

# Identification of regional gas system needs

## PCI 2018-2019 exercise

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Draft for Regional Groups discussion

### Why the needs exercise

A well-interconnected and integrated European grid benefits citizens and local communities by ensuring that our energy crosses borders and it is delivered where it is most needed.

In its motion for a resolution B8-0136/2018 on the Union list of projects of common interest (2017/2990(DEA)), the European Parliament called for a “process of identifying and selecting Projects of Common Interest” that is “as transparent as possible, based on independent data”. This call was already made by the Court of Auditors in its 2015 report, on improving the security of energy supply by developing the internal energy market (ECA Special Report 2015 No.16), which concludes that “a comprehensive assessment of EU- level infrastructure needs is necessary to inform the decisions about development of the internal energy market and security of energy supply and other EU policy commitments for which the energy sector plays an important role, especially those relating to climate action.” This view has also been expressed by different stakeholders involved in the 1<sup>st</sup> and the 2<sup>nd</sup> PCI process.

PCIs are proving to be a strong tool for building well interconnected energy networks. The challenge is to ensure that only the projects which are essential for the European Union will be given PCI status.

Building on previous discussions and recommendation by a wide variety of concerned actors, the Commission proposes a further developed needs assessment exercise as a first step in the 2018-2019 PCI process. This step, which involves all relevant parties (governments, regulatory authorities, transmission system operators, project developers, stakeholders) is instrumental in identifying the pressing system needs that can be addressed through infrastructure.

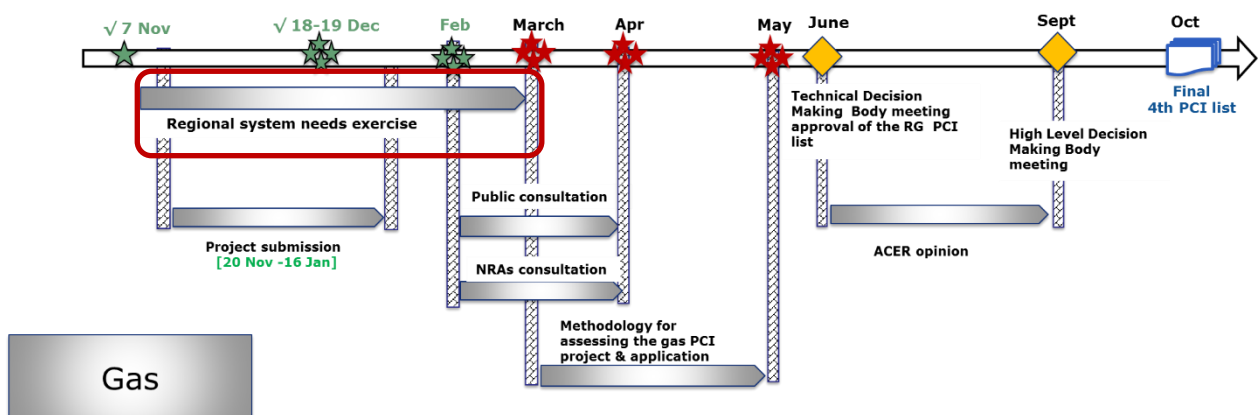


Figure 1. Gas PCI process 2018-2019

## 0. Introduction

This document concerns all four gas priority corridors [North-South gas interconnections in Western Europe ('NSI West Gas'), North-South gas interconnections in Central Eastern and South Eastern Europe ('NSI East Gas'), Southern Gas Corridor ('SGC') and Baltic Energy Market Interconnection Plan in gas ('BEMIP Gas')].

This document is to illustrate the first step in the selection of the priority projects having the objectives to “support the completion of the Union internal energy market while encouraging the rational production, transportation, distribution and use of energy resources, to reduce the isolation of [...]regions, to secure and diversify the Union’s energy supplies [...], including through cooperation with third countries, and to contribute to sustainable development and protection of the environment” [as stated in Recital (5) of Regulation (EU) 347/2013].

This methodology was prepared and discussed within the frame of the Cooperation Platform, which consists of representatives of the European Commission (DG Energy), the Agency for the Cooperation of the Energy Regulators (ACER) and the European Network of Transmission System Operators for Gas (ENTSOG). The Platform is based on the informal interaction between the three bodies and was created to provide technical support to the work of the Regional Groups.

The main source of data for the needs exercise is the ENTSOG TYNDP 2018 data<sup>1</sup>. This data is summarised in in the ENTSOG System assessment report.

This draft document describes the methodology proposed to be used by the Regional Groups, in order to identify the relevant energy system needs, for each priority corridor, for the PCI 2018-2019 process.

Prior to its use for the PCI identification process, this methodology requires validation by the Regional Groups. The results will be discussed and further validated by the Regional Groups.

## 1. Principles

Within the PCI needs exercise, the following main principles are to be followed:

- The PCI needs identification is to reflect the objectives of Regulation 347/2013, along the pillars of the EU energy policy
- The Regional Groups are to use the same methodology for the needs identification;
- The thresholds used to frame the needs are to be by default (as long as no strong reasoning is presented) identical along all the Regional Groups
- The timeframe to be considered for the PCI needs analysis is by default 2030 in line with the EU 2030 targets and consistent with the electricity PCI exercise;
- The infrastructure level used for this exercise is to be the “low infrastructure level”

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<sup>1</sup> [ENTSOG System assessment report 2018](#) and [ENTSOG TYNDP gas 2018](#)

## 2. Regional needs identification methodology

A need in the framework of the PCI process means a problem/issue related to market integration, security of supply, competition or sustainability, which proves to have as sole solution, the further development of infrastructure.

A need can be, in the first instance, made visible through a number of indicators on top of which relevant thresholds are applied. All the indicators considered relevant for this exercise are explained in this methodology.

The thresholds [values], which are to be used for these indicators, are to be later set, through the Regional Group discussions. These thresholds play a double role: 1) it helps identifying the countries in which a need is manifested and 2) represents the target value against which the candidate projects are measured [meaning to what extent a project helps mitigating a need]. The point 2) pertains to the PCI assessment methodology, which is to be developed after this needs identification exercise will be concluded.

For a need to become of regional relevance it must:

- be corroborated with the information coming from the regional groups' members and
- manifest itself in a reasonable/relevant number of Member States in the region. The number of countries for which the need should manifest itself in order to be relevant for the region may depend on the specificities of the barrier and are to be agreed in the Regional Groups meetings.

### Needs identification indicators

The following indicators, explained below, are recommended to be looked at in order to identify the PCI regional needs:

A. The **curtailed demand [CD]** is the demand that cannot be satisfied in a given area due to:

- climatic stress conditions meaning extreme temperatures with lower probability of occurrence than normal conditions (e.g. occurring with a statistical probability of once in 20 years, 1/20);
- supply stress conditions, in case of supply stress due to specific route disruptions (Ukraine transit, Belarus transit, Baltic States and Finland imports, Algeria route).

The CD indicator is calculated directly in the TYNDP for each of the EU countries. To identify the regional need based on the CD indicator, the Regional Groups need to:

- Set which disruption route is relevant for the region (e.g. Ukraine transit, Belarus transit, Baltic States and Finland imports, Algeria route)
- Set a [%] threshold of curtailed demand [CD] above which the region has security of supply problems.

B. The **Single Largest Infrastructure Disruption** measures the [%] of demand in a specific country that risks being curtailed in case of the disruption of a country single largest infrastructure. It is a N-1 modelled but not purely capacity based. In this way it is possible to take into account the impact of such disruption also on other countries.

The SLID is calculated directly in the TYNDP for each of the European Union countries. To identify the regional need based on the SLID indicator, the Regional Groups need to set a [%] threshold of curtailed demand [CD] above which the region has security of supply problems.

*As example, 10% indicates that 10% of demand risks to be curtailed. A threshold of 0 % would mean no demand curtailment.*

- C. **Supply source dependence [SSD]** identifies countries showing a strong dependence to a specific supply source [RU, NO and LNG] and allows identifying cases where this dependence is related to an infrastructure bottleneck (physical dependence). In other words, the SSD represents the minimum share of a given source in the supply mix being the source share, which cannot be substituted by other supply sources. SSD is a year around value calculated under the cooperative approach within the relevant regions as defined in the Security of Gas Supply Regulation (EU) 2017/1938. The cooperative approach assumption means that if no physical bottlenecks the countries within the same region will share the same dependence.

The SSD is calculated directly in the TYNDP for each of the European countries. To identify the regional need based on the SSD indicator, the Regional Groups will need to set a [%] threshold for SSD below which the need becomes relevant for the region.

*As example a SSD value of 25% means that at least 25% of a country demand needs to be satisfied by a certain source (it is the irreducible share of a source that a country must rely on to satisfy its demand). The lower the percentage the higher the diversification.*

- D. **Supply source access [SSA]:** The Supply Source Access indicator (SSA) measures the number of supply sources an area can access. The ability of an area to access a given source is measured through a supply source diversification metric. SSA provides the aggregate view across all supply sources. This supply source diversification ability is calculated from a market perspective, as the ability of each area to benefit from a decrease in the price of the considered supply source (such ability does not always mean that the area has a physical access to the source). It is calculated for each area under a whole year.

The SSA is calculated directly in the TYNDP for each European country. To identify the regional need based on the SSA indicator, the Regional Groups will need to:

- Set a [%] minimum threshold above which a country can be considered having access to a source and
- Set a [number] minimum threshold (in terms of number of supply sources) to which a country needs to have access to.

*As example, a threshold of 25% means that each sources covering at least 25% of a country demand represents one access source. The higher the threshold the more difficult is to reach it. On the opposite, a lower threshold will show that all countries have access to any supply. Summing up all the sources related to a country will result in the number of sources a country has access to. If the chosen threshold for the number of sources is e.g. three, this means that all countries with less access sources have a competition need.*

- E. **Increase market diversification [MaD]:** This need is quantified through the LNG and Interconnection Capacity Diversification indicator [LICD]. It measures the diversification of paths that a gas can flow through and how balanced the different entries are. This is necessary to ensure competition and arbitrage between countries. The LICD is a Herfindahl-Hirschman indicator and ranges from zero to 10.000. The lower the value, the better the diversification is. Where a market would have two borders the LICD cannot be lower than 5000. For a market having three borders the LICD cannot be lower than 3333.

The SSD is calculated directly in the TYNDP for each European country. To identify the regional need based on the LICD indicator, the Regional Groups will need to set a [number] threshold for LICD above which the need becomes relevant for the region.

*As example, a threshold of 5000 means that all countries with a value higher than 5000 have an increased market diversification need.*

- F. **Wholesale market price difference:** this need can be identified e.g. by looking at the available [2017-2018] average yearly gas wholesale prices in each of the EU member states. The threshold in this case could be X [Euro] increase compared to the lowest average annual wholesale price in EU member states or upper X [%] of the wholesale price.
- G. **Other elements**, which are self-evident and which may signal infrastructure gap are:
  - a. Physical isolation
  - b. Access to a new [currently not accessed by European Union members] source

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### 3. List of needs per Regional group

[ to be completed at the end of the exercise].