Smart Grid Task Force

EG4 Infrastructure Development

Evaluation process
of Smart Grid projects of common interest

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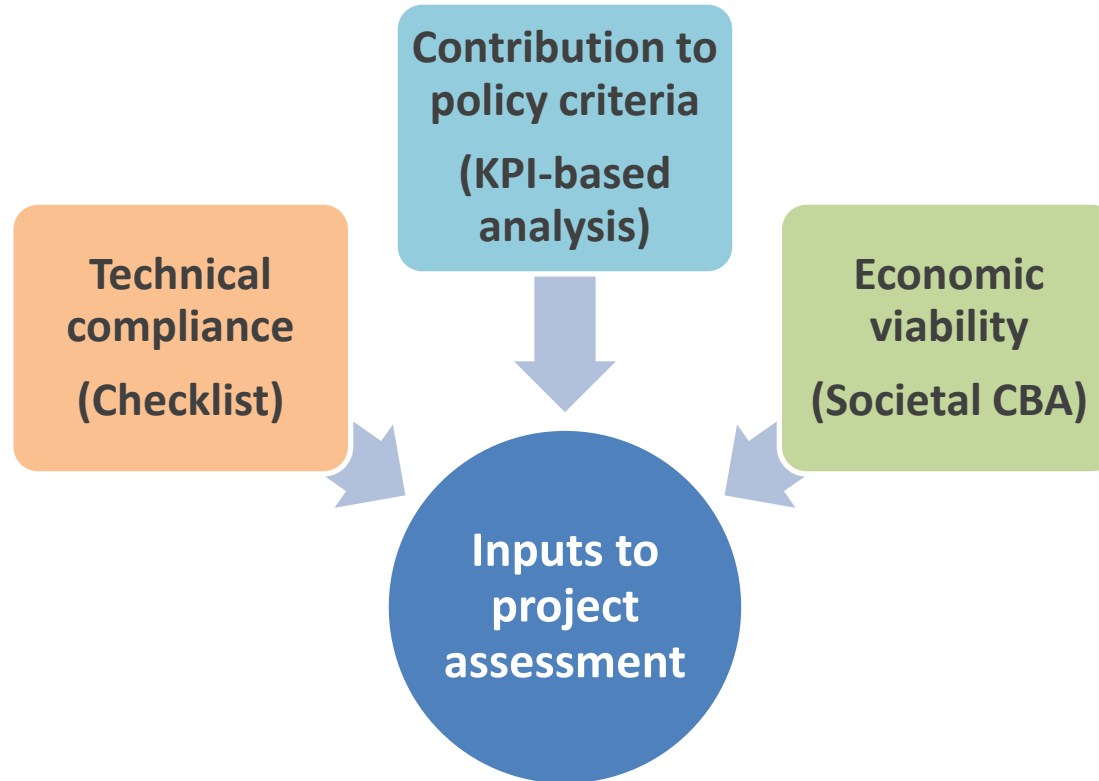
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- ✓ 4th July – EG4 approval of the project evaluation framework

- ✓ 30th September – Deadline for submission of project proposals

- ✓ In October, COM has been carrying out a first evaluation of project proposals

- ✓ Regulators will provide inputs after today's meeting

Contribution to policy criteria

(KPI-based analysis)

Technical compliance

(Checklist)

Economic viability

(Societal CBA)

Inputs to project assessment

It is up to project coordinators to clearly and convincingly build the case for their project according to **technical**, **policy** and **economic** decision criteria

CONTENT OF PROJECT PROPOSALS (ANNEX I)

1) Demonstrate that the project is in line with technical requirements, providing all relevant technical documentation (section A3)

2) Argue convincingly for project contribution to the 6 policy criteria, supporting the case with the appraisal of corresponding KPIs

Level of sustainability	Grid capacity	Grid connectivity and access	Security and quality of supply	Efficiency and service quality	Crossborder electricity markets
• Demonstrate convincingly project contribution by referring to • KPI^a_1 • KPI^b_1	• Demonstrate convincingly project contribution by referring to • KPI^a_2 • KPI^b_2 • KPI^c_2	• Demonstrate convincingly project contribution by referring to • KPI^a_3 • KPI^b_3	• Demonstrate convincingly project contribution by referring to • KPI^a_4 • KPI^b_4 • KPI^c_4 • KPI^d_4 • KPI^e_4	• Demonstrate convincingly project contribution by referring to • KPI^a_5 • KPI^b_5 • KPI^c_5 • KPI^d_5 • KPI^e_5 • KPI^f_5	• Demonstrate convincingly project contribution by referring to • KPI^a_6 • KPI^b_6 • KPI^c_6
Section **B2.1**	Section **B2.2**	Section **B2.3**	Section **B2.4**	Section **B2.5**	Section **B2.6**

3) Argue convincingly for project economic viability and cost-effectiveness, supporting the case with societal CBA and qualitative appraisals of benefits that cannot be reliably be monetized

Economic viability (Benefits outweighing costs)

• Demonstrate convincingly project economic viability and cost-effectiveness in delivering the benefits associated with the six policy criteria, supporting the case with:

• CBA indicators (ENPV, EIRR etc.)
• Appraisal of non-monetary impacts (preferably expressed in physical units)

Section **B3**

Key focus points in the evaluation process

- ✓ Role of TSOs and cooperation DSOs-TSOs

- ✓ Cross-border impact (reduced RES curtailment, NTC etc.)

- ✓ Added value of joint project

- ✓ System architecture (deployed assets, interconnection, location, function, responsible party)

- ✓ External developments beyond control of project proponents (e.g. new RES installations)

- ✓ KPI analysis and CBA (clarifications over calculation assumptions)

Next steps

- ✓ Regulators to be actively involved in the evaluation process

- ✓ EG4 members to provide a first round of comments to project proposals

- ✓ COM will require additional clarifications to project coordinators

- ✓ COM will present a draft evaluation of project proposals for next EG4 meeting

BACK UP

Minimum technical requirements

- ✓ Voltage of 10kV or more

- ✓ Projects involving transmission and distribution operators from at least two MS and having cross-border impact

- ✓ Covering at least 100,000 users (producers, consumers and prosumers)

- ✓ Focusing on a consumption area of at least 300 GWh/year, of which at least 20% originate from non-dispatchable resources

Checklist of technical requirements

Compliance with technical requirements?

N → **Project is out**

Y
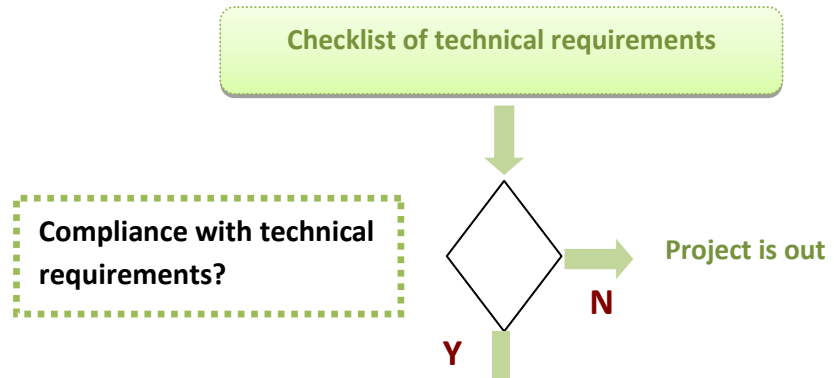
The draft Regulation considers as Smart Grid infrastructure

 "any equipment or installation, both at transmission and medium

voltage distribution level, aiming at two way digital communication,

real-time or close to real-time, interactive and intelligent monitoring

and management of electricity generation, transmission, distribution

and consumption within an electricity network".

Economic viabiliy – appraisal of non-monetary impacts

(1) identify and express the expected non-monetary impacts in physical terms or through a well-argued descriptive analysis.

(2) demonstrate the economic relevance of these impacts for the project.

Some project impacts included in this analysis might be directly related to the criteria and KPIs (if they cannot be monetized and included directly in the CBA).

Policy criteria and corresponding KPIs

Sustainability	Adequate grid capacity	Adequate grid connection and access	Security and quality of supply	Efficiency and service quality	Contribution to cross-border electricity markets
Criterion 1	Criterion 2	Criterion 3	Criterion 4	Criterion 5	Criterion 6

Criterion 1 – Level of sustainability

✓ *Reduction of GHG emissions*

✓ *Environmental impact of electricity grid infrastructure*

Policy criteria and corresponding KPIs

Sustainability	Adequate grid capacity	Adequate grid connection and access	Security and quality of supply	Efficiency and service quality	Contribution to cross-border electricity markets
Criterion 1	Criterion 2	Criterion 3	Criterion 4	Criterion 5	Criterion 6

Criterion 2 – Capacity of T&D grids to connect and bring electricity from and to users

- ✓ *Installed capacity of distributed energy resources in distribution networks*

- ✓ *Allowable maximum injection of power without congestion risks in transmission networks*

- ✓ *Energy not withdrawn from renewable sources due to congestion or security risks*

Policy criteria and corresponding KPIs

Sustainability	Adequate grid capacity	Adequate grid connection and access	Security and quality of supply	Efficiency and service quality	Contribution to cross-border electricity markets
Criterion 1	Criterion 2	Criterion 3	Criterion 4	Criterion 5	Criterion 6

Criterion 3 – Network connectivity and access to all categories of network users

✓ *Methods adopted to calculate charges and tariffs, as well as their structure, for generators, consumers and those that do both*

✓ *Operational flexibility provided for dynamic balancing of electricity in the network*

Policy criteria and corresponding KPIs

Sustainability	Adequate grid capacity	Adequate grid connection and access	Security and quality of supply	Efficiency and service quality	Contribution to cross-border electricity markets
Criterion 1	Criterion 2	Criterion 3	Criterion 4	Criterion 5	Criterion 6

Criterion 4 – Security and quality of supply

✓ *Ratio of reliably available generation capacity and peak demand*

✓ *Share of electricity generated from renewable sources*

✓ *Stability of the electricity system*

✓ *Duration and frequency of interruptions per customer, including climate related disruptions*

✓ *Voltage quality performance*

Policy criteria and corresponding KPIs

Sustainability	Adequate grid capacity	Adequate grid connection and access	Security and quality of supply	Efficiency and service quality	Contribution to cross-border electricity markets
Criterion 1	Criterion 2	Criterion 3	Criterion 4	Criterion 5	Criterion 6

Criterion 5 – Efficiency and service quality in electricity supply and grid operation

- ✓ *Level of losses in transmission and in distribution networks*
- ✓ *Ratio between minimum and maximum electricity demand within a defined time period*
- ✓ *Demand side participation in electricity markets and in energy efficiency measures*
- ✓ *Percentage utilisation (i.e. average loading) of electricity network components*
- ✓ *Availability of network components (related to planned and unplanned maintenance) and its impact on network performances*
- ✓ *Actual availability of network capacity with respect to its standard value*