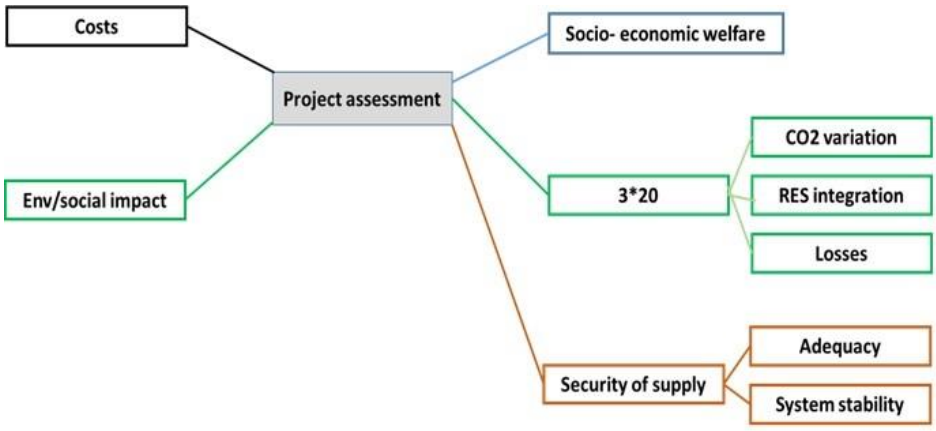
EASE Response to the ENTSO-E Public Consultation on the Next European Cost-Benefit Analysis Methodology (CBA 2.0)

Overview

The CBA methodology is developed to evaluate the benefits and costs of TYNDP projects (transmission and storage) from a pan-European perspective, providing important input for the selection process of PCIs. The main objective of this CBA methodology is to provide a common and uniform basis for the assessment of projects with regard to their value for European society.



Why We Are Consulting

The previous stakeholders' feedback and the ENTSO-E experience with the current CBA 1.0 (used in the TYNDP 2014 and 2016) has clearly shown the need of improving the European project assessment methodology. Based on this ENTSO-E has drafted a new Cost Benefit Analysis methodology (CBA 2.0) which is now put forward for consultation until 31 May.

A number of elements were improved compared to the existing CBA. The most relevant changes relate to:

- security of supply
- cost
- clustering
- losses
- storage assessment

Links:

- CBA webpage
- TYNDP main webpage
- Regulation (EU) No 347/2013
- Regulation (EC) No 714/2009
- 16 March 2016 – CBA 2.0 public workshop – stakeholders' feedback

Related Documents

- Draft CBA 2.0 – for public consultation, 3.9 MB (PDF document)

Consultation Questionnaire

Introduction

1. What is your name?
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3. What is your organisation?
EASE

General Questions

4. What is, from your perspective, the purpose of a European CBA methodology?

An independent assessment of pan-European transmission and storage projects, allowing for a commonly decided prioritisation of infrastructure projects and giving clear elements to justify the attribution of the PCI label, as well as the corresponding financial support.

To this end, we stress that the ongoing transparent process (reflected by this very consultation) cannot stop only at the methodology/modelling level: **the use of the results of analyses by regional groups should also be clarified, as the current process appears completely opaque.**

5. Having in mind the variety of users and usage of the CBA, would you choose a multi-criteria or one figure approach?

A multi-criteria approach indeed allows exposing and taking into consideration the many aspects (drawbacks and benefits) of a project, bearing in mind that not all aspects can (yet?) be fully modelled satisfactorily.

However, the CBA and the multi-criteria analysis should neither be confused nor merged. The result of the CBA is (and is **only**) the evolution of the social welfare as we can compute it to day – in a second step, this CBA can be complemented by a multi-criteria analysis, with the precaution to indicate very clearly which indicators are already (fully or partially) internalised in the social welfare indicator (ex : CO2 avoided, RES curtailment avoided, etc.).

The current document is clearer than previous versions, but still tends to merge "CBA" and "multi-criteria", which is not yet correct in our opinion. This is particularly reflected in "§3.7 Overall Assessment", with figure 8 presenting a radar illustration of the overall assessment:

- **such a radar representation should not include the socio-economic welfare (SEW).** The radar presentation is interesting for the multi-criteria analysis, but mixing it with the SEW might lead the readers to forget that the SEW already monetises fully or partially some other indicators, as is explained in §1.3.
- It should be clarified whether the SEW is the net SEW (i.e. the SEW-project costs) or the gross SEW (only the SEW as defined in § 3.6.3) and which of the two should be presented. Speaking of a CBA would suggest that the notion of "net SEW" should be introduced and presented as the final result.

On the same subject, figure one could be named "scope of cost benefit analysis and multi-criteria analysis", instead of "scope of cost benefit analysis".

6. Is the CBA 2.0 methodology easy to understand and apply?

ENTSO-E's scoring requires modelling, which is not readily available in itself.

We do appreciate the strong effort on clarity to explain difficult notions. In particular, the § 3.6.3 B4. "Socio-economic welfare" contains some very pedagogical material, cf. figure 6 and following explaining paragraphs (a few further improvements might still be suggested on this § though, see 14).

Similarly, the pedagogical effort for explaining the reasons for quantifying the effect of market power (cf. annexe 4) is well appreciated.

One potential further improvement would be to better and explicitly highlight the modelling complexity, to give a sense to the non-modelling reader that models can be limiting (which computing configuration is needed? How many hours of calculation are needed (expressed in cpu.hours))?

Also, we would welcome an annex including more descriptions of the current models used to further the understanding of potential limitations & areas of improvement. For example, it would be helpful to document:

- How many wind, solar, and demand profiles are used to simulate one year of a given scenario? Only one profile? (thus not accounting so well for the fact that significant variations can happen) or multiple time series based on historical/synthetic profiles?
- Modelling of hydro and pumped hydro storage (PHS)? In particular, how are mixed PHS modelled (i.e., those PHS that are able to produce energy either using water coming from natural inflows, or from water that was previously pumped?)
- Size of the simulation windows? (i.e. to simulate a full year hour by hour, is it done in one step (one window of 8760 h?) or day by day (365 sub problems with 24 h?) – this impacts in particular the possibility to model the weekly PHS correctly .
- Which constraints are taken into account (Minimum power? Start-up cost? Minimum duration on/off? Etc.)?
- How are the reserves modelled? Through abatements on maximum available generation? Or is it modelled as a constraint?
- Etc.

The explanation of the multiple TOOT (p. 21) is not so clear – what is the difference with a TOOT applied to a cluster (thus taking several project out at the same time?).

Other than that, KPIs are clearly defined.

7. Is the method of calculating the indicators easy to understand? If not how can we improve?

It is not always clear; examples of calculations could serve to clarify the calculation methods.

The SEW welfare calculation is well documented – we however suggest explicitly mentioning either "net" or "gross" SEW, i.e., either including the costs or not. We also suggest mentioning "total **variable** generation cost" in the explanation, as only opex are taken into account in the SEW.

Furthermore, still on SEW, the sub § a, b and c below "generation cost approach" and "total surplus approach" are, in our opinion, confusing, and not fully adding valuable information (or maybe we missed the point explained).

Furthermore, in the calculation of the SoS criteria, why let the promoter decide on the level of the VOLL?

8. Do you think the set of proposed indicators gives sufficient information about the project costs and benefits? Please justify your answer.

In our opinion: yes.

Specific Questions

ENTSO-E has made significant changes in the CBA 2.0 methodology compared to the previous version. These changes relate to the elements listed below. We kindly ask you to express your views on each of them. What do you find positive or negative related to these changes? What and how can we improve?

- *clustering rule*
- *SOS indicator*
- *cost indicator*
- *losses indicator*
- *storage assessment*

9. clustering rule

10. SOS indicator

11. cost indicator

It could be explained why a 25-year lifetime is chosen – do we understand correctly that the CAPEXes of a line or of a PHS are discounted over 25 years only? The implication of this would be increasing the yearly cost, which would strongly impact the CBA (as it is the sum of yearly CBA) – if yes, this appears as a very strong hypothesis, with a potential major impact on the signification and purpose of the CBA process (e.g., if we take a theoretical normative lifetime, then the meaning of the absolute value of the CBA is hard to interpret).

12. losses indicator

13. storage assessment

Storage has additional indicators. How are these additions accounted for in comparison with a conventional transmission project? I.e. how can they be compared?

In the end, the storage KPIs contribute to security of supply and socio-economic welfare (system reliability at which costs). How they contribute is not directly clear and is perhaps subject to market and product design which can be different in each country. Hence, it would be preferred to have full clarity, yet this will need further study.

Additionally, in § 4 assessment of storage: we would suggest amending the formulation "Storage plants can be very easily introduced…" to : "Some forms of storage plants can already be introduced in market studies, since the existing facilities of this type are already modelled to some extent." Modelling storage implies a lot of hypotheses and can be done in various ways – if it is easy, maybe this is because of some rather strong simplifications? How are weekly PHS modelled for example? Mixed PHS? Is there the possibility to model 1st generation CAES, coupled with a turbine? And to model batteries dedicated to frequency regulation?

We would appreciate having more details on how the modelling is done, to be able to give a documented comment on the actual method used.

Any other suggestions for improvement which were not covered by the previous questions

14. Please add your additional suggestions for improvement below.

- There is still an 'error' for missing reference on page 6.

- In the market power annex, p 49, one sentence is not correct: "that a project takes more time to complete is more costly than a decision…" => we suggest "is more costly" be removed.

- Giving, at some point in the document, a perspective on how avoided CAPEX might better be taken into account would be appreciated.

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The European Association for Storage of Energy (EASE) is the voice of the energy storage community, actively promoting the use of energy storage in Europe and worldwide. EASE actively supports the deployment of energy storage as an indispensable instrument to improve the flexibility of and deliver services to the energy system with respect to European energy and climate policy. EASE seeks to build a European platform for sharing and disseminating energy storage-related information. EASE ultimately aims to support the transition towards a sustainable, flexible and stable energy system in Europe.

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