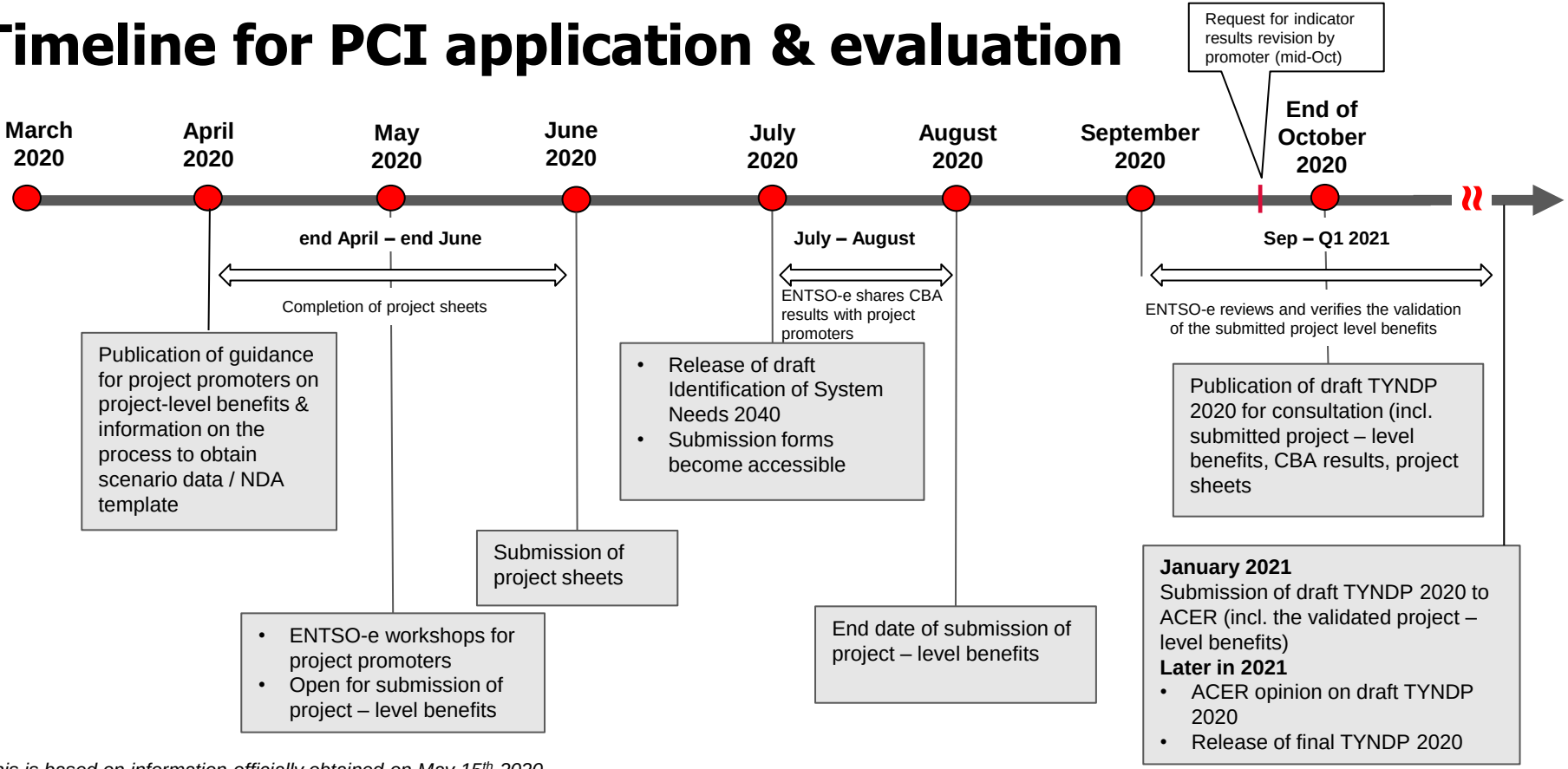
Support to PCI selection process

Overview of PCI application

Athens, 19/05/2020

Timeline for PCI application & evaluation



** This is based on information officially obtained on May 15th 2020*

Indicator values provided by ENTSOe

Indicator	Description
Socio-economic welfare (SEW) • RES fuel savings • Emissions cost savings	It refers to the ability of a project to reduce (economic or physical) congestion. The value is given in €/year by either comparing the generation costs with and without the project for the different bidding areas or comparing the producer and consumer surpluses for both bidding areas, as well as the congestion rent between them, with and without the project. The effects of RES integration on SEW, due to the reduction of curtailment and lower short-run variable generation costs, and the avoided CO2 emission costs are also reported as additional information.
CO2 Emissions	It refers to the change in CO2 emissions (tonnes/year) in the power system due to the project modifying generation dispatch and unlocking renewable potential. The societal costs of CO2 emissions (€/year) are also taken into account.
RES Integration	It refers to the overall higher level of RES penetration. The value is given as either the capacity (MW) connected to the main power system or the avoided curtailment (MWh/year) due to (a reduction of) congestion in the main system.
Non-direct greenhouse emissions	It refers to the change in non-CO2 emissions (tonnes/year) in the power system due to the project.
Variation in Grid Losses	It refers to the change of thermal losses in the grid due to the project. It's reported in €/year by taking into account the marginal cost and amount of losses for each market zone with and without the assessed project.
Security of Supply: Adequacy	It refers to the ability of a power system to provide an adequate supply of electricity to meet demand over an extended period of time, taking into account variability of climatic effects on demand and RES production. It's reported in €/year as either the decrease in peaking unit investment needs or the reduction of Expected Energy Not Supplied volume (installed capacity remaining constant).

Guidelines for project level benefits

Project – level benefits:

- There have been additional project level benefits under the 3rd CBA guideline and TYNDP 2020 that have to be submitted by promoter
- The promoter may choose whether to include to the submission form the indicators of the project–level benefits
- 3rd CBA guideline provides a definition per indicator, expect a set markets boundary for the analysis to be made by the promoter and a methodology that should be used by the project promoter in order to properly assess these indicators
- No qualitative assessment will be accepted – all submitted project–level benefits should be based on a study and be quantified

Indicator values to be provided by Project Promoter 1/2

Indicator	Description
● B7.1 Security of Supply – System Flexibility: Balancing energy exchange	It refers to the ability of exchanging balancing energy in the context of high penetration levels of non-dispatchable electricity generation. Balancing energy refers to products such as Replacement Reserve, manual Frequency Regulation Reserve and automatic Frequency Regulation Reserve. Exchanging/Sharing balancing capacity, which requires guaranteed/reserved cross zonal capacity, is also taken into account. A qualitative indicator will be assigned (by the ENTSO-e) to the quantitative value (provided by the project promoter) and reported on the project sheet.
● B8.0 Qualitative stability indicator ● B8.1 Frequency stability: Focus on frequency quality targets (energy aspect): for HVDC interconnectors between synchronous areas ● B8.2 Blackstart services: specific application for Synchronization with Continental Europe	It refers to the power system ability, for a given initial operating condition, to regain a state of operating equilibrium after being subjected to a physical disturbance. It can be given as qualitative indicator related to the different technologies in accordance with 3rd CBA guideline (B8.0). Furthermore, frequency stability can be addressed by taking into account frequency quality targets and capacity sharing (B8.1). For HVDC interconnectors between synchronous areas, a quantitative assessment of the frequency quality (at an energy level) can be made based on a frequency netting optimization if exchange is implemented. Regarding capacity sharing, a methodology resulting in quantitative/ monetized values will be available in a future version of the CBA guideline. The sub-indicator B8.2 is relevant to systems that lie outside the European synchronous zone (Baltic States, other pan-European countries) and it refers to operational security, preventing the propagation or deterioration of an incident to avoid a widespread disturbance and the blackout state as well to allow for the efficient and rapid restoration of the electricity system from emergency or blackout states.
● B9 Avoidance of the Renewal/ Replacement Costs of Infrastructure	It refers to the benefit a project can bring by avoiding or deferring replacing or upgrading already existing infrastructure. It's only taken into account if the reference situation (to which the new project is compared to) includes the contribution of the refurbishment. The indicator may be reported for up to three different years together with the year and the assessment period of the project when this benefit materializes.
● B10 Reduction of Necessary Reserve for Redispatch Power plants	It refers to the contracted redispatch reserve power plants needed. The indicator represents the maximum power of redispatch with and without the project.

● Optional Indicators for which quantitative justification is required ● Mandatory indicators to be submitted – Analysis could be qualitative

Indicator values to be provided by Project Promoter 2/2

COSTS	
Capital expenditure (CAPEX)	It refers to: • CAPEX at inception (during construction period) • CAPEX incurred in the project life – cycle.
Operating expenditure (OPEX)	It refers to expected annual maintenance and operation costs.

RESIDUAL IMPACTS	
Residual Environmental impact	It refers to the impact of the project on nature and biodiversity as assessed through preliminary studies.*
Residual Social impact	It refers to the impact of the project on the local population.*
Other impacts	It refers to impacts not covered by the above two indicators.

** The costs of measures taken to mitigate any environmental and/or social impacts of the project should be included in the project cost (CAPEX)*

Optional Indicators for which quantitative justification is required

Mandatory indicators to be submitted – Analysis could be qualitative

Indicative contents of PCI application

KEY INFORMATION	PROJECT DESCRIPTION & CONTEXT	PROJECT ASSESSMENT
• Short project description • Key information (e.g. cross-border / internal, new / upgrade, etc.) • Audiovisual material on the project • Project promoter details • National development plan (title, year, link to the report) • Additional information on the project (project website, link to studies) • Related projects (name, project)	• Description of the main and other investments • Data per investment element (e.g. route length, commissioning year, etc.) • System needs addressed by the project (max 4) • Interconnection targets (input by ENTSO-e) • Updated data (project promoter can provide information about any project changes / updates occurred in 2020, not to be taken into account in the CBA)	• CBA results under each scenario (NT2025, NT2030, DE2030, GA2030) • Results include indicators assessed by both ENTSO-e and the project promoter (project-level benefits) • Sensitivity study results • Comments on the project benefits by the promoter • Residual impacts • Project costs