

**OPINION No 14/2019**  
**OF THE AGENCY FOR THE COOPERATION OF**  
**ENERGY REGULATORS**

**of 27 June 2019**

**ON THE ENTSOG DRAFT TEN-YEAR NETWORK DEVELOPMENT**  
**PLAN 2018<sup>1</sup>**

THE AGENCY FOR THE COOPERATION OF ENERGY REGULATORS,

Having regard to 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 Regulators<sup>2</sup> (hereinafter referred to as “the Agency”), and, in particular, Article 6(3)(b), 6(4) and 17(3) thereof,

Having regard to Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005<sup>3</sup>, and, in particular, Articles 8(3)(b) and (10) and 9(2) thereof,

Having regard to the favourable opinion of the Board of Regulators of 12 June 2019, delivered pursuant to Article 15(1) of Regulation (EC) No 713/2009,

Whereas:

**1. INTRODUCTION**

- (1) Pursuant to Article 8(3)(b) of Regulation (EC) No 715/2009, the European Network of Transmission System Operators for Gas (hereinafter referred to as “ENTSOG”) shall adopt a non-binding Community-wide ten-year network development plan (hereinafter referred to as the “TYNDP”), including a European supply adequacy outlook, every two years.

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<sup>1</sup> The designation of the plan as “ten-year network development plan 2018” is as provided by ENTSOG. The draft plan was submitted to the Agency for its Opinion on 9 May 2019.

<sup>2</sup> OJ L 211, 14.8.2009, p. 1.

<sup>3</sup> OJ L 211, 14.8.2009, p. 36.

- (2) Pursuant to Article 9(2) of Regulation (EC) No 715/2009, ENTSOG shall submit the draft TYNDP, including the information regarding the consultation process, to the Agency for its Opinion.
- (3) Pursuant to Article 6(3)(b) of Regulation (EC) No 713/2009, the Agency shall provide an opinion to ENTSOG, in accordance with the first subparagraph of Article 9(2) of Regulation (EC) No 715/2009, on the draft TYNDP, taking into account the objectives of non-discrimination, effective competition and the efficient and secure functioning of the internal markets in electricity and natural gas.
- (4) On 31 December 2018, ENTSOG published part of the draft TYNDP 2018<sup>4</sup>.
- (5) From 18 February 2019 until 20 March 2019, ENTSOG conducted a public consultation on the published part of the draft TYNDP 2018.
- (6) On 8 April 2019, ENTSOG published the project-specific (PS) Cost-Benefit Analysis (“CBA”) results (fiches) of TYNDP projects having applied for the 4<sup>th</sup> PCI selection process.
- (7) On 9 May 2019, ENTSOG submitted the draft TYNDP 2018 to the Agency for its Opinion, including the information regarding the consultation process.

## **2. SUMMARY OF THE DOCUMENT**

### **2.1. Structure of the draft TYNDP 2018**

- (8) The Agency notes that the draft TYNDP 2018 contains several volumes and Annexes<sup>5</sup>. It includes an executive summary, a system assessment report, an infrastructure report, maps for transmission lines and compressor stations, of liquefied natural gas (LNG) terminals, and of underground gas storage (UGS) facilities, and Annexes<sup>6</sup>.

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<sup>4</sup> Executive Summary, System Assessment report, Infrastructure Report, and Annexes A to D.

<sup>5</sup> Available at: <https://www.entsog.eu/tyndp#entsog-ten-year-network-development-plan-2018>

<sup>6</sup> A: Table of projects, glossary of terms and projects sheets; B: TYNDP 2018 map (all projects); C: Existing and projected cross-border transmission, UGS and LNG capacities; D: Methodology, covering the assessment framework, input data items, and indicators; Single Largest Infrastructure (SLI) values; tariff values; project-specific CBA Assessments for PCI candidates; and Project specific CBA Groups as of 19 March 2019.

## 2.2. Overview of TYNDP 2018 projects

- (9) The TYNDP 2018 contains a total of 207 investment items<sup>7</sup>, of which 168 (81%) are transmission lines (including compressor stations), 27 (13%) are LNG terminals and 12 (6%) are UGS facilities. In terms of maturity, 22% of the proposed TYNDP 2018 investment items are in post-FID status<sup>8</sup>, 35% are in “advanced” status<sup>9</sup> and 43% are in “less-advanced” status<sup>10</sup>.
- (10) Starting from this edition of the TYNDP, ENTSOG groups the investment items into sets of “functional projects” by aggregating those investments which need to be jointly implemented for their benefits to materialise<sup>11</sup>. The overall estimated capital expenditure (CAPEX) for all projects amounts to €77 billion, of which 89% relates to transmission lines, 8% to LNG terminals and 3% to UGS facilities.
- (11) Table 1 present the main statistics on investment items in the TYNDP 2018.

Table 1: Summary of draft TYNDP 2018 investments items, projects and available CAPEX

	Transmission lines	LNG	UGS	Total
<u>TOTAL investment items</u> , of which	168	27	12	207
<i>FID</i>	37	6	3	46
<i>Advanced</i>	57	9	6	72
<i>Less Advanced</i>	74	12	3	89
<u>TOTAL functional project sets</u> (sets may include several items)	120	27	12	159

<sup>7</sup> See pp. 10-18 of the TYNDP infrastructure report.

<sup>8</sup> The FID status of a project corresponds to a project for which the final investment decision has been taken before the closure of TYNDP project collection period.

<sup>9</sup> Advanced status is applied to all non-FID projects that have: — commissioning year expected at the latest by 31 December of the year of the TYNDP project data collection + 6 (e. g. 31 December 2024 in case of TYNDP 2018, for which projects are collected in 2018)— and whose permitting phase has started ahead of the TYNDP project data collection; or front-end engineering and design ( FEED) has started; or the project has been selected for receiving CEF grants for FEED ahead of the TYNDP project data collection.

<sup>10</sup> All projects which do not meet the FID or advanced criteria are considered as being in less advanced status.

<sup>11</sup> For example, in case of an interconnector connecting two (or more) countries, two different promoters are usually involved in realising the two sections of the same interconnector.

TOTAL project CAPEX (in € million)	68.915	6.056	2.213	77.214
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### 2.3. ENTSOG's main conclusions

- (12) ENTSOG states that<sup>12</sup> *“The document identifies if and where investment gaps remain, and how projects submitted to TYNDP mitigate these gaps”* and concludes that *“[...] the current gas infrastructure is close to completing the internal energy market. The European gas system also shows high resilience and is supporting Europe in achieving its energy and climate ambitions. However, some specific areas still show investment needs to improve interconnections and connection to new supplies. The projects addressing these needs are included in the TYNDP 2018, most of which are already at an advanced stage of development or are part of the 3rd PCI list, and are planned to be commissioned in the coming years.”*
- (13) ENTSOG underlines the role of the TYNDP and of an integrated electricity and gas infrastructure networks to contribute to a cost-efficient decarbonisation of the energy sector, by stating<sup>13</sup> *“At ENTSOG we believe that in the future, the Hybrid Energy Infrastructure, building on both electricity and gas systems as cross-border energy carriers will be able to deliver more efficient, resilient, sustainable as well as faster and cheaper decarbonisation of the European energy sector. The joint effort of ENTSOG and stakeholders contributing to this TYNDP, shows the willingness of the European energy players to work closely together to meet the EU climate goals.”*
- (14) ENTSOG stresses the key role of the TYNDP 2018 in the on-going 4<sup>th</sup> PCI selection process led by the European Commission, since projects applying for PCI status must be included in the most recent TYNDP.

### 3. ASSESSMENT OF THE DRAFT ENTSOG TYNDP 2018

- (15) The Agency assesses the draft TYNDP 2018 mainly on the basis of Article 8(10) of Regulation (EC) No 715/2009, as amended by Article 22 of Regulation (EU) No 347/2013<sup>14</sup>, the objectives set out in Article 6(3)(b) of Regulation (EC) No 713/2009

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<sup>12</sup> ENTSOG's TYNDP 2018 Press Release PR0178-18, Brussels, 31 December 2018.

<sup>13</sup> See p.4, Foreword of the Executive Summary.

<sup>14</sup> OJ L 115, 25.4.2013, p. 39.

and Article 9(2) of Regulation (EC) No 715/2009, and the degree of implementation of the recommendations of the Agency in its Opinion No 06/2017<sup>15</sup> on the TYNDP 2017. In the present Opinion, the Agency also provides some considerations regarding the 2017 edition of the Gas Regional Investment Plans (GRIPs).

- (16) For aspects related to TYNDP scenarios, including the methodology for demand and supply assumptions and the treatment of uncertainty, the Agency refers to its Opinion No 10/2018<sup>16</sup> on the ENTSO-E and ENTSOG draft TYNDP 2018 Scenario Report. Aspects related to the scenarios used in the TYNDP 2018, but not present in the ENTSO-E and ENTSOG Scenario Report, such as the supply price curves and configurations used by ENTSOG for modelling, are covered in this Opinion.

### **3.1. Main improvements noted**

- (17) The Agency acknowledges that producing the TYNDP is a complex, time-consuming and resource intensive process, which needs to be carried out within a relatively short time (on a two-year cycle). ENTSOG endeavoured to implement improvements simultaneously in various areas for the purpose of elaborating the TYNDP 2018. The Agency positively notes the following improvements in comparison to the TYNDP 2017:
- a. The development, in consultation with stakeholders, and the publication and application of a Practical Implementation Document (“PID”), setting technical and administrative criteria for projects applying for inclusion in the TYNDP 2018.
  - b. The common ENTSO-E and ENTSOG process for the development of the scenarios for the TYNDP 2018, and the preparation of a stand-alone “scenario report”.
  - c. The new structure of the TYNDP, which now consists of several volumes rather than a single one, and in particular the release of a stand-alone “system assessment report” volume, which assesses infrastructure needs and investment gaps.

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<sup>15</sup> See at: [https://www.acer.europa.eu/Official\\_documents/Acts\\_of\\_the\\_Agency/Opinions/Opinions/ACER%20Opinion%2006-2017.pdf](https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2006-2017.pdf)

<sup>16</sup> See at: [https://www.acer.europa.eu/Official\\_documents/Acts\\_of\\_the\\_Agency/Opinions/Opinions/ACER%20Opinion%2010-2018%20on%20the%20ENTSO-E%20and%20ENTSOG%20draft%20TYNDP%202018%20Scenario%20Report.pdf](https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2010-2018%20on%20the%20ENTSO-E%20and%20ENTSOG%20draft%20TYNDP%202018%20Scenario%20Report.pdf)

- d. The provision of a window of opportunity for NRAs to check the input data of the submitted TYNDP candidate projects. The Agency notes that NRAs' checks of project data resulted in some cases in improvements in such data in terms of quality, accuracy and consistency, by using information in National Development Plans ("NDPs"). The Agency recommends ENTSOG to continue providing such data review opportunities to NRAs in the future.
- e. The increased level of transparency on the consistency between the NDPs and the TYNDP.
- f. The increased level of project cost transparency. Capital expenditure (CAPEX) data is available for 81% of the TYNDP projects, partly through data provided by promoters (61%) and partly estimated by ENTSOG (20%). Still, there are no CAPEX estimates for nearly 20% of the TYNDP projects.
- g. The use of an updated CBA methodology (CBA 2.0), which allows for increased transparency of the PS CBA results as part of the TYNDP process, reduces and simplifies some of the non-monetised indicators, and provides guidelines for project grouping. However, the Agency notes that this improved CBA 2.0 methodology still does not meet all the expectations of the Agency, in particular regarding the full monetisation of the expected benefits which the projects would bring and the unequivocal demonstration that the benefits of the projects exceed their cost.
- h. The improvements of the model and the modelling assumptions used for TYNDP and CBA assessments, by including a new approach to supply assumptions and price methodology and the use of infrastructure tariffs and long-term capacity bookings in the assessments.
- i. The improvement of ENTSOG's modelling tool topology, which now makes a distinction between the H- and L-gas markets and networks in the countries where L-gas is currently available (i.e. Belgium, France, the Netherlands and Germany).

### **3.2. Process and consultation with stakeholders**

#### *Process*

- (18) The Agency appreciates the stakeholder interactions which took place during the preparation of the TYNDP through a series of public workshops, webinars and stakeholder working sessions organised by ENTSOG between 24 November 2017 and

8 June 2018<sup>17</sup>, followed by presentations of the TYNDP analysis during the Regional Meetings for the 4<sup>th</sup> selection process of PCIs, and the organisation of a dedicated event on 21 March 2019 in order to present the TYNDP 2018 to all stakeholders.

- (19) The Agency recommends ENTSOG to include in the TYNDP documentation a link to information about a workshop which considered CBA 2.0 in the context of the TYNDP 2018<sup>18</sup>, in order to provide full transparency and easy access to all the relevant information about the TYNDP 2018 development process. With the same aim of ensuring full transparency and easy access to the documentation, the Agency recommends ENTSOG to re-instate for future TYNDP processes the listing of information about stakeholder sessions, a practice followed until the TYNDP 2017, which seems to have been discontinued in the TYNDP 2018 process.
- (20) The Agency regrets that the TYNDP 2018 process was delayed compared to its initial schedule, with some activities postponed by almost 6 months<sup>19</sup>. However, the Agency notes that these delays are not attributable only to ENTSOG. The delayed process created uncertainty and time constraints in activities which depend on the availability of the TYNDP 2018 modelling and analytical results. For example, the late availability of the results of the PS CBAs did not allow a public consultation to be carried out on all documents pertaining to the draft TYNDP 2018, and shortened the time available to the NRAs for the assessment of the projects listed in the draft TYNDP 2018 which are also candidates in the 4<sup>th</sup> PCI selection process. Therefore, the Agency calls on ENTSOG to look at the reasons for the encountered delays, assess the experience and derive from the lessons learnt a better planning of future TYNDP processes, including delay mitigation measures and make sure that all elements of the draft of future TYNDPs are released on time.

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<sup>17</sup> Workshop on TYNDP 2018 project collection: implementation guidelines and timeline, on 24 November 2017, in Brussels.

Workshop on TYNDP 2018 Supply Potentials and Renewable Gases, on 8 December 2017, in Brussels.  
TYNDP 2018 Projects Webinar providing an overview of the projects submitted to the TYNDP 2018 Projects, on 8 June 2018.

<sup>18</sup> TYNDP 2018 & 2<sup>nd</sup> CBA methodology working session, on 13 February 2018, in Brussels. Agenda available on ENTSOG's website at:

<https://www.entsog.eu/sites/default/files/2018-10/AGENDA%20TYNDP%202018%20Modelling%20Assumptions%20and%202nd%20CBA%20Methodology%20SJWS.pdf>

<sup>19</sup> For example, in comparison to the planning presented during February 2017 (see slide 9 from link below), the start of the Public Consultation has been postponed from September 2018 to February 2019.

<https://www.entsog.eu/sites/default/files/entsog-migration/publications/Events/2018/2.%20TYNDP%202018%20introduction.pdf>

- (21) The Agency recommends ENTSOG to plan future TYNDP processes in a way that would allow better alignment of the electricity and gas TYNDP processes, as well as better synchronisation of the TYNDP and the PCI selection processes:
- broader and longer stakeholder consultation, followed by the finalisation of the PID by the second quarter of the year preceding the adoption of the TYNDP (“year T-1”);
  - completion of the scenario report and the publication of the full project datasets by the third quarter of year T-1;
  - release of the needs assessment report early in year T (i.e. the year of the TYNDP), in order to allow project promoters and ENTSOG to indicate how each project contributes to serving at least one need;
  - release of the complete draft TYNDP sooner, preferably by the second quarter of year T instead of by the end of the year, in order to provide sufficient time for stakeholders to assess the draft and provide meaningful feedback.

Consultation with stakeholders

- (22) ENTSOG conducted a public consultation on the draft TYNDP 2018 from 18 February 2019 until 20 March 2019. During the consultation, only 7 responses were received, of which one from a European organisation<sup>20</sup>, 3 from project promoters, one from a TSO, one from an NRA and one from an independent consultant.
- (23) The Agency regrets that the level of stakeholder feedback for the TYNDP 2018 significantly decreased in comparison to the TYNDP 2017, when 21 responses were received, and is concerned by the lack of stakeholders’ engagement and the absence of feedback from network users and gas supply and production undertakings during the public consultation.
- (24) The Agency notes that the limited and unbalanced number of respondents by type of stakeholder<sup>21</sup> calls for prudence when interpreting the stakeholders’ feedback. The Agency calls on ENTSOG to reflect on the reasons for such limited stakeholder interest in participating in the public consultation, and to take measures to improve stakeholder engagement in future TYNDP consultations.
- (25) The Agency regrets that PS-CBAs were published after the closure of the public consultation on the draft TYNDP 2018. The Agency notes that the absence of costs

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<sup>20</sup> Gas Infrastructure Europe (GIE).

<sup>21</sup> More than half were provided by project promoters or TSOs.

and benefits information on projects deprives stakeholders of fundamental information required meaningfully to participate in the public consultation. The Agency reiterates its position that the absence of unequivocal evidence that the benefits of each project proposed for the TYNDP exceed the costs of the project casts a long shadow of doubt on the quality of the TYNDP, both from the viewpoint of the number of proposed projects and from the viewpoint of the merits of such projects. For the next TYNDPs, the Agency strongly recommends that ENTSOG ensure that the PS-CBA results become available to all stakeholders before the opening of the public consultation, and that the results clearly show whether the benefits of each proposed project exceed its cost.

- (26) The Agency takes note of ENTSOG's willingness to consider the present Opinion and the public consultation feedback and encourages ENTSOG to provide an analysis of the feedback received in the final TYNDP 2018 publication. The Agency encourages ENTSOG to highlight in the final TYNDP all instances where the Agency's Opinion has led to an adjustment of the draft TYNDP 2018, as well as all instances where such adjustments are not made, along with the reasons for not making the recommended adjustments.
- (27) The Agency notes that the online public consultation included fewer and more focused questions than previous TYNDP consultations<sup>22</sup>. The Agency notes that stakeholders, mostly project promoters and TSOs, commented as follows:
- a. As regards the most valuable TYNDP element, stakeholders pointed to the infrastructure report, followed by the report on identification of the infrastructure needs and the assessment of projects. Only one respondent noted the relevance of the modelling description, the long-term evolution of gas quality, and the joint scenarios.
  - b. Most stakeholders found the TYNDP 2018 documentation easy to navigate and the information easy to understand.

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<sup>22</sup> 23 for the 2018 TYNDP 2018 vs. the 61 questions for the TYNDP 2017.

- c. As regards the new elements of the TYNDP 2018, stakeholders appreciated the new supply assumptions, the new market features used for the modelling, and the presentation of projects grouped by functionality criteria.
  - d. Most stakeholders welcomed, among others, the publication of the PS-CBA grouping, the consistency between the supply disruption cases considered in the TYNDP and the Security of Supply Regulation<sup>23</sup>, the system assessment report for the identification of infrastructure needs, and the description of the modelling tool and modelling methodology.
  - e. Regarding elements where improvement can be made, some stakeholders provided their individual suggestions<sup>24</sup>.
- (28) Overall, the Agency considers that the consultation resulted in limited feedback. The consultation did not sufficiently target the collection of stakeholder input on certain important aspects, such as a more comprehensive assessment of infrastructure needs, or how the TYNDP process outputs, including the results of PS-CBA, serve the purpose of PCI selection.

### **3.3. Project data collection process**

- (29) The Agency notes that ENTSOG strived to ensure that any (updated) projects already present in the previous TYNDP would use the same identification code, in order to enable the monitoring of the progress of projects along the different TYNDP editions. The Agency notes that only two projects in the draft TYNDP 2018, which were already part of TYNDP 2017, got a new TYNDP code designation. The Agency notes that the TYNDP 2018<sup>25</sup> contains no explanation of the reasons for the code change for these projects. The Agency reiterates its view that the projects' identity and scope should be as consistent as possible, also taking into account possible changes in the various features of the projects and their promoters, in order to ensure that the projects

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<sup>23</sup> Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010.

<sup>24</sup> Namely, ENTSOG should put more focus on actual gas prices in the countries within the TYNDP geographical perimeter and gas supply contracts. The involvement of the Energy Community could be enhanced. The reasons for not resubmitting some TYNDP projects should be further investigated. There is also need for a systematic approach to the inclusion of incremental capacity projects, in line with the CAM Network Code.

<sup>25</sup> In particular, see section 5.3.2 of the infrastructure report.

are properly identified, assessed, administered and efficiently managed without duplication of elements and overlaps.

### 3.3.1. Guidelines for inclusion of projects in the TYNDP 2018

- (30) In its Opinion No 06/2017 on the TYNDP 2017, the Agency recommended ENTSGO to propose adequate eligibility guidelines in order to filter out unrealistic projects from future TYNDPs. The Agency welcomes that ENTSGO developed, in consultation with the European Commission, the Agency and stakeholders<sup>26</sup>, specific administrative and technical criteria for the inclusion of projects in the TYNDP, as provided in the *Practical Implementation Document (PID) for developing the 10-year network development plan 2018*<sup>27</sup>.
- (31) The Agency notes that the PID is generally in line with the European Commission's recommendation on "*Guidelines on equal treatment and transparency criteria to be applied by ENTSO-E and ENTSGO when developing their TYNDPs*", as set out in Annex III.2 (5) of Regulation (EU) No 347/2013, which was published in July 2018<sup>28</sup>.
- (32) The Agency positively notes the general cross-sectorial alignment of the ENTSGO and ENTSO-E<sup>29</sup> draft PIDs in terms of structure, administrative and technical criteria, and data handling and supporting documentation guidelines.
- (33) The Agency takes note that all investment items included in the draft TYNDP 2018 fulfilled the criteria set out in the PID and therefore were considered in the TYNDP assessments<sup>30</sup>. However, it remains unclear how many projects out of those which initially applied for inclusion in the TYNDP eventually did not meet the PID criteria,

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<sup>26</sup> The ENTSGO PID was consulted in a dedicated workshop held on 24 November 2017.

<sup>27</sup> Available at:

[https://www.entsog.eu/sites/default/files/entsog-migration/publications/TYNDP/2018/TYNDP062\\_180119\\_Practical\\_Implementation\\_Document\\_FINAL.pdf](https://www.entsog.eu/sites/default/files/entsog-migration/publications/TYNDP/2018/TYNDP062_180119_Practical_Implementation_Document_FINAL.pdf)

<sup>28</sup> Commission Recommendation of 24 July 2018 on Guidelines on equal treatment and transparency criteria to be applied by ENTSO-E and ENTSGO when developing their TYNDPs as set out in Annex III 2(5) of Regulation (EU) No 347/2013 of the European Parliament and of the Council. [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0727\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0727(01)&from=EN)

<sup>29</sup> [https://www.entsoe.eu/Documents/TYNDP%20documents/Third%20Party%20Projects/171002\\_ENTSGO-E%20practical%20implementation%20of%20the%20guidelines%20for%20inclusion%20of%20proj%20in%20TYNDP%202018\\_FINAL.pdf?Web=1](https://www.entsoe.eu/Documents/TYNDP%20documents/Third%20Party%20Projects/171002_ENTSGO-E%20practical%20implementation%20of%20the%20guidelines%20for%20inclusion%20of%20proj%20in%20TYNDP%202018_FINAL.pdf?Web=1)

<sup>30</sup> Infrastructure report, p. 4.

and to what extent the PID has been effective in filtering out unrealistic projects from the draft TYNDP 2018. The Agency expects ENTSOG to provide such information in the final version of the TYNDP 2018.

- (34) In February 2019, ENTSOG already opened the stakeholder input process for the TYNDP 2020<sup>31</sup>. The Agency notes that ENTSOG allowed only one week for comments and considers that ENTSOG should have allowed more time to stakeholders for providing input on this matter.
- (35) On 30 April 2019, ENTSOG published the Final PID 2020<sup>32</sup>, allowing the submission of what ENTSOG calls “energy transition projects”<sup>33</sup>. The Agency acknowledges the potential importance of renewable gas projects for the decarbonisation of the gas sector and its contribution to the climate objectives of the European Union. For this reason, such projects should be carefully considered when defining scenarios supporting the development of the TYNDP, including by assessing the volumes, timing and geography of available decarbonised gases, for each type of such gases. This information should be made publicly available in the TYNDP.
- (36) The Agency notes that, in the light of recital (18) of Regulation (EC) No 715/2009, the TYNDP 2020 should focus on “*viable gas transmission networks and necessary regional interconnections [...]*”, including mainly the infrastructure categories defined in Annex II (2) of Regulation (EU) No 347/2013<sup>34</sup>. The Agency is of the view that two main types of renewable gas projects can be distinguished. On the one hand, projects producing bio-methane, synthetic methane and hydrogen, which are

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<sup>31</sup> [https://www.entsog.eu/sites/default/files/2019-02/TYNDP\\_2020\\_PID\\_webinar\\_FINAL.pdf](https://www.entsog.eu/sites/default/files/2019-02/TYNDP_2020_PID_webinar_FINAL.pdf).

<sup>32</sup> See p. 12 and 13 at:

[https://entsog.eu/sites/default/files/2019-04/TYNDP%202020\\_Practical\\_Implementation\\_Document\\_20190430.pdf?utm\\_medium=email&utm\\_campaign=ENTSOG%20publishes%20Practical%20Implementation%20Document%20for%20project%20inclusion%20in%20the%20Ten-Year%20Network%20Development%20Plan%202020&utm\\_content=ENTSOG%20publishes%20Practical%20Implementation%20Document%20for%20project%20inclusion%20in%20the%20Ten-Year%20Network%20Development%20Plan%202020+CID\\_788418355656d8e3120b6bc0bb297c1e&utm\\_source=CampaignMonitor&utm\\_term=here](https://entsog.eu/sites/default/files/2019-04/TYNDP%202020_Practical_Implementation_Document_20190430.pdf?utm_medium=email&utm_campaign=ENTSOG%20publishes%20Practical%20Implementation%20Document%20for%20project%20inclusion%20in%20the%20Ten-Year%20Network%20Development%20Plan%202020&utm_content=ENTSOG%20publishes%20Practical%20Implementation%20Document%20for%20project%20inclusion%20in%20the%20Ten-Year%20Network%20Development%20Plan%202020+CID_788418355656d8e3120b6bc0bb297c1e&utm_source=CampaignMonitor&utm_term=here)

<sup>33</sup> Covering the following types of projects: power-to-gas, bio-methane production plants, hydrogen production following steam methane reforming, reverse flow projects between DSO and TSO in order to facilitate flows of renewable/decarbonised gases, upgrading of gas transmission grid to receive blended or pure hydrogen, carbon capture and storage.

<sup>34</sup> “(a) transmission pipelines for the transport of natural gas and bio gas that form part of a network which mainly contains high-pressure pipelines, excluding high-pressure pipelines used for upstream or local distribution of natural gas; (b) underground storage facilities connected to the above-mentioned high-pressure gas pipelines; (c) reception, storage and regasification or decompression facilities for liquefied natural gas (LNG) or compressed natural gas (CNG); (d) any equipment or installation essential for the system to operate safely, securely and efficiently or to enable bi-directional capacity, including compressor stations;”.

essentially on the gas supply side, as indigenous gas production projects; on the other hand, projects for reconfiguring, adapting and upgrading the transmission system in order to allow for the injection of renewable gases in the gas transmission networks and delivery from source to destination. All these aspects should be further analysed in the TYNDP 2020.

- (37) The Agency considers that the gas infrastructure categories defined in Annex II (2) of Regulation (EU) No 347/2013 should be revisited in the light of the new and ambitious climate and energy targets derived from the Paris Agreement explicitly to include renewable gas projects, for which legislative changes are desirable. To the extent that renewable gas projects are included, the way in which sustainability is assessed should also be reconsidered in the CBA methodology.

### **3.4. Criteria and methodology**

- (38) In this section, the Agency assesses the network model and modelling used for the TYNDP 2018, the application of the CBA 2.0 methodology, the utility of the TYNDP in terms of its ability to support other processes (in particular the PCI selection), the identification of infrastructure needs, the grouping of projects by maturity level and the clustering of projects for performing CBA, the consistency of project data in the NDP and the TYNDP, the progress observed in project implementation, and certain aspects related to the development and publication of the Gas Regional Investment Plans (“GRIPs”).

#### **3.4.1. TYNDP model and modelling**

##### *3.4.1.1. General Description*

- (39) The modelling used for the TYNDP 2018 is based on the nodal network model initially developed by ENTSOG in 2010. The model covers the geographical scope of the TYNDP, i.e. the European Union and non-EU countries in the European Economic Area. The granularity of the model is high-level, with each node representing an entire entry-exit zone, the nodes being connected by “arcs” representing the aggregated capacity between the nodes. The zones in most instances coincide with the territory of a Member State, except for those Member States where two or more balancing zones exist. Additional details are available in Annex D to the TYNDP 2018.
- (40) The primary objective of the modelling is to identify, via simulations, a feasible flow pattern under which gas supply and demand are balanced in every node, by using the available system capacities of the arcs (existing at present and expected to be added at future points of time). In simulations, the objective function seeks to achieve such balance at lowest delivered gas cost. The feasible modelled flow patterns (model simulation calculations outputs) therefore depend on assumptions about the prices of gas from different sources at the border of the European Union and, for indigenous production, within it. The prices are exogenous to the model. The outputs also depend on the level of infrastructure tariffs.

- (41) The Agency regrets that the model does not include a detailed network topology representing the gas network inside the balancing and entry-exit zones. The absence of such a topology in the nodal model may lead to outputs which diverge from those resulting from hydraulic modelling of the network behaviour. The Agency recommends ENTSOG to develop and apply a more detailed network model for future TYNDPs by taking into account the network topology within the zones.
- (42) The Agency notes that Annex D to the TYNDP 2018 provides a good overview of the network model used for TYNDP 2018, with a general description of input, output, assumptions, variables and constants. However, the Agency notes that the overview still does not contain the information (in terms of a formal description of the model) which would allow a replication of the model and the modelling runs by stakeholders. For this reason, the results of the modelling cannot be independently reproduced, assessed or verified by the NRAs, the Agency or stakeholders. The Agency recommends ENTSOG to improve the transparency of the model and the modelling by formally documenting and publishing the model, and by providing the Agency, NRAs and stakeholders with any other information needed to enable them independently to run the model.

*3.4.1.2. Reference grid for the purpose of identifying infrastructure needs*

- (43) The topology of the network used in the model considers both the existing and the planned infrastructure. The reference grid for the identification of infrastructure gaps is the so-called “low infrastructure level”, which is a network grid composed of the existing infrastructure and projects with a declared FID status.
- (44) The Agency finds reasonable that ENTSOG considered in the “reference grid” (for the purpose of identifying infrastructure needs) only the existing infrastructure and projects with declared FID status, and finds reasonable that the main assessment of projects is carried out within the reference grid, given the uncertain implementation of non-FID projects. However, it would be even more prudent if, for the purpose of identifying infrastructure needs, an assessment were also carried out considering only existing infrastructure and projects under construction, since not all projects declared to be in FID status may proceed to construction.

### 3.4.1.3. Market model and modelling assumptions

- (45) In its opinions on the TYNDP 2017<sup>35</sup> and the gas CBA methodology (CBA 2.0), the Agency urged ENTSOG to improve certain aspects of the market data used in the model and modelling assumptions. The Agency has assessed several aspects of the market data used in the model and modelling assumptions.

#### Tariffs

- (46) The Agency welcomes that ENTSOG's model considers, for the first time, tariffs (converted to EUR/MWh) charged for the use of existing infrastructure services<sup>36</sup>. The Agency notes that ENTSOG provides transparent explanations of the methodology and the assumptions underlying the calculations and the equivalent commodity tariff in the model runs (simulations). The Agency welcomes ENTSOG's fruitful cooperation with Gas Storage Europe (GSE) and Gas LNG Europe (GLE) for the purpose of developing ways for considering storage and LNG services tariffs, respectively. The Agency positively notes that the assumptions related to the load factor and the duration of capacity contracts are aligned with those used by the Agency in its 2017 Market Monitoring Report.
- (47) The Agency concurs with ENTSOG that the use of tariffs in the model and simulations contributes to a more market-oriented and realistic assessment of the infrastructure in the modelling. One important result is that, with this upgrade, the use of infrastructure in ENTSOG's model is driven by the *cheapest* available route preference rather than by the *shortest* available route preference (in terms of number of arcs connecting the nodes).
- (48) The Agency concurs with ENTSOG's assessment that the way in which the costs of new projects could be reflected in tariffs at different interconnection points is subject to significant uncertainties. Many of these uncertainties are driven by the choices of promoters or regulators which will be made at a later stage and may depend on the implementation of other future projects. The Agency is of the view that better understanding the uncertainties associated with various future gas handling system configurations adds value to the analyses leading to the development of the TYNDP

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<sup>35</sup> Agency's Opinion No 7/2017, p. 20.

<sup>36</sup> Annex D – Methodology to the TYNDP 2018, pp. 8-11. Infrastructure services include transmission, LNG and storage services.

plan, as such knowledge is informative for the decisions of promoters and other stakeholders and helps to avoid unnecessary risks.

- (49) The Agency finds ENTSOG's approach of using standardised values for the tariffs of additional transmission, LNG and storage projects pragmatic, consistent and conceptually transparent in view of the decision tree provided<sup>37</sup>. The Agency acknowledges the complexity of the interdependencies between capacity bookings and tariffs, especially regarding short-term bookings, which influence the setting of an "average" value for infrastructure tariffs. The Agency concurs with ENTSOG that such an approach provides a reference tariff value applied consistently across projects with clear rules. However, the Agency notes that the standardised values used for the modelling could differ considerably from the actual tariffs resulting from a project's implementation.
- (50) The Agency notes that the Tariffs Network Code (TAR NC)<sup>38</sup> is being implemented, and the deadline for final tariff calculation and publication is 31 May 2019. The complete implementation of the TAR NC may lead to changes and provide better understanding of how the costs of projects will eventually be reflected in tariffs.
- (51) The Agency suggests that ENTSOG collect feedback from promoters, regulatory authorities and stakeholders on the treatment of tariffs for existing and new infrastructure in its model, and to consider implementing improvements in view of the feedback received.

*Long-term gas supply contracts and strategic behaviour*

- (52) The Agency notes that long-term supply contracts are not considered in the TYNDP 2018<sup>39</sup>. ENTSOG argues that these contracts represent commercially sensitive information and are subject to multiple uncertainties, although - if available - they could be handled by ENTSOG's model.
- (53) The Agency concurs with ENTSOG on the uncertainty of future long-term contracts related to their expiration and renegotiation, in a context of decreasing demand for

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<sup>37</sup> Ibid, p. 11.

<sup>38</sup> Commission Regulation (EU) 2017/460 of 16 March 2017 establishing a network code on harmonised transmission tariff structures for gas.

<sup>39</sup> Ibid, p.12.

long-term capacity contracts and increasing demand for short-term capacity contracts. At the same time, the Agency recalls<sup>40</sup> its view that considering long-term supply contracts in ENTSOG's modelling would provide a more accurate representation of the gas system behaviour, by properly taking into view key constraints on capacity use and adequately assessing in the modelling the possible least-cost system configuration until the expiration of the contracts. The Agency notes that long-term contracts are already considered in other network and market models<sup>41</sup>, and that information on long-term supply contracts is either readily publicly available or accessible by subscription<sup>42</sup>. The Agency also notes that the consideration of long-term contracts in the modelling of the system, which is now based on a least-cost approach, would allow for comparisons to be made with and without the presence and the constraints of long-term contracts, and thus reveal the estimated benefit or cost of having long-term contracts in the first instance.

- (54) The Agency recommends ENTSOG to look at the strategic behaviour of market players as a possible long-term improvement of its modelling assumptions and features. The Agency is of the view that one possible way to include strategic behaviour in its gas transmission system modelling is to add a layer of physical constraints by entry point of gas to EU's system (limiting the flow per entry point based on assumptions about strategic behaviour of market players, e.g. re-directing flows from one entry point to another one), in addition to the already used exogenous price variations by entry point. Such constraints may include, for example, possible variations of gas flows by entry point and exempt transmission pipelines and the relevant interconnection points, and could be modelled based on historically observed and declared future flows.

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<sup>40</sup> See Agency's Opinion No 15 /2017 on the draft 2nd ENTSOG's CBA methodology.

<sup>41</sup> Cf. TIGER and REKK model (see presentation "Introduction of the EGMM, main concept, usage and assumptions", 26 July 2017, slides 12, 13 and 20:  
[http://rekk.hu/downloads/events/2\\_EGMM\\_and\\_ref\\_Kotek.pdf](http://rekk.hu/downloads/events/2_EGMM_and_ref_Kotek.pdf)).

<sup>42</sup> Cf. Long-Term Contracts in the Natural Gas Industry – Literature Survey and Data on 426 Contracts (1965-2014), DIW Berlin, 2015 [https://www.diw.de/sixcms/detail.php?id=diw\\_01.c.498213.de](https://www.diw.de/sixcms/detail.php?id=diw_01.c.498213.de)  
<http://www.cedigaz.org/products/gas-supply-contracts.aspx>

Gas supply curves

- (55) The Agency notes the significant change in the supply price assumptions for the TYNDP 2018 in comparison to the TYNDP 2017<sup>43</sup>. While the TYNDP 2017 considered LNG as one supply source and used the same gas price irrespective of the import point to Europe, the TYNDP 2018 uses a price scenario for each of the main LNG basins<sup>44</sup> based on netting-back the LNG price in Asia (using Japan as the market setting the highest price for LNG). Then, the reference price for pipeline gas<sup>45</sup> is based on the prices for gas sources competitive to a given gas source. This reference price configuration is complemented by an analysis of different supply price situations, where one specific source is considered more expensive or cheaper than the others.
- (56) The Agency appreciates ENTSOG's effort to improve the treatment of LNG supply as a diverse supply source and develop appropriate supply price curves, an approach which was presented to and acknowledged by stakeholders during a TYNDP working session held on 13 February 2018.
- (57) The Agency finds the new approach for building the supply curves understandable and logical, but does not find in the TYNDP 2018 documentation the ranges for gas prices used. Consequently, the Agency recommends ENTSOG to provide full clarity and transparency on this aspect in the final version of the TYNDP 2018.

Treatment of LNG

- (58) The Agency notes that with the exception of the LNG treatment when building the supply price curves<sup>46</sup>, the TYNDP 2018 considers all LNG sources as one global source on the basis of the assumption that LNG is a global market and prices are set worldwide, for the purpose of calculation of indicators such as the supply source dependence, access and diversification indicators. The Agency notes that such an assumption incorporates *eo ipso* the assumption that there is already a long-term price equilibrium between various gas market regions on a global scale, on top and beyond the occasional arbitrage opportunities between these regions which result in the

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<sup>43</sup> Annex D – Methodology to the TYNDP 2018, p. 12-13.

<sup>44</sup> One basin for each main LNG source: Australia, Peru, North-America, Sub-Sahara, Middle-East, Trinidad and Tobago.

<sup>45</sup> Norway, Algeria, Libya, Azerbaijan, Turkey, Russia for North West and for Eastern Europe.

<sup>46</sup> Annex D – Methodology to the TYNDP 2018, pp. 8-11.

deliveries of spot cargoes – if and when the ship voyage charter party allows for deviation as well. The assumption also means that, in ENTSOG’s view, long-term point-to-point LNG contracts are already largely irrelevant as the LNG spot market provides the key price and volume information.

- (59) The Agency notes that considering all LNG sources as one may not be fully supported by the experience of the LNG market practices so far, which demonstrates that spot trading in Asia is generally still limited to cargoes within Asia, with little or no movements to other markets, and that long-term contracts still take the bulk of the volume and are not very sensitive to spot LNG prices<sup>47</sup>. However, the Agency notes that spot trade in Europe is growing and that flexibility is on the rise in the Atlantic Basin LNG market.
- (60) The Agency notes that, irrespective of the degree to which a global LNG market exists, primary evidence of the existence of a competitive market is provided by the degree of market concentration and not the number of markets (one or many). For example, LNG supply in the Atlantic Basin is competitive as there are a great number of suppliers who have growing access to a great number of LNG liquefaction and re-gasification plants. At the same time, gas supply from the Russian Federation is highly concentrated, with the bulk of gas exports being monopolised by a single government-controlled supplier by virtue of law<sup>48</sup>. For these reasons, ENTSOG’s assumption that LNG is a “single source” of gas is unrealistic and should be reconsidered, in order properly to reflect the degree of diversity and competition present on LNG market or markets, on a global and regional scale.
- (61) The Agency recommends ENTSOG to continue improving the treatment of LNG sources in its modelling, by better differentiating various regional LNG markets and specific market features, and considering the constraints, including those which limit competition and arbitrage opportunities between the markets.

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<sup>47</sup> However, Japan’s anti-monopoly watchdog ruled that all new LNG contracts should not restrict resale of the fuel, marking a step towards liberalising the LNG market in Asia. See Reuters piece of news, 22 October 2018. <https://www.reuters.com/article/lng-japan-contracts/japan-proposes-lng-contract-clause-for-resale-of-cargoes-idUSL3N1X23V9>

<sup>48</sup> Федеральный закон от 18 июля 2006 г. N 117-ФЗ "Об экспорте газа" (Federal Law dated 18 July 2006, No 117-FZ “On the Export of Gas”), as amended.

3.4.2. Implementation of the CBA methodology

- (62) The Agency welcomes that the draft TYNDP 2018 attempts to use the updated CBA methodology 2.0<sup>49</sup>, which takes into account some aspects of previous Opinions of the Agency<sup>50</sup> and the European Commission. CBA 2.0 brings some improvements in terms of modelling assumptions, in particular by accounting for infrastructure services tariffs. Transparency is also improved with the provision of project costs and the publication of PS CBA results as part of the TYNDP draft.
- (63) The Agency notes positively that CBA project fiches contain instructions explaining how to read and interpret the information provided, with a clear indication of the entity (ENTSOG or project promoters) responsible for providing the information and performing the CBA assessments. The Agency welcomes that project costs and benefits, either qualitative, quantitative and monetised are present in the PS CBA results.
- (64) However, the Agency expresses concerns on the level of transparency and application of the CBA 2.0. The Agency finds that not all the Agency's Recommendations contained in the Agency's Opinion No 6/2017 on the draft CBA 2.0 have been adequately implemented. With regard to the benefit indicators, the Agency notes that the level of monetisation is less than recommended by the Agency, and that an excessive number of non-monetised and potentially overlapping indicators still persists.
- (65) In terms of implementation of the CBA, the Agency notes that:
- a. The monetisation of the "supply cost savings" (or "EU bill") may overestimate project benefits. The Agency notes that the supply maximisation case, where one specific source of gas is considered to be more expensive than the others by way of inserting an arbitrary price spread of 5 EUR/MWh to other sources of gas is a very specific case, boiling down to a variation of the reference supply configuration. The Agency finds that this price spread is not a realistic assumption, as such a spread is unlikely to persist during the entire 20-year

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<sup>49</sup> Published by ENTSOG on 23 October 2018, and approved by the European Commission on 1 December 2018.

<sup>50</sup> Agency's Opinion No 15/2017 on the draft 2<sup>nd</sup> CBA methodology.

horizon of the CBA analysis. The recently observed gas price spreads in the EU wholesale gas markets are well below 5 EUR/MWh.

- b. The “reduction in the risk of demand curtailment” according to the CBA 2.0 and its roadmap was open for considering a more refined approach in comparison to the one actually used by ENTSOG. The latter one is essentially a one-size-fits-all approach covering all EU Member States and assuming an identical value of 600 EUR/MWh for the cost of disruption of gas supply (CoDG) in all countries and at all times. The Agency considers that the methodologies contained in a recent Study commissioned by the Agency on the estimation of CoDG in Europe<sup>51</sup> could provide useful input to ENTSOG and promoters for improving the monetisation of the security of supply benefits when applying the CBA methodology. The Agency would expect ENTSOG to consider the Agency’s study for improving the monetisation of security of supply benefits in future TYNDPs. Additionally, the Agency recommends ENTSOG to analyse jointly with ENTSO-E scenarios where a gas disruption could lead to a disruption in electricity supply.

(66) In terms of transparency

- a. The Economic Performance Indicators of the project groups (benefit to cost ratio, economic net present value and economic rate of return) are not available. The Agency underlines that the economic performance indicators are relevant information pertaining to the CBA results, and calls on ENTSOG to include them in the PS-CBA results in the final publication of the TYNDP 2018.
- b. The PS-CBAs were provided only in pdf format, making data extraction extremely time-consuming to NRAs. The Agency recommends PS-CBA to be provided in spreadsheet format.
- c. It is impossible for third parties to replicate, verify or calculate the benefits data.
- d. Some of the PS-CBA benefits can be added up (e.g. “CO2 savings” and “Fuel switch savings”), while other benefits represent variations of the same benefits. The Agency regrets that PS-CBAs do not provide a synthetic figure of the total benefits which a project is expected to deliver.
- e. The information provided in the introductory (methodology) section of the PS-CBA project fiches should be moved into Annex D – Methodology of the TYNDP.

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<sup>51</sup> [http://www.acer.europa.eu/en/Gas/Infrastructure\\_development/Pages/Study-on-the-estimation-of-the-Cost-of-Disruption-of-Gas-Supply-\(CoDG\)-in-Europe.aspx](http://www.acer.europa.eu/en/Gas/Infrastructure_development/Pages/Study-on-the-estimation-of-the-Cost-of-Disruption-of-Gas-Supply-(CoDG)-in-Europe.aspx)

f. The monetary benefits provided are, according to the methodology section of the PS-CBA document, expressed on a yearly basis and not discounted. As there is no information on the distribution of benefits over time, it is not possible to calculate the overall discounted value, as net present value or otherwise, and therefore the benefits of different projects cannot be compared.

(67) The Agency regrets ENTSOG's decision to require CBA project assessments exclusively for those TYNDP projects which have declared their intention to apply for PCI status. This choice diverges from the Agency's recommendation to provide PS-CBA for each TYNDP project<sup>52</sup>, in order to help ensure a level playing field and comparable level of information and assessments for all TYNDP projects.

### 3.4.3. Investment costs and level of transparency

(68) The Agency positively notes an improved level of project costs transparency, with CAPEX published in the TYNDP for 81% of the TYNDP projects, either as provided by the promoters (61%) or as estimated by using available references (20%). The Agency notes that ENTSOG requires a higher level of cost transparency for TYNDP projects that intend to apply for PCI status.

(69) The Agency is of the view that the same (maximum) level of cost transparency is recommendable and necessary for all TYNDP candidate projects, including those not intending to apply for PCI status. The Agency is of the view that applying a different level of cost transparency for various TYNDP candidate projects may run contrary to the equal treatment principle set in Regulations (EC) No 715/2009 and (EU) No 347/2013.

(70) The future TYNDPs should display, for each investment item, the estimated investment cost, the estimated yearly OPEX, the amount of incurred CAPEX and the amount of contracted (not yet incurred) CAPEX. Projects not fulfilling this requirement should not be considered for the TYNDP.

(71) The Agency notes that the PS-CBA results<sup>53</sup> allow to account how gas infrastructure may have an impact on its surroundings, in particular when crossing environmentally sensitive areas, the possible mitigation measures foreseen by the promoters and the associated costs.

(72) The Agency considers that the TYNDP, apart from estimating the impact on CO2 emissions and the environmental impact of gas infrastructure, does not contain any

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<sup>52</sup> See Agency's Opinion No 15 /2017, Section 4.2.7 Project Fiche, p.17.

<sup>53</sup> Part D of the PS-CBA fiches.

other specific measurable indicator on how projects contribute to the sustainability criterion. In particular, the additional methane leakage from new gas infrastructure is not included, and the Agency recommends to address this aspect in the next edition of the TYNDP.

#### 3.4.4. Identification of infrastructure needs

- (73) The Agency appreciates ENTSOG's system assessment report aimed at identifying potential infrastructure needs under the so-called "low infrastructure level", and complemented by other infrastructure levels.

##### Sustainability needs

- (74) The Agency notes that ENTSOG's assessment is based on a narrative of how the European gas infrastructure will contribute to supporting renewable energy sources and power-to-gas technologies. The Agency recommends ENTSOG to go beyond the description of renewable gases provided in the TYNDP 2018. The TYNDP should provide more information on the foreseen supply curves and basic economics of each renewable gas technology, in view of having more credible estimates of their volume, scheduled availability and use in the future, also by indicating the possible location of renewable gases supply which may cause physical congestion in the gas infrastructure network. The Agency encourages ENTSOG to consider the implications and the necessary adaptations of the gas infrastructure in order to foresee the injection of hydrogen, synthetic methane, bio-methane, and bio-gas if applicable, the areas affected and the costs associated.
- (75) The Agency agrees with ENTSOG that gas infrastructure already supports the development of renewable energy, by providing flexibility, and ensures the lowest level of emissions of any fossil fuel power generation. The Agency acknowledges the potential of gas infrastructure, with the necessary adaptations, to enable the injection of renewable gases<sup>54</sup>, but notes that not all the technologies used to produce them are at the same level of development.
- (76) The Agency stresses that most of these technologies, in particular power-to-gas, which uses electricity to produce hydrogen via electrolysis as well as other technologies, are

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<sup>54</sup> Bio-gas, bio-methane and hydrogen.

at an early pilot phase, and still in need to demonstrate economic viability at a large scale and for widespread use. Apart from technological considerations, power-to-gas could require large volumes of low- or zero-price renewable electricity to be economically and environmentally viable. Power-to-gas should also be assessed in the context of addressing congestion in the electricity grid.

- (77) The Agency notes that bio-methane and bio-gas have reached a more mature stage and have gradually emerged in some European countries, mainly in France, the Netherlands and Germany<sup>55</sup>.

Security of supply needs

- (78) The Agency notes that ENTSOG's conclusions from the security of supply needs assessment demonstrate that the existing gas EU infrastructure, along with projects that have already reached FID, provide sufficient flexibility for transporting gas supplies in most of Europe under the modelled climatic stress or disruption scenarios on gas import routes or a single "largest" disruption. However, the analysis shows that some additional capacity beyond the existing capacity and the one provided by FID projects may still be needed in certain areas<sup>56</sup>.
- (79) The Agency welcomes the introduction of a supply adequacy section for North-West Europe. The Agency appreciates that the gas demand projections submitted by TSOs differentiate between L- and H-gas demand. The decline of the L-gas production at the Groningen and German gas fields will require the conversion of areas currently supplied by L-gas to H-gas and, possibly, the need of additional gas imports to the region. ENTSOG's simulations show that the potential security of supply risks will be mitigated by the planned L/H conversion infrastructure projects and corresponding market conversion in the concerned Member States.

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<sup>55</sup> See information from EBA (European Biogas Association) <http://european-biogas.eu/2017/12/14/eba-statistical-report-2017-published-soon/>

<sup>56</sup> Namely:

- a. South-Eastern Europe additional import and interconnection capacities in case of a Ukraine route disruption.
- b. Under the "Sustainable Transition" scenario (more optimistic regarding gas demand), Western Europe would be affected by the Ukraine route discontinuation, by showing limited remaining flexibility.
- c. Poland and Lithuania could be exposed to demand curtailment in case of Belarus disruption under the Sustainable Transition scenario by 2040. Spain and Portugal could be exposed to demand curtailment in case of an Algerian disruption under all scenarios from 2030 onwards. Croatia faces problems in ensuring demand-supply balance, and Romania may face similar difficulties if the foreseen increased level of gas production would not be maintained over time.
- d. Bosnia and Herzegovina, Croatia, Estonia, Finland, North Macedonia, Greece, Ireland, Luxemburg, Portugal, Romania, Slovenia and Sweden, and potentially in the longer run Slovakia and Lithuania, may be exposed to risks related to the disruption of their largest infrastructure.

- (80) The Agency notes that Belgium, France, the Netherlands and Germany have prepared national conversion plans, coordinated at bilateral and multilateral levels (e.g. the Gas Platform) and further described in the North-West Gas Regional Investment Plan (NW GRIP) and the respective NDPs.
- (81) The Agency welcomes that these topical issues are adequately considered in the modelling simulations for the purpose of the draft TYNDP 2018, and expects that the planned conversion sequence is implemented in due time to ensure a successful transition from L- to H-gas in North-West Europe.

Competition needs

- (82) The Agency notes that ENTSOG's assessments of competition needs are linked to the level of dependency to a given gas supply source, and show need for additional capacities in the following regions:
- a. In Malta and Cyprus, for obvious reasons, as these countries are not connected to other Member States.
  - b. In the South-Eastern and the Central-Eastern areas, due to their high dependence on Russian gas imports or limited connectivity to neighbouring countries.
  - c. In the Western area, due to the dependence of the Iberian Peninsula mainly on LNG and Algerian gas.
  - d. In instances where countries cannot adequately share the available access to LNG with neighbouring countries, due to infrastructure limitations.
- (83) The Agency notes that ENTSOG's treatment of LNG as a "single supply source" as discussed above may distort its assessments of competition in an unrealistic way, as it may confuse the notion of "source" with the notion of "market". More specifically, if ENTSOG's LNG "single source" assumption and indicator are used, countries which have only access to LNG will, according to ENTSOG's approach, always be "in need for improved competition", despite the obvious possibility to source LNG competitively from multiple sources and suppliers on the LNG market. For this reason, the Agency recommends ENTSOG to reassess the need for improving competition in Cyprus, also in consideration of the fact that Cyprus expects to start producing large quantities of domestic gas (and actually become an exporter) in the foreseeable future. Similar considerations apply to the Iberian Peninsula where a number of LNG regasification terminals exist.

Market integration needs

- (84) The Agency notes that, in order to identify market integration needs in the modelling, supply flows from individual sources are maximised or minimised in ENTSOG's modelling approach by way of setting the price curves of these supplies higher or

lower by an arbitrary margin of 5 € /MWh, and thus making a given supply source more or less attractive compared to other sources.

- (85) ENTSOG modelling results turn out to be intuitive: Eastern Europe is sensitive to alternations of Russian gas prices, since those countries have no or limited access to LNG (such as Croatia, Hungary and Bosnia-Herzegovina) and cannot benefit from low LNG prices, or that, conversely, high LNG prices would affect less the Eastern European countries in comparison to other European countries. Impacts in the Southern Gas Corridor are not significant, due to the limited volumes offered by this route in comparison to the overall EU gas demand.
- (86) The Agency notes that ENTSOG’s assessment identifies infrastructure limitations for this criterion between: (a) Greece and countries further north; (b) Poland and the Baltic States; (c) Poland and countries south of Poland; and (d) Romania and Croatia and their neighbours.
- (87) The Agency notes that the indicators signalling market integration needs could be biased in cases where ENTSOG’s “single LNG source” approach is used, and also in cases where supply is highly concentrated. The Agency is of the view that the identification of market integration needs could be improved. The Agency recommends ENTSOG, in order to improve the market integration needs identification, to consider using the indicators and metrics already available in the Agency’s Market Monitoring Report<sup>57</sup>.

*Other considerations on the needs identification*

- (88) The Agency is of the view that the case of “LNG supply stress” should not be considered in the modelling, as a complete “black-out” of LNG supply is highly unlikely. However, in the response of LNG supply to stress situations caused by disruption of supply from other sources, the lead time needed for LNG supply response and the potentially available on-call LNG volumes should be considered.
- (89) The Agency appreciates that the TYNDP 2018 aims to shift to a “top-down” network plan, which would first identify needs and then possible infrastructure gaps, i.e. cases where infrastructure needs exist but are not met. The final step to complete the TYNDP “top-down” approach would be the quantification of such gaps (in terms of

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<sup>57</sup> Using indicators such as price convergence, price correlation, days when day- and year - ahead hub spreads exceeds the day- and year – tariffs, days with high capacity utilisation, days with sufficient capacity availability, and criteria applied to those indicators to identify whether or not there is really a pressing need to develop additional infrastructure to achieve better price convergence. When price convergence and price correlation are strong, there is evidence of market integration; conversely, when price convergence and price correlation are poorer, market integration tends to be incomplete and there might be a need.

target additional cross-border capacities per border) matching the relevant TYNDP projects.

- (90) For the next TYNDP, the Agency encourages ENTSOG to develop and consult proposals for the quantification of the target cross-border capacities, and notes that in electricity such concept has already been discussed and developed.
- (91) The Agency recommends that the existing entry (to the EU, including domestic production, and to balancing zones) and cross-border infrastructure and its use, including the level of contractual and physical congestion, be also analysed in the TYNDP. The historic and projected use of existing infrastructure is one essential figure to be taken into account when analysing the need of additional gas infrastructure, in order to avoid the risk of stranded or inefficient investments.

#### 3.4.5. Maturity grouping and clustering of projects

- (92) The principles for grouping projects in the TYNDP 2018 are defined in line with the CBA 2.0<sup>58</sup>. ENTSOG has defined the project groups based on the 3<sup>rd</sup> PCI list and a functionality criterion. Projects which are functionally related need to be implemented together for their benefits to materialise<sup>59</sup>.
- (93) The Agency notes that the project groups have been proposed by project promoters based on these principles. However, the Agency is of the view that these principles are quite broad and could be subject to various interpretations. Given that it is not immediately clear how the project grouping is defined and applied in the TYNDP documentation, the Agency recommends ENTSOG to include more concrete and precise indications on how the grouping of projects took place for the purpose of performing PS-CBAs in the final version of the TYNDP 2018. The Agency also notes that analyses at group level should not be a substitute for or preclude the analyses at individual project level, and that the PS-CBA should result in clear indication for each project whether its benefits exceed its costs.

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<sup>58</sup> See ENTSOG' CBA methodology, pp. 26-28.

<sup>59</sup> At a minimum, the grouping of projects is necessary when interconnection between two (or more) countries or a reverse flow project; a LNG terminal (and connecting pipe); an underground storage (and connecting pipe); and a connection to an existing or new source, or a supply chain consisting of several projects bringing gas to one or more EU countries from an existing or new source.

3.4.6. Consistency of NDPs / TYNDP

- (94) The Agency welcomes that ENTSOG collected and published sufficient information at project and country level about the level of consistency of the NDPs and the TYNDP projects. Approximately 75% of the TYNDP 2018 projects are also listed in the relevant NDPs. This level of project consistency between the TYNDP 2018 and NDPs is the same as in the TYNDP 2017.
- (95) The Agency is of the view that implementing its recent recommendations<sup>60</sup> to increase the consistency of NDPs and the TYNDP will further improve the level of project consistency. At the same time, the Agency acknowledges that, due to reasons expressed in its Opinion No 11/2018, it is neither achievable nor recommendable to pursue complete project consistency.
- (96) The Agency acknowledges that ENTSOG included in the draft TYNDP 2018 a country overview of the projects which are not included in NDPs, together with the justification provided by the promoters.

3.4.7. NRA comments and observations on the TYNDP 2018 projects

- (97) ENTSOG and project promoters should take due account of NRA comments and remarks on the draft TYNDP 2018 projects (see Annex I) and address them adequately when finalising the TYNDP 2018, also in view of including or not including specific projects in the TYNDP.

3.4.8. Comparison with previous TYNDP editions

*Projects commissioned*

- (98) The Agency welcomes the provision of information on projects included in the TYNDP 2017 which have been completed, but notes that the number of projects commissioned is not always consistent across the TYNDP 2018<sup>61</sup>. ENTSOG should verify this information for the finalisation of the TYNDP 2018.

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<sup>60</sup> Agency's Opinion No 11/2018 on the review of national network development plans to assess their consistency with the EU ten-year network development plan, pp. 8-10.

<sup>61</sup> Cf. Infrastructure Report, p.10: "19 projects already part of TYNDP 2017 were completed or are expected to be completed before the end of 2018", while p.15, table 5.1. indicates that 5 projects were completed, Also, 22 projects are referred as to be completed in 2018 on p. 14.

Evolution of number of projects in the TYNDPs

- (99) The Agency notes that the number of TYNDP projects and investment items has been reduced in the last editions, from 279 items in 2015, to 234 in 2017 and 207 in 2018, mainly due to the completion, cancellation, or withholding the re-submission of several projects.
- (100) However, the Agency would encourage further reduction in the number of projects in TYNDP 2018, for the following reasons: some of the projects have already been commissioned in 2018, the low progress in the implementation of some projects included in previous editions, the general consensus that the most pressing gas infrastructure projects are under development or have been already implemented, and the increased uncertainties about the role and type of gas needed in the long-term in view of the ambitious decarbonisation targets which suggest a significant reduction of the natural gas demand in Europe from the year 2030 onwards.

Reverse progress of projects

- (101) The Agency notes<sup>62</sup> the “reverse progress” for 3 projects included in the TYNDP 2018 which are now listed as “planned” rather than “FID status declared”, and 5 projects which have shifted from “advanced” to “less-advanced” status. The Agency welcomes the explanations provided in the TYNDP on the “reverse progress” of these projects. The Agency calls on project promoters to use prudence in their reporting and submit realistic implementation plans.
- (102) The Agency invites ENTSOG, based on its experience in monitoring the progress of projects, to consider developing metrics in order to provide early warnings about clearly unrealistic project timelines or conceptually doubtful projects.

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<sup>62</sup> Infrastructure Report, p.21. Projects showing reverse progress: TRA-N-291, TRA-N-017 and TRA-N-086. Projects moved from advanced to less-advanced: TRA-N-429, TRA-N-808, LNG N-079, LNG-N-912 and TRA-N-390.

PCIs not resubmitting to the TYNDP 2018

- (103) The Agency notes that only 3 projects present in the 3<sup>rd</sup> PCI list have not applied for the TYNDP 2018<sup>63</sup>.

3.4.9. Incremental capacity process

- (104) The TYNDP 2018<sup>64</sup> describes the incremental capacity process and lists projects resulting from demand assessment reports. The Agency welcomes the overview of the incremental capacity process of Regulation (EU) 2017/459 (“CAM Network Code”), which provides European rules for the development of projects in response to market-based additional capacity requests and subsequent project implementation based on the commitments of network users.
- (105) ENTSOG provides information regarding projects triggered by the first incremental capacity process and submitted for the TYNDP 2018. Only 4% (8 out of 207) of the TYNDP 2018 projects are reported to have been initiated as a result of the 2017 non-binding demand assessment reports under the CAM NC.
- (106) In the view of the Agency, the low number of projects initiated by the incremental capacity process and present in the draft TYNDP 2018 strongly indicates modest interest from market participants in developing additional cross-border capacities, and the prevailing attitude among promoters to rely on public support for the development of additional gas infrastructure via the PCI lists and possible subsequent CEF support. The Agency considers that additional gas infrastructure should preferably and generally be driven by market needs and supported by binding commitments of network users. Only exceptionally, for example in areas facing serious security of supply concerns, isolation or market integration issues, the socialisation or public support of the cost of gas infrastructure may be acceptable, and only provided that the CBA results unequivocally show that benefits of the concrete project outweigh its costs. The fact that very few market-driven projects are included in the draft TYNDP 2018 calls for a critical review of the need for many of the projects present in the draft TYNDP 2018.
- (107) The Agency notes that ENTSOG did not make obligatory for promoters to provide information on the incremental capacity process in their application for the TYNDP 2018. The Agency sees added value in having the complete list of projects triggered purely on market (commercial) basis by the incremental capacity process, and

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<sup>63</sup> TRA-N-018 – Városföld-Ercsi-Győr pipeline, PCI 6.24.4.1; TRA-N-061 – Ercsi-Százhalombatta, PCI 6.24.4.2; TRA-N-957 – Metering Station at Komotini to IGB, PCI 6.8.1. See p. 23 of the TYNDP 2018 Infrastructure Report.

<sup>64</sup> Chapter 5.8 of TYNDP 2018.

recommends ENTSOG to request such information as mandatory in future TYNDPs, in order to get a more complete picture.

- (108) The Agency encourages promoters and NRAs to exhaust the possibilities for developing additional infrastructure via market-driven procedures before taking other possible avenues for developing and implementing gas infrastructure projects.

#### 3.4.10. Gas Regional Investment Plans

- (109) Pursuant to Article 12 of Regulation (EC) No 715/2009, TSOs shall establish regional cooperation within ENTSOG and publish Gas Regional Investment Plans (GRIPs) every two years. Based on the GRIPs, TSOs may take investment decisions. Pursuant to Article 6(9) of Regulation (EC) No 713/2009, the Agency shall monitor the regional cooperation of TSOs, and take due account of the outcome of such cooperation when formulating its opinions, recommendations and decisions.

- (110) During 2017, the third edition of the GRIPs<sup>65</sup> was published on ENTSOG's website. The Agency notes that GRIPs tend to cover in detail issues of regional importance, complementing issues covered by the EU-wide TYNDP. At the same time, the GRIPs rely, at least partially, on the TYNDP 2017 data and modelling of the network. The GRIPs are developed following a de-centralised approach, based on regional TSO cooperation.

- (111) The Agency reviewed the GRIPs, by collecting NRA input on their involvement on the development of the GRIPs, the perceived level of TSO cooperation and the role of the GRIPs in network development and other tasks, and discussed its views with ENTSOG, TSOs and the Commission in a dedicated meeting.

- (112) The Agency finds that:

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<sup>65</sup> Six gas GRIPs regions were defined:

- North-West includes 9 countries: Belgium, Denmark, France, Germany, Ireland, Luxembourg, the Netherlands, Sweden and the United Kingdom.
- South includes 3 countries: Spain, Portugal and France.
- Central Eastern Europe (CEE) includes 10 countries: Austria, Bulgaria, Croatia, the Czech Republic, Germany, Hungary, Poland, Romania, Slovakia, and Slovenia.
- Baltic Energy Market Interconnection Plan (BEMIP) includes 7 countries: Finland, Estonia, Latvia, Lithuania, Poland, Denmark and Sweden.
- Southern Corridor includes 9 Countries: Austria, Bulgaria, Croatia, Hungary, Greece, Italy, Romania, Slovakia, and Slovenia.
- South-North Corridor includes 6 countries: Italy, Belgium, France, Germany, Luxembourg and Switzerland.

- a. Elaborating the GRIPs is a complex and resource-intensive task for TSOs, which, however, is of lesser interest for most NRAs and stakeholders in comparison to the TYNDP and the NDPs.
- b. TSOs and/or ENTSOG should collect topics of possible interest to NRAs and stakeholders before developing the GRIPs, in view of increasing NRA interest.
- c. The GRIPs constitute a good tool for cooperation among TSOs, for discussing and exchanging information on technical matters and seem to be more relevant for analyses of issues of regional dimensions (such as L/H gas conversion in North-West Europe).
- d. The GRIPs should not duplicate the TYNDPs and should have a regional need-driven design. Market analysis, gap identification and regional topics are seen as topics which bring added value to the GRIPs.

(113) The engagement of stakeholders in the GRIPs could involve discussions in the gas regional initiative (GRI) setting, in those regions where the GRI is active. Also, ENTSOG and TSOs may consider ways to increase the interest of stakeholders in the GRIPs, for example by consulting at the beginning of the process with stakeholders (possibly back-to-back with TYNDP kick-off workshops) on the issues of relevance for each of the GRIPs. Regional topics may differ by region and evolve over time.

#### **4. RECOMMENDATIONS**

(114) In view of the foregoing, the Agency formulates the following recommendations to ENTSOG.

*Short-term recommendations (for the final TYNDP 2018)*

- (115) The Agency urges ENTSOG to consider for the final version of the TYNDP 2018:
- a. The comments and remarks of NRAs on the TYNDP 2018 projects, as contained in Annex I to this Opinion;
  - b. The publication of a summary document indicating how feedback from the public consultation and the Agency's Opinion are taken into account for the final TYNDP 2018 and will be considered in future TYNDPs;
  - c. Providing a list of the projects excluded from the TYNDP 2018 for failing to meet the PID criteria, along with the underlying reasons;
  - d. Including more concrete and precise indications on how the grouping of projects for the PS-CBAs was carried out;
  - e. Completing the PS-CBA assessments with the Economic Performance Indicators and other information;

- f. Providing full clarity and transparency on the ranges for gas prices used for building the supply curves under the new modelling approach;
- g. Providing consistent information on the number of projects included in the TYNDP 2017 and commissioned by the time of the adoption of the TYNDP 2018;
- h. Proof-reading and correcting typos and unclear formulations in the draft TYNDP 2018 documentation.

*Mid- and long-term recommendations (for the TYNDP 2020)*

(116) The Agency encourages ENTSOG to consider for future TYNDPs:

- a. Implementing the Agency's recommendations regarding scenarios, as provided in the Agency's Opinion No 10/2018;
- b. Better incorporating the market perspective on infrastructure gaps, and the degree to which the projects included in the TYNDP could serve to close such gaps;
- c. Improving the CBA 2.0 methodology and its application regarding the monetisation of benefits, the provision of Economic Performance Indicators in the CBA results, considering the results of the Agency's study on the Cost of Disruption of Gas Supply (CoDG) in Europe<sup>66</sup> for better monetising security of supply simulations, and other long-term improvements outlined by the Agency in its Opinion on the draft gas CBA 2.0 methodology and in this Opinion;
- d. Further improving the model and modelling used for the TYNDPs, by:
  - i. Improving the indicators signalling market integration needs, both for situations when there are competitive gas markets available and established hubs, and situations where this is not the case, for example by applying indicators and metrics used in the Agency's Market Monitoring Report, and implementing the Agency's proposal for identifying excessively concentrated markets as discussed during the 4th PCI selection process;
  - ii. Incorporating best available information on long-term contracts into the modelling assumptions for the short-term study years, in order to estimate more realistically future gas flows;

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[http://www.acer.europa.eu/en/Gas/Infrastructure\\_development/Documents/ACER\\_CoDG\\_Final\\_Report\\_20181119\\_clean.pdf](http://www.acer.europa.eu/en/Gas/Infrastructure_development/Documents/ACER_CoDG_Final_Report_20181119_clean.pdf)

- iii. Implementing improvements favouring the gradual implementation of a consistent and interlinked electricity and gas networks and market model, in pursuit of greater consistency and coupling with the electricity sector and in compliance with regulatory requirements;
  - iv. Fully documenting the TYNDP model with a detailed description of input (variables, constants), model elements (equations), output parameters, assumptions and the underlying mathematical algorithms (solvers, etc.), and consider sharing it as open source software;
  - v. Collect feedback from stakeholders on the assumptions about the use of existing and new infrastructure tariffs in the modelling and how they could be improved in the future; and
  - vi. Continue improving the treatment of LNG in order to allow the identification and consideration of its different origins and contributions to various indicators used for the assessment of needs, gaps and the merits of projects.
- e. Better planning future TYNDP processes, in order to make sure that the requirements of Regulation (EC) 715/2009 are fully met and delays minimised. In particular, the draft TYNDP should be published earlier, preferably by mid-year instead of by the end of the year, in the year when the TYNDP is released, in order better to synchronise the TYNDP and the PCI selection processes;
  - f. Requiring CBA projects assessments for all the TYNDP projects instead of only for projects having declared their intention to apply for PCI status, at individual project level;
  - g. Encouraging promoters to provide the same (maximum) level of cost transparency for all TYNDP projects, irrespective of their intention to apply for PCI status, and assuring that costs are comparable on the same footing, e.g. in terms of net present value;
  - h. Providing more quantitative and evidence-based information on the volumes, location and economics of each of the renewable gas technologies in view of having more credible estimates of their use and its implications in the future;
  - i. Considering developing a measurable indicator on how projects will contribute to the sustainability criterion apart from the estimation of the reduction of CO<sub>2</sub> emissions, including by addressing methane emissions from gas infrastructure;
  - j. Better considering the implications and the necessary adaptations of the gas infrastructure to inject renewable and de-carbonised gases (hydrogen, synthetic methane, bio-methane and possibly bio-gas) and the costs associated with such adaptations;

- k. Analysing the level of utilisation and contractual and physical congestion of existing entry and cross-border infrastructure<sup>67</sup>, as one essential parameter to be taken into account when analysing the need for additional gas infrastructure, in order to avoid the risk of stranded or inefficient investments;
- l. Completing the task of identifying infrastructure gaps, especially with respect to target cross-border capacity needs, by developing and consulting proposals for the quantification of the target cross-border capacities, in line with on-going work on the electricity TYNDP;
- m. Considering developing metrics in order to provide early warnings for clearly unrealistic project timelines or conceptually doubtful projects;
- n. Making obligatory to promoters the provision of information related to the incremental capacity process, in order to include in the TYNDP a complete list of projects triggered purely on market (commercial) basis by the incremental capacity process;
- o. Reconsidering the eligibility guidelines provided in ENTSOG's PID, in order to increase its effectiveness in filtering out unrealistic projects and projects of limited cross-border relevance from future TYNDPs.

*On the Gas Regional Investment Plans*

- (117) The Agency recommends that, for future GRIPs, ENTSOG and TSOs reach out up-front to stakeholders in TYNDP workshops on the issues relevant to stakeholders for each of the GRIPs.

*Policy recommendations*

- (118) The Agency recommends that the gas infrastructure categories defined in Annex II (2) of Regulation (EU) No 347/2013 be revisited in view of considering the impact of renewable gases, in the context of the recent ambitious climate and energy targets deriving from the Paris Agreement, as well as in the context of electricity and gas sector coupling.

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<sup>67</sup> See the Agency's Annual Report on Contractual Congestion at Interconnection Points for 2017 [https://www.acer.europa.eu/Official\\_documents/Acts\\_of\\_the\\_Agency/Publication/Congestion%20Report%205th%20ed.pdf](https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/Congestion%20Report%205th%20ed.pdf)

HAS ADOPTED THIS OPINION:

1. The Agency welcomes the various improvements of the draft TYNDP 2018 in comparison to previous editions.
2. The Agency finds that that draft TYNDP 2018 assessments and the projects included in it generally contribute to the objectives of non-discrimination, effective competition, and secure functioning of the internal gas market referred to in Article 8(2) of Regulation (EC) No 715/2009. However, the Agency notes that the TYNDP 2018 may not sufficiently contribute to the efficient functioning of the market, mainly due to the following shortcomings which may potentially lead to inefficient system developments:
  - a. Shortcomings in the applied methodologies, such as a lack of a complete quantitative needs assessment, doubtful quality of the CBA 2.0 methodology and its application which, although improved from previous TYNDPs, still require significant improvements, especially in order to monetise all benefits at individual project level, clearly to demonstrate that benefits exceed costs at individual project level, and to provide the project Economic Performance Indicators.
  - b. The lack of analysis of the existing and forecasted use of gas infrastructure, including the expected level of future physical congestion, which is a critical criterion to take into account when analysing the need of additional gas infrastructure.
  - c. The asymmetric treatment of candidate TYNDP projects, whereby the assessment of some TYNDP projects is incomplete since they are not subject to CBA, while other projects are subject to CBA, and consequently creating within the TYNDP classes of projects for which the level of analysis and the quality of information differ.
  - d. An overall investment portfolio of TYNDP projects clearly exceeding the scope of the reasonable need for efficient additional infrastructure projects.
  - e. The prevalence in the draft TYNDP of projects which are not the result of market-driven procedures, and thus the dominance in the TYNDP of projects which generally intend to rely on public support for their development and implementation.
3. The Agency considers that the draft TYNDP 2018 does not fully comply with the provisions of Article 10 of Regulation (EC) No 715/2009, in particular due to the lack of consultation of the PS-CBA results and the incomplete publication of all documents and minutes of meetings related to the consultations carried out while preparing the draft TYNDP.

4. The Agency encourages ENTSOG to implement the Agency's short-term recommendations when finalising the TYNDP 2018, and calls on ENTSOG to consider implementing the long-term recommendations in view of improving the future editions of the TYNDP.

This Opinion is addressed to ENTSOG.

Done at Ljubljana on 27 June 2019.

**- SIGNED -**

*For the Agency*  
*Director ad interim*  
Alberto POTOTSCHNIG

Annex:

Annex I – NRAs comments and remarks on the TYNDP 2018 projects

## Annex I – NRAs comments and remarks on the TYNDP 2018 projects

20 NRAs provided input, of which:

- 10 had comments on the TYNDP 2018 projects: Austria, Belgium, Czech Republic, France, Germany, Italy, Lithuania, Malta, Poland, Portugal and Spain.
- 10 had **no** comments on the TYNDP 2018 projects: Bulgaria, Cyprus, Estonia, Finland, Hungary, Netherlands, Malta, Slovenia, Sweden and United Kingdom (Great Britain).

**Table 1: General NRA comments on TYNDP 2018 projects**

Reporting NRA	Comments and remarks on TYNDP 2018 projects
Austria	<p>The project TRA-N-423 which is part of the PCI corridor 6.24 has no corresponding project(s) in Hungary, because the Hungarian projects have been cancelled. CEF funds have been granted to single projects in the context of this corridor. ECA shows concerns on the cancellation and reroute of the part of the PCI corridor 6.24, and raises the question of efficient use of the European taxpayer's money.</p> <p><u>Other considerations:</u> It is not clear why the SSD indicator for Austria is below the threshold of 25%, not contributing to show the real country needs of better interconnections and new supplies. This indicator is for the Czech Republic and Slovakia higher than 25%.</p>
Belgium	<p><u>Other considerations:</u> CREG believes that the focus on the energy transition, decarbonisation and sector coupling is rapidly gaining importance in the Union. A coherent EU TYNDP should take these dimensions explicitly into account. The current TEN-E Regulation does not fully incorporate the transport of new gasses and the network requirements. The lack of focus on decarbonisation in the EU investment scheme is related to the lack of indicators related to decarbonisation/energy transition in the 4th PCI selection process. TYNDP projects should be more carefully examined regarding their merits for the decarbonization/energy transition objectives.</p>

<p>Czech Republic</p>	<p><b>TRA-N-133 (Bidirectional Austrian Czech Interconnection (BACI)):</b> ERU has fundamental objection to inclusion of the project TRA-N-133 in TYNDP 2018. The Czech promoter used an inconsistent approach for the inclusion of its projects vis-à-vis the NDPs. For TRA-N-133, the promoter referred to the NDP 2016-2025, and for TRA-N-918, the promoter referred to the NDP 2018-2027. The project data included in the TYNDP 2018 did not capture the shifting of the commissioning year to 2024, as promoters did not amend purposely incorrectly indicated data, despite being aware of the necessity of the postponement of the project timing in view of the necessity of ERU evaluation of the project. Promoters did not provide causal link between implementation of project and contribution to sustainability or market integration. The results of calculation did not capture the negative impacts of projects on the existing gas infrastructure.</p>
<p>France</p>	<p><b>TRA-N-252 (South Transit East Pyrenees (STEP)):</b> in its current characteristics, the benefits of the project cannot be considered credible and do not outweigh the costs. 2022 is not a realistic commissioning date according to the current maturity of the project. CRE would suggest removing it from the TYNDP list based on: the lack of firm interconnection capacity offered by the project, the lack of market interest; the lack of congestion of the current gas interconnection capacity between France and Spain, the high cost of the project when compared with European standards, the project does not guarantee price coupling between gas hubs in France and Iberia; and the project's cost-benefit analysis does not clearly show that its benefits outweigh its costs in the most credible scenarios.</p> <p><b>TRA-N-429 (Adaptation L- gas - H-gas):</b> The benefits have been computed by valuing the total value of the zone's consumption with a Value of Lost Load of 600€/MW (hence considering the absence of substitution by another energy source). This method might therefore lead to an overestimation of the benefits, but the benefits that can reasonably be expected largely outweigh the cost of investment. This project is of major importance for the region and for the integration of the EU gas market in general.</p> <p><b>TRA-N-256 (Iberian-French corridor: Eastern Axis-Midcat Project):</b> The benefits of the project do not outweigh the costs. We suggest removing the project from the TYNDP list.</p> <p><b>TRA-F-331(Gascogne Midi):</b> the project has been commissioned in October 2018, therefore should be removed from the TYNDP.</p> <p><b>TRA-F-45 (Reverse capacity from CH to FR at Oltingue):</b> the project has been commissioned in June 2018 and therefore should be removed from the TYNDP.</p> <p><b>TRA-N-47 (Reverse capacity from France to Germany at Obergailbach):</b> CRE suggests removing this project from the TYNDP in its current configuration (decentralised odorisation).</p> <p><b>TRA-F-43 (Val de Saône project):</b> the project has been commissioned in June 2018 and therefore should be removed from the TYNDP</p> <p><b>LNG-N-227 + TRA-N-269 (Fos Cavaou):</b> projects must be backed by market demand.</p>

	<p><b>LNG-N-225 + TRA-N-258 (Montoir):</b> the works regarding the terminal upgrade and the connexion to the gas network must be aligned and coordinated. CRE want to highlight that projects must be backed by market demand</p>
<p>Germany</p>	<p>The following projects have not been part of the German NDP Gas 2016-2026 but now they are included in the current German NDP Gas 2018-2028:  <b>TRA-N-1267 (Upgrade Sülstorf station)</b>  <b>TRA-N-814 (Upgrade for IP Deutschneudorf et al. for More Capacity)</b>  <b>TRA-N-763 (EUGAL - Europaeische Gasanbindungsleitung (European Gaslink))</b></p>

Italy	<p>Projects already been commissioned in 2018 should be removed from TYNDP:  <b>UGS-F-242 (Cornegliano UGS)</b>  <b>TRA-F-1228 (Interconn. Cornegliano UGS)</b>  <b>TRA-F-214 (Support to the NW market and bidirectional cross-border flows).</b></p> <p>It is questionable whether projects showing little to no progress compared to previous TYNDPs (<b>TRA-N-12 (GALSI)</b>, <b>LNG-N-198 (Porto Empedocle LNG)</b>) and projects with no EU relevance or negligible investments (<b>Interconnection with production in Gela TRA-F-1241</b>) should be included in the TYNDP.</p> <p>The following projects are “under consideration” in the NDP, and the expected commissioning date is beyond the TYNDP time horizon: <b>TRA-N-9 (Additional Southern developments)</b>, <b>TRA-N-8 (Import developments from North-East)</b>.</p> <p>In the latest NDP, the <b>two projects Sardinia gas transportation network (TRA-N-975) by Società Gasdotti Italia and Sardinia methanization (TRA-N-1194)</b> by Snam Rete Gas were merged into a single, joint project, to be included in the TRA-N-1194 project.</p>
Lithuania	<p><b>LNG-N-824:</b> The project is identified as less-advanced project in the TYNDP. NCC consider that current project status has to be adjusted to advanced non-FID project, as it is in the Agency’s Opinion No 06/2017. The main purpose of current LNG Terminal project is to buy back the FSRU LNG Terminal. LNG Terminal in LT Klaipeda itself is in operation from the end of 2014, which means design and permitting stages are completed. However, the buyback process will be completed in 2024. Current criteria for advanced-non FID methodology do not capture all PS situations, since under current methodology an already successfully functioning LNG Terminal is rated as Less-Advanced project.</p>
Poland	<p>According to Energy Law Act, NDPs in Poland does not apply to storage and LNG Terminals. Therefore, the following ones are not included in the agreed Polish NDP: <b>LNG-F-272 (Upgrade of LNG terminal in Świnoujście)</b>  <b>UGS-N-914 (UGS Damasławek)</b>  <b>LNG-N-947 (FSRU Polish Baltic Sea Coast)</b></p> <p>Concepts of those projects were presented by Gaz-System S.A. in agreed national development plan for informative purposes only, as relevant activity is related to SSO and LNGSO.</p> <p>GCP GAZ-SYSTEM/ONTRAS - incremental capacity project was not included in agreed NDP as it is a relatively new project and the agreed NDP was elaborated by Gaz-System in 2017.</p>
Portugal	<p>The projects <b>TRA-N-283</b>, <b>TRA-N-284</b>, <b>TRA-N-285</b> and <b>TRA-N-320</b> were included in the last NDP proposal presented by the TSO, but were not included on the NDP approved by the Government in 2018. Nevertheless, these projects will be reanalysed in the future NDP proposals.</p>

Spain	<p>Most of the proposed projects in TYNDP 2018 are not currently considered in the latest NDP. CNMC has serious doubts with regard to the need of these projects, in particular those which increase capacity at regasification plants or duplicate certain current gas pipelines.</p> <p><b>TRA-N-161 (STEP Project):</b> CNMC doesn't consider it mature enough.</p> <p><b>TRA-N-727 (MIDCAT Project):</b> Should be considered after completion of the STEP Project.</p> <p><b>TRA-N-168 and TRA-N-729 (3rd IP ES-PT):</b> currently there are two interconnections between ES-PT that are underbooked and therefore underused.</p> <p><b>LNG-F-178 (Increase of Musel and Mugardos LNG plants):</b> Currently underused due to the lack of capacity demand at all ES LNG terminals.</p> <p><b>LNG-F-163 and LNG-F-183 (Canary and Tenerife LNG plants):</b> other supply solutions may be a better option.</p>
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