

2nd ENTSOG Methodology for Cost-Benefit
Analysis of Gas Infrastructure Projects

Stakeholders Feedback and Main Changes to 1st CBA Methodology

2018



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1. Introduction

Article 11.1 of Regulation (EU) 347/2013 defines the different steps to be followed by ENT SOG in the process of updating the CBA methodology, including “an extensive consultation process involving at least the organisations representing all relevant stakeholders”.

This document presents how stakeholders have been involved and how their feedback has been taken into account.

From early 2017, ENT SOG set up a specific “Prime Movers” group of stakeholders which was consulted to identify what were the most expected improvements in the CBA methodology. ENT SOG has taken these proposals into consideration in the preparation of the public consultation held in May-June 2017¹.

The proposed 2nd CBA methodology has been developed by ENT SOG and reflects the input from Prime Movers and the feedback received from stakeholders in the public consultation.

This document develops:

- > Prime Movers feedback
- > Public Consultation responses
- > European Commission (hereafter also the Commission) and ACER opinions
- > ENT SOG’s decision about the inclusion/rejection of suggestions from the stakeholders in the updated CBA methodology

2. Feedback from Prime Movers (early 2017)

The Prime Movers Group was set up in December 2016 to consider possible improvements for the CBA methodology. Two meetings took place in early 2017. Representatives from the following institutions and areas took part in the Prime Movers Group to share their views:

- > ACER
- > Energy Community Secretariat
- > European Commission (DG ENER, DG JRC)
- > Gas Infrastructure Europe
- > European Biogas Association
- > DNV GL

¹ Material of ENT SOG CBA update public consultation is available here: <https://www.entsog.eu/publications/cba-methodology#2ND-CBA-METHODOLOGY>

- > EFET
- > Frontier Economics

Discussions started from the 1st CBA Methodology which was published in 2015. Prime Movers exchanged views about how to improve the future 2nd CBA Methodology.

Below **the main messages** put forward by Prime Movers:

- > **General:** ENTSOG's CBA Methodology should be more transparent, streamlined, user-friendly and simplified;
- > **Simplification:** in particular, through a reduction in the number of indicators and cases, to the extent it does not harm project analysis. Project-specific analysis (PS-CBA) should focus only on the relevant cases where infrastructure gaps are identified.
- > **Monetisation is desirable but sometimes not achievable:** qualitative benefits cannot always be translated in monetary terms. Therefore, the purely academic notion of cost-benefit analysis (CBA) should only be a significant component of a broader Multi-Criteria Analysis (MCA). To ensure a comprehensive approach to benefits, the CBA methodology should also cover qualitative aspects;
- > **Projects of Common Interest (PCIs):** the CBA methodology should be applied for the evaluation of projects in the PCI context in order to provide a common and comparable basis for the assessment of the different projects;
- > **For cases where CBA is used for investment requests:** the CBA Methodology should recommend that the same input as used in the TYNDP and PCI process should also be used as basis for CBA for investment request;
- > **Project fiche:** most Prime Movers indicated that a standard template should sum up PS-CBA information and specify the costs and benefits expected from a project. The fiche could be added to the TYNDP report and would facilitate PCI discussion at Regional Groups level. Prime Movers hinted at the possibility of marking whether projects are complementary or competing, while acknowledging that this is not always straightforward;
- > **CBA should not be just about assessing the physical capabilities of the infrastructure:** Annex IV of Regulation 347/2003 clearly states that a variety of criteria should be assessed: market integration, security of supply, competition and sustainability;
- > **No consensus on the need for further monetisation:** as a general approach, the CBA methodology should strive for the quantification and, where relevant, the monetisation of benefits. There is a need to prioritise possible steps for further monetisation. It is necessary to acknowledge that there are potentially conflicting logics between the results from monetisation and the expected simplification. A multi-criteria analysis would in fact allow to deal with a non-full-fledged monetisation for cases where monetisation is non-trivial or achievable. It has also been recognised that the 1st CBA Methodology should be improved to ensure a better monetisation of some of the existing indicators and some

improvement could be indeed investigated in the evaluation of the “value of lost load”. To reach more realistic monetisation the modelling assumptions should benefit from considering different elements such as transportation costs stemming from TSO tariffs, supply prices and long-term contracts, although this last information is often not publicly available. Prime Movers doubted that all these useful items in terms of monetisation could be added for TYNDP 2018;

- > **Some TYNDP-specific topics should not be described in the CBA methodology:** CBA Methodology should be limited to providing general guidelines and should leave the actual development to the TYNDP process. This is for example the case of demand scenarios development;
- > **CBA methodology should be applied for system assessment under the “Low” and “Advanced” infrastructure levels,** that is taking into account the projects having a FID and more advanced status: the “Advanced” level, introduced in TYNDP 2017, is deemed more realistic than the “High” level (including all projects submitted to TYNDP, whatever their maturity);
- > **Project ranking:** Prime Movers agreed that Regional Groups are responsible for overseeing the ranking of projects, as per Article 4.4 of Regulation 347/2013;
- > **Application of CBA methodology also to Energy Community contracting parties:** this suggestion from some Prime Movers exceeds the provisions of Regulation (EU) 347/2013 and would also depend on the availability of reliable information;
- > **LNG specifics:** Prime Movers proposed that diversification of LNG sources at a given LNG terminal should be considered, as well as the costs and benefits generated by potential developments of small-scale or medium-scale LNG.

3. Feedback from the CBA Public Consultation, PC (19 May - 23 June 2017)

ENTSOG held an extensive public consultation from 19 May to 16 June 2017. ENTSOG has taken Prime Movers proposals into consideration in the preparation of this consultation. In the public consultation stakeholders were asked to provide their views on the main elements the update of the CBA methodology should have taken into account. The public consultation was complemented by a webinar, held on the 31 May.

The detailed feedback received in the public consultation is published on the ENTSOG website².

²

https://www.entsog.eu/public/uploads/files/publications/CBA/2017/INV0258_170724_2nd%20CBA%20Methodology_Public%20consultation%20outcome_responses.pdf

Additionally, on 13 February 2018 ENTSOG held a working session to consult all interested stakeholders on modelling and market related assumptions to be reflected in the CBA Methodology and in the TYNDP 2018.

4. Study on Gas CBA 2.0 from Florence School of Regulation and Deloitte (1 March - 24 March 2017)

The updated CBA methodology also takes into account the findings of the study mandated by the EC and developed by Florence School of Regulation and Deloitte (hereafter gas CBA study), based on the draft recommendations were released in March 2017³ for consultation.

Below the recommendations as per page 27 of the draft study.

Recommendation		Estimated benefit	Feasibility perception
#1 – Reinforce monetization of benefits			
R1A	Classify the indicators according to the value and capacity to monetize them and propose roadmap	5/5	5/5
R1B	Quantified indicator for market power and go toward monetization	3/5	3/5
R1C	Improve the monetization of security of supply and disrupted demand	5/5	4/5
R1D	Improve the monetization of CO ₂ impacts	2/5	5/5
#2 – Simplify the outputs			
R2A	Reduce the number of indicators	3/5	2/5
R2B	Highlight the relevant future cases	5/5	2/5
R2C	Go toward aggregation of yearly results per indicator	3/5	3/5
#3 – Alignment with purposes for PCI selection and CBCA			
R3A	Formalize a project fiche	5/5	4/5
R3B	Verify PCI input data	4/5	5/5
R3C	Enable the identification of clusters and competing projects	5/5	2/5
R3D	Provide (monetized) indicators at MS level	5/5	3/5
#4 – Improve (market) modelling assumptions			
R4A	Support market modelling with more realistic demand assumptions	3/5	4/5
R4B	Correct how commercial constraints and transportation costs impact flow setting	5/5	2/5

³ The draft recommendations are available here: <http://fsr.eui.eu/event/gas-cba-2-0-online-consultation/>

R4C	Advance market modelling to include strategic behaviour as part of supplementary analysis	4/5	2/5
R4D	Advance common models	3/5	5/5

5. ACER Opinion on the Draft of the 2nd CBA Methodology (24 October 2017)

While drafting the 2nd CBA Methodology ENTSOG has taken into account the ACER opinion on the 1st CBA Methodology (ACER 04-2014).

ACER released the opinion on the draft of the ENTSOG 2nd CBA Methodology on the 24th October 2017 (ACER 15-2017⁴).

As part of adapting the CBA Methodology, ENTSOG has considered the opinion issued by ACER on the 24 October 2017 together with the previous opinion addressing the Draft 1st CBA Methodology (ACER 04-2014⁵) as well as the opinion on TYNDP 2017 (ACER 06-2017)⁶.

Below a summary of the main recommendations from the ACER opinion. In the brackets the identification number of the recommendation.

- > Short-term adaptations:
 - focus on CBA and simplify the documentation deleting all elements not strictly in scope (4.2.1);
 - delete text related to performing CBA for the purpose of investment requests (4.2.1);
 - limit to minimum number of non-monetised indicators (4.2.1 and 4.2.4);
 - consideration of cost information in the CBA Methodology (4.2.2);
 - improve monetisation of benefits, in particular in terms of reduced cost of supply, security of supply and sustainability (4.2.3);
 - further clarification of Multi-criteria analysis (4.2.4);
 - incorporate infrastructure tariffs and LNG diversification (4.2.5);
 - use of a default economic lifetime (4.2.6) and residual value should not be considered (4.2.2);
 - inclusion and improvement of a project fiche (4.2.7).

4

https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2015-2017.pdf

5

https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2004-2014.pdf

6

https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2006-2017.pdf

- > mid-term improvements
 - continue improving indicators and monetisation, in particular with reference to competition benefits;
 - further improve modelling considering elastic demand and long-term contracts (4.2.5);
 - ensure full transparency of the CBA Methodology (4.2.8);
 - design of an “Action Plan” for further improvements.

For more detail please refer directly to the official opinion.

6. European Commission Opinion (– COM –) on the Draft of the 2nd CBA Methodology (17 October 2018)

As part of adapting the CBA Methodology, ENTSOG has taken into account the opinion⁷ issued by the Commission on 17 October 2018.

Below a summary of the main recommendations from the Commission opinion.

- > Inclusion the following accompanying documents in order to further elaborate on:
 - the compliance of the 2nd CBA Methodology with Regulation (EU) 347/2013;
 - how the 2nd CBA Methodology has taken into account stakeholder feedback and how it differs from the 1st CBA Methodology;
 - future improvement for the CBA assessment (roadmap).
- > Inclusion of infrastructure tariffs
- > Consideration of long-term contracts
- > Consideration and publication of cost information when presenting the CBA results
- > Use of a uniform economic lifetime and preferably not residual value
- > Consideration of elastic demand in the modelling assumptions
- > Consideration of a sensitivity analysis on all relevant parameters as per the Regulation
- > Inclusion of basic grouping principles
- > Inclusion of project-specific CBA in the TYNDP process and publication of results through a standard and common template
- > Further elaborate on how to interpret CBA indicators and possible double counting
- > Inclusion of Interlinked model when approved by the Commission
- > Restructure of the CBA Methodology text
- > Reflect a broader perspective when considering environmental impact of projects

⁷ C(2018) 6649 Final

The following table compares the structure of the 1st and 2nd ENTSOG CBA Methodology. It also explains in detail what are the main improvements that characterise this 2nd CBA Methodology and the main drivers for such implementation. The last column indicates the relevant stakeholders asking for such improvement.

	Chapter in 1 st CBAM	Chapter in 2 nd CBAM	What?	Why?	Request by?
Main topics					
Introduction	1 and 2	0	Shortened and content improved.	It allows simplification and more readability of the main CBAM document. An overview of the compliance with the regulation in force is handled in a specific accompanying document.	PM (1); COM; PC
Common Input data	3	1	Renamed “Assessment Framework” to cover demand and supply scenarios but also network and market modelling assumptions. Now more focused and streamlined. It describes the input to be used when assessing gas infrastructures leaving the actual application to the TYNDP process and to any other use of the CBAM.	It describes the minimum required set of data to be considered to build the assessment framework on which infrastructure gaps and projects should be evaluated. It ensures adequate flexibility in the application of the CBAM thorough in the different TYNDP editions.	PM (9); COM; ACER 15-2017 (4.2.1); PC
Demand scenarios	3.3 and 3.4	1.1	Demand scenarios are part of the section “Assessment Framework”.	These sections reflect the need for demand and supply scenarios and the main elements that should be taken into account when building scenarios. Demand and supply scenarios building is however a process jointly handled by the ENTSOs and consulted within the TYNDP frame.	PM (9); ACER 15-2017 (4.2.1)
Supply potentials	3.5	1.1	Supply potentials are part of the section “Assessment Framework”.		
Elastic demand	4.5	4	Added a section on elastic demand. The methodology further elaborated on elastic demand and recommends considering elastic gas demand where relevant.	The methodology recommends considering elastic gas demand where relevant.	EC; ACER 15- 2017 (4.2.5); FSR (R4A)
LNG diversification	-	1.1	New section on LNG as multi-source included -as part of the guidelines on the supply potentials and in the indicator section.	The 2nd CBA Methodology recommends considering LNG as multisource when relevant.	PM (14); COM; ACER 15-2017 (4.2.5); PC

Approach of network/market modelling	4	1.2	Named "Network and Market Modelling Assumptions" and included in section "Assessment Framework", which is the basis for the overall assessment.	In line with the Regulation requirements.	PM (8); ACER 15-2017 (2)
Inclusion of Infrastructure tariffs and long-term contracts	-	1.2 and Annex I	The 2nd CBAM includes detailed guidelines for the inclusion in the assessment of tariffs/charges from both existing infrastructures and new projects, as well as of long-term contracts.	Guidelines on market modelling assumptions build on market elements observed today in reality. This will meet strong expectations raised by some stakeholders.	PM (8); COM; ACER 15-2017 (4.2.5), FSR (R4B); PC
Infrastructure levels	3.6	2	Guidelines on Infrastructure levels are now part of the section "System assessment / Identification of infrastructure gaps". The 2nd CBA Methodology indicates that the system assessment (among which identification of the infrastructure gaps) and the project-specific assessment should be based on a Reference grid and an ADVANCED infrastructure levels.	The use of a reference grid composed by existing infrastructures and FID projects allows to identify the infrastructure gaps against which projects should be assessed. The use of the ADVANCED infrastructure level allows the identification of possible complementary and competing projects. The HIGH infrastructure levels (composed of all projects submitted to TYNDP) was identified as not credible and therefore removed from the Methodology.	PM (10); COM; ACER 15-2017; FSR (R3B); PC
Identification of infrastructure gaps and basis for project assessment	-	2 and 3	Section included on Identification of infrastructure gaps.	Infrastructure gaps identification is a regulatory task of TYNDP to which the CBAM must be applied. Infrastructure gaps represent also the counterfactual situation against which project will be assessed.	
List of cases/configurations to be modelled	4.6	-	The 2nd CBAM basis the SOS indicators on the cases and risk groups identified in the Regulation (EU) 2017/1938 concerning security of supply. No other prescriptive cases/configurations defined in the 2nd CBAM.	For SOS to ensure consistency with Regulation (EU) 2017/1938 concerning security of supply. In all other cases, relevant configurations will be based on the identified infrastructure gaps and not selected ex-ante.	PM (2); FSR (R2B)
Integrated TYNDP and project-specific CBA assessment	6 and 7	3	The CBAM prescribes that project-specific CBA should be run for projects applying for the PCI label, and that	Performance of project-specific CBA as part of the TYNDP process for projects applying for the PCI label allows for using the TYNDP platform to assess all	PM (4); COM; ACER 04-2014 (1; 7; 9); ACER 15-2017

			this should be performed as part of the TYNDP process.	concerned projects on an uniform and comparable basis and for providing transparency on CBA of projects.	(4.2.8); PC; FSR (R4D)
Project grouping	-	3	New section on project grouping included.	It defines general criteria on project grouping as basis for the PS-CBA run in the TYNDP, that reflect the cross-border impact of projects groups as well as their interdependency.	EC; ACER; FSR (R3C); PC
Incremental approach	7.9	3	As part of the section "Project-Specific Assessment". Improved description of the incremental approach and introduction of the terms PINT and TOOT.	It provides more alignment with other Methodologies best practices and improves readability for final users.	
Project Costs	7.4	3.3	New section on project costs for CBA assessment. The methodology clarifies that provision of costs by promoters is mandatory as part of the TYNDP process.	To take into account that cost data is an inherent input to CBA assessment. To ensure transparency towards all stakeholders.	COM; ACER 15-2017 (4.2.2)
More focused indicators	5	3.2.2	The "CBA Benefits" section covers both monetised and non-monetised benefits. It also includes graphical overview of the different benefits. Any distinction between "capacity-based" and "Modelling-based" indicators (as in 1st CBAM) has been removed.	Number of indicators is reduced, ensuring a better readability of PS-CBA results. Indicators are focused on those which are most relevant to decision-makers and project promoters, based on ENTSOG experience of the TYNDP and PCI processes and stakeholders feedback.	PM (2; 7); COM; ACER 15-2017 (4.2.4); FSR (R1A; R2A; R2C; R3D); PC
Environmental Impact Indicator	7.12.5	3.2.2	The Environmental Impact indicator included in the Adapted CBA Methodology reflects a broader perspective when considering environmental impact of projects.	Following Commission opinion ENTSOG has adapted the description of the Environmental Impact indicator.	COM
Overlapping indicators	-	3.2.2	Qualitative description on possible overlapping indicators included.	Some indicators may be partially overlapping, as they provide complementary perspectives to related topics. To support decision makers and stakeholders in better understanding the results, ENSTOG has included a qualitative mapping of such possible overlaps and explained how to handle such situation.	PM (2); COM; ACER 15-2017 (4.2.4); FSR (R2A); PC

Monetised benefits	6.3	3.2.1	<p>Included in the section “CBA Benefits”.</p> <p>It provides a better overview of all monetised benefits, covering all criteria described in the Regulation.</p> <p>It includes formulas for the monetisation of security of supply through “CoDG” and sustainability through “Social Cost of Carbon” (or if not available “CO₂ market prices”).</p>	<p>The CBAM confirms the importance of performing a Multi-Criteria Analysis.</p> <p>It further clarifies the role of monetisation in the assessment, while ensuring flexibility on the actual value to be used for monetisation of avoided gas demand disruptions and CO₂ savings, that should be consulted and decided within the TYNDP frame.</p>	<p>PM (3; 8); COM; ACER 15-2017 (4.2.3); FSR (R1C; R1D; R3D); PC</p>
Economic Lifetime and Residual Value	-	3.4.1 and Annex II	<p>Dedicated section on projects lifetime and residual value as part of Economic Parameters for the calculation of ENPV.</p> <p>Project lifetime for the assessment fixed to 25 years for all type of projects. Further clarification provided on the use of residual value, especially in Annex I.</p>	<p>To ensure consistency and level playing field among assessed projects, the 2nd CBAM clearly defines rules for the project lifetime and the use of the residual value. CBAM recommends to always consider zero residual value for conservative approach while running a sensitivity also considering the residual value.</p>	<p>COM; ACER 15-2017 (4.2.6)</p>
Project Fiche	-	3	<p>CBAM recommends always displaying CBA results in a standard and transparent template (Project Fiche).</p>	<p>To ensure CBA results are displayed in a standard and harmonised way that will help all stakeholders to understand the results and the information displayed.</p> <p>To ensure transparency towards all stakeholders.</p> <p>Following COM opinion, the specific structure of the Project Fiche will be defined in each TYNDP. This to ensure flexibility.</p>	<p>PM (6); COM; ACER 15-2017 (4.2.7); FSR (R3A); PC</p>
Sensitivity Analysis	7.11	3.5	<p>Extended section on sensitivities (1st CBA Methodology only focused on sensitivity analysis on project data).</p>	<p>To better reflect the role of the sensitivities in the assessment of gas infrastructure with clear distinction between (1) scenarios parameters (2) project data (3) monetary elements</p>	<p>COM; ACER 04-2014;</p>
Financial Analysis and CBA for investment requests	-	-	<p>Compared to the Draft published in July 2017, the section on Financial Analysis and CBA for the purpose of investment requests removed, as they do not relate to the CBA methodology.</p>	<p>As per the Regulation, ENTSOs CBA Methodology should focus on the socio-economic analysis of gas infrastructure.</p>	<p>ACER 15-2017 (4.2.1)</p>

Accompanying documents					
CBA methodology compliance with Regulation	-		Included as an accompanying document to the 2nd CBAM.	It describes how the 2nd CBAM complies with the different provisions of Regulation (EU) 347/2013.	COM; ACER 15-2017 (5)
Stakeholders feedback and Comparison with previous 1st CBAM	-		Included as an accompanying document to the 2nd CBAM.	It describes how stakeholder feedback was considered in the CBA methodology and the main changes between 1st and 2nd CBAM.	COM; ACER 15-2017 (3)
Roadmap for future projects CBA assessment	-		Included as an accompanying document to the 2nd CBAM.	It provides clarification on how further improvements on CBA and its application will be handled.	COM; FSR (R1A)



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