States concerning proposed electricity PCIs not located on their territories but which could have a potential net positive impact or a potential significant effect on them, which Member States may present to the Regional Groups, pursuant to Annex III.2(9) of Regulation (EU) No 347/2013;

HAS ADOPTED THIS OPINION:

1. Executive summary

1.1 The Agency's key findings regarding the selection of electricity PCIs in 2015

- The Agency notes that the work in the Regional Group meetings focused mainly on procedural and methodological issues of the selection process, rather than discussing the specific infrastructure needs in each priority corridor and to which degree they were met by the candidate projects.

¹ OJ L 115, 25.4.2013, p.39.

² OJ L 211, 14.8.2009, p.1.

³ In this Opinion, the term "proposed PCIs" indicates projects which are included in the draft regional lists submitted to the Agency, and the term "candidate projects" indicates projects for which an application for selection was submitted.

- The Agency also notes that late notification of activities and circulation of the necessary information might have prevented stakeholders, and especially National Regulatory Authorities (NRAs), adequately to prepare their evaluations. These weaknesses might have been detrimental to the quality of the selection process and of stakeholders' involvement.
- The Agency highlights the non-alignment of the European Network of Transmission System Operators for Electricity (ENTSO-E) Ten-Year Network Development Plan (TYNDP) with the needs of the PCI selection process, which has resulted in a number of issues, some of which were already identified by the Agency in its Opinion No 01/2015 on the ENTSO-E draft TYNDP 2014⁴, as well as in its Opinion No 01/2014 on the ENTSO-E guideline on Cost Benefit Analysis of grid development projects⁵.
- The Agency also considers that the selection methodology proposed by the European Commission to the Regional Groups for electricity corridors suffers from significant shortcomings, notably in terms of choice of scenarios, use of indicators and consideration of the urgency criterion.
- The Agency notes that all eligible project candidates were finally proposed as PCIs. When the number of eligible candidate projects is deemed manageable by the European Commission, therefore allowing their inclusion on the list, the Agency is of the view that a ranking methodology is not necessary.

1.2 The Agency's key recommendations for future selection processes of electricity and gas PCIs

The Agency provides the following key recommendations to facilitate and enhance both the future analysis of candidate projects and the future decision-making process:

- The Agency recommends that the Regional Groups first assess the maturity of candidate projects (i.e. to what extent each candidate is sufficiently well defined/advanced). Then, Regional Groups should identify the needs for infrastructures⁶, and lastly rank the projects according to their contribution to address them. The Agency points out that, as noted in its Opinion No 15/2013 on the draft regional lists of proposed gas PCIs 2013⁷ and its Opinion No 16/2013 on the draft regional lists of proposed electricity PCIs 2013⁸, a simpler and faster evaluation should be applied to non-mature projects, as the uncertainties around the characteristics of such projects can strongly affect the robustness of the assessment. To this end, a standardised assessment methodology for non-mature projects should be defined well in advance of the next PCI selection.
- The Agency believes that joint NRA assessments should constitute the starting point of the Regional Groups' actual evaluation of candidate projects, after the relevant information becomes available. The NRAs, cooperating in the framework of the Agency, would indeed be well placed and ready to provide an important input to the Regional Groups regarding, first, the maturity of the

⁴ Cf.

http://www.acer.europa.eu/official_documents/acts_of_the_agency/opinions/opinions/acer%20opinion%2001-2015.pdf

⁵ Cf.

http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2001-2014.pdf

⁶ In the sense of article 4 (2) of Regulation (EU) No 347/2013.

⁷ Cf.

http://www.acer.europa.eu/official_documents/acts_of_the_agency/opinions/opinions/acer%20opinion%2015-2013.pdf

⁸ Cf.

http://www.acer.europa.eu/official_documents/acts_of_the_agency/opinions/opinions/acer%20opinion%2016-2013.pdf

candidate projects and, then, the role that each of them can play in the respective priority corridor, by providing a comprehensive quantitative and qualitative evaluation, notably by assessing the project-specific Cost Benefit Analysis (PS-CBA) results.

- These requirements and the Agency’s relevant Opinions should be taken into due consideration by the ENTSOs before the TYNDPs are finalised.

2. On the process for establishing the draft lists of proposed PCIs

In this Opinion, the Agency comments on aspects of the process leading to the definition of the draft regional lists of proposed PCIs for electricity and smart grids to the extent that these aspects are considered to have had an impact on the consistent application of the selection criteria or of the CBA.

2.1 Process schedule and main activities

After the first cross-regional meeting in March 2014, intensive work for the identification of the PCIs was carried out in the framework of the Regional Groups. The meetings of the Regional Groups, which also met all together in Cross-Regional meetings, primarily aimed at:

- Fostering regional cooperation on infrastructure projects between all the involved parties, i.e. Member States, NRAs, Transmission System Operators (TSOs), the European Commission, the Agency, the ENTSO-E, and other project promoters, in each region;
- Establishing the draft regional lists of proposed electricity PCIs with the help of an assessment methodology, considering the contribution of the proposed projects to i) market integration, competition and system flexibility, ii) sustainability and iii) security of supply;

The Agency considers that the approach applied during the cross-regional and regional meetings, as described in Table 1 below, was in line with the provisions set out in Article 3 and Annex III of Regulation (EU) No 347/2013⁹.

Table 1: Main activities for transmission and storage projects carried out in the framework of the Regional Groups

Month	Main activities
March 2014	First Cross-Regional meeting: discussion on the future strategy of the Regional Groups regarding the monitoring and implementation of PCIs particularly
September 2014	Second Cross-Regional meeting: presentation of the time schedule, ENTSOs' presentation of their role, participation of stakeholders
November 2014	- Applications for selection - Third Cross-Regional meeting: discussion on preliminary outcome of the candidate projects call, presentation and discussion on the terms of references of the Regional Groups and the

⁹ The Agency notes however that it has no evidence that the applications for selection included the information defined in Annex III.2(1).

	assessment methodology
December 2014	Start of the first public consultation (22-12-2014) on candidate projects
January 2015	Fourth Cross-Regional meeting: agreement on the terms of reference of the Regional Groups, discussion on the assessment methodology, presentation of the preliminary assessment of the eligible PCI proposals, discussion on non-eligible projects
March 2015	- First Regional Group meetings: discussion on the updated assessment methodology, project presentation of the project promoters, presentation of the updated assessment of the eligibility of the candidate projects - End of the first public consultation (31-3-2015) - Deadline for the submission of cost information for candidate projects (31-3-2015)
April 2015	Second Regional Group meetings: presentation of the first public consultation results, discussion on (preliminary) assessment methodology of candidate PCIs; voting session on the so-called weighting factors and discussion on additional criteria
June 2015	- Third Regional Group meetings, including a public session: presentation of public consultation results and feedback from the stakeholders' workshop, discussion on the revised assessment methodology, presentation of the ranking results, presentation of NRAs assessment of candidate projects. - Transmission of cost data to the Agency and the NRAs.
July 2015	Meeting of the decision-making bodies of the Regional Groups and submission of the draft regional lists of proposed PCIs to the Agency
July 2015	Start of the second public consultation on (additional) candidate projects

According to Article 3(2) of Regulation (EU) No 347/2013, each Regional Group shall adopt its own rules of procedure, so-called Terms of Reference, which stipulate the tasks of the Regional Groups including the process for establishing the draft regional lists of proposed PCIs and the monitoring of the project implementation.

The Terms of Reference were common for the Regional Groups related to the eight electricity and gas priority corridors with the purpose to maintain consistency across regions and between the sectors, as indicated in Annex III.1(2) of Regulation (EU) No 347/2013. The first draft of the Terms of Reference was presented by the European Commission at the Third Cross-Regional Group meeting, and an agreement was reached in the fourth Cross-Regional Group meeting. A separate process, with similar timelines, was established to prepare and agree on the Terms of Reference for the Regional Group “smart grids”. **The Agency appreciates the efforts of the European Commission and the other members of the Regional Groups to set common Terms of Reference across Regional Groups.**

Despite the tight schedule according to which the 2015 PCI selection process has been run, which often led to documents and information for discussion in the Regional Group meetings being delivered and circulated very close before the meetings, making preparation for such meetings difficult, the Agency appreciates common timelines across Regional Groups. The Agency, indeed,

appreciates that most of the lessons related to organisational aspects learned from the last selection process have been taken into proper consideration.

The Agency notes that the work in the Regional Group meetings focused mainly on procedural and methodological issues related to the selection process, rather than discussing the specific infrastructure needs in each priority corridor, and to which degree they are met by the candidate projects.

The Regional Groups for smart grids were met a first time on 19 January 2015. The deadline for applications for candidate projects was set on 28 February 2015. A final meeting took place on 17 April 2015. The smart grids candidate projects were subject to a public consultation from 5 March to 15 April 2015. The tight planning of the smart grids activities did not allow the Agency to receive the applications, the NRAs to prepare a full assessment and the Regional Groups to fully take into account the assessment of NRAs.

The Agency commends the smoother process applied for the smart grids Regional Group, however, for the improvement of the quality of the process it deems preferable that the activity is extended to the same time span as the other Regional Groups, so as to facilitate consistency in the application of the selection criteria.

2.2 Eligibility check

For transmission and storage candidate projects, the so-called “eligibility check” was a crucial part of the PCI selection process, as failure to pass this check has resulted in discarding a significant number of candidate projects. To establish the eligibility of electricity transmission or storage candidate projects, the European Commission checked whether they fulfilled the following criteria of various articles of Regulation (EU) No 347/2013, as indicated below:

- At least one of the criteria as set out in Article 4(1)(c) of Regulation (EU) No 347/2013.
- Contributes to one of the priority corridors, pursuant to Article 4(1)(a);
- Has been approved by Member States hosting the candidate projects, pursuant to Article 3(3)(a);
- Is included in the TYNDP 2014, pursuant to Annex III.2(3).

On top of these criteria, commissioning dates of the candidate projects¹⁰ and some specific elements regarding their conformity with EU legislation (e.g. data submission for the purpose of the Agency’s PCI monitoring report¹¹ for existing PCIs) were checked.

The preliminary results of the eligibility check were presented in the fourth Cross-Regional meeting, and the promoters of the candidate projects which were considered non-eligible were invited to provide their views to the European Commission. After taking into consideration project promoters’ views, the European Commission presented at the first Regional Group meetings an updated assessment of the eligibility of the candidate projects, for which the eligibility remained to be clarified. For a few candidate projects, the eligibility status remained unclear until very late in the PCI selection process.

¹⁰ Proposed projects with commissioning dates in 2015 or earlier have been excluded from the draft regional lists.

¹¹ Consolidated report on the progress of electricity and gas projects of common interest 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.pdf

The Agency appreciates the eligibility check approach¹², in general, and recommends that the European Commission and other members of the Regional Groups continue with this practice. The Agency recommends that the eligibility check is performed and completed at an early stage of the selection process.

For smart grid candidate projects, the eligibility check was carried out by the European Commission according to the provisions of Annex IV.1(e) of Regulation (EU) No 347/2013 and presented in the meeting of 17 April 2015.

2.3 The role of stakeholders in the selection process

According to Annex III.1(5) of Regulation (EU) No 347/2013, Regional Groups shall consult the organisations representing relevant stakeholders — and, if deemed appropriate, stakeholders directly — including producers, distribution system operators, suppliers, consumers, and organizations for environmental protection.

In line with this provision, the European Commission¹³ opened a first public consultation¹³ on electricity transmission and storage candidate projects from 22 December 2014 to 31 March 2015.

The results of the online consultation have been presented in the second Regional Groups meetings: 652 respondents from 17 countries¹⁴ submitted their views on the proposed PCIs. Apart from the project-specific comments, the main general issues raised by the participants in the first public consultation were the following:

- the need to respect environmental standards;
- the lack of transparency due to high degree of confidentiality invoked by project promoters;
- the need for a more comprehensible format of the provided information in order to avoid only "pro forma" participation;
- the need for adequate timelines, meeting announcements and information distribution;
- electricity storage projects should not be considered for a PCI status.

A second public consultation, on some candidate projects which were not included in the first consultation, started in July 2015. This approach did not allow taking into account the results of this second public consultation in the selection prior to the submission of the draft PCI lists to the Agency.

Furthermore, stakeholder groups had the opportunity to participate in selected public sessions of the Regional Groups meetings, and to the stakeholder workshops which were held on 15 and 17 June 2015 to discuss individual projects that were of particular interest to them.

¹² Further details regarding e.g. level of maturity or Cost-Benefit Analysis Issues (as indicated in Regulation (EU) No. 347/2013 Annex III.2 (1) will be analysed in section 3.

¹³ <https://ec.europa.eu/energy/en/consultations/consultation-list-proposed-projects-common-interest>

For each candidate project, the question *"In your opinion, is a proposed project significantly contributing to market integration/sustainability/security of supply/competition and therefore needed from an EU energy policy perspective?"* was asked, allowing for an answer "yes" or "no" and the inclusion of comments.

¹⁴ It should be noted that 578 answers came from Germany, i.e. 89% of the total answers. Furthermore, out of 652 respondents, 507 were citizens.

The Agency appreciates the effort of the European Commission to enhance adequate involvement of stakeholders and transparency, even though the focus on methodological procedural issues and the complexity of the selection methodology finally adopted, might have discouraged stakeholders participation and reduced the perceived transparency of the process.

3. The criteria and methodology applied for establishing the draft lists of proposed PCIs

3.1 Characteristics of TYNDP data in the context of the PCI selection

The fact that the presence in the TYNDP was an eligibility criterion for all transmission and storage candidate projects significantly contributes to improving the comparability and data consistency among projects in this selection round.

Despite the above mentioned improvement, the TYNDP was not prepared for and aligned with the data requirements of the PCI selection process and, therefore, significant data availability and quality issues were identified regarding the TYNDP results used for the assessment of the candidate projects.

More specifically, the following issues have been identified:

- The availability of TYNDP cost data is limited, as ENTSO-E TYNDP 2014 presented costs (indicator C1 “Estimated cost”) only as ranges at cluster level, and not at an investment level as recommended by the Agency in its Opinions No 06/2012 and No 01/2015¹⁵. Furthermore, it is unclear which cost information was included in the TYNDP indicator C1, e.g. whether life cycle costs were included or not and, if so, which of them.
- While the clustering rules of the TYNDP 2014, which focused on the core investment items, led to the reduction of excessive clustering compared to the previous ENTSO-E’s TYNDP, the number of investments in one cluster remains large in some cases. In its Opinions No 06/2012 and No 01/2015, the Agency already recommended that ENTSO-E further develops the clustering methodology to make it more consistent throughout Europe¹⁶. The fact that a significantly larger number of eligible candidate projects (107 according to the list provided by the European Commission in May 2015 for the purpose of NRAs’ assessment) correspond to 73 TYNDP clusters, is a clear indication of a loose interdependency of investment items within a cluster.
- The availability of data for the TYNDP 2014 benefit indicator B1 “*Improved security of supply*” is very limited (notably, TYNDP 2014 provided non-zero results for this indicator only for ten clusters of projects), and as acknowledged by ENTSO-E¹⁷ and emphasized in the Agency’s Opinion No 01/2015¹⁸, this indicator does not properly reflect the contribution of each project to improved security of supply.

¹⁵ Opinion of the Agency No 06/2012 on the European Ten-Year Network Development Plan 2012 and Opinion of the Agency No 01/2015 on the ENTSO-E draft Ten-Year Network Development Plan 2014.

¹⁶ Agency’s Opinion No 06/2012, p 14, and Agency’s Opinion No 01/2015, p.20.

¹⁷ As mentioned in the ENTSO-E TYNDP 2014 “*The TYNDP methodology fails to capture the benefits of projects regarding Security of Supply*”.

¹⁸ As mentioned in the Agency’s Opinion No 01/2015 on the ENTSO-E draft TYNDP 2014 “*the security of supply calculations in the draft TYNDP 2014 does not fully implement the CBA methodology 2013*”.

- While the TYNDP values of indicator B4 “*Variation in losses*” are available for almost all TYNDP 2014 clusters, neither their monetisation, nor the reference values of losses were provided in the TYNDP 2014.

The Agency expects that ENTSO-E’s implementation of the Agency’s recommendations¹⁹ in the future TYNDPs will improve the suitability of TYNDP data for the purpose of future PCI selection processes, in particular with regard to the calculation of benefits related to security of supply, system resilience and flexibility.

3.2 Methodology used for the draft regional lists of proposed transmission PCIs

An assessment methodology for the evaluation of electricity candidate projects was developed with the support of the Directorate-General (DG) Joint Research Centre (JRC). This methodology attempts to cope with most of the issues due to the non-alignment of TYNDP data with the data requirements of the PCI selection process. The main elements of this methodology, the practice followed and the Agency’s opinion on the approach are presented in this section.

3.2.1 Cost data

Due to the unavailability of TYNDP cost data at an investment item level, and the uncertainty of whether life cycle costs are included in indicator C1, project promoters were requested to provide, by 31 March 2015, cost information, i.e. capital expenditure (CAPEX) and operational expenditure (OPEX) per investment item, calculated in line with the ENTSO-E CBA methodology. Not all project promoters met this deadline, a fact that led to a significantly delayed communication of the cost data to the Agency and the NRAs (the data was forwarded only on 11 June 2015), and consequently to a lower quality of the data assessment.

The cost data submitted by project promoters varied a lot in quality and, in some cases, were neither comparable across investment items, nor consistent with the common rules of ENTSO-E CBA methodology²⁰.

The Agency reaffirms that the approved CBA methodology should be applied in full, allowing reported costs to include also life cycle costs for each TYNDP investment item. The Agency underlines that operational expenditures may have a significant impact, as identified in the Agency’s consolidated report on PCIs²¹ (as average, 18% of CAPEX).

3.2.2 Consideration of the different scenarios

¹⁹ Recommendations in Agency’s Opinion No 01/2014 on the CBA methodology and the Agency’s Opinion No 01/2015 on the ENTSO-E draft TYNDP 2014.

²⁰ Some of the cases noticed are the following: no cost data was provided for some candidate PCIs; the cost data provided was not agreed upon by all promoters involved in the candidate PCI; costs were provided at a cluster level and not disaggregated per investment item; only CAPEX costs were provided and not OPEX; OPEX provided was an annual cost and not discounted according to the CBA methodology rules for a 25 year period or was discounted over a longer period (for some storage projects); CAPEX provided was not calculated according to the CBA methodology rules (e.g. it was the expected undiscounted total investment cost, and therefore not a Net Present Value); the costs provided referred to a reconfigured project, which was different from the project in the TYNDP 2014.

²¹ Consolidated report on the progress of electricity and gas projects of common interest
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.pdf

In the JRC methodology, the TYNDP Vision 3 was chosen as the reference scenario, upon which the PCI assessment was based. The TYNDP Vision 1 and Vision 2 were not taken into account, as these visions were not considered to be compliant with the EU goals for 2030. Vision 4 was disregarded in view of the Agency's recommendation to consider this vision with caution for the purpose of selection of PCIs²².

According to ENTSO-E, *“the basic assumption concerning the Visions is that they differ enough so that the actual future evolution of the assessed parameters shall safely lie between the pathways of these four Visions. [...] The Visions are not forecasts and there is no probability attached to them”*²³. The Agency stresses the fact that in absence of a “best estimate” scenario and due to the “contrasting futures” nature of each vision, none of the four visions defined by ENTSO-E alone can be used as a single reference scenario for determining the benefits of the candidate projects. Regarding Vision 3, ENTSO-E notes that *“Vision 3 reflects an ambitious path [...] achieving overall 50% of European load supplied by RES in 2030. Thus Vision 3 meets the EU goals by 2030. However in this Vision, every country tends to secure its own supply independently from the other, resulting probably into an overinvestment in generation assets at European level”*²⁴. Therefore, the choice of Vision 3 as the reference scenario may lead to an overestimation of the benefits of some candidate projects, and to the subsequent inclusion in the list of projects that, under more plausible conditions, would not meet the criterion specified in Article 4(1)(b) of Regulation (EU) No 347/2013 (i.e. that “the potential overall benefits of the project [...] outweigh its costs”).

The Agency notes that considering a single scenario reduces the robustness of the assessment, and creates the risk of concealing the uncertainties which are by nature inherent to a cost-benefit analysis. The Agency considers that a more in-depth discussion on the needs that can be addressed by one or several candidate projects would allow determining the relevant scenarios to be considered.

3.2.3 “Declustering” of benefit results

Although in the current selection round all candidate projects were included in the ENTSO-E TYNDP 2014²⁵, and comparability of candidate projects was improved compared to the 2013 PCI selection process, the consistent application of the clustering rules as defined by ENTSO-E in its TYNDP 2014 impacted the selection process. The problem was also highlighted by JRC - *“PCI candidate evaluation needs to be done at an investment item level, however the ENTSO-E's TYNDP is based on clusters of investment items”*²⁶ – and created significant difficulties to Regional Groups in selecting and assessing candidate projects.

In general, CBA results were provided at the level of clusters, without breakdown to investment-item level and without providing calculation details.

²² Agency's Opinion No 01/2015, p.15.

²³ ENTSO-E SOAF 2014, p.128

²⁴ ENTSO-E's TYNDP 2014, p.45

²⁵ Except for the “generic project between France and Spain” referred to in Section 4.2 of this Opinion.

²⁶ JRC, “Assessment methodology for electricity infrastructure candidate projects of common interest” Non-technical summary, draft 19 June 2015.

Therefore, in order to be able to perform a quantitative assessment and extract as much useful information as possible from the TYNDP dataset (by assigning the key performance indicators²⁷ – KPI - values of a TYNDP cluster to the included investment items), JRC had to re-cluster some candidate PCIs. Due to the lack of a clear methodology to assign values from a cluster to an investment item, the whole process was made less consistent and less transparent, although promoters' and ENTSO-E's feedback were to some extent taken into account.

In the Agency's view, simpler clusters in future TYNDPs, appropriate rules for “declustering” benefits of complementary projects and more accurate data are needed for the future PCI selection. **The Agency recommends that a methodology for declustering benefits to an investment item level is proposed by ENTSO-E for future PCI selections. If this is not achieved in advance of the next PCI selection round, the Agency can propose such a methodology.**

3.2.4 Treatment of competing projects

Regarding competing projects, i.e. when the added value of one investment is decreased by the presence of another one, the Agency recommends that the projects addressing the same needs are identified by ENTSO-E²⁸ and assessed together by the Regional Groups in order to avoid the risk of building unnecessary infrastructures.

3.2.5 Assessment criteria

The methodology for the assessment of the three specific criteria stipulated in Article 4(2) of Regulation (EU) No 347/2013, based on the TYNDP indicators, and the Agency's comments and recommendations are described below:

- For the assessment of the market integration criterion, JRC considered the indicator B2 Socio-Economic Welfare “SEW” minus the monetised indicator B4 “*Variation in losses*”. In the absence of published information on the value of losses by ENTSO-E, the 2030 regional electricity prices included in the report "Assessment of the future electricity sector - Impacts of Electric Vehicles" commissioned by the European Commission and published in 2011 were used.

The Agency considers that the indicators chosen for the assessment of this criterion are fit for purpose. The Agency also welcomes the monetisation of indicator B4 and its inclusion in the PCI selection process. The Agency considers that the future ENTSO-E TYNDPs should fulfill the CBA requirement and provide indication on the costs of losses for each scenario under study.

- For the assessment of the criterion of security of supply, due to the quality issues identified with regard to the benefit indicator B1 “*Improved security of supply*”, and despite objections raised by some Regional Group members, it was decided to use the indicators B6 “*Technical resilience/system safety*” and B7 “*Flexibility*” of the TYNDP as proxies. A single Security of Supply indicator was then constructed by applying weights to the two TYNDP indicators (see Section 3.2.6 below).

²⁷ Key Performance Indicators are techno-economic indicators, which are calculated as outputs of the TYNDP 2014, and were used by JRC in its methodology.

²⁸ With an adapted TOOT methodology, see Agency's Opinion No 01/2015, p.9. and ENTSO-E methodology February 2015, p.32

According to the TYNDP, indicator B1 “*Improved security of supply*” is defined as the ability of a power system to provide an adequate and secure supply of electricity under ordinary conditions. Adequacy measures the ability of a power system to supply demand in full, at the current state of network availability (i.e. the power system can be said to be in an N-0 state). Security measures the ability of a power system to meet demand in full and to continue to do so under all credible contingencies of single transmission faults (i.e. then a system is said to be N-1 secure). Instead, “*Technical resilience/system safety*” is defined as the ability of the system to withstand extreme system conditions (exceptional contingencies), and “*flexibility*” is defined also as the ability of the proposed project to be adequate in different possible future development paths or scenarios²⁹.

Therefore, the Agency considers that indicators B6 and B7 do not reflect the core of the security of supply criterion (i.e. adequacy and security). Only B6 can be considered as complementary to indicator B1, while the link between B7 and security of supply is not clear. As a result, the combination of B6 and B7 cannot be considered a proxy of security of supply. Also, it must be noted that the values of these indicators are measured in ordinal values (thus independent from project size or cost) and they are based on TSO’s judgment, thus are not objective criteria.

The Agency considers that for a proper assessment of the criterion of security of supply in the future PCI selection processes, the availability of adequate and reliable TYNDP data on each project’s contribution to security of supply is indispensable³⁰. **As a general principle, the Agency recommends that a qualitative assessment is used when relevant quantitative results are not available, rather than inadequate proxies.**

- For the assessment of the sustainability criterion, the non-monetised value of indicator B3 “*RES integration*” (measuring the level of RES integration in MW or MWh) was used by JRC. The Agency notes that the reduction of renewable generation curtailments (avoided RES spillage, measured in MWh) is captured in monetary terms in indicator B2, and that the use of the two indicators B3 and B2 thus results into double-counting of this benefit which needs to be mitigated by *ad-hoc* statistical analyses. For the sake of simplicity, the Agency recommends not to consider the indicator B3 twice.

The Agency welcomes JRC decision not to take into account indicator B5 “*variation in CO₂ emissions*”, as avoided EU Emission Trading Scheme expenditures are already included in SEW indicator.

²⁹ TYNDP 2014, p.77

The "Robustness and flexibility" indicator shows the ability of each project to withstand very wide conditions. This indicator measures each project’s ability to comply with:

- important sensitivities (scenarios);
- commissioning delays and local objections to the construction of the infrastructure;
- sharing balancing services in a wider geographical area (including between synchronous areas).

³⁰ The Agency, in its Opinion No 1/2015, p.4, already confirmed its view that the security of supply criterion should be further assessed and monetised by ENTSO-E before the TYNDP 2016.

The Agency recommends the use of a specific assessment to take into account, as far as possible, the benefits of infrastructures in terms of social and environmental sensibility³¹.

3.2.6 Other steps of the assessment methodology

Following the computation of the indicators for the three assessment criteria, the following steps were carried out, according to the methodology developed by JRC:

- The market integration indicator, as calculated above, was divided by the overall project cost.
- The sustainability indicator was solely based on the indicator B3, which was not divided by the project cost.
- The security of supply indicator was composed by applying weights (decided by each Regional Group) for indicators B6 and B7.
- Standardisation: a z-scores procedure of standardisation was applied in order for indicators, which are expressed in widely different units of measurement, to be comparable and their ranges of variation to be equalised.
- Construction of a final composite indicator and ranking: the weights for the three assessment criteria, which were defined as the averages of weights assigned by Regional Group members, were employed in a weighted sum of the 3 standardised indicators, which yielded the final composite indicator, upon which the candidate projects were ranked.
- Urgency of the project and final ranking: urgency was interpreted in terms of the contribution of the project to the 10% interconnection capacity target with respect to the production capacity of a Member State. The candidate projects were classified into three groups according to the interconnection capacity ratio of at least one of the Member State hosting the project as follows:
 - the Member State is in isolation;
 - at least one Member State hosting the candidate PCI has a less than 5% ratio of interconnection capacity to production capacity;
 - at least one Member State hosting the candidate PCI has an interconnection capacity ratio between 5% and 9%.

Each project was then pushed up in the ranking list 3, 2 or 1 places respectively, depending on which of the above mentioned groups it belongs to.

In the Agency's view, the main concerns arising from these steps of the methodology are the following:

- The incomplete monetisation of benefits in the CBA methodology does not allow for a proper assessment of whether the potential overall benefits of a project outweigh its costs

³¹ See Agency's Position on the ENTSO-E "Guideline to Cost Benefit Analysis of Grid Development Projects", 30 January 2013, page 6 (benefit no.10).

http://www.acer.europa.eu/Official_documents/Position_Papers/Position%20papers/ACER%20Position%20ENTSO-E%20CBA.pdf

(Article 4(1)(b) of Regulation (EU) No 347/2013). Although a full monetisation cannot necessarily be achieved, the Agency recommends that further progress is made in this respect, notably when it comes to the assessment of security of supply.

- As, on one hand, the RES integration used for the sustainability criterion increases with the size of the project, and, on the other hand, this indicator does not take costs into account, such choice favoured the larger projects over the smaller ones.
- The construction of a composite indicator hides the physical and economic meaning of the projects. Only understandable and meaningful indicators (i.e. indicators that can be interpreted) should have been used, and the goal should have been to facilitate the decision-making process and not to replace it.
- The Agency considers that the urgency criterion should not be mixed up with the “assessment method on the basis of the aggregated contribution” to the specific criteria (cf. Article 4(4) of Regulation (EU) No 347/2013). The treatment of urgency to meet EU policy targets is further analysed in section 3.4.3 of this Opinion.

The Agency recommends that the Regional Groups focus, in their decision-making process, on understandable and meaningful economic indicators, the qualitative characteristics, the specificities of the selected projects and the priorities in each region. By doing so, the shortcomings identified in the selection methodology, as well as the concerns raised due to data availability and quality issues, could have been somehow mitigated.

3.3 Level of maturity of PCIs

Annex III.2(1) of Regulation (EU) No 347/2013 stipulates that promoters of a project potentially eligible for selection as a PCI shall submit an application to the Group that includes, for projects having reached a sufficient “degree of maturity”, a project-specific CBA.

The Agency remarks that in Regulation (EU) No 347/2013 “maturity” has different levels: a first degree of maturity suitable for filing an application for the PCI status; next, improved maturity suitable for the project to apply for permits; and, finally, sufficient maturity for the submission of an investment request for a project by the project promoter(s), including the CBA and the business plan³² where a large and reasonably accurate body of information about the project is contained.

In the Agency's view, the main aspects to be considered when assessing maturity are: i) certainty of the expected costs and benefits and ii) knowledge about the factors affecting expected costs and benefits and their ranges. The Agency also believes that it is up to the project promoters to provide evidence about the degree of maturity of their projects, by submitting a project-specific CBA that demonstrates reasonably narrow ranges of probable values for costs and benefits.

Despite the provision of Regulation (EU) No 347/2013 and the Agency's proposal for a distinction between mid-term mature projects, long-term mature projects and less mature projects formulated in its Opinion No 01/2015 on the ENTSO-E draft TYNDP 2014, no differentiation was made between mature and less mature projects during the selection process.

³² Cf. Article 12(3) of Regulation (EU) No 347/2013.

For future selection rounds, the Agency deems necessary that degrees of maturity are defined³³. A simplified, standardised selection process could be considered for the less mature projects. The required data for the selection of these projects, and later for their monitoring, could be less burdensome, and this would reduce compliance costs for promoters while, at the same time, not preventing projects of relatively lower maturity to be granted the PCI status. When these projects reach a sufficient degree of maturity, they could be fully reassessed in the next PCI selection round.

The Agency recommends that for the next PCI selection process, Regional Groups classify the candidate projects into different maturity groups based on the extent to which a project is sufficiently well-defined and advanced.

The Agency considers that it is first up to the project promoters to propose a maturity level for their candidate project. Then, the joint NRAs' assessments of candidate projects should also assess the maturity of each candidate project.

3.4 Other criteria for candidate PCIs' assessment

3.4.1 Consideration of quantitative contribution to specific criteria in Article 4(2)

The Agency welcomes the effort of the Regional Groups to use, to the extent possible, in this selection round quantified and monetised indicators available in the TYNDP, and to further monetise available indicators for the more objective assessment of candidate projects according to the specific criteria of Article 4(2) of Regulation (EU) No 347/2013.

3.4.2 Complementary qualitative assessment

Further to the quantitative aggregated contribution to the specific criteria, the Agency sees the need, for the future selection rounds, to complement the assessment of the candidate projects with due consideration to a qualitative check of the quantitative results.

The Agency considers that the joint NRAs' assessments of candidate projects should encompass a structured overall qualitative assessment of the needs addressed by the candidate projects and the plausibility of the CBA results.

3.4.3. Consideration of urgency to meet EU policy targets

The approach adopted by the assessment methodology is that the urgency of a project to meet the Union energy policy targets is correlated to the contribution of the candidate project to the 10% interconnection capacity target over the generation capacity of a Member State.

However, this target does not seem to be the right measure against which projects should be examined. This is because the size of the interconnection capacity does not capture features like the volume of electricity expected to flow between countries or the level of actual congestion and availability in the existing interconnection. Similarly, the generation capacity does not always reflect either these features, or features such as average or peak electricity demand. Therefore, a one-size-fits-all interconnection target based on installed electricity generation capacity cannot be considered as appropriate for all borders or Member States. In this respect, the Agency already

³³ For instance, "under consideration" status in the TYNDP is a strong indication that a project is not yet mature. For this kind of projects, the priority would be to complete the feasibility studies, in order to eventually reach a level of higher maturity.

recommended ENTSO-E to publish in the TYNDP quantitative results about the economically-efficient target capacities at each border³⁴.

In the Agency’s view, the urgency should be assessed qualitatively in the sense of Article 4(4) of Regulation (EU) No 347/2013: “the urgency in order to meet the Union energy policy targets of market integration, inter alia through lifting the isolation of at least one Member State, and competition, sustainability and security of supply”.

3.4.4. Other criteria foreseen in Article 4(4) of Regulation (EU) No 347/2013

The Agency notes that no specific methodology was developed or applied to incorporate the following criteria into the candidate project assessment:

- The number of Member States affected by each project, whilst ensuring equal opportunities for projects involving peripheral Member States;
- The contribution of each project to territorial cohesion;
- The complementarity with regard to other proposed projects.

3.5 Cross-regional consistency of the selection process

Regarding the consistency of the datasets from the TYNDP, the Agency notes that although some degree of consistency is achieved due to the use, by all Regional Groups, of an overall common methodology developed by ENTSO-E, as elaborated in more detail the Agency’s Opinion No 01/2015 on the draft TYNDP 2014, the use of various market modelling tools across regions may have an impact on the estimated benefits, the degree of which is not known.

Regarding the PCI selection, the Agency notes that the same methodology was applied for the calculation of the three specific criteria of Article 4(2) of Regulation (EU) No 347/2013 across all regions, and that the benefit data used in this assessment were all based on the TYNDP CBA results. Therefore, a basic level of consistency was safeguarded throughout the process and across all regions.

However, the methodology allowed for different weights to be applied by each Regional Group for the construction of the security of supply indicator using the indicators B6 and B7 of the TYNDP (the formula used was $Security_supply = w1*B6+w2*B7$), and the final composite indicator using the standardised indicators for the three selection criteria (the formula used was $Composite\ Indicator=v1*z_MI+v2*z_Sus+v3*z_SoS$).

The results of the decision process of the Regional Groups³⁵ on these weights are presented in the following table:

RG	w1	w2	v1	v2	v3
NSI East	39%	61%	43%	28%	29%
NSOG	41%	59%	42%	30%	28%
NSI West	52%	48%	40%	26%	34%
BEMIP	51%	49%	35%	32%	33%

³⁴ Agency’s Opinion No 01/2015, p. 25.

³⁵ “**NSI East**” stands for North South electricity Interconnections in Central Eastern and South Eastern Europe, “**NSI West**” stands for North South electricity Interconnections in Western Europe, “**NSOG**” stands for Northern Seas offshore grid”, and “**BEMIP**” stands for Baltic Energy Market Interconnection Plan.

As noticed from the results of the above table, except for BEMIP Regional Group, which assigned almost equal significance to all three assessment criteria, not significant diversification across Regional Groups is noticed on v1, v2 and v3 values.

The application of weights could have been a tool to reflect the specific policy priorities in the different EU regions. For this goal to be achieved, the selected weights should have been the result of a studied approach and a substantiated dialogue among the Regional Group members. The procedure followed by the Regional Groups did not allow for this dialogue to take place, and the weights selected were only the result of subjective voting of the Member States representatives.

Furthermore, since, pursuant to Article 4(4) of Regulation (EU) No 347/2013, each Regional Group shall determine its assessment method on the basis of the aggregated contribution to the specific criteria referred to in Article 4(2) of the same Regulation, the Agency sees no need for attaching a weight to each specific criterion. Rather, the contributions should be aggregated by simple monetisation, where feasible, especially if the benefits related to market integration, sustainability and security of supply are properly monetised.

The Agency thus considers that the approach based on weights should not be used for future PCI selections, and believes that the recommendations in Section 1.2 of this Opinion would allow the Regional Groups to define their priorities at an early stage.

4. Agency's Opinion on the draft Regional lists of proposed PCIs

On 13 July 2015, the European Commission submitted to the Agency a table under the title “Draft regional lists per investment item” (Table 1) and a table under the title “Draft 2nd PCI candidates list vs the 1st PCI list” (Table 2). The table 1 and the relevant extract of Table 2 are presented in Annex I of this Opinion.

After iteration with the European Commission, it was clarified that the investment items included in Table 1 should be grouped according to the grouping of projects proposed in Table 2. The combination of the two tables provided a total number of 107 proposed PCIs.

Overall, the Agency notes that all candidate projects/investment items deemed eligible were included in the draft list of proposed PCIs, thereby significantly reducing the interest of a selection methodology aimed at ranking candidate projects from the first to the last.

Furthermore, regarding storage projects, besides the eligibility check mentioned in Section 2.2 of this Opinion, the Agency has no evidence whether a methodology was applied in the Regional Groups for the evaluation of these projects. DG JRC noted that *“information for candidate storage projects is provided in the TYNDP 2014. The same document does not provide any information on the Security of Supply, environmental impact and social impact KPIs for storage projects. Moreover, cost data are missing for these projects as well”*.

For future PCI selections, the Agency recommends that the selection methodology aims at defining the criteria to select or discard candidate projects, as explained above. In particular, when the number of eligible candidate projects is deemed “manageable”³⁶ by the European Commission, therefore allowing their inclusion on the list, the Agency is of view that a ranking methodology is not necessary. The process could in that case be streamlined, and Regional Groups should rather focus on whether the benefits of the candidate projects outweigh their costs.

³⁶ Article 3 of Regulation (EU) No 347/2013

This Opinion builds on the joint assessments of candidate projects by NRAs for the four electricity priority corridors³⁷, which were conducted by first identifying the NRAs concerned by each project, and secondly by using common templates prepared by the Agency (cf. Annex II of this Opinion) for the joint evaluation of each candidate by all concerned NRAs.

The templates were intended to facilitate the assessment of the availability, quantity and quality of data for each candidate project, and to help focus the evaluation on whether a candidate project met the general and specific criteria specified in the Regulation (EU) No 347/2013.

On 15 May 2015, all NRAs were asked by the Agency to indicate which candidate project affected each of them. On 1 June 2015, the list of the NRAs concerned by each project and the assessment templates were circulated to all NRAs. Cost data was however not available to NRAs until 11 June, which reduced significantly the time NRAs actually had to jointly evaluate the projects in a comprehensive way.

Regarding smart grid projects, there was no consistent application of a single assessment methodology by the respective NRAs.

NRAs submitted 103 checklists³⁸ regarding 87 eligible and 9 non eligible candidate projects, compared to 107 eligible candidate projects included in the initial candidate list (provided by the European Commission to the Agency in May 2015).

In the following table, some statistics of the NRAs submissions per corridor are provided:

	Eligible candidate projects	Submissions per corridor	Assessment in coordination with other EU-NRAs (submissions)	Coordination with non EU country (submissions)
NSOG	21	18	15	3
NSI West	28	23	12	1
NSI East	41	44	14	2
BEMIP	17	18	10	0
Total	107	103	51	6

Regarding the issue of whether “overall benefits outweigh costs” the replies received are presented in the following table:

Yes	45
No	2
Not able to assess	54

³⁷ Which were presented to the Regional Groups in line with Annex III.2(7) of Regulation (EU) No 347/2013.

³⁸ One checklist does not always correspond to one candidate PCI, as in some cases multiple checklists were submitted for 1 PCI, or a checklist included more than one candidate PCI or only part of a candidate PCI.

Divergent views of the NRAs	2
Total	103

It must be noted that, in almost half of the cases, NRAs were not able to access whether overall benefits outweigh costs, mainly due to the lack or non-completeness of the available data.

Regarding the question “Do NRA objects to the inclusion of the project in the final PCI Regional list?” the replies received are presented in the following table:

No	93
Yes	6(*)
Not able to assess	1
Divergent views of the NRAs	3
Total	103

(*) out of which 4 were eligible at the time of the NRAs’ assessment

In the following paragraphs, the focus is on projects which are included in the draft lists of proposed PCI but:

- were jointly opposed by NRAs;
- did not provide cost data, or not in a satisfactory way;
- were not included in the TYNDP;
- whose perimeter has changed compared to the project included in the TYNDP.

It is noted that the numbers of proposed PCIs mentioned in the following paragraphs may differ from the number of eligible PCIs due to variations of the groupings of investment items in the lists that were submitted to the Agency at various stages of the selection process.

4.1 Opinion on the draft regional list – NSOG RG

In this Regional Group, 21 projects were proposed as PCIs. They correspond to 25 investment items out of the initially 30 candidate projects included in the consultation table³⁹ of 22 December 2014, before the eligibility check was performed.

As mentioned in the latest version of the TYNDP 2014 (December 2014, p. 153), the Greenwire project provided updated information to ENTSO-E on 24 November 2014, i.e. after preparation of the draft TYNDP 2014. The proposed PCI is now a standalone merchant interconnector, while the TYNDP project involved also onshore wind generation and larger interconnection capacity. The features of the project in the TYNDP 2014 are therefore different from the features of the proposed PCI.

³⁹ <https://ec.europa.eu/energy/en/consultations/consultation-list-proposed-projects-common-interest>

4.2 Opinion on the draft regional list – NSI West RG

In this Regional Group, 29 projects were proposed as PCIs. They correspond to 43 investment items⁴⁰ out of the initially 48 candidate projects included in the consultation table of 22 December 2014, before the eligibility check was performed.

A “generic project between France and Spain” was included in the draft list of proposed PCIs and in the July consultation on additional projects. The Agency in general does not support the inclusion of generic projects in the PCI list. In fact, it considers such an inclusion as very detrimental to the integrity of the PCI selection process for two main reasons: first, generic projects are typically not included in the TYNDP, which is a prerequisite for becoming a PCI in this round. Second, generic projects are, by their nature, more difficult to evaluate and therefore they are not on an equal footing with specific projects. However, the TYNDP 2014 notes that, for Spain to comply with the conclusions from the EU Council of 15 and 16 March 2002 and of 20 and 21 March 2014 setting a 10% interconnection target for all Member States, additional interconnection capacity would be needed at the border between France and Spain. Nonetheless, while the Agency understands the strategic importance of increasing the interconnection capacity between France and Spain, it has to express its reservations, for the reasons outlined above, regarding the inclusion of the “generic project between France and Spain” in the PCI list.

Regarding the proposed PCI 31.642 “*Interconnection between Airolo (CH) and Baggio (IT)*”, it is noted that the candidate project was assessed only by the Italian NRA, with the following conclusion provided on 26 June 2015 “the evaluation of costs and benefits of the project does not allow AEEGSI to support the inclusion in the PCI list”.

4.3 Opinion on the draft regional list – NSI East RG

In this Regional Group, 41 projects were proposed as PCIs. They correspond to 56 investment items out of the initially 87 candidate projects included in the consultation table of 22 December 2014, before the eligibility check was performed.

Regarding the proposed PCI 150.616 titled “CCS new 10 (Italy – Slovenia interconnection)”, the Italian and Slovenian NRAs raised concerns on the candidate project during their assessment (provided at the Regional Group meeting on 26 June 2015). The NRAs agreed that the project shows socio-economic welfare benefits, but they are only in the order of 70% of the costs. Therefore, the project benefits do not outweigh the project costs. Furthermore, the Slovene NRA considered that the enormous CAPEX of this investment would have unacceptable and disproportional impact on Slovene tariffs.

The draft regional list of proposed PCIs submitted to the Agency is accompanied by the following note: “*further to the objections raised by the IT and the SI regulators, it was agreed by Commission, IT and SI that IT and SI will investigate the possibilities for potential reduction of costs and increase of benefits in the long term and will inform the Commission*”. The Agency, the Italian and Slovene NRAs take note of updated information received, which indicate the possibility of cost reductions in the order of 25% by using an alternative route and an increase of benefits linked to different capacity assumptions on the Italian-Slovenian interconnection (without the project 148.68 Udine - Okroglo).

⁴⁰ If the generic project between Spain and France is assumed to include one investment item.

4.4 Opinion on the draft regional list – BEMIP RG

In this Regional Group, 16 projects were proposed as PCIs. They correspond to 19 investment items⁴¹ out of the initially 30 candidate projects included in the consultation table of 22 December 2014, before the eligibility check was performed.

The Agency notes that the definition of the “generic project on various aspects of the integration of the Baltic States' electricity network into the continental European network, including their synchronous operation” is arguably vague, and the perimeter of the project compared to the TYNDP 2014 is also unclear, resulting into possible overlapping with two other proposed PCIs (from cluster 170 of the TYNDP 2014) included in the draft list. The Agency points out that only a partial and preliminary CBA analysis was conducted in the TYNDP 2014 for this project, as it was still under consideration.

Therefore, the Agency has to express its reservation regarding the inclusion of this project in the PCI list, unless there is a clear reference to which TYNDP 2014 projects it refers to, and unless it is clearly defined that there is no overlap with any other PCIs included in the list.

4.5 Opinion on the draft regional list – Smart grids

The draft regional lists of electricity smart grids proposed PCIs were prepared by the respective Group covering all Member States. The preparatory work of the Group benefitted, *inter alia*, from previous activities on identification of performance indicators and benefits carried out by the Smart Grids Task Force, the European Commission DG JRC and by the European Regulators Group for Electricity and Gas.

After the applications received at the end of February 2015, DG JRC checked whether each candidate project:

- met the requirements of Regulation (EU) No 347/2013 (with an eligibility checklist, see Section 2.2 of this Opinion);
- contributed to the six policy criteria in Regulation (EU) No 347/2013 (with techno-economic KPIs);
- was economically cost-effective (with a societal CBA approach).

The analysis of policy criteria was carried out by the analysis of 21 individual KPIs measured in a simplified visual approach (green / yellow / red).

The Agency notes that the three electricity smart grid proposed PCIs having applied for PCI status are included in the draft regional list, and that no objections were raised by NRAs.

The Agency considers that the KPI approach introduced since 2010 with the ERGEG “Position Paper on Smart Grids” had some merits in facilitating the initial understanding of smart grid projects. However, smart grids metrics evolved significantly in the last years, and it was possible to perform a full CBA assessment in line with the requirements of Article 4(1)(b) of Regulation (EU) No 347/2013. Therefore, **the Agency recommends simplifying the future smart grids PCI**

⁴¹ If the generic project in the Baltic region is assumed to include one investment item.

selection process further by focusing on CBA and limiting the relevance of any KPI-based approach.

Done at Ljubljana on 30 October 2015

For the Agency:

[SIGNED]

Alberto Pototschnig
Director

Annex I

In this Annex the table under the title “Draft regional lists per investment item”⁴² and an extract of the table under the title “Draft 2nd PCI candidates list vs the 1st PCI list” is presented.

Table 1- Draft regional lists per investment item

Corridor	Project Code	Investment index Number	Project Name	Investment Index Name	Countries	Project Promoter
NSOG	25	62	IFA2	Tourbe (FR) - Chilling (GB)	FR/GB	National Grid Interconnector Holdings Limited, RTE
NSOG	37	142	Southern Norway - Germany (Nord.Link)	Germany – Norway interconnection between Wilster (DE) and Tonstad (NO) (NORD.LINK)	DE/NO	TenneT TSO GmbH, Statnett SF, KfW Kreditanstalt für Wiederaufbau
NSOG	39	144	DKW-DE, step 3	Interconnection between Kassö (DK) and Audorf (DE)	DK/DE	Energinet.dk; TenneT TSO GmbH
NSOG	71	427	COBRA Cable	Endrup (DK) - Eemshaven (NL)	DK/NL	TenneT and Energinet
NSOG	74	443	Thames Estuary Cluster (NEMO)	Thames Estuary Cluster (NEMO Link)	GB	National Grid Interconnector Holdings Limited, Elia SA/nv
NSOG	74	449	Thames Estuary Cluster (NEMO)	New 400kV double circuit and new 400kV substation in Richborough connecting the new Belgium interconnector providing greater market coupling between the UK and the European mainland.	GB	National Grid Electricity Transmission
NSOG	107	810	Celtic Interconnector	Great Island or Knockraha (IE) - La Martyre (FR)	IE/FR	RTE, Eirgrid

⁴² For practical reasons the last column of the table “Web link” is omitted.

NSOG	110	424	Norway - Great Britain (NSN)	Norway - Great Britain (NSN)	GB/NO	National Grid Interconnector Holdings Limited, Statnett SF
NSOG	153	387	France-Alderney-Britain	Cotentin Nord - Exeter	FR/GB	RTE, Transmission Investment
NSOG	167	998	Viking DKW-GB	DKW-GB (Viking Link	DK/GB	National Grid Interconnector Holdings, Energinet.dk.
NSOG	172	1005	ElecLink	Sellindge-Le Mandarins (FR)	GB/FR	ElecLink
NSOG	183	1018	DKW-DE, Westcoast	Interconnection between Endrup (DK) and Niebüll (DE)	DK/DE	Energinet.dk; TenneT TSO GmbH
NSOG	185	1020	Greenlink, Greenwire IE-GB	GB – IE	GB/IE	Element Power, Greenwire, Greenlink
NSOG	185	1021	Greenlink, Greenwire IE-GB	GB – IE	GB/IE	Element Power, Greenwire, Greenlink
NSOG	189	1024	Irish-Scottish Links on Energy (ISLES)	Cuachan - Argyll hub	NI/GB	The Scottish Government, DCENRand Northern Ireland
NSOG	189	1025	Irish-Scottish Links on Energy (ISLES)	Argyll hub	GB	The Scottish Government, DCENRand Northern Ireland
NSOG	189	1026	Irish-Scottish Links on Energy (ISLES)	Coleraine hub	NI	The Scottish Government, DCENRand Northern Ireland
NSOG	189	1027	Irish-Scottish Links on Energy (ISLES)	Coolkeeragh hub	NI	The Scottish Government, DCENRand Northern Ireland
NSOG	190	1033	NorthConnect: Norway-Great Britain	Sima - Peterhead	GB	Northconnect KS
NSOG	209	147	North South Eastern German Corridor (one of 6 projects)	Internal line between Hamburg/Nord and Dollern (DE)	DE	TenneT TSO GmbH
NSOG	209	148	North South Eastern German	Internal line between Audorf and Hamburg/Nord (DE)	DE	TenneT TSO GmbH

			Corridor (one of 6 projects)			
NSOG	209	667	North South Eastern German Corridor (one of 6 projects)	Internal line between Brunsbüttel and Niebüll (DE)	DE	TenneT TSO GmbH
NSOG	214	1082	Interco Iceland-UK	Interco Iceland-UK	IS/UK	Landsnet, Landsnet, Landsvirkjun and National Grid
NSOG	221		PCI compressed air energy storage in United Kingdom - Larne	PCI compressed air energy storage in United Kingdom - Larne	UK	Gaelectric Energy Storage Ltd
NSOG	228	1113	MAREX	Sea Water Pumped Storage at Glinsk, Mayo and transmission line from Glinsk, Mayo (IE) to Connah's Quay (GB)	IE	Organic Power Limited Project 228: Marex

NSI West	1	2	RES in north of Portugal	Pedralva (PT) - Sobrado (PT)	PT	REN
NSI West	1	4	RES in north of Portugal	V.Minho (by Ribeira de Pena and Fridão) - Feira (by Ribeira de Pena and Fridão)	PT	REN
NSI West	1	474	RES in north of Portugal	Ribeira de Pena (PT) Substation	PT	REN
NSI West	1	941	RES in north of Portugal	Fridão switching station	PT	REN
NSI West	4	18	Interconnection Portugal-Spain	Beariz (ES) - Fontefria (ES)	ES	REE
NSI West	4	496	Interconnection Portugal-Spain	Fontefría (ES) - Vila do Conde (PT) (By Viana do Castelo)	ES/PT	REN/REE
NSI West	4	498	Interconnection Portugal-Spain	Fontefria (ES) Substation	ES	REE
NSI West	4	499	Interconnection Portugal-Spain	Beariz (ES) Substation	ES	REE
NSI West	4	500	Interconnection Portugal-Spain	V. Castelo (PT) Substation	PT	REN
NSI West	16	38	Western interconnection FR-ES	Gatica (ES) – Aquitaine (Cubnezais) (FR)	ES/FR	RTE/REE
NSI West	21	55	Italy - France	Grande Ile (FR) - Piassasco (IT) (currently known as Savoie (FR) - Piémont (IT))	FR/IT	Terna (IT) / RTE (FR)
NSI West	24	445	Belgian North Border	Zandvliet - Lillo	BE	Elia SA/nv

NSI West	24	604	Belgian North Border	Lillo - Mercator	BE	Elia SA/nv
NSI West	24	605	Belgian North Border	Lillo	BE	Elia SA/nv
NSI West	24	608	Belgian North Border	Horta - Mercator	BE	Elia SA/nv
NSI West	31	642	Italy Switzerland	Interconnection between Airolo (CH) and Baggio (IT)	IT	Terna (IT)
NSI West	40	650	Luxembourg-Belgium Interco	Bascharage (LU) - Aubange (BE)	LU/BE	Elia SA/nv & Creos Luxembourg
NSI West	47	219	AT - DE	Westtirol – Zell/Ziller	AT/DE	Austrian Power Grid AG
NSI West	81	462	North South Interconnector	Woodland (IE) - Turleenan (NI)	IE/NI	EirGrid, SONI
NSI West	82	463	RIDP I	Srananagh (IE) - New substation in South Donegal (IE)	IE	EirGrid, SONI
NSI West	82	896	RIDP I	South Donegal (IE) - Omagh South (NI)	IE/NI	EirGrid, SONI
NSI West	82	897	RIDP I	Omagh South - Turleenan	NI	EirGrid, SONI
NSI West	92	146	ALEGrO	Area of Oberzier - Aachen/Düren (DE) - Area of Lixhe - Liège (BE)	DE/BE	Elia SA/nv & Amprion GmbH
NSI West	92	1045	ALEGrO	Lixhe - Herderen	DE/BE	Elia SA/nv & Amprion GmbH
NSI West	92	1048	ALEGrO	Lixhe - Herderen	DE/BE	Elia SA/nv & Amprion GmbH
NSI West	113	145	North South Western German Corridor (Doetrichem - Niederhein)	Germany - Ntherlands interconnection between Wesel-Niederrhein (DE) and Doetinchen (NL)	DE/NL	TenneT TSO B.V., Amprion GmbH
NSI West	134	660	North South Western German Corridor	Osterath (DE) - Philippsburg (DE)	DE	Amprion GmbH (DE); TransnetBW GmbH (DE)
NSI West	164	664	North South Eastern German Corridor	Internal line between Brunsbüttel to Großgartach, Wilster to Area Grafenrheinfeld	DE	TenneT TSO GmbH, TransnetBW GmbH
NSI West	174	1014	Greenconnector	Verderio (I) - Sils (CH)	IT/CH	Worldenergy
NSI West	184	594	PST Arkale	Arkale (ES)	ES	REE (ES)
NSI West	193	927	Godellela-Morella/La Plana	La Plana/Morella - Godellela	ES	REE (ES)

NSI West	198	985	Area of Lake Constance	point Rommelsbach - Herbertingen	DE	Amprion GmbH (DE); Transnet BW GmbH (DE);
NSI West	198	986	Area of Lake Constance	point Wullenstetten (DE) - point Niederwangen (DE)	DE	Amprion GmbH (DE); Transnet BW GmbH (DE);
NSI West	198	1043	Area of Lake Constance	Neuravensburg - border area (DE/AT)	DE	Amprion GmbH (DE); Transnet BW GmbH (DE);
NSI West	203	537	Aragón-Castellón	Nudejar (ES)	ES	REE
NSI West	203	538	Aragón-Castellón	Morella (ES) - La Plana (ES)	ES	REE
NSI West	203	1069	Aragón-Castellón	Mezquita - Morella	ES	REE
NSI West	203	1070	Aragón-Castellón	Mudejar - Morella	ES	REE
NSI West	222		Extension of the pump storage powerplant Kaunertal	Extension of the pump storage powerplant Kaunertal	AT	TIWAG-Tiroler Wasserkraft AG
NSI West	223		Limberg III	Limberg III	AT	Verbund Hydro Power GmbH
NSI West	224		Hydro Pumped Storage Pfaffenboden in Molln	Hydro Pumped Storage Pfaffenboden in Molln	AT	Wien Energie GmbH
NSI West	226		Energiespeicher Riedl	Energiespeicher Riedl	AT	Donaukraft Jochenstein AG
NSI West			Generic project to reach 10% interconnectivity		ES/FR	

NSI East	26	63	Austria-Italy	Interconnection between Lienz (AT) and Veneto region (IT)	AT/IT	Terna (IT) / APG (AT)
NSI East	26	218	Austria-Italy	Lienz – Obersielach	AT	APG (AT)
NSI East	28	70	28 (Italy-Montenegro)	Interconnection between Villanova (IT) and Lastva (ME)	IT/ME	Terna (IT)
NSI East	28	621	28 (Italy-Montenegro)	Converter station of Villanova (IT) the new 1000MW HVDC interconnection line between Italy and Montenegro	IT/ME	Terna (IT)
NSI East	28	622	28 (Italy-Montenegro)	Converter station in Lastva (ME) of the new 1000MW HVDC interconnection line between Italy and Montenegro	IT/ME	Terna (IT)
NSI East	35	311	Czech North South Corridor – Phase 2	Kocin (CZ) Upgrade of the existing substation	CZ	ČEPS, a.s.
NSI East	35	313	Czech North South Corridor – Phase 2	Kocin (CZ) - Mirovka	CZ	ČEPS, a.s.
NSI East	35	315	Czech North South Corridor – Phase 2	Kocin (CZ) - Orestice (CZ)	CZ	ČEPS, a.s.
NSI East	35	316	Czech North South Corridor –	Mirovka (CZ) - Cebin (CZ)	CZ	ČEPS, a.s.

			Phase 2			
NSI East	47	212	AT - DE	St. Peter (AT) – Isar/Ottenhofen (DE)	AT/DE	Austrian Power Grid AG / TenneT TSO GmbH
NSI East	47	216	AT - DE	St. Peter – Tauern, “Salzburgleitung”	AT	Austrian Power Grid AG
NSI East	48	214	New SK - HU interconnection - phase 1	New Hungary - Slovakia interconnection between Gabčíkovo (SK) - Gönyű (HU) - Veľký Ďur (SK) (the substation in Veľký Ďur (SK) was added, however according to ENTSO-E this change does not affect the TYNDP 2014 assessment results)	SK/HU	SEPS a.s. MAVIR ZRt.
NSI East	48	695	New SK - HU interconnection - phase 1	PCI Hungary - Slovakia interconnection between Sajóvánka (HU) and Rimavská Sobota (SK) - Connection of the two existing substations (R.Sobota (SK) -Sajoóivánka (HU)) by the new 2x400 kV line (preliminary armed only with one circuit).	SK/HU	SEPS a.s. MAVIR ZRt.
NSI East	48	696	New SK - HU interconnection - phase 1	2x70 Mvar shunt reactors in station Sajóivánka (HU)	HU	MAVIR ZRt.
NSI East	48	697	New SK - HU interconnection - phase 1	Second 400/120 kV transformer in station Sajóivánka (HU)	HU	MAVIR ZRt.
NSI East	54	720	New SK -HU interconnection - phase 2	Erection of new 2x400 line between Velké ⁴³	SK/HU	SEPS a.s. MAVIR ZRt.
NSI East	58	140	GerPol Power Bridge	Eisenhüttenstadt - Plewiska	DE/PL	PSE 50Hertz
NSI East	58	353	GerPol Power Bridge	krajnik (PL) - Baczyna (PL)	PL	PSE 50Hertz
NSI East	58	355	GerPol Power Bridge	Mikulowa (PL) - Swiebodzice (PL)	PL	PSE 50Hertz
NSI East	58	726	GerPol Power Bridge	Gubin (PL)	PL	PSE 50Hertz
NSI East	58	1035	GerPol Power Bridge	Baczyna	PL	PSE 50Hertz
NSI East	94	139	GerPol Improvements	Interconnection Vierraden (DE) – Krajnik (PL) and coordinated installation and operation of phase shifting transformers	DE/PL	PSE (PL) 50Hertz (DE)
NSI East	94	796	GerPol Improvements	PST in Mikulowa	PL	PSE S.A. (PL)
NSI East	94	992	GerPol Improvements	PST in Vierraden	DE	50Hertz (DE)

⁴³ Agency’s note: The title is proposed to be amended as follows: “Erection of new 2x400 line between Velké Kapušany and Kisvárda area”.

NSI East	130	665	North South Eastern German Corridor (one of 6 projects)	Internal line in Germany between Wolmirstedt (DE) and area Gundremmingen (DE)	DE	50Hertz Amprion GmbH
NSI East	138	273	Black Sea Corridor	New 400 kV double circuit OHL Cernavoda – Stalpu, with one circuit derivation in/out in 400 kV substation Gura Ialomitei (RO);	RO	Transelectrica (RO)
NSI East	138	275	Black Sea Corridor	Smardan - Gutinas	RO	Transelectrica (RO)
NSI East	138	715	Black Sea Corridor	Upgraded the 220/110 kV substation Stalpu to 400/110kV (1x250MVA) (RO);	RO	Transelectrica (RO)
NSI East	138	800	Black Sea Corridor	New 400 kV simple circuit OHL Dobrudja – Burgas (BG);	BG	Transelectrica (RO) ESO-EAD (BG)
NSI East	141	223	CSE3	Interconnection between Žerjavinec (HR)/Heviz (HU) and Cirkovce (SI)	HR/HU/SI	ELES d.o.o. (Slovenian TSO)
NSI East	141	225	CSE3	Internal line between Beričevo and Podlog (SI)	SI	ELES d.o.o. (Slovenian TSO)
NSI East	141			Internal line between Divača and Beričevo (SI)	SI	ELES d.o.o. (Slovenian TSO)
NSI East	141			Internal line between Podlog and Cirkovce (SI)	SI	ELES d.o.o. (Slovenian TSO)
NSI East	142	256	CSE4	interconnection line 400 kV between maritsa East (BG) and Nea santa (GR)	BG/GR	Elektroenergien Sistermen Operator EAD, Bulgaria IPTO Greece (Greek part of the interconnection)
NSI East	142	257	CSE4	Internal 400 kV OHL between Maritsa East (BG) and Plovdiv (BG)	BG	Elektroenergien Sistermen Operator EAD, Bulgaria
NSI East	142	258	CSE4	Internal 400 kV OHL between Maritsa East (BG) and Maritsa East 3 (BG)	BG	Elektroenergien Sistermen Operator EAD, Bulgaria
NSI East	142	262	CSE4	Internal 400 kV OHL between Maritsa East (BG) and Burgas (BG)	BG	Elektroenergien Sistermen Operator EAD, Bulgaria
NSI East	144	238	Mid Continental East Corridor	New 400 kV double circuit OHL Resita (RO) – Pancevo (RS);	RO/RS	Transelectrica (RO) –JP EMS (Serbia)
NSI East	144	269	Mid Continental East Corridor	New 400 kV simple circuit OHL Portile de Fier – Resita (RO);	RO	Transelectrica (RO)
NSI East	144	270	Mid Continental East Corridor	Upgrade of existing 220kV double circuit line Resita-Timisoara-Sacalaz-Arad to 400kV double circuit (RO);	RO	Transelectrica (RO)
NSI East	144	701	Mid Continental East Corridor	New 400 kV substation Resita (T400/220 kV, 400 MVA + T 400/110 kV, 250 MVA), as development of the existing 220/110 kV substation (RO);	RO	Transelectrica (RO)
NSI East	144	705	Mid Continental East Corridor	Replacement of 220 kV substation Timisoara with 400 kV substation (2x250 MVA, 400/110 kV) (RO).	RO	Transelectrica (RO)

NSI East	150	616	CCS new 10	PCI Italy – Slovenia interconnection between Salgareda (IT) and Divača — Bericevo region (SI)	IT/SI	ELES d.o.o. and TERNA SpA (Slovenian and Italian TSO)
NSI East	200	306	Czech North South Corridor	Vutjiv (CZ)	CZ	ČEPS, a.s.
NSI East	200	307	Czech North South Corridor	Vernerov (CZ)	CZ	ČEPS, a.s.
NSI East	200	308	Czech North South Corridor	Vernerov (CZ) - Vitkov (CZ)	CZ	ČEPS, a.s.
NSI East	200	309	Czech North South Corridor	Vitkov (CZ) - Prestice (CZ)	CZ	ČEPS, a.s.
NSI East	200	312	Czech North South Corridor	Mirovka (CZ)	CZ	ČEPS, a.s.
NSI East	200	314	Czech North South Corridor	Mirovka (CZ) - V413 (CZ)	CZ	ČEPS, a.s.
NSI East	205	193	North South Eastern German Corridor (one of 6 projects)	Vieselback (De) - Redwitz (DE)	DE	50Hertz TenneT TSO
NSI East	210	1071	E15	Würmlach (AT) – Somplago(IT) interconnection	AT/IT	Alpe Adria Energiea SpA
NSI East	217	(blank)	HPS Complex Agios Georgios and Pyrgos (HPS Amfilochia)	HPS Complex Agios Georgios and Pyrgos (HPS Amfilochia)	EL	TERNA ENERGY S.A.
NSI East	218	(blank)	Hydro-pumped storage in Bulgaria-Yadenitsa	Hydro-pumped storage in Bulgaria-Yadenitsa	BG	Natsionalna Elektricheska kompania Ead (NEK EAD)
NSI East	219	949	EUROASIA interconnector	Internal line between Korakia, Crete(EL) and Attica (EL)	EL	DEH Quantum Energy LTD
NSI East	219	971	EUROASIA interconnector	Interconnection between Vasilikos (CY) and Korakia, Crete(EL)	CY/EL	DEH Quantum Energy LTD
NSI East	219	1054	EUROASIA interconnector	Interconnection between Hadera (IL) and Vasilikos (CY)	IL/CY	DEH Quantum Energy LTD

BEMIP	36	141	Kriegers Flak CGS	Ishøj /Bjæverskov(DK) - Bentwisch (DE)	DK/DE	50Hertz Energinet.dk;
BEMIP	59	379	Lit Pol Link Stage 1	Kruonis (LT) - Alytus (LT)	LT	Litgrid AB
BEMIP	62	386	Interconnection Estonia – Latvia	Kilingi-Nomme (EE) - Riga CHP2 (LV)	EE/LV	Augstsprieguma tikls. Elering
BEMIP	62	735	Interconnection Estonia – Latvia	Harku (EE) - Sindi (EE)	EE	Elering AS
BEMIP	60	385	Nordbalt (LV reinforcement)	Ventspils-Tume-Imanta (LV)	LV	Augstsprieguma tikls.
BEMIP	123	335	LitPol Link Stage 2	Ostrołęka – Olsztyn Mątki	PL	PSE S.A. (PL)
BEMIP	123	373	LitPol Link Stage 2	Stanisławów – Ostrołęka	PL	PSE S.A. (PL)
BEMIP	123	1038	LitPol Link Stage 2	Alytus converter station (2nd)	LT	Litgrid AB
BEMIP	124	733	NordBalt phase 2	Ekhyddan- Nybro/Hemsjö (SE)	SE	Svenska kraftnät
BEMIP	163	1010-1013	BalticCorridor	2 EE-LV interconnections and 2 EE internal lines	EE-LV	Augstsprieguma tikls Elering AS
BEMIP	163	1062	BalticCorridor	Riga CHP 2 (LV) - Salaspils (LV)	EE-LV	Augstsprieguma tikls
BEMIP	170	380	Baltics synchro with CE	Visaginas (LT) - Kruonis (LT)	LT	Litgrid AB
BEMIP	170	1034	Baltics synchro with CE	Substation in Lithuania (state border)	LT	Litgrid AB
BEMIP	211	(blank)	Muuga HPSPP	Muuga HPSPP	EE	Energiasalv OÜ
BEMIP	212	(blank)	Kruonis HPSPP extension	Kruonis HPSPP extension	LT	Lietuvos Energija
BEMIP			Generic project on various aspects of the integration of the Baltic States' electricity network into the continental European network, including their synchronous operation		LT, LV, EE	

Table 2 - Extract of the table “Draft 2nd PCI candidates list vs the 1st PCI list”

In this table the proposed projects which were deemed eligible are included.

Priority Corridor	PCI		Status	Description		Countries	Project promoter	TYNDP 2014 Project ID	TYNDP 2014 Inv Item
NSOG	1.1	1.1.1	Candidate	Thames Estuary Cluster (NEMO)	Thames Estuary Cluster (NEMO Link)	GB	National Grid Interconnector Holdings Limited, Elia SA/nv	74	443
NSOG		1.1.2	Candidate	North Seas offshore grid infrastructure scheme	New 400kV double circuit and new 400kV substation in Richborough connecting the new Belgium interconnector providing greater market coupling between the UK and the European mainland.	GB	National Grid Electricity Transmission	230	449
NSOG	1.3	1.3.1	Candidate	DKW-DE, Westcoast	Interconnection between Endrup (DK) and Niebüll (DE)	DK/DE	Energinet.dk; TenneT TSO GmbH	183	1018
NSOG		1.3.2	Candidate	North South Eastern German Corridor (one of 6 projects)	Internal line between Brunsbüttel and Niebüll (DE)	DE	TenneT TSO GmbH	209	667
NSOG	1.4	1.4.1	Candidate	DKW-DE, step 3	Interconnection between Kassö (DK) and Audorf (DE)	DK/DE	Energinet.dk; TenneT TSO GmbH	39	144
NSOG		1.4.2	Candidate	North South Eastern German Corridor (one of 6 projects)	Internal line between Audorf and Hamburg/Nord (DE)	DE	TenneT TSO GmbH	209	148
NSOG		1.4.3	Candidate	North South Eastern German Corridor (one of 6 projects)	Internal line between Hamburg/Nord and Dollern (DE)	DE	TenneT TSO GmbH	209	147
NSOG	1.5		Candidate	COBRA Cable	Endrup (DK) - Eemshaven (NL)	DK/NL	TenneT and Energinet	71	427
NSOG	1.6		Candidate	Celtic Interconnector	Great Island or Knockraha (IE) - La Martyre (FR)	IE/FR	RTE, Eirgrid	107	810
NSOG	1.7	1.7.1	Candidate	France-Alderney-Britain	Cotentin Nord - Exeter	FR/GB	RTE, Transmission Investment	153	387
NSOG		1.7.2	Candidate	IFA2	Tourbe (FR) - Chilling (GB)	FR/GB	National Grid Interconnector Holdings Limited, RTE	25	62
NSOG		1.7.3	Candidate	ElecLink	Sellindge-Le Mandarins (FR)	GB/FR	ElecLink	172	1005

NSOG	1.8		Candidate	Southern Norway - Germany (Nord.Link)	Germany – Norway interconnection between Wilster (DE) and Tonstad (NO) (NORD.LINK) ⁴⁴	DE/NO	TenneT TSO GmbH, Statnett SF, KfW Kreditanstalt für Wiederaufbau	37	142
NSOG	1.9	1.9.1	Candidate	Greenlink, Greenwire IE-GB	GB - IE	GB/IE	Element Power, Greenwire, Greenlink	185	1020
NSOG		1.9.2	Candidate	Isles project	GB-IE	GB/IE	Scottish Government	189	1024, 1025, 1026, 1027
NSOG	1.10		Candidate	NSN, NorthConnect	Kvildall (NO) - Blythe (GB), Sima (NO)-Peterhead (GB)	NO-GB	Statnet, National Grid, Northconnect KS	110, 190	
NSOG		1.11.4	Canndidate	MAREX	interconnection between Glinsk, Mayo (IE) and Connah’s Quai, Deeside (UK)	GB-UK	Organic Power Ltd	228	
NSOG	1.12		Candidate	PCI compressed air energy storage in United Kingdom - Larne	PCI compressed air energy storage in United Kingdom - Larne	UK	Gaelectric Energy Storage Ltd	221	
NSOG	1.aa		NEW candidate	Interco Iceland-UK	Interco Iceland-UK	IS/UK	Landsnet, Landsvirkjun and National Grid	214	1082
NSOG	1.bb		NEW candidate	Viking DKW-GB	DKW-GB (Viking Link)	DK/GB	National Grid Interconnector Holdings, Energinet.dk.	167	998
NSI West	2.1		Candidate	AT - DE	Westtirol – Zell/Ziller	AT/DE	Austrian Power Grid AG	47	219
NSI West	2.2	2.2.1	Candidate	ALEGrO	Area of Oberzier - Aachen/Düren (DE) - Area of Lixhe - Liège (BE)	DE/BE	Elia SA/nv & Amprion GmbH	92	146
NSI West		2.2.2	Candidate	ALEGrO	Area of Oberzier - Aachen/Düren (DE) - Area of Lixhe - Liège (BE)	DE/BE	Elia SA/nv & Amprion GmbH	92	1048
NSI West		2.2.3	Candidate	ALEGrO	Area of Oberzier - Aachen/Düren (DE) - Area of Lixhe - Liège (BE)	DE/BE	Elia SA/nv & Amprion GmbH	92	1045
NSI West		2.3.2	Candidate	Luxembourg-Belgium Interco	Bascharage (LU) - Aubange (BE)	LU/BE	Elia SA/nv & Creos Luxembourg	40	650

⁴⁴ Agency’s note: To allow easy reconciliation with the NDP, “Tonstad” is proposed to be replaced by “Ertsmyra/ Tonstad”.

NSI West	2.5	2.5.1	Candidate	Italy - France	Grande Ile (FR) - Piassasco (IT) (currently known as Savoie (FR) - Piémont (IT))	FR/IT	Terna (IT) / RTE (FR)	21	55
NSI West	2.7		Candidate	Western interconnection FR-ES	Gatica (ES) – Aquitaine (Cubnezais) (FR)	ES/FR	RTE/REE	16	38
NSI West	2.8		Candidate	PST Arkale	Arkale (ES)	ES/FR	EREE (ES)	184	594
NSI West	2.9		Candidate	North South Western German Corridor	North South Western German Corridor ⁴⁵	DE	Amprion GmbH (DE); TransnetBW GmbH (DE)	134	660
NSI West	2.10		Candidate	North South Eastern German Corridor	Internal line between Brunsbüttel to Großgartach, Wilster to Area Grafenrheinfeld	DE	TenneT TSO GmbH, TransnetBW GmbH	164	664
NSI West		2.11.2	Candidate	Area of Lake Constance	Border area (DE-AT) - Rüthi (CH) ⁴⁶	DE/AT/CH	Amprion GmbH (DE); TransnetBW GmbH (DE); Swissgrid AG (CH); Vorarlberger Übertragungsnetz GmbH (AT)	198	985, 986
NSI West		2.11.3	NEW candidate	Area of Lake Constance	Border area (DE-AT) - Rüthi (CH) ⁴⁷	DE/AT/CH	Amprion GmbH (DE); TransnetBW GmbH (DE); Swissgrid AG (CH); Vorarlberger Übertragungsnetz GmbH (AT)	198	986, 1043
NSI West	2.12		Candidate	North South Western German Corridor (Doetrichem - Niederhein)	Germany - Netherlands interconnection between Wesel-Niederrhein (DE) and Doetinchen (NL)	DE/NL	TenneT TSO B.V., Amprion GmbH	113	145
NSI West	2.13	2.13.1	Candidate	North South Interconnector	Woodland (IE) - Turleenan (NI)	IE/UK	EirGrid, SONI	81	462
NSI West		2.13.2	Candidate	RIDP I	Srananagh (IE) - New substation in South Donegal (IE); South Donegal (IE) - Omagh South (NI); Omagh South - Turleenan	IE/UK	EirGrid, SONI	82	463, 896, 897

⁴⁵ Agency's note: To allow easy reconciliation with the NDP, the project description is proposed to be replaced with the following: "Germany internal line between Osterath and Philippsburg (DE) to increase capacity at Western borders".

⁴⁶ Agency's note: To allow easy reconciliation with the NDP, the project description is proposed to be replaced with the following: "Internal line in the region of point Rommelsbach to Herbertingen".

⁴⁷ Agency's note: To allow easy reconciliation with the NDP, the project description is proposed to be replaced with the following: "Internal line point Wullenstetten (DE)-point Niederwangen (DE) and internal line Neuravensburg".

NSI West	2.14		Candidate	Greenconnector	Verderio (I) - Sils (CH)	IT/CH	Worldenergy	174	1014
NSI West	2.15	2.15.1	Candidate	Italy Switzerland	Interconnection between Airolo (CH) and Baggio (IT)	IT/CH	Terna (IT)	31	642
NSI West	2.16	2.16.1	Candidate	RES in north of Portugal	Pedralva (PT) - Sobrado (PT)	PT	REN	1	2
NSI West		2.16.3	Candidate	RES in north of Portugal	V.Minho (by Ribeira de Pena and Fridão) - Feira (by Ribeira de Pena and Fridão); Ribeira de Pena (PT) Substation; Fridão switching station	PT	REN	1	4, 474, 941
NSI West	2.17		Candidate	Interconnection Portugal-Spain	2	ES/PT	REN/REE	4	18, 496, 498, 499, 500
NSI West	2.18		Candidate	Extension of the pump storage powerplant Kaunertal	Extension of the pump storage powerplant Kaunertal	AT	TIWAG-Tiroler Wasserkraft AG	222	
NSI West	2.20		Candidate	Limberg III	Limberg III	AT	Verbund Hydro Power GmbH	223	
NSI West	2.21		Candidate	Energiespeicher Riedl	Energiespeicher Riedl	AT	Donaukraft Jochenstein AG	226	
NSI West	2.aa.1		NEW candidate	Belgian North Border	Zandvliet-Lillo, Lillo-Mercator, Lillo substation	BE	Elia SA/nv	24	445, 604, 605
NSI West	2.aa.2		NEW candidate	Belgian North Border	Horta-Mercator	BE	Elia SA/nv	24	608
NSI West	2.bb		NEW candidate	Aragón-Castellón	Nudejar (ES); Morella (ES) - La Plana (ES); Mezquita - Morella; Mudejar - Morella;	ES	REE	203	537, 538, 1069, 1070
NSI West	2.cc		NEW candidate	Hydro Pumped Storage Pfaffenboden in Molln	Hydro Pumped Storage Pfaffenboden in Molln	AT	Wien Energie GmbH	224	
NSI West	2.dd		NEW candidate	Godolleta-Morella/La Plana	La Plana/Morella - Godolleta	ES		193	927
NSI West	2.ee		NEW candidate	Generic project Iberian Peninsula	Generic project Iberian Peninsula	ES/FR		generic1	
NSI East	3.1	3.1.1	Candidate	AT - DE	St. Peter (AT) – Isar/Ottenhofen (DE) ⁴⁸	AT/DE	Austrian Power Grid AG / TenneT TSO GmbH	47	212

⁴⁸ Agency’s note: To allow easy reconciliation with the NDP, the project description is proposed to be replaced with the following: “Isar/Altheim/Ottenhofen(DE) to St. Peter (AT)”.

NSI East		3.1.2	Candidate	AT - DE	St. Peter – Tauern, “Salzburgleitung”	AT	Austrian Power Grid AG	47	216
NSI East	3.2	3.2.1	Candidate	Austria-Italy	Interconnection between Lienz (AT) and Veneto region (IT)	AT/IT	Terna (IT) / APG (AT)	26	63
NSI East		3.2.2	Candidate	Austria-Italy	Lienz – Obersielach	AT	APG (AT)	26	218
NSI East	3.4		Candidate	E15	Würmlach (AT) – Somplago(IT) interconnection	AT/IT	Alpe Adria Energiea SpA	210	1071
NSI East	3.7	3.7.1	Candidate	CSE4	interconnection line 400 kV between maritsa East (BG) and Nea santa (GR)	BG/GR	Elektroenergien Sistermen Operator EAD, Bulgaria IPTO Greece (Greek part of the interonnection)	142	256
NSI East		3.7.2	Candidate	CSE4	Internal 400 kV OHL between Maritsa East (BG) and Plovdiv (BG)	BG	Elektroenergien Sistermen Operator EAD, Bulgaria	142	257
NSI East		3.7.3	Candidate	CSE4	Internal 400 kV OHL between Maritsa East (BG) and Maritsa East 3 (BG)	BG	Elektroenergien Sistermen Operator EAD, Bulgaria	142	258
NSI East		3.7.4	Candidate	CSE4	Internal 400 kV OHL between Maritsa East (BG) and Burgas (BG)	BG	Elektroenergien Sistermen Operator EAD, Bulgaria	142	262
NSI East	3.8	3.8.1	Candidate	Black Sea Corridor	New 400 kV simple circuit OHL Dobrudja – Burgas (BG);	BG	Transelectrica (RO) ESO-EAD (BG)	138	800
NSI East		3.8.4	Candidate	Black Sea Corridor	New 400 kV double circuit OHL Cernavoda – Stalpu, with one circuit derivation in/out in 400 kV substation Gura Ialomitei (RO); Upgraded the 220/110 kV substation Stalpu to 400/110kV (1x250MVA) (RO)	RO	Transelectrica (RO)	138	273, 715
NSI East		3.8.5	Candidate	Black Sea Corridor	New 400 kV double circuit OHL Smardan – Gutinas (RO);	RO	Transelectrica (RO)	138	275
NSI East	3.9	3.9.1	Candidate	CSE3	Interconnection between Žerjavinec (HR)/Heviz (HU) and Cirkovce (SI)	HR/HU/SI	ELES d.o.o. (Slovenian TSO)	141	223
NSI East		3.9.2	Candidate	CSE4	Internal line between Divača and Beričevo (SI)	SI	ELES d.o.o. (Slovenian TSO)	141	225
NSI East		3.9.3	Candidate	CSE5	Internal line between Beričevo and Podlog (SI)	SI	ELES d.o.o. (Slovenian TSO)	141	225
NSI East		3.9.4	Candidate	CSE6	Internal line between Podlog and Cirkovce (SI)	SI	ELES d.o.o. (Slovenian TSO)	141	225

NSI East	3.10	3.10.1	Candidate	EUROASIA interconnector	Internal line between Korakia, Crete(EL) and Attica (EL)	EL	DEH Quantum Energy LTD	219	949
NSI East		3.10.2	Candidate	EUROASIA interconnector	Interconnection between Vasilikos (CY) and Korakia, Crete(EL)	CY/EL	DEH Quantum Energy LTD	219	971
NSI East		3.10.3	Candidate	EUROASIA interconnector	Interconnection between Hadera (IL) and Vasilikos (CY)	IL/CY	DEH Quantum Energy LTD	219	1054
NSI East	3.11	3.11.1	Candidate	Czech North South Corridor	Vutjiv (CZ), Vernerov (CZ), Vernerov (CZ) - Vitkov (CZ)	CZ	ČEPS, a.s.	200	306, 307, 308
NSI East		3.11.2	Candidate	Czech North South Corridor	Vitkov (CZ) - Prestice (CZ)	CZ	ČEPS, a.s.	200	309
NSI East		3.11.3	Candidate	Czech North South Corridor – Phase 2	Kocin (CZ) Upgrade of the existing substation, Kocin (CZ) - Prestice (CZ)	CZ	ČEPS, a.s.	35	311, 315
NSI East		3.11.4	Candidate	Czech North South Corridor	Mirovka (CZ), Mirovka (CZ) - V413 (CZ), Kocin (CZ) - Mirovka	CZ	ČEPS, a.s.	200, 35 (313)	312, 313, 314
NSI East		3.11.5	Candidate	Czech North South Corridor – Phase 2	Mirovka (CZ) - Cebin (CZ)	CZ	ČEPS, a.s.	35	316
NSI East	3.12		Candidate	North South Eastern German Corridor (one of 6 projects)	Internal line in Germany between Wolmirstedt (DE) and area Gundremmingen (DE) ⁴⁹	DE	50Hertz Amprion GmbH	130	665
NSI East	3.13		Candidate	North South Eastern German Corridor (one of 6 projects)	Halle/Saale (DE) – Schweinfurt (DE) ⁵⁰	DE	50Hertz TenneT TSO	205	193
NSI East	3.14	3.14.1	Candidate	GerPol Power Bridge	Eisenhüttenstadt - Plewiska, Gubin (PL), Plewiska (PL)	DE/PL	PSE 50Hertz	58	140, 726
NSI East		3.14.2	Candidate	GerPol Power Bridge	krajnik (PL) - Baczyna (PL), Baczyna,	PL	PSE 50Hertz	58	353, 1035
NSI East		3.14.3	Candidate	GerPol Power Bridge	Mikulowa (PL) - Swiebodzice (PL)	PL	PSE 50Hertz	58	355
NSI East	3.15	3.15.1	Candidate	GerPol Improvements	Interconnection Vierraden (DE) – Krajnik (PL) and coordinated installation and operation of phase shifting transformers	DE/PL	PSE (PL) 50Hertz (DE)	94	139
NSI East		3.15.2	Candidate	GerPol Improvements	(PST in Mikulowa), Substation Krajink, PST in Vierraden	PL	PSE S.A. (PL)	94	796, 992
NSI East	3.16	3.16.1	Candidate	New SK - HU interconnection - phase 1	New Hungary - Slovakia interconnection between Gabčíkovo (SK) - Gönyű (HU) - Veľký Ďur (SK) (the substation in Veľký Ďur (SK) was added, however according to ENTSO-E this	SK/HU	SEPS a.s. MAVIR ZRt.	48	214

⁴⁹ Agency’s note: To allow easy reconciliation with the NDP, the project description is proposed to be replaced with the following: “Wolmirstedt (DE) to Bavaria (either Gundremmingen or Isar) (DE)”.

⁵⁰ Agency’s note: To allow easy reconciliation with the NDP, the project description is proposed to be replaced with the following: “Altenfeld (DE) to Redwitz (DE)”.

					change does not affect the TYNDP 2014 assessment results)				
NSI East	3.17		Candidate	New SK - HU interconnection - phase 1	PCI Hungary - Slovakia interconnection between Sajóvánka (HU) and Rimavská Sobota (SK) - Connection of the two existing substations (R.Sobota (SK) -Sajoóivánka (HU)) by the new 2x400 kV line (preliminary armed only with one circuit).	SK/HU	SEPS a.s. MAVIR ZRt.	48	695, 696, 697
NSI East	3.18	3.18.1	Candidate	New SK -HU interconnection - phase 2	Erection of new 2x400 line between Velké ⁵¹	SK/HU	SEPS a.s. MAVIR ZRt.	54	720
NSI East	3.19	3.19.1	Candidate	28 (Italy-Montenegro)	Interconnection between Villanova (IT) and Lastva (ME), Converter station of Villanova (IT) the new 1000MW HVDC interconnection line between Italy and Montenegro, Converter station in Lastva (ME) of the new 1000MW HVDC interconnection line between Italy and Montenegro	IT/ME	Terna (IT)	28	70, 621, 622
NSI East	3.21		Candidate	CCS new 10	PCI Italy – Slovenia interconnection between Salgareda (IT) and Divača – Bericevo region (SI)	IT/SI	ELES d.o.o. and TERNA SpA (Slovenian and Italian TSO)	150	616
NSI East	3.22	3.22.1	Candidate	Mid Continental East Corridor	New 400 kV double circuit OHL Resita (RO) – Pancevo (RS);	RO/RS	Transelectrica (RO) – JP EMS (Serbia)	144	238
NSI East		3.22.2	Candidate	Mid Continental East Corridor	New 400 kV simple circuit OHL Portile de Fier – Resita (RO); New 400 kV substation Resita (T400/220 kV, 400 MVA + T 400/110 kV, 250 MVA), as development of the existing 220/110 kV substation (RO);	RO	Transelectrica (RO)	144	269, 701
NSI East		3.22.3	Candidate	Mid Continental East Corridor	Upgrade of existing 220kV double circuit line Resita-Timisoara-Sacalaz-Arad to 400kV double circuit (RO); Replacement of 220 kV substation Timisoara with 400 kV substation (2x250 MVA, 400/110 kV) (RO).	RO	Transelectrica (RO)	144	270, 705
NSI East		3.22.4	Candidate	Mid Continental East Corridor	Internal line between Timisoara and Arad (RO)	RO	Transelectrica (RO)		

⁵¹ Agency’s note: The title is proposed to be amended as follows: “Erection of new 2x400 line between Velké Kapušany and Kisvárdá area”.

NSI East	3.23		Candidate	Hydro-pumped storage in Bulgaria-Yadenitsa	Hydro-pumped storage in Bulgaria-Yadenitsa	BG	Natsionalna Elektrieska kompania Ead (NEK EAD)	218	(blank)
NSI East	3.24		Candidate	HPS Complex Agios Georgios and Pyrgos (HPS Amfilochia)	HPS Complex Agios Georgios and Pyrgos (HPS Amfilochia)	EL	TERNA ENERGY S.A.	217	(blank)
BEMIP Electricity	4.1		Candidate	Kriegers Flak CGS	Ishøj /Bjæverskov(DK) - Bentwisch (DE) ⁵²	DK/DE	50Hertz Energinet.dk;	36	141
BEMIP Electricity	4.2	4.2.1	Candidate	Interconnection Estonia – Latvia	Kilingi-Nomme (EE) - Riga CHP2 (LV)	EE/LV	Augstsprieguma tikls. Elering	62	386
BEMIP Electricity		4.2.1	Candidate	Interconnection Estonia – Latvia	Harku (EE) - Sindi (EE)	EE	Elering	62	735
BEMIP Electricity	4.4	4.4.1	Candidate	Nordbalt (LV reinforcement)	Ventspils-Tume-Imanta (LV)	LV	Augstsprieguma tikls.	60	385
BEMIP Electricity		4.4.2	Candidate	NordBalt phase 2	Ekhyddan- Nybro/Hemsjö (SE)	SE	Svenska kraftnät	124	733
BEMIP Electricity		4.5.2	Candidate	LitPol Link Stage 2	Ostrołęka – Olsztyn Mątki, Stanisławów – Ostrołęka	LT/PL		123	335, 373
BEMIP Electricity	4.6		Candidate	Muuga HPSPP	Muuga HPSPP	EE	Energiasalv OÜ	211	
BEMIP Electricity	4.7		Candidate	Kruonis HPSPP extension	Kruonis HPSPP extension	LT	Lietuvos Energija	212	
BEMIP Electricity	4.aa		NEW candidate	LitPol Link Stage 1	Kruonis (LT) - Alytus (LT)	LT	Litgrid AB, PSE S.A.	59	379
BEMIP Electricity	4.bb		NEW candidate	LitPol Link Stage 2	Alytus converter station (2nd)	LT	Litgrid AB	123	1038
BEMIP Electricity	4.cc		NEW candidate	BalticCorridor	Riga CHP2 (LV) - Salaspils (LV)	LV	Augstsprieguma tikls	163	1062
BEMIP Electricity	4.dd		NEW candidate	BalticCorridor (also contributing to 170 Baltics synchro with CE)	Tartu (EE) - Valmiera (LV), Balti (EE) - Tartu (EE)	EE/LV	Elering and Augstsprieguma tikls	163	1010, 1012
BEMIP Electricity			NEW candidate	BalticCorridor (also contributing to 170 Baltics synchro with CE)	Tsirgulina (EE) - Valmiera (LV), Eesti (EE) - Tsirguliina (EE)	EE/LV	Elering and Augstsprieguma tikls	163	1011, 1013

⁵² Agency’s note: To allow easy reconciliation with the NDP, the project description is proposed to be replaced with the following: “Tolstrup Gaarde (DK)- Bentwisch (DE)”

BEMIP Electricity	4.ee		NEW candidate	Baltics synchro with CE	Visaginas (LT) - Kruonis (LT)	LT	Litgrid AB	170	380
BEMIP Electricity			NEW candidate	Baltics synchro with CE	Substation in Lithuania - State border	LT	Litgrid AB	170	1034
BEMIP Electricity			NEW candidate	Generic project on various aspects of the integration of the Baltic States' electricity network into the continental European network, including their synchronous operation		LT, LV, EE		generic2	

Annex II — The checklist for the preparation of NRAs assessment

In order to promote a consistent approach in the NRA assessment of electricity candidate PCIs, an assessment by NRAs was planned and implemented in the framework of the Agency, based on checklists.

For the purpose of the preliminary identification of the concerned NRAs, and NRAs' preliminary objections to the inclusion of a candidate project to the PCI list, an initial checklist was prepared and circulated by the Agency on 15 May, 2015. The results of this checklist facilitated the timely preparation of NRAs cooperation in assessing the projects, and the better planning of the upcoming Regional Group activities.

Following the preliminary checklist, a second checklist was prepared and circulated on 1 June, 2015. With this checklist the NRAs provided their assessment and views on the following issues:

- Criteria set out in *article 4.1.c of Reg. (EU) 347/2013* (cross border relevance);
- Contribution of the projects to the specific criteria set out in *art. 4.2.a of Reg. (EU) 347/2013* (market integration, sustainability, security of supply);
- Identification of inconsistencies regarding the provided cost data (CAPEX, OPEX);
- Identification of inconsistencies regarding the available benefits (SEW, SOS, losses);
- NRAs view on projects' commissioning dates;
- NRAs view on Regulation additional criteria (art. 4.4): urgency, territorial cohesion and complementarity.

The checklist templates were prepared bearing in mind the following general and technical principles:

- Apply similar approach for electricity and gas, with some differences in recognition of the specific features of these two energy sectors, in particular the different stages of development of TYNDPs and of cost-benefit analyses;
- Make the checklists straightforward and short, so to minimise the time required to fill them out.

The structure of the checklists included the following five parts:

- Respondent(s) contact information;
- Project information;
- Opinion on the compliance with the Regulation 347/2013 selection criteria;
- Opinion on project commissioning date, urgency and other criteria;
- Overall assessment.



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