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EEGI LABELLING METHODOLOGY AND UPDATE 1 OF EEGI PROJECTS

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Author(s)		
Name	Organisation	E-mail
C. Costa Rausa	EDSO4SG (Enel Distribuzione)	carlosfrancisco.costarausa@enel.com
G. R. Bissell	EDSO4SG (Enel Distribuzione)	garethrobert.bissell@enel.com
Thong Vu Van	ENTSO-E	thong.vu.van@entsoe.eu
Chavdar Ivanov	ENTSO-E	chavdar.ivanov@entsoe.eu
Serge Galant	TECHNOFI	SGalant@symple.eu
Jesus Varela	EDSO4SG (Iberdrola Distribución)	jvsa@iberdrola.es
David Rubio Miguel	EDSO4SG (Iberdrola Distribución)	drmi@iberdrola.es
Remy Garaude Verdier	EDSO4SG (ERDF)	remy.garaude-verdier@erdfdistribution.fr

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Verified (WP-Leader)	Carlos Costa, Enel	2013-04-15
Approved (GC)	Michele Di Nigris, RSE	2013-05-14

Abstract
<p>The present document describes the EEGI Labelling methodology, which includes the following sections:</p> <ul style="list-style-type: none"> - EEGI Labelling Assessment Form –to be completed by EEGI labelling experts for every project analysed - EEGI Labelling User Guide – User guide to guide experts in EEGI Labelling procedure - EEGI Labelling Application Form – to be completed by projects in the case that they wish to be analyzed but the information is not available in JRC database. - EEGI Labelling Working Principles and Rules – Definition of EEGI Labelling Working Principles and Rules, in selection of EEGI Labelling experts <p>Furthermore this document includes the first set of EEGI Labelled projects.</p>

Revision history

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EXECUTIVE SUMMARY

This document is a second version of the EEGI (European Electricity Grid Initiative) labelling methodology.

The labelling of EEGI projects will provide a system for validating projects that fall into the scope of the EEGI programme. The requirement for a labelling assessment form to support the EEGI selection process was defined in WP3 of the GRID+ project. This document provides a definition of a criterion and process for labelling EEGI projects. A labelling process and methodology are described for identification of those projects that are in line with the objectives and working principles of the EEGI. In support of this process, templates are provided: An EEGI Labelling Assessment Form, to be completed by experts evaluating projects; an EEGI Labelling Application Form, to be filled in by project coordinators in the event that information is not found in the JRC database; a set of working principles that will define the list of experts to perform EEGI Labelling assessment.

Revisions have been made to align the labelling criterion with the new EEGI Roadmap (2013-2022). Modifications were also made to the labelling criterion using experience gained from the first round of labelling EEGI projects. Changes were made for further optimisation towards achieving a simple, fast and effective process.

REVISIONS SUMMARY

Modifications were made to this document for alignment with the latest version of the EEGI Roadmap (2013-2022). Further modifications were made to the definition of the criterion for the EEGI labelling process using experience gained from the first round of labelling EEGI projects.

1. The Labelling 'Template' and 'Questionnaire' have been renamed as 'Assessment Form' and Application Form' respectively.
2. EEGI Functionalities Table in Step 4 updated in the Assessment Form and Application Form to reflect changes made in the new EEGI Roadmap (2013-2022).
3. The size Criterion (related to DSO projects only) in step 1 was updated to only consider the total project budget. The previous definition of size criterion that also considered the number of customers impacted was omitted because experience has shown that this introduces confusion and complexity to a process that was requested to be simple, fast and efficient. Furthermore, the previous criterion on number of customers impacted was shown to be too ambiguous and did not allow for a proper comparison among projects. For example, how is the number of customers impacted by a small R&D project for asset management purposes assessed?
4. Additional information has been included in the user guide for knowledge sharing in Step 3.2 and scaling-up of solutions and replicability in steps 5.2 and 5.3 respectively. The additional information relating to knowledge sharing also reflects the benefits that are expected from the development of the Knowledge Sharing Platform in the new Work Package 9 of the GRID+ project which was included in the new GRID+ DoW published in April 2013.

1 INTRODUCTION

In line with the official launch of the European Electricity Grid Initiative (EEGI) in 2010, the EEGI Roadmap 2010-2018 was presented which proposed a 9-year European research, development and demonstration (RD&D) programme aimed at accelerating innovation and the development of the smart grid, with a cost estimated at €2Bn.

Consistent with the EEGI Roadmap 2013-2022, this document presents a **consecutive 5-step process** for experts to follow, that will enable them to highlight those Smart Grid projects in Europe that are of central interest to the EEGI.

It should be highlighted that this is a dynamic document that will be continuously updated and improved, based on inputs received from experts performing the labelling assessments.

The added value of labelling projects, although primarily to provide a system for categorising projects that fall into the scope of the EEGI programme, would also be to encourage consideration for expanding the scope of projects to maximise the potential to provide further benefits consistent with objectives defined within the EEGI roadmap. Examples would include the possibility of further consideration for introducing mechanisms to facilitate knowledge sharing or assessment of scalability and replication of existing project proposals.

2 EEGI LABELLING PROCESS

2.1 Scope

An EEGI Label will provide a proposal or project with an ex-ante opinion. It can be used by various public authorities (European Union & Member States) as a support selection mechanism in the financing selection process and to flag duplication of existing projects with available results. The EEGI Label can also provide an ex-post opinion about a running or contracted project.

Given the vast amount of ongoing Smart Grid projects in Europe (refer to JRC Smart Grid Projects database), a mechanism that highlights the projects which are of central interest to the European Electricity Grid Initiative and with the spirit of its objectives is necessary. The EEGI Label will highlight to the Grid Initiative those projects of particular interest.

Finally, it should be noted that the EEGI Label **does not** evaluate the technical quality of a project, but instead will indicate that it is in line with the objectives of the European Electricity Grid Initiative as established by the EEGI Team and defined in the EEGI Roadmap 2013-22.

Following the EEGI Roadmap, projects to evaluate under the EEGI Labelling Process will fall under one of two categories;

- **TSO Projects (with possible DSO involved)**
- **DSO Projects (with possible TSO involved)**

Labels will differ slightly depending on the category of the project. Experts performing the EEGI Labelling Process will have the following three options as an output of the EEGI Labelling Process.

“EEGI Core”

Projects/proposals that are fully in line with the criteria specified in EEGI Labelling Process and form the core of the EEGI programme. Related to projects in the Distribution Network, these will be large-scale integration projects, typically involving system-level innovations. Projects labelled as “EEGI Core” will typically involve the demonstration of a combination of technologies that combined offer system-wide benefits to the network.

“EEGI Support” (only for DSO projects)

Projects/proposals that have satisfied the basic EEGI requirements but do not satisfy all those requirements specified in EEGI Labelling Process. Projects here will typically involve demonstrations of individual technologies that combined could form an “EEGI Core” project, but as a single project lacks the system-wide impact characterizing “EEGI Core” projects. The purpose of introducing this label in the case of DSO projects is to highlight projects in the European Union that are significantly relevant to the EEGI, even though they may be lacking the large-scale demonstration characterizing “EEGI Core” projects.

No EEGI Label

Projects/proposals that do not satisfy criteria specified in EEGI Labelling Process (either “EEGI Core” or “EEGI Support”)

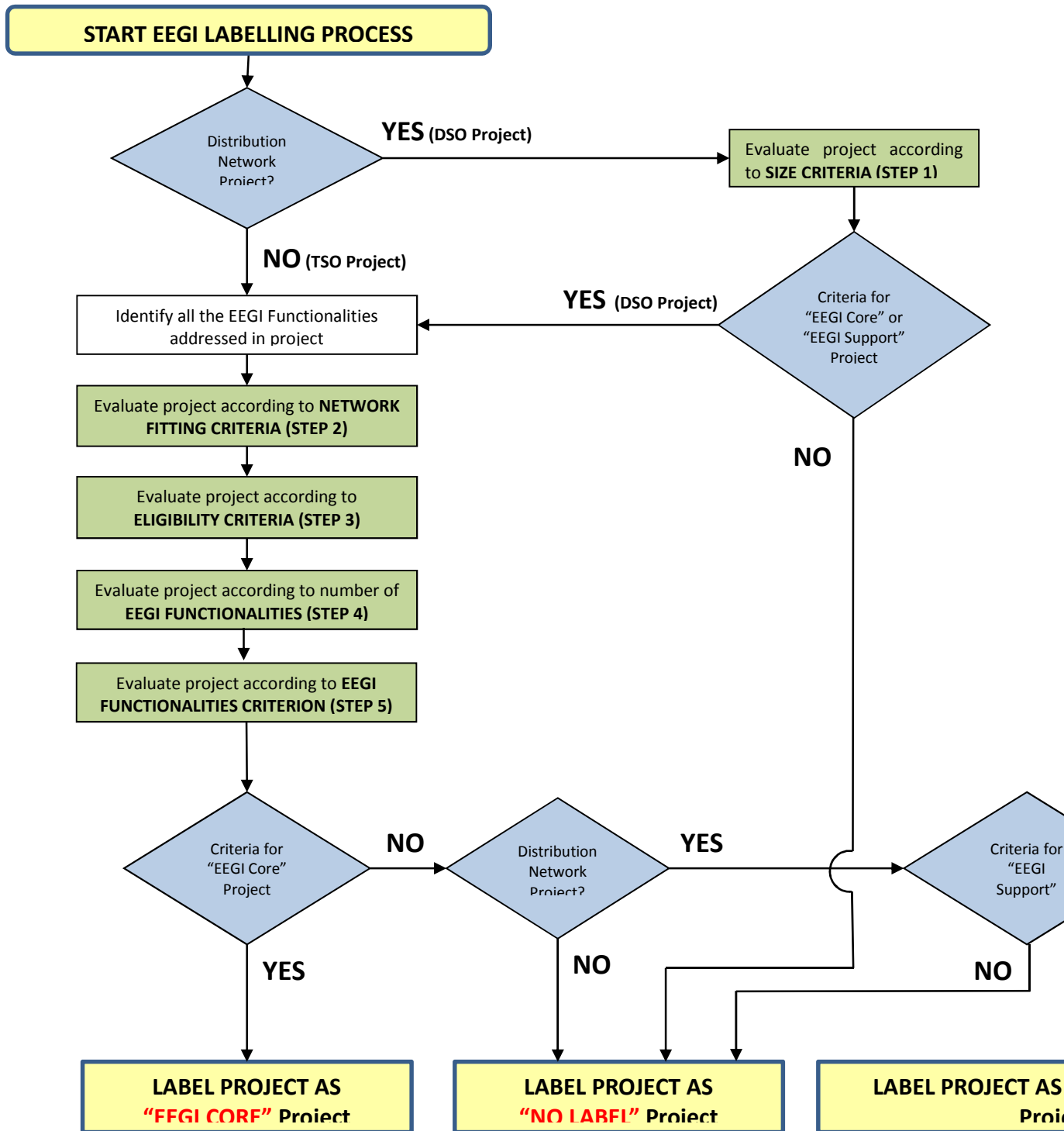
The projects may be categorised by type as show in the Table 1 below

	“EEGI Core”	“EEGI Support”	No EEGI Label
TSO Projects	X		X
DSO Projects	X	X	X

Table 1 Options for EEGI label depending on project type

2.2 Overview of EEGI Labelling Process

The EEGI Labelling Process is a **five step process** summarised in Figure 1 with a necessary prerequisite related to the completion of the EEGI Labelling Assessment Form by the project to undergo the EEGI Labelling Process.



1. If any of the criterion are not satisfied, the project can not be classified as an "EEGI Core" project and evaluation of the other remaining criterion, not already evaluated, will not be necessary.
2. If any of the criterion are not satisfied, the project can not be classified as an "EEGI Support" project and evaluation of the other remaining criterion, not already evaluated, will not be necessary.

Note that Step 1: SIZE Criterion is only applied to DSO projects, and is used as a pre-filter in EEGI Labelling Process. This will give experts a quick method to quickly discard those projects that, due to their limited size, are outside the scope of EEGI and therefore do not qualify for EEGI Label.

With regard to TSO Projects, these projects typically involve system level innovations that could be brought by “small” projects (ICT), therefore this STEP is **NOT applicable**.

Once this filtering is completed, an identification of the functionalities covered in the project must be performed. Upon an identification of functionalities covered in the project, the project will test if it satisfies the set of common criteria (NETWORK FITTING, ELIGIBILITY, EEGI FUNCTIONAL OBJECTIVES).

2.3 Details of the EEGI Labelling Process

2.3.1 Introduction

This section provides a detailed description of each of the five steps in the EEGI labelling process.

2.3.2 STEP1: Size Criteria (only applicable to DSO Projects)

The aim of including a size criterion is to provide an objective methodology for experts to filter out those small projects that are out of the scope of the initial objectives of the EEGI which aim at “*system level innovation and demonstration activities*”. In this context, to measure “the system-level impact” of the solutions brought forward in the project. The criterion will be evaluated on the basis of a minimum total budget for the project.

- **Minimum Budget** – Used as a proxy for absolute benefits that a demonstration activity will bring (which a-priori is impossible to measure). The advantage for using the cost as a size criteria are twofold:
 - a) Cost is a measurable indicator
 - b) It is assumed that operators performing individual demonstration activities will only perform these if they expect benefits to exceed costs (and therefore at a minimum, cost is equal to benefits).


Size Criteria only applies to DSO Projects.

Labelling Criteria ID	Size Criteria	Requirement for "EEGI Core" Label	Requirement for "EEGI Support" Label
1.1	Project has a total budget greater or equal to 15M€	✓	
1.2	Project has a total budget greater or equal to 2M€	✓	✓

Table 2 EEGI labelling size criterion

Details of Size Criteria:

- No EEGI label will be assigned for demonstration network projects with budgets less than 2M€

	IMPORTANT
<p>ONLY in the case that the analysed project satisfies the necessary size criteria to be labelled as "EEGI Core" or "EEGI Support" project, should experts proceed to STEP 2 and beyond. Otherwise, analysis should STOP</p>	

Full decision on labelling of "EEGI Support" project will depend on analysis described in Step 2, Step 3, Step 4, and Step 5.

2.3.3 STEP2: Network Fitting Criteria

Network Fitting criteria refers to those specific criteria that fit network requirements of TSO and DSO demonstration activities.

Labelling Criteria ID	Network Fitting Criteria	TSO Projects	DSO Projects	
		Requirement for "EEGI Core" Label	Requirement for "EEGI Core" Label	Requirement for "EEGI Support" Label
2.1	Project/Proposal provides proof of significant involvement of at least <u>three TSO operators</u>	✓		
2.2	Project/Proposal provides proof of significant involvement of at least <u>one DSO operator</u>		✓	✓

Table 3 EEGI labelling network fitting criteria

2.3.4 STEP3: Eligibility Criteria

Eligibility criterion refers to those minimum requirements that each labelled project **must comply** with to be labelled as either “EEGI Core” or “EEGI Support” Project.

- To be labelled as “EEGI Core”, all categories of projects (TSO, DSO) must satisfy **all eligibility criteria** (if applicable).
- In case that a project does not satisfy **all** the defined eligibility criteria (if applicable), projects will be given “No Label”.
- The set of eligibility criteria are listed in Table 4
- A detailed definition of the eligibility criteria can be found in Annex 1.

Labelling Criteria ID	Eligibility Criteria	Requirement for “EEGI Core” Label	Requirement for “EEGI Support” Label
3.1	Project provides proof of substantial innovation with respect to existing products and projects	✓	✓
3.2	Project complies with knowledge sharing rules specified in EEGI Programme	✓	✓
3.3	Project has policy on standards/interoperability from the design stage	✓	✓
3.4	Project considers & analyses cyber security issue and data privacy <i>(if applicable)</i>	✓ <i>(if applicable)</i>	✓ <i>(if applicable)</i>
3.5	Project considers issues regarding the environmental impact and the social acceptance of deployment of solutions <i>(if applicable)</i>	✓ <i>(if applicable)</i>	✓ <i>(if applicable)</i>

Table 4 EEGI labelling eligibility criteria



IMPORTANT

As a prerequisite to complete EEGI Labelling Process, it is necessary that experts performing EEGI Labelling Process have at their disposal the list of existing “EEGI Core” labelled projects. This will be necessary in performing analysis (i.e. proof of substantial innovation) and is required to avoid duplication in the labelling of EEGI projects.

2.3.5 STEP4: EEGI Functionalities

This section on the EEGI Labelling Process involves identifying all the high-level functionalities addressed by project .

In the *EEGI Roadmap 2013-22*, for each type of project (Transmission Network, Distribution Network, Joint Transmission & Distribution Network), a set of EEGI Functional Objectives are defined. In order to assess the correlation between activities performed in the project and those defined in the EEGI Functional Objective descriptions, an **analysis of all those Smart Grid functionalities** addressed in the project must be performed by experts. To this end, the **EEGI Labelling Assessment Form** provided in this document will be used. An expert must check all those Smart Grid functionalities within each EEGI Functional Objective that are addressed in the project undergoing labelling process.

Although defined in the “EEGI Functional Objectives Criteria” specified in Step 5, the criteria for “EEGI Core” and “EEGI Support” Project will be related the number of High-level EEGI Functionalities that are addressed in the project. It should be noted that a single EEGI Functional Objective will address various high-level EEGI Functionalities (refer to *EEGI Labelling Application Form* in Annex 4 for a list of these functionalities)

EEGI Functionalities	
Number of EEGI High-Level Functionalities Addressed (i.e. count number of Xs in all tables of this step)	

Table 5 EEGI Functionalities

2.3.6 STEP5: EEGI Functionalities Criteria

The EEGI Functional Objectives Criteria refer to those requirements related to EEGI Objectives that the project must satisfy.

As a summary, one of the criteria is the number of high-level functionalities addressed whose requirement per project type and type of label is defined below.

	Number of EEGI High-level functionalities addressed requirement per Project Type		
	0	≥1	≥3
“EEGI Core”			X
“EEGI Support”		X	
“No EEGI Label”	X		

Table 6 Requirement of EEGI high-level functionalities

The table in the next page summarises the set of EEGI Functional Objectives Criteria, as defined per type of project and type of label. A detailed definition of the Functional Objectives Criteria can be found in Annex 2.

Labelling Criteria ID	EEGI Functional Objectives Criteria	TSO Projects	DSO Projects	
		Requirement for "EEGI Core" Label	Requirement for "EEGI Core" Label	Requirement for "EEGI Support" Label
5.1	The Project is in line with EEGI Objectives and goals of at least three EEGI Functional Objectives , as defined in the <i>EEGI Roadmap 2013-22</i> . Project must provide a clear commitment for supporting and collaborating with other relevant projects.	✓	✓	
5.2	Project provides proposal for scaling-up of solutions, and existence and quality of a Deployment Plan of the tested solution within network operated by transmission and/or distribution system operator involved in Project. The analysis of the scaling-up potential of solutions tested in the demonstration project under analysis, may be performed in another funded project (i.e. National Demo project assesses scaling-up potential through a supporting EU funded project).	✓	✓	
5.3	Project provides proposal for replicability of solutions, and existence and quality of a Deployment Plan of the tested solution in support of replication projects in other Member States of EU27. The analysis of the replication potential of solutions tested in the demonstration project under analysis, may be performed in another funded project (i.e. National Demo project assesses replicability potential through a supporting EU funded project).	✓	✓	
5.4	Project provides Deployment cost/benefit analysis.	✓	✓	

Table 7 EEGI Labelling Functional Objectives Criteria



3 EEGI LABELLING ASSESSMENT FORM

The EEGI Labelling Assessment Form is intended to be used by members of the expert group for the evaluation of projects for the purpose of EEGI labelling. The full assessment form can be found in Annex 3.

4 EEGI LABELLING APPLICATION FORM

The aim of the EEGI Labelling Application Form is to provide EEGI Labelling experts with a means of having all the necessary information from the projects under analysis. The application form will be completed by the project coordinator. In the case that all the information needed for evaluating a project can be found in the **JRC Database**, this questionnaire is not necessary for completion.

An electronic version of the application form can be found on the GRID+ website (URL:http://www.gridplus.eu/Documents/EEGI_Labelling_Application_Form.docx)

5 EEGI LABELLING WORKING PRINCIPLES AND RULES

5.1 Rules on experts performing EEGI Labelling

This section defines the minimum set of rules regarding the selection of experts in EEGI project evaluations specific to European and National Projects.

To avoid conflict of interest, the members of the expert group who will be completing the labelling evaluation will not be permitted to evaluate projects where they may have involvement in. The maximum and minimum number of experts who will complete the evaluation of any given project will also be defined to ensure adequate and unbiased consideration is given to each project whilst maintaining an acceptable level of efficiency in completing this process.

5.1.1 Selection of EEGI Labelling Experts

- 1.1 *GRID+ will be responsible for identifying the experts in charge of EEGI Labelling activities, which will come both from partners of the GRID+ team as well as volunteers of the EEGI Team. This selection will be based on forming a balanced group of experts in terms of geography, competence, and experience in the field of Smart Grids.*

5.1.2 Evaluation of European Projects

- 1.2 *Experts that work for the same organization as that of one of the partners or third parties of the European Project under analysis, **will not** be permitted to perform an EEGI Labelling analysis of the project.*
- 1.3 *In the analysis of European Projects, at least one expert must work for an organization which is a partner or third party of the GRID+ project.*

5.1.3 Evaluation of National Projects

- 1.4 *Experts that work for the same organization as that of one of the partners or third parties of the National Project under analysis, **will not** be permitted to perform an EEGI Labelling analysis of the project.*

- 1.5 Experts that have the nationality of the country where the National Project takes place **will not** be permitted to perform an EEGI Labelling analysis of the project.
- 1.6 In the analysis of National Projects, at least one expert must work for an organization which is a partner or third party of the GRID+ project.

5.2 Rules on composition of expert groups for identification of EEGI Projects

Regarding the composition of the group of experts analysing the projects eligible for EEGI Label, a minimum set of rules will also apply.

- 1.7 Projects undergoing EEGI Labelling Process must be evaluated by a minimum of 3 experts and a maximum of 7.
- 1.8 Group of experts selected by GRID+ to perform EEGI Labelling will be divided into sub-teams that will be responsible for evaluating the same projects, in accordance with what is defined in 1.7.

5.3 Rules on expert agreement for identification of EEGI Projects

Regarding the rules governing the minimum number of experts that must agree on the result of an EEGI Label, find below the proposed rules.

- 1.9 A minimum 60% of experts evaluating a single project must agree on the result of the evaluation for projects to be labelled as “EEGI Core”, “EEGI Support” or “No Label”.

Number of evaluators performing analysis of project	3	4	5	6	7
Minimum number of common results of expert evaluation necessary for EEGI label	2	3	3	4	5
Percentage	66%	75%	60%	66%	71%

Table 8 EEGI label evaluation rules

1.10 In the case that a minimum number of experts have not agreed on the result of the EEGI labelling exercise, the project will undergo a new EEGI labelling evaluation with a new set of approved experts. In the case that the minimum agreement necessary as defined by 1.9 has not been reached, the result of the EEGI labelling evaluation will be that proposed by the simple majority of experts in the two evaluations. In the case that an equal number of experts in the two evaluations have proposed different EEGI Labels, a final decision on the EEGI Label for proposal to the EEGI Team will be taken by GRID+

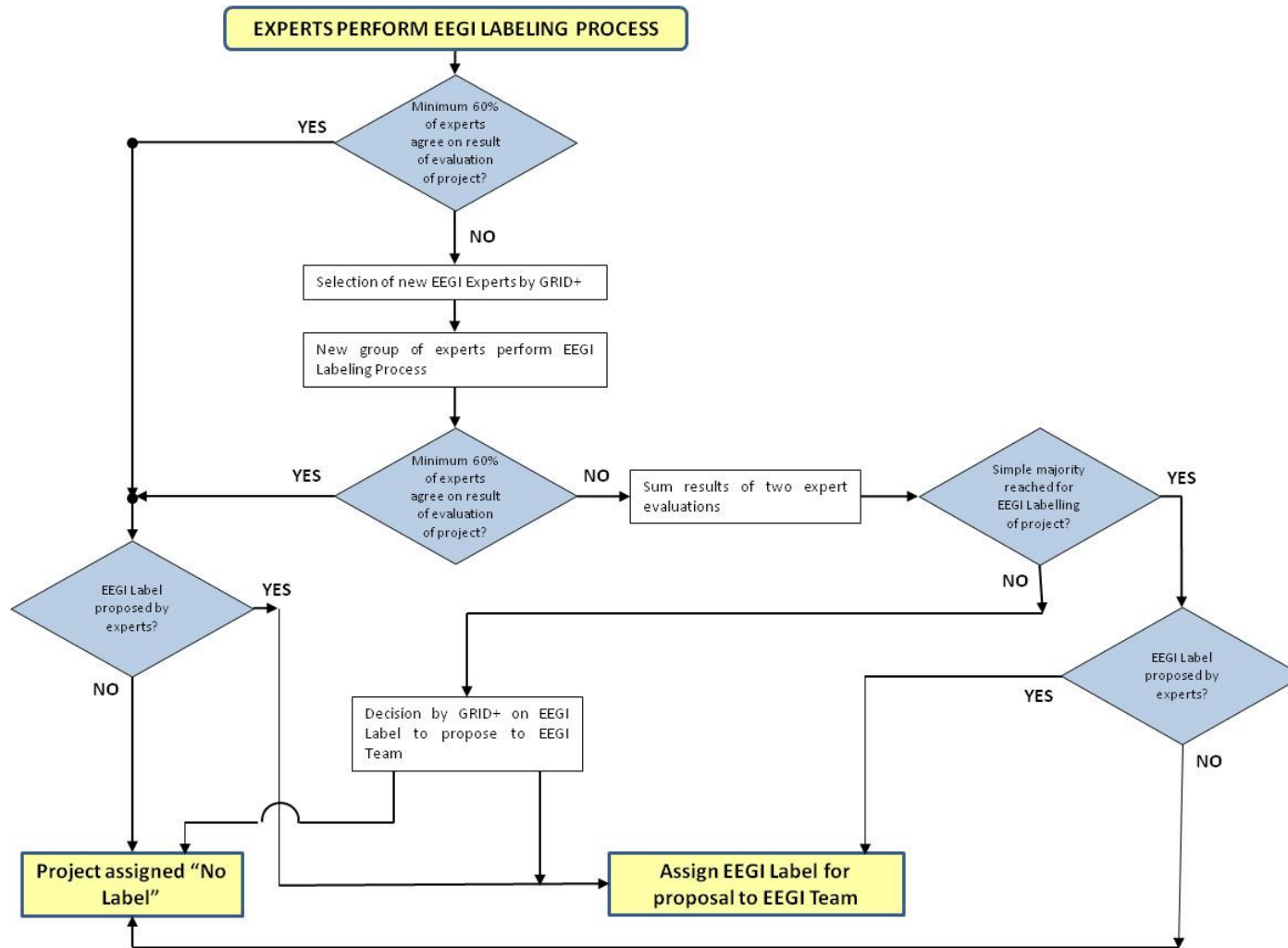


Figure 1 Flow chart of EEGI labelling process

5.4 Rules on expert Final Decision of Labelling of EEGI Projects

- 1.11 *The GRID+ project will have the responsibility of proposing to the EEGI Team the set of labels (“EEGI Core”, “EEGI Support”, “No Label”) on those projects analyzed. The EEGI Team will hold overall responsibility for approving the proposed EEGI Labels on those analyzed projects.*

5.5 Summary List of EEGI Labelling Rules and Working Principles

- 1.1 *GRID+ will be responsible for identifying the experts in charge of EEGI Labelling activities, which will come both from partners of the GRID+ team as well as volunteers of the EEGI Team. This selection will be based on forming a balanced group of experts in terms of geography, competence, and experience in the field of Smart Grids.*
- 1.2 *Experts that work for the same organization as that of one of the partners or third parties of the European Project under analysis, **will not** be permitted to perform an EEGI Labelling analysis of the project.*
- 1.3 *In the analysis of European Projects, at least one expert must work for an organization which is a partner or third party of the GRID+ project.*
- 1.4 *Experts that work for the same organization as that of one of the partners or third parties of the National Project under analysis, **will not** be permitted to perform an EEGI Labelling analysis of the project.*
- 1.5 *Experts that have the nationality of the country where the National Project takes place **will not** be permitted to perform an EEGI Labelling analysis of the project.*
- 1.6 *In the analysis of National Projects, at least one expert must work for an organization which is a partner or third party of the GRID+ project.*

- 1.7 *Projects undergoing EEGI Labelling Process must be evaluated by a minimum of 3 experts and a maximum of 7.*

- 1.8 *Group of experts selected by GRID+ to perform EEGI Labelling will be divided into sub-teams that will be responsible for evaluating the same projects, in accordance with what is defined in 1.7.*

- 1.9 *A minimum 60% of experts evaluating a single project must agree on the result of the evaluation for projects to be labelled as “EEGI Core”, “EEGI Support” or “No Label”.*

- 1.10 *In the case that a minimum number of experts have not agreed on the result of the EEGI labelling exercise, the project will undergo a new EEGI labelling evaluation with a new set of approved experts. In the case that the minimum agreement necessary as defined by 1.9 has not been reached, the result of the EEGI labelling evaluation will be that proposed by the simple majority of experts in the two evaluations. In the case that an equal number of experts in the two evaluations have proposed different EEGI Labels, a final decision on the EEGI Label for proposal to the EEGI Team will be taken by GRID+.*

- 1.11 *The GRID+ project will have the responsibility of proposing to the EEGI Team the set of labels (“EEGI Core”, “EEGI Support”, “No Label”) on those projects analyzed. The EEGI Team will hold overall responsibility for approving the proposed EEGI Labels on those analyzed projects.*

5.6 Expert Group for EEGI Labelling

The following members of the EEGI group and the GRID+ project have volunteered to participate in the labelling of EEGI projects.

Name	Company	Country	GRID+ / EEGI Volunteer
Helfried Brunner	AIT	Austria	EEGI Volunteer
Angel Díaz Gallo	TECNALIA	Spain	EEGI Volunteer
Carlos Costa Rausa	Enel Distribuzione (EDSO4SG)	Italy	GRID+
Raphael Rinaldi	Enel Distribuzione (EDSO4SG)	Italy	GRID+
Michele De Nigris	RSE	Italy	GRID+
Massimiliano Margarone	T&D Europe	Italy	GRID+
Vaclav Janousek	CEZ Distribuce (EDSO4SG)	Czech Republic	GRID+
Christophe Druet	Elia (ENTSO-E)	Belgium	GRID+
Francisco Reis	REN (ENTSO-E)	Portugal	GRID+
Pedro Godinhos Matos	EDP (EDSO4SG)	Portugal	GRID+
Ines Marques	EDP (EDSO4SG)	Portugal	GRID+
Javier Gonzalez	Zabala	Spain	GRID+
Rainer Bacher	Bacher Energie	Switzerland	GRID+
Serge Galant	TECHNOFI	France	GRID+

Table 9 EEGI labelling group

6 NEXT STEPS

6.1 Continue labelling projects

The expert group will continue labelling both national and European projects. Several applications have been received and these projects will be included in the next update of this document with a designated label approved by the EEGI group.

6.2 Develop online platform

To facilitate the EEGI Labelling process, the development of an online platform has been considered. An internet based database management system could be used to facilitate the EEGI Labelling process. Open source software such as 'Limesurvey' could be considered as a possible solution. The advantage of this approach would provide easy access for all participants, a user friendly interface where the system would implement the rules defined in the labelling process and hence providing a standardised and unambiguous procedure. Reporting facilities could also be easily developed and could potentially be used to increase transparency and information sharing.

ANNEX 1 ELIGIBILITY CRITERION DETAILED DEFINITION

ID 3.1	Project provides proof of substantial innovation with respect to existing products and projects
<p>Proof of “Substantial innovation” in the project refers to a clear demonstration that activities brought about in the project involve novel approaches in the tackling of current grid challenges. The “substantial innovation” in the project can be demonstrated in various ways:</p> <p>Solutions involve new/novel technologies which have never been tested/validated at the same scale as that proposed in project. Current list of EEGI labelled projects will be necessary for this verification.</p> <p>Solutions involve individually proven technologies, but whose system configuration is novel to currently tested/deployed solutions in Europe. Current list of EEGI labelled projects will be necessary for this verification.</p>	
ID 3.2	Project complies with knowledge sharing rules specified in EEGI Programme
<p>Knowledge sharing is at the core of the European Electricity Grid Initiative and as such, any project labelled as “EEGI Core” or “EEGI Support” must follow the knowledge sharing principles defined within the EEGI. These knowledge sharing principles must always respect commercial rights (IPR), but at the same time enough knowledge must be shared to ensure that best practices and experiences are made publicly known.</p> <p>The knowledge will be shared scrupulously respecting IPR gained by project participants and their legitimate right for industrialization and commercialization of the novel solutions developed/demonstrated in the framework of the EEGI projects.</p> <p>Detailed constructive specifications and technological solutions must be kept under strict control of rightful IPR owner. Similar consideration should have previous background and new knowledge generated out of the framework of the EEGI.</p> <p>A Knowledge Sharing Platform (KSP) is currently being developed under GRID+ (Work Package 9). The KSP will enhance the knowledge sharing potential by providing members of the wider Smart Grids community with easy access to this information. To meet this criterion on knowledge sharing, project organisers are expected to contribute to the KSP.</p> <p>As a minimum, the project must demonstrate that it complies with the FP7 rules on knowledge sharing (for further information refer to: http://www.indect-project.eu/public-deliverables).</p> <p>Projects must provide clear indications that knowledge sharing rules as specified by EEGI are followed for fulfilment of this criteria.</p>	

ID 3.3	Project has policy on standards/interoperability from the design stage
<p>The key for full-deployment of technology in development stage is that there must be a clear strategy for the interoperability of smart grid devices. Solutions proposed in analyzed projects should propose a policy on interoperability such that chosen technologies do not discriminate against any specific party or stakeholder in terms of standards implementation or usage. Projects should whenever possible use common open standards that are readily accessible to all parties at reasonable cost (free whenever possible), and without burdensome intellectual property limitations. Whenever IPR need safeguarding, it is critical that solutions allow licensing terms at reasonable cost and support continued innovation.</p> <p>The solutions the Project validates must support European standardization and interoperability efforts at all applicable levels.</p> <p>It should be noted that if the R&I project is not a direct infrastructure development such as a large scale demonstration project (i.e. the R&I project is system studies related) then evidence should be provided to show that the solution can easily be utilised universally by all potential beneficiaries within the European SG community.</p>	

ID 3.4	Project considers & analyzes cyber security issue and data privacy (if applicable)
<p>With the development of the smart grid, utilities will face a scenario where their grids are no longer isolated or protected from potential attackers, but interconnected, automated and information-rich. In this context grid operators must consider ways for mitigating threats to the grid and electric user's privacy from attacks.</p> <p>The potential areas for attack by hackers include software applications such as metering, billing, energy/recharging management, navigation, etc. With this wide array of possibilities, cyber security is a key issue if integrity and privacy of all the data in the smart grid is to be safeguarded</p> <p>Projects must therefore include in their proposed solutions an analysis of cyber security issues related to the developed solutions. This may include use of the DPIA (Data Protection Impact Assessment) that have been developed by the Smart Grid Task Force (Expert Group/EG2). In the rare case where cyber security is considered to be not relevant, this criterion is not required to be fulfilled.</p> <p>Similarly, regarding data privacy, the key issue in smart grid development is the privacy of personal information. The key issue is that information regarding a particular customer is correctly safeguarded and disposed of appropriately, if required. Furthermore, issues regarding data privacy are very much dependent on the legislation of each individual country. A common example where data privacy becomes an issue is the analysis of load profiles by utilities (using AMI) to detect fraudulent customers, or data related to particular date/time/location of Electric Vehicle recharging by particular customers.</p> <p>Projects must consider all the issues related to data privacy in proposed solutions and clear indications that solutions are in line with the data privacy legislation of that particular country. In the case where data privacy is not applicable in project, it is not required that this criteria be fulfilled.</p> <p>Projects must consider/analyze both issues (if applicable) to satisfy Criteria 2.6</p>	

ID 3.5	Project considers issues regarding the environmental impact and the social acceptance of deployment of solutions (if applicable)
<p>The successful deployment of new solutions and novel technologies will depend on a large part on the acceptance by the customers and on people affected by new infrastructure. Further, new solutions and novel technologies could also have an environmental impact that need to be addressed. . Consumer acceptance in many ways will depend on the degree to which consumers are made an active part of the smart grid and are duly educated on its benefits. Smart Grid education initiatives therefore become a key component in the development of projects.</p> <p>Projects must consider all the issues related to environmental issues and social acceptance of deployed solutions, and detail the measures (if any) project will undertake to minimize the negative environmental impacts and increase the social acceptance of deployment of the solutions. In the case where these issues are not relevant, this criteria is not required to be fulfilled.</p>	

ANNEX 2 FUNCTIONALITY OBJECTIVES CRITERION DETAILED DEFINITION

ID 5.1	<p>The Project is in line with EEGI Objectives and goals of at least three EEGI Functional Objectives, as defined in the <i>EEGI Roadmap 2013-22</i>.</p> <p>Project must provide a clear commitment for supporting and collaborating with other relevant projects.</p>
<p>Project under analysis must be in line with the objectives and goals of the EEGI. In this context, and using the “EEGI Compliance Factor Rate” as a proxy for measuring the degree to which the project is in line with the objectives and goals of the EEGI, the project must at least address 3 EEGI Functional Objectives. In this context, the work performed in Step 4 of EEGI Labelling Criteria must be picked up.</p> <p>Furthermore, in the context of creating a family of projects for each EEGI Functional Objective, the project under analysis must provide an assessment of complementarities/differences the project presents with respect to other EEGI labelled projects. Furthermore, the project must be committed to provide support and collaboration with other relevant projects (not necessarily EEGI labelled projects).</p>	

ID 5.2	<p>Project provides proposal for scaling-up of solutions, and existence and quality of a Deployment Plan of the tested solution.</p>
<p>In the context of the EEGI, as defined in the EEGI Roadmap 2013-22, deployment refers to full scale implementation of a given solution on the electricity network. The project must include a proposal for a Deployment Plan for the full-scale implementation of the studied solutions in region of operation. In the case that scalability studies of the tested solutions in the demonstration project are addressed in another funded project, a reference to this project should be specified (a typical example is a National demonstration project that has approved funding for further scalability/replicability studies in another financing mechanism – i.e. European Project)</p> <p>It should be noted that if the R&I project is not a direct infrastructure development such as a large scale demonstration project (i.e. the R&I project is system studies related) then evidence should be provided to show that the project would support a pan-European/system wide scope and that the solution can easily be utilised universally by all potential beneficiaries within the European SG community.</p>	

ID 5.3	<p>Project provides proposal for replicability of solutions, and existence and quality of a Deployment Plan of the tested solution in support of replication projects in other Member States of EU27.</p>
<p>In the context of the EEGI, as defined in the EEGI Roadmap 2013-2, deployment refers to full scale implementation of a given solution on the electricity network.</p> <p>In the context of one of the purposes of the EEGI program of providing solutions that are replicable to other EU contexts, the project should provide replication options for the tested solutions. This requires that the project provide a plan for assessing flexibility of the tested solutions and a possibility to modify the solutions to adapt them to different contexts, where network, regulatory, customer, and geographic environment could be different. The solutions presented should therefore be easy to replicate and have</p>	

the possibility to be installed in different conditions. Deployment Plan must take the issue of replicability into consideration.

Deployment Plans with solutions that are very rigid and do not provide possibility for replication in contexts with different conditions (network, regulatory, customer, geographic) will not comply with this criteria.

Typically, projects with demonstration activities in only one single region may be lacking plausible Deployment Plans that guarantee the replicability of the project in other Member States of EU27 for full deployment.

In the case that replicability studies of the tested solutions in demonstration project are addressed in another funded project, a reference to this project should be specified (a typical example is a National demonstration project that has approved funding for further replicability studies in another financing mechanism – i.e. European Project)

It should be noted that if the R&I project is not a direct infrastructure development such as a large scale demonstration project (i.e. the R&I project is system studies related) then evidence should be provided to show that the project would support a pan-European/system wide scope and that the solution can easily be utilised universally by all potential beneficiaries within the European SG community.

ID 5.4 Project provides Deployment cost/benefit analysis.

In addition to a plan for deployment of tested solutions, project must include an analysis of the expected costs and expected benefits of full deployment of the solution in the region of operation. Projects who do not include a Deployment cost/benefit Plan will not comply with this criterion, necessary for “EEGI Core” project labelling. Reference could be made to the FP7 funded THINK project which is an academic project to advise the EC on CBA for infrastructure projects in the energy sector. This is covered in under Research Topic 10 of the THINK projects and further reference and publications can be found on the website (<http://www.eui.eu/Projects/THINK/Research/Topic10.aspx>)




ANNEX 3 EEGI LABELLING ASSESSMENT FORM

EEGI Labeling: Assessment Form

1 Name of Project		
2 Leading Organization (Name + Country)		
3 Contact person (ie. Project Leader)		
4 Contact information of Project Leader (i.e. Email, Telephone)		
5 Category of Project:	<input type="checkbox"/> Transmission Network Project, <input type="checkbox"/> DSO involved	<input type="checkbox"/> Distribution Network Project, <input type="checkbox"/> TSO involved
6 Total Project Budget in Euro		
7 Physical Location(s) of the physical implementation of each demo site(s)		
8 Number of Transmission Network Operators with significant involvement in project		
9 Number of Distribution Network Operators with significant involvement in project		

STEP 1: SIZE CRITERIA (Only for Distribution Network Projects)

Criteria ID	(DSO) Requirement for "EEGI Core" Label	(DSO) Requirement for "EEGI Support" Label	Description	Answer
1.1	•		Project has a total budget greater or equal to 15M€	YES NO LACK INFORMATION
1.2	•	•	Project has a total budget greater or equal to 2M€	YES NO LACK INFORMATION

 **IMPORTANT FOR Distribution Network Projects ONLY**

ONLY in the case that the analyzed project satisfies the necessary size criteria to be labeled as "EEGI Core" or "EEGI Support" project, should experts proceed to STEP 2 and beyond. Otherwise, analysis should STOP

STEP 2: NETWORK FITTING CRITERIA						
ID	Transmission Network Projects	Distribution Network Projects		Description	Answer	Comments
	Requirement for "EEGI Core" Label	Requirement for "EEGI Core" Label	Requirement for "EEGI Support" Label			
2.1	●			Project/Proposal provides proof of significant involvement of at least <u>three Transmission Network operators</u>	YES NO LACK INFORMATION	
2.2		●	●	Project/Proposal provides proof of significant involvement of at least <u>one Distribution Network operator</u>	YES NO LACK INFORMATION	

STEP 3: ELIGIBILITY CRITERIA					
ID	Requirement for "EEGI Core" Label	Requirement for "EEGI Support" Label	Description	Answer	Comments
3.1	●	●	Project provides proof of substantial innovation with respect to existing products and projects	YES NO LACK INFORMATION	
3.2	●	●	Project complies with knowledge sharing rules specified in EEGI Programme	YES NO LACK INFORMATION	
3.3	●	●	Project has policy on standards/interoperability from the design stage	YES NO LACK INFORMATION	
3.4	● <i>(if applicable)</i>	● <i>(if applicable)</i>	Project considers & analyzes cyber security issue and data privacy	YES NO LACK INFORMATION NOT APPLICABLE	
3.5	● <i>(if applicable)</i>	● <i>(if applicable)</i>	Project considers issues regarding the environmental impact and the social acceptance of deployment of solutions	YES NO LACK INFORMATION NOT APPLICABLE	



STEP 4: EEGI Functionalities Addressed

*To address an EEGI Functional Objective the project must provide some of the functionalities defined by that Functional Objective. The list of functionalities addressed are provided in the EEGI Labelling Application Form.

EEGI Functionalities

<u>Number of EEGI Functional Objectives Addressed</u> (i.e. count number of Xs in all tables of STEP 4 of the Application form)	
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STEP 5: EEGI FUNCTIONAL OBJECTIVES CRITERIA

	Transmission Network Projects	Distribution Network Projects				Comments
	Requirement for "EEGI Core" Label	Requirement for "EEGI Core" Label	Requirement for "EEGI Support" Label			
5.1	●	●		<p>The Project is in line with EEGI Objectives and goals of at least three EEGI Functional projects, as defined in the <i>EEGI Roadmap 2013-22 and Implementation Plan 2014-16</i>.</p> <p>Project must provide a clear commitment for supporting and collaborating with other relevant projects.</p>	YES NO LACK INFORMATION	
5.2	●	●		<p>Project provides proposal for scaling-up of solutions, and existence and quality of a Deployment Plan of the tested solution within network operated by transmission and/or distribution system operator involved in Project.</p>	YES NO LACK INFORMATION	
5.3	●	●		<p>Project provides proposal for replicability of solutions, and existence and quality of a Deployment Plan of the tested solution in support of replication projects in other Member States of EU27.</p>	YES NO LACK INFORMATION	
5.4	●	●		<p>Project provides Deployment cost/benefit analysis.</p>	YES NO LACK INFORMATION	

List of criteria unable to analyze due to lack of information

The table below should contain the set of criteria that have not been analyzed in EEGI Labeling Process due to a lack of information provided in the project information available (i.e. all those criteria for which result is “LACK INFORMATION”). This list of information should be received by coordinator of project undergoing EEGI Labeling process, with the aim of having this information duly completed to finalize EEGI Labeling Process.

List of non-analyzed criteria	
Labeling Criteria ID	Description of missing information
X.X	XXXXXXXXXXXXXXXXXXXXXXXXXXXX

Based on the above responses, please indicate with an “X” the type of EEGI label appropriate for this project:

“EEGI Core”	
“EEGI Support” (only Distribution Network Projects)	
No Label	
To be determined (require more info on Project)	



ANNEX 4 EEGI LABELLING APPLICATION FORM

EEGI Labelling: Project Application Form

Form to be filled in by projects applying for EEGI Label and undergo EEGI Labelling process.

Completed form should be sent to Gareth Bissell with copy to Carlos Costa Rausa

(To: GarethRobert.Bissell@enel.com, cc: carlosfrancisco.costarusa@enel.com)

Name of Project		
Leading Organization (Name + Country)		
Project Partners (Name + Country)		
Contact person (i.e. Project Leader)		
Contact information of Project Leader (i.e. Email, Telephone)		
Overall Project Objectives		
Category of Project:	<input type="checkbox"/> Transmission Network Project <input type="checkbox"/> DSO involved	<input type="checkbox"/> Distribution Network Project <input type="checkbox"/> TSO involved
Type of project (please select one or more)	<input type="checkbox"/> Demonstration project <input type="checkbox"/> System studies / Simulation tools project <input type="checkbox"/> Other (please specify) _____	
Total Project Budget		
Number of demonstration sites (if applicable)		
Physical Location of the demo sites (if applicable)		
Number of Transmission Network Operators with significant involvement in project		
Number of Distribution Network Operators with significant involvement in project		



Project Features Questionnaire for EEGI Labelling

(in case information already provided in JRC Template, specify *“Info provided in JRC Template”*)

1. Please indicate **clearly and concisely the main innovation** provided by the project with respect to existing solutions and ongoing projects on the same topic in Europe?



2. Please specify whether the project is willing to contribute to the EEGI Knowledge Sharing Platform (KSP) by sharing knowledge acquired from the project?

YES NO

The KSP is a tool currently under development by the GRID+ Project in support of the EEGI and aimed at enhancing the knowledge sharing potential by providing members of the wider Smart Grids community with easy access to information coming out of Smart Grid related projects.

Furthermore, please indicate the type of innovation and knowledge from the project that the project intends to make available (examples could include: Project results, details of different developed solutions (safeguarding IPR), details of adopted methodologies, main learning points from project, risk management issues and solutions, etc...)



3. Please indicate what standards/interoperability issues are intended to be tested by the project and how? If not addressed, why ?

If the R&I project is not a direct infrastructure development such as a large scale demonstration project (i.e. the R&I project is system studies related, development of software tools etc.) then evidence should be provided to show that the project would support a pan-European/system wide scope and that the solution can easily be utilised universally by all potential beneficiaries within the European SG community.



4. Please indicate, how the project addresses issues related to cyber security and privacy of the tested solutions? If not addressed, why?



5. Please indicate **what are the environmental impacts and social acceptance** issues that are addressed by the project in order to prepare its deployment? If not addressed, why?



6. Please describe how the project intends to study the scaling-up potential of the tested solutions in the area where the study was performed. And please specify if there exists a Deployment Plan involving the scaling-up of the project solutions within the above mentioned network. If not addressed, why not?

The scalability study should address the extent to which a development tested in the project can be extended to a larger area within the same boundary conditions (same regulatory framework).

In the case that scalability studies of the tested solutions in the demonstration project are addressed in another funded project, please specify this project (a typical example is a National demonstration project that has approved funding for further scalability/replicability studies in another financing mechanism – i.e. European Project).

If the R&I project is not a direct infrastructure development such as a large scale demonstration project (i.e. the R&I project is system studies related) then evidence should be provided to show that the project would support a pan-European/system wide scope and that the solution can easily be utilised universally by all potential beneficiaries within the European SG arena



7. Please describe how the project intends to push for replication of the solutions demonstrated in the Project in other EU27 Member States networks. And please specify if there exists a Deployment Plan to ensure the replication of the project solutions in other EU27 Member States networks? If not addressed, why not?

Replicability of solutions is understood as the extension to which an experience is tested/analyzed in a different geographical region-i.e. other EU Member State with different regulatory regime, customer conditions, network topology, etc.

In the case that replicability studies of the tested solutions in demonstration project are addressed in another funded project, please specify this project (a typical example is a National demonstration project that has approved funding for further replicability studies in another financing mechanism – i.e. European Project)

If the R&I project is not a direct infrastructure development such as a large scale demonstration project (i.e. the R&I project is system studies related) then evidence should be provided to show that the project would support a pan-European/system wide scope and that the solution can easily be utilised universally by all potential beneficiaries within the European SG community.



8. Please indicate if the Project has performed a cost / benefit analysis of the deployed project solutions in local networks and/or in other EU27 Member States. If not addressed, why not?

STEP 4: EEGI Functionalities Table

*To address an EEGI Functional Objective the project must provide some of the functionalities defined by that Functional Objective. The list of functionalities provided here are intended for guidance and are not intended to be a definitive list. Please refer to the EEGI Roadmap 2013-2022 for a more detailed description of the objectives and specific tasks that define the functionalities of each EEGI Functional Objective.

Please mark with an ‘X’ the EEGI Functional Objectives that the project relates to and include supporting comments where applicable.

TSO Projects						
EEGI Cluster	Cluster Name	EEGI Functional Objective	Description	Functionalities	Functionality Tested / Demonstrated in Project *	Comments (optional)
C1	Grid architecture	T1	Definition of scenarios for pan-European network expansion	Defines pan-European network expansion scenarios (consideration of RES and DER for pan-European network). Identifies investment required to achieve 2050 vision with different decarbonisation scenarios of	(mark with X)	

				generation mix, storage and demand mix.		
		T2	Planning methodology for future pan-European transmission system	Development of cost-benefit analysis for optimizing grid development at Pan EU level, or development of new algorithms or database tools for network simulations, enabling the integration of new emerging technologies such as HVDC, GIS, FACTS...		
				Security assessment: provide constraints/indicators to design proper grid code in line with security expectations of novel architecture.		
				Address local and regulatory constraints to favour cross-border operation.		
		T14	Towards increasing public acceptance of transmission infrastructure	Contribution to a EU guide for construction of environmentally friendly electricity grids.		
				Providing physical protection of the grid infrastructures against potential dangers: natural catastrophes, terrorism, cyber attacks etc.		

				Develop methodologies and software to evaluate birds collision, exposure of persons and animals to EMF, audible noise, etc., and to reduce the impacts on them.		
C2	Power technologies	T3	Demonstration of power technology to increase network flexibility and operation means	Demonstration of power technologies able to increase thermal capacity of existing grid (internal & cross-border) & associated tool		
				Demonstration of power flow controlling devices & associated tool		
				Cost benefit analysis for different study cases		
		T4	Demonstration of novel network architectures	Demonstration of new AC EHV lines (EU backbone)		
				Demonstration of HVDC links		
				Demonstration of superconducting technologies		

		T5	Interfaces for large-scale demonstration of renewable integration	Effective management rules of variable power production in liberalized market and power markets		
				Control procedures for system security & ancillary services by central plants, renewable energy sources (centralized & decentralized)		
				Demonstration of innovative devices for monitoring system stability, avoiding large-scale intra-zone oscillations		
C3	Network operation	T6	Innovative tools and methods for pan-European network observability and controllability	Provides solutions which improve the ability to observe and control the pan-European system using information provided by local sensors (like PMU) and models, as well as information provided by forecasting tools.		
		T7	Innovative tools and methods for coordinated operation with	Develops new tools to facilitate the harmonisation and coordination of operational procedures between TSOs so		

			<p>stability margin evaluation</p>	<p>that electricity is delivered at the level of quality customers require.</p> <p>Uses these tools to assess future network challenges such as managing reserves, maintaining reliability levels with increasing RES and market integration, automatic protection schemes, defense and restoration plans.</p> <p>Training & certification procedures for operators: TSO operators, DSO operators (interface grid/distribution) & Plant operators (interface grid/power plant)</p>		
		T8	<p>Improved training tools and methods to ensure better coordination at the regional and pan-European levels</p>	<p>Develops new training programmes which are validated at the prototype level with dispatchers. This involves novel man-machine interfaces where the state of neighboring systems is displayed using new visualization techniques and allows interactions between operators in either simulated or real scenarios.</p>		

				Development and testing of common procedures to face emergency scenarios		
		T9	Innovative tools and approaches for pan-European network reliability assessment	Evaluates whether current security of supply and reliability criterion are appropriate for future system requirements.		
				Identifies options for a new approach to define security of supply and reliability criterion. Provide an approach to risk assessment and develop indicators for evaluating this new criterion.		
C4	Market designs	T10	Advanced pan-European market tools for ancillary services and balancing, including active demand management	Analysis of balancing control needs in future EU power system and assessment & development of balancing control markets & automatic control schemes		
				Design of market mechanisms for incentivizing both maximization of the provision of AS and reduction of AS use.		
				Design & development of mechanisms and platforms for XB balancing services and related XB reserve services towards a possible future development of regional/ pan-		

				regional markets		
				Perform case studies analyzing the economical & technical impact of common EU solution for balancing control, based on results of tech. Demonstrations		
		T11	Advanced tools for capacity allocation and congestion management	Model TSO's strategies in view of improved congestion management, and to analyze the possibility of more options, if any for a Pan-EU market		
				Expand flow-based market coupling (FB MC) in areas with inter-dependent flows, coexisting with ATC MC approaches in other adjacent regions without interdependent flows		
				Development of algorithms for computing possible extra capacities available near RT, respecting the security criteria without need of counter-trading issues. Risk-benefit analysis		
				Development of interface with Congestion Management Module		

		T12	Tools and market mechanisms for ensuring system adequacy and efficiency in electric systems integrating very large amounts of RES generation	<p>Design market mechanisms for controlling RES production (under regional/ local constraints or electric imbalance situation)</p> <p>Develop tools for obtaining ancillary services and balancing energy from RES</p> <p>Design market mechanisms for incentivizing the flexibility of future and current production units</p> <p>Design and development of market mechanisms for an active demand side management (DSM) in electrical system operations</p>		
C5	Asset management	T15	Objectives Developing approaches to determine and to maximize the lifetime of critical power components for existing and future networks	Identifies approaches of calculating and maximizing the lifetime of critical power components for the existing and future networks are to be developed and validated.		
		T16	Development and validation of tools which optimize	Defines methods and tools to optimize asset management at the system level. The proposed		

			asset lifetime at the system level, based on quantitative cost/benefit analysis	<p>methodology provides an assessment of the costs and benefits of different asset management strategies. The methodology proposes a risk based approach at the system level, including interactions between equipment, impacts on security and quality of supply and also environmental and safety constraints. The organization of maintenance work, availability of spare parts (supply chain, quantity of spare parts and location) are part of the global optimization challenge</p> <p>Provides tools for dynamic management of outage planning & maintenance schedules.</p>		
		T17	Demonstrations of potential at EU level for new approaches to asset management	Scaling up of new asset management approaches are demonstrated and its potential for replication at EU level. This includes demonstrations in several control zones with several manufacturers, a typical set of critical power technologies and experimental results to prepare for scaling-up and		



				replication.		
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TSO/DSO Projects						
EEGI Cluster	Cluster Name	EEGI Functional Objective	Description	Functionalities	Functionality Tested / Demonstrated in Project *	Comments (optional)
TD	Joint TSO/DSO Activities	TD1	Increased observability of the distribution system for transmission network management and control	Load and generation modelling based on data aggregation allowing for clear responsibilities between TSOs, DSOs, generators, retailers and customers Forecasting engine integration to allow for more accurate production and load analysis Feasibility of new DER connection requirements which allow for the deployment of DER control centres responding to both	(mark with X)	

				TSO/DSO constraints		
		TD2	The integration of demand side management at DSO level into TSO operations	Models to describe customer behaviour and segmentation		
				Specification of the data needed by TSOs for a pan-EU tool in order to integrate DSM		
				Specifications of the TSO operations to be carried out for a reduction in peak demand through active customer participation		
				Planning tools requirements when using metering data		
		TD3	Ancillary services provided through DSOs	Legal, contractual and regulatory aspects of AS provided by DG and/or loads, allowing for more aggregation of business models		
				Technical issues and novel solutions for voltage and reactive power management at TSO/DSO interfaces		
		TD4	Improved defence and restoration plan	Simulation tool allowing for the detection of weak points of reconnection scenarios involving DER units		

				<p>Assessment of potential contribution of RES, DER and micro-grids to defence plans (black-start capabilities, islanding capabilities)</p>		
				<p>Joint TSO/DSO approach for defence plans involving DER and micro-grids</p>		
				<p>Regulatory and technical challenges to implement restoration plans at pan-EU level</p>		
		TD5	<p>Tools for scaling-up and replicating at EU level</p>	<p>Studies are completed to validate a set of shared common tools and a methodology amongst network operators in Europe; these will address interoperability and standardization as well as scaling-up and replication issues with answers that can be trusted by all the involved stakeholders, including regulators.</p>		

DSO Projects

EEGI Cluster	Cluster Name	EEGI Functional Objective	Description	Functionalities	Functionality Tested / Demonstrated in Project * (mark with X)	Comments (optional)
C1	Integration of smart customers	D1	Active demand for increased flexibility	Systems that allow electricity users to visualize and control own power consumption		
				Application of time-of use tariffs.		
				Application of real-time price signals		
				Provision of Energy Supply (VPP) services by power system participants.		
				Provision of ancillary services in the form of steady state voltage control, tertiary frequency control and active tertiary reserve by power system participants.		
				Provision of balancing services by power system participants.		

				Provision of overload and congestion relief services by power system participants.		
				Provision of load shaping services (in particular load shaving) by power system participants.		
		D2	Energy Efficiency from integration with Smart Homes	Automatic control of indoor appliances to reduce peak demand and overall electricity consumption.		
				Automatic control of indoor systems (heating, cooling) to reduce peak demand and overall electricity consumption		
				Two-way Communication systems between local electricity Distribution Network and “Smart Home”.		
C2	Integration of DER and new users	D3	Integration of DER at low voltage	Voltage control and congestion management in LV network by reactive and active power management of SDER (local, centralized and a combination of both)		

				<p>Innovative/Enhanced LV network planning and operation strategies aimed at increasing DER hosting capacity</p>		
				<p>LV network operating centres (with similar options as for MV network SCADA systems) that will enable connection of small-scaled distributed generation (i.e. for example through use of data collected by AMR equipment and new equipment on “smart” secondary substation)</p>		
		D4	System integration of medium DER	<p>Active DER Control Functionalities (i.e. voltage control, reactive power management at the local, centralized and combined mode) aimed at increasing MV network hosting capacity.</p>		
				<p>Demand Response by DER connected to MV network (i.e. controllable loads and storage) aimed at increasing MV network hosting capacity.</p>		
				<p>Congestion management, dispatching and balancing of DER at MV level.</p>		

				Innovative/Enhanced MV network planning and operation strategies aimed at increasing DER hosting capacity		
		D5	Integration of storage in network management	Storage systems that address issue of variability of power availability associated with unpredictable renewable sources (i.e. wind, solar)		
				Storage systems that maintain power flow through all branches within admissible range fixed by technical standards		
				Storage systems that maintain voltage of all grid points (local, centralized and/ or a combination of both) within admissible range fixed by technical standards		
				Storage systems that address issue of islanding and micro grid operation in order to improve network availability and reliability.		
				Optimal allocation of storage system on grid (i.e. close to generation, close to usage, in-		

				line, at customer premises)		
		D6	Infrastructure to host EV/PHEV	Electric Vehicle charging infrastructure (private and public) providing recharging services to electric vehicles.		
				Development of solutions for EVs/PHEV to provide services to network (i.e. voltage and load-frequency control)		
				Central control systems that collect all relevant data (measurements) for use by relevant energy/service supplier, allowing them to provide common services across EU and in particular enabling roaming services.		
				Smart charging solutions through optimized algorithms and interaction between aggregators and system operators (DSO and TSO).		
C3	Network Operations	D7	Monitoring and control of LV network	Improved planning methodologies for LV networks based on AMM data		

				<p>Use of AMM data for improved quality of supply management (losses, load characteristics and power quality).</p>		
				<p>Use of AMM communication channel for load control, allowing better use of existing network, and reducing outages.</p>		
				<p>Use of AMM data for outage and fault management</p>		
				<p>Development of remote control systems for LV network monitoring.</p>		
		D8	Automation and control of MV network	<p>Systems that are able to implement network monitoring in an efficient and effective way</p>		
				<p>Network remote control and network automation that allow DSOs to ensure better security of supply and optimize workforce management in case of grid failures.</p>		

				<p>New systems for self-healing grid, based on fault detection at an early stage and with automatic fault clearing procedures that include automatic power restoration of healthy grid sections.</p>		
				<p>Advanced systems for fault localization</p>		
		D9	<p>Network management methodologies for network operation</p>	<p>Provides opportunities for local DC networks</p>		
				<p>Develops tools for increasing observability of the DSO network such as real time appraisal staus.</p>		
				<p>Uses improved forecasting (e.g. PV) or technology innovation (e.g. IT solutions for cost effective and reliable real time simulation tools) to optimise scheduling of renewable and thermal generation in the DSO network.</p>		
				<p>Addresses training for emergency management</p>		
				<p>Develops innovative capacity building methods to enable the mission shift of DSOs</p>		

		D10	Smart metering data utilisation	<p>Systems tools for analyzing and processing meter data, to achieve detailed information on LV network performance (e.g. power quality, power outages, losses estimation, load characteristics, etc.)</p> <p>Systems tools for analyzing and processing meter data, to detect electricity thefts and locate meter faults.</p> <p>Systems tools for analyzing and processing meter data, to detect meter tampering.</p> <p>System tools managing meter data, that optimize system and energy management.</p>		
C4	Network Planning and asset management	D11	New planning approaches for distribution networks	<p>Develops new tools and methods for network planning to incorporate new system capabilities and needs presented by the deployment of smart grid technologies.</p> <p>Contributes to streamlining the application/acceptance process with local authorities to reduce time to construct new lines.</p>		

		D12	Asset management	Provides new power technologies streamlining the regulatory procedures.		
				Facilitates maintenance strategies and training requirements following deployment of new technologies.		
				Implements more effective conditional maintenance strategies		
				Provides analysis and dissemination of results and impact assessment		
				Introduces improvements in predictive maintenance for reduced costs of corrective actions		
C5	Market Design	D13	Novel approaches for market design analysis	Provides a cost-benefit analysis accounting for new players in energy market and demand response under different market designs		
		Develops recommendations for innovative market designs allowing an increased flexibility of the network				



				Recommends regulation to enable network operators to implement new technological solutions.		
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REFERENCES

- [1] EEGI Roadmap 2013-22 and Detailed Implementation Plan