Project no.: 282794

GRID+

SUPPORTING THE DEVELOPMENT OF THE EUROPEAN ELECTRICITY GRIDS INITIATIVE (EEGI)

Instrument: Coordination and support action
Thematic priority: ENERGY.2011.7.3-1 - Network of projects developing the future European electricity Networks
Start date of project: 01 October 2011
Duration: 36 months

D 3.1

EEGI LABELLING METHODOLOGY AND FIRST RELEASE OF EEGI PROJECTS

Revision: 00

Submission date: 2013-01-30

EDSO4SG

Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential , only for members of the consortium (including the Commission Services)	

Submitted

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

Status of deliverable		
Action	**By**	**Date**
Verified	C. Costa Rausa, EDSO4SG (Enel Distribuzione)	2013-01-30
Approved (GC)	Michele De Nigris, RSE	2013-02-28

Abstract
The present document describes the EEGI Labelling methodology, which includes the following sections: - EEGI Labelling Template – Template to be completed by EEGI labelling experts for every project analyzed - EEGI Labelling User Guide – User guide to guide experts in EEGI Labeling procedure - EEGI Labelling Questonnaire – Questionnaire 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 Furthermore this document includes the first set of EEGI Labelled projects.

Revision history

Date	Version	Author(s)	Comments
2013-02-28	00	C. Costa Rausa, G. R. Bissell	Official Issue

TABLE OF CONTENTS

Page

EXECUTIVE SUMMARY

The labelling of European Electricity Grid Initiative (EEGI) projects will provide a system for validating projects that fall into the scope of the EEGI programme. The requirement for a labelling template to support the EEGI selection process is defined in Work Package 3 of the GRID+ project. This document provides a definition of an approved EEGI selection process and in support of this process an EEGI template that will be used to assess projects based on a defined criterion. A Labelling Process and methodology is described for identification of those projects that are in line with the objectives and working principles of the EEGI. A complete methodology is described, including a template to be completed by experts evaluating projects, a questionnaire to be filled in by projects in the event that information is not found in the JRC database, and a set of working principles that will define the list of experts to perform EEGI Labelling. Finally, the document presents the first list of projects that comply with the necessary requirements to be labelled as EEGI "Core" and EEGI "Support" Projects.

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 2010-2018, 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. Furthermore, the first list of EEGI Labelled Projects is included in this document. As a possible issue worth highlighting, at the time of writing this document a framework for knowledge sharing was not yet formally defined. Acknowledging that knowledge sharing is a key criterion in the assessment of added value of proposed projects, due consideration was given to knowledge sharing in the labelling of projects completed so far. The labelling of these projects will be revisited to assess full compliance to the labelling criterion once the framework for knowledge sharing is completed.

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

2.1.1 What does the EEGI Label Provide?

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 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/contracted project.

Given the vast amounts of Smart Grid projects running in Europe (refer to JRC Smart Grid Projects database), a mechanism that highlights those projects that 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 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 2010-18 and Detailed Implementation Plan 2010-12*.

2.1.2 Details of EEGI Label

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

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

Depending on category of project, labels will differ slightly. Experts performing EEGI Labelling Process will have the following three options as output of 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 basic EEGI requirements satisfied, 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”)

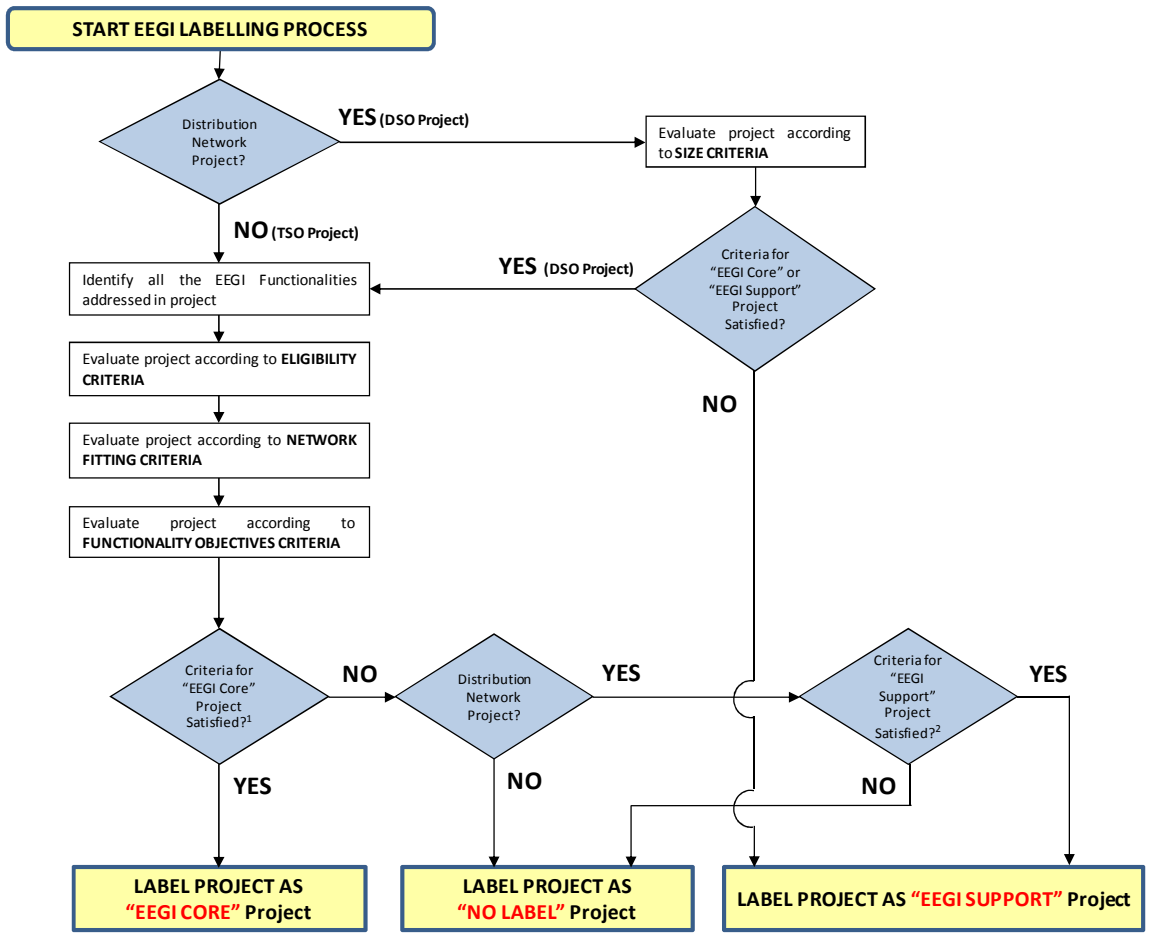
The projects maybe be categorised by type as show in the Table 1 below

	“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** summarized in Figure 1 with a necessary prerequisite related to the completion of the EEGI Labelling Template by the project to undergo 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.

Figure 1 Flow chart of EEGI labelling process

The 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 performed, 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 5 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, two indicators are selected:

- **Minimum Budget** – Used as a proxy for absolute benefits individual demonstrations within a project bring (which a-priori is impossible to measure), the cost of the individual demonstration activities is used as one of two size criteria. 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).

- **Number of LV network customers connected to network portion impacted by demonstration project –** Given that cost is not a sufficient measure of the system-level impact a particular project will have (it could be possible to have a very costly project affecting a very limited number of customers), the number of LV network customers connected to network portion being directly and indirectly affected within an individual demo site is used. With the view of simplifying process as much as possible (as requested by EEGI Team), a simple methodology for calculating this number is proposed below (Method must be used per individual demonstration activity in a single project):

Demonstration activities on MV network	Demonstration activities on LV network

(a) Count number of primary substations under which demonstration activity is performed **(b)** Identify customers supplied by each primary substation impacted by demonstration activity **(c)** Add all those customers identified in (b)	**(a)** Count number of secondary substations under which demonstration activity is performed **(b)** Identify customers supplied by each secondary substation impacted by demonstration activity **(c)** Add all those customers identified in (b)

Table 2 Demonstration activities

Size Criteria **only applies to DSO Projects**, which will typically involve several individual demos within the same large-scale demonstration project.

Labelling Criteria ID	Size Criteria	Requirement for "EEGI Core" Label	Requirement for "EEGI Support" Label
1.1	At least one individual demo of Project has budget **greater or equal to 15M€ OR at least 20000 customers impacted during project duration (Directly AND Indirectly)**.	✓	
1.2	At least one individual demo of Project has budget **greater or equal to 2M€ OR at least 1000 customers impacted during project duration (Directly AND Indirectly)**	✓	✓

Table 3 EEGI labelling size criterion

Details of Size Criteria:

- Defined budget and customer thresholds must be contrasted against each individual demo of the complete project.
- If at least one demo satisfies size criteria, the complete Project satisfies the criteria
- For those demonstration network projects that have all individual demo sites with budgets less than 2M€ AND whereby less than 1000 customers are impacted, EEGI label will not be assigned.

ONLY in the case that the analyzed 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

EXAMPLE SIZE CRITERIA: PROJECT XYZ

Large-scale Demonstration Project related to DSO involving four individual Demo sites (Demo X, Demo Y, Demo Z, Demo A):

Project XYZ		
Site	**Budget**	**Customers impacted**
Demo X	9M€	5000
Demo Y	2,5M€	2000
Demo Z	4M€	1500
Demo A	0,3M€	300
Total	10,8M€	8800

The minimum budget threshold is contrasted against each individual demo:

Project XYZ			
Site	**Budget**	**Demo satisfies "EEGI Core" size criteria (≥15M€ OR 20000 customers)?**	**Demo satisfies "EEGI Support" size criteria (≥2M€ OR 1000 customers)?**
Demo X	**4M€**	NO	✓
Demo Y	**2,5M€**	NO	✓
Demo Z	**4M€**	NO	✓
Demo A	**0,3M€**	NO	NO

Given that at least one demo site has satisfied criteria specified for "EEGI Support" Projects, the complete Project XYZ satisfies **"EEGI Support" project criteria**. 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 **three TSO operators**	✓		
2.2	Project/Proposal provides proof of significant involvement of at least **one DSO operator**		✓	✓

Table 4 EEGI labelling network fitting criteria

2.3.4 STEP3: Eligibility Criteria

Eligibility criteria 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 category of projects (TSO, DSO) must satisfy **all eligibility criteria** (if applicable).
- To be labelled as "EEGI Support", all category of projects (TSO, DSO) must satisfy **almost one of the 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 5
- 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 & analyzes cyber security issue and data privacy *(if applicable)*	✓ *(if applicable)*	✓ *(if applicable)*
3.5	Project considers issues regarding the environmental impact and the social acceptance of deployment of solutions *(if applicable)*	✓ *(if applicable)*	✓ *(if applicable)*

Table 5 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 2010-18 and Implementation Plan 2010-12*, for each type of project (Transmission Network, Distribution Network, Joint Transmission & Distribution Network), a set of EEGI Functional projects were defined. In order to assess the correlation between activities performed in project and those defined in the EEGI Functional Project descriptions, an **analysis of all those Smart Grid functionalities** addressed in the project must be performed by expert. To this end, the template provided in the ***EEGI Labelling: Template*** document will be used. An expert must check all those Smart Grid functionalities within each EEGI Functional project 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 Project will address various high-level EEGI Functionalities (refer to ***EEGI Labelling: Template*** for this table)

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

Table 6 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 criterion 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 7 Requirement of EEGI high-level functionalities

The table in the next page summarizes 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 projects**, as defined in the *EEGI Roadmap 2010-18 and Implementation Plan 2010-12*. 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.	✓	✓	
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.	✓	✓	
5.4	Project provides Deployment cost/benefit analysis.	✓	✓	

Table 8 EEGI Labelling Functional Objectives Criteria

3 EEGI LABELLING TEMPLATE

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

4 EEGI LABELLING APPLICATION FORM / QUESTIONNAIRE

The aim of the EEGI Labelling Questionnaire is to provide EEGI Labelling experts with a tool to have all the necessary information from projects under analysis. The questionnaire will be completed by the project manager. 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. Therefore experts should always first consult the JRC Database for the information regarding the project under analysis. The full questionnaire can be found in Annex 4.

An electronic version of the Application form /questionnaire can be found on the GRID+ website (URL: http://www.gridplus.eu/news/eegi-project-labelling-started)

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 whereas they may have involvement or any conflict of interest may arise. 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 analyzing 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 9 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+.*

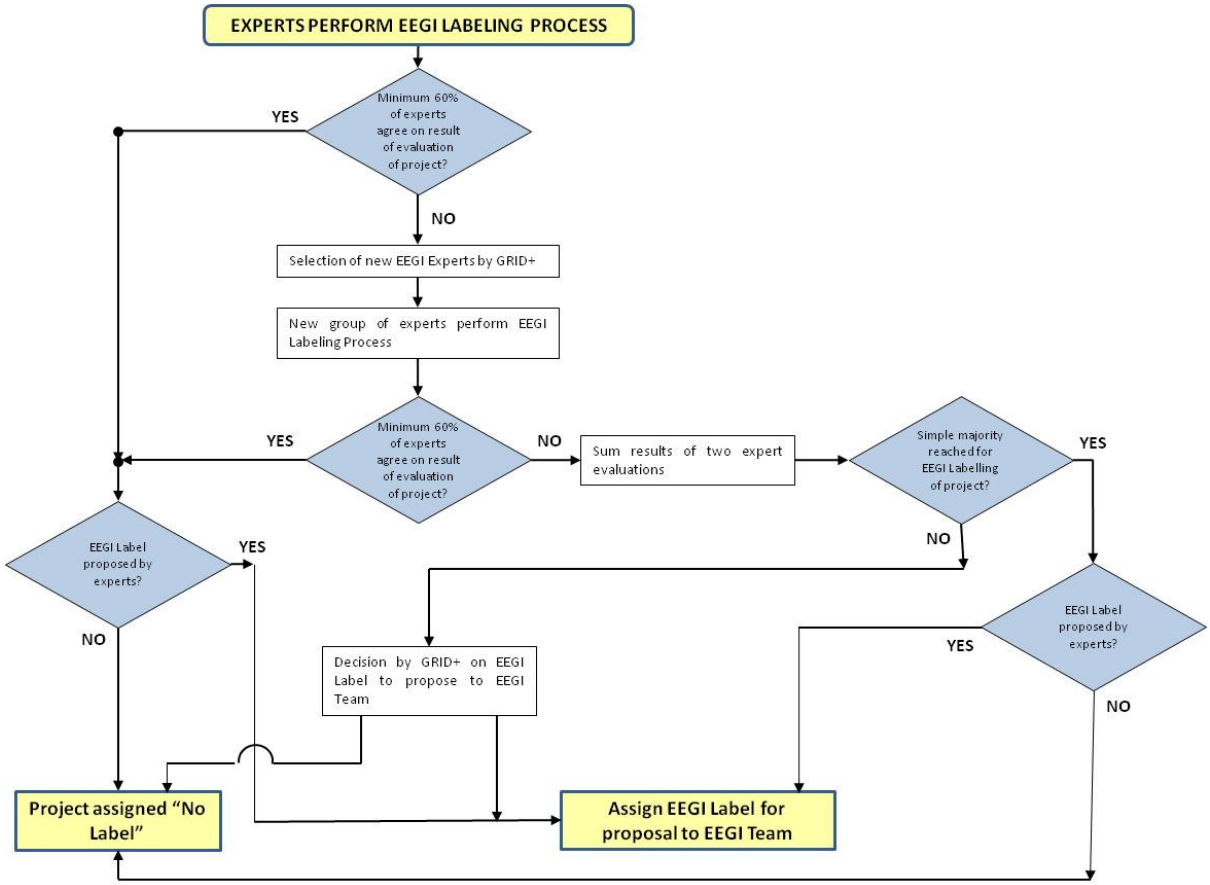


Figure 2 Flow chart of EEGI labelling process

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.

6 FIRST LIST OF EEGI LABELLED PROJECTS

The labelling process has been completed for the following existing EEGI projects. The labelling of these projects was completed by an expert group made up of volunteers from but the EEGI team and the GRID+ project, a list of the current members of the expert group for EEGI labelling is included at the end of this section: include workshop date 2 October 2012 and approval by the EEGI Team following EEGI team meeting 8 on 16 October 2012.

- TWENTIES
- GRID4EU
- EcoGrid EU
- InovGrid (Portugal)

On request of the EEGI team one page summaries were produced following the evaluation of these projects in the EEGI workshop. These one page summaries are listed below and the full Labelling documents are available on the internal GRID+ website, that also includes signed copies by the members of the expert group who carried out the assessment.

6.1 TWENTIES

Analyzed Project	TWENTIES	**Project Scope**	☑ European Project ☐ National Project
GRID+ Experts	Carlos Costa (Enel – EDSO4SG), Raphael Rinaldi (Enel - EDOS4SG), Pedro Matos (EDP – EDSO4SG)		
EEGI Team Experts	Helfried Brunner (Austria), Angel Diaz (Spain)		
Date of Evaluation	October 2012		
Proposal for EEGI Label	**EEGI Core** ☑	**EEGI Support** ☐	**No Label** ☐

Motivation for proposal of EEGI Label

The FP7 TWENTIES Project involving six demonstration projects on the TSO complies with the necessary criteria for an EEGI Core Label. The six DEMOs involve testing different solutions addressing different system challenges. As an example, Demo4 led by Energinet.dk aims at demonstrating shut down of wind farms under stormy conditions without jeopardizing safety of the system. For this aim, flexible turbine control and storm front forecasts will be studied. In total, the project addresses solutions related to seven functional objectives as described in the *EEGI Roadmap 2010-18 and Implementation Plan 2010-12*.

Regarding the environmental impact of the project, the solutions are aimed at improving the pan-European transmission network, thus giving Europe a capability of responding to the increasing share of renewable in its energy mix by 2020. TWENTIES will use existing international standards and will actively participate in EEGI Knowledge Sharing activities.

Regarding scaling-up and replication activities, two dedicated Work Packages have been designed in the project to address this issue (WP15 and WP16). Specifically, WP15 of the project will address the economic impacts of the demonstrations, and barriers towards scaling up with proposed solutions. WP16 will involve an EU-wide integrated assessment of the demonstration replication potential. barriers to scaling-up of obtained results will be identified and solutions will be proposed to remove these. Replication rules for the six demonstration projects will also be studied.

6.2 GRID4EU

Analyzed Project	GRID4EU	**Project Scope**	☑ European Project ☐ National Project
GRID+ Experts	Javier González (ZABALA), Pedro Matos (EDP – EDSO4SG)		
EEGI Team Experts	Helfried Brunner (Austria), Angel Diaz (Spain)		
Date of Evaluation	October 2012		
Proposal for EEGI Label	**EEGI Core** ☑	**EEGI Support** ☐	**No Label** ☐

Motivation for proposal of EEGI Label

The FP7 GRID4EU Project involving six demonstration projects from six EU countries (Germany, Sweden, France, Italy, Spain, Czech Republic) and led by six important DSOs in Europe, complies with all the necessary criteria for an EEGI Core Label. The DEMOs are of large scale with the Italian Demo for example involving two HV/MV substations where approx. 35000 customers are supplied and DEMO3 (Spain) involving more than 20 substations.

The project tests innovative solutions in areas such as renewable energy integration, electric vehicle development, grid automation, energy storage, energy efficiency and load reduction. The project addresses solutions related to twelve functional objectives as described in the *EEGI Roadmap 2010-18 and Implementation Plan 2010-12*. The project has explicitly stated its contribution to EEGI knowledge sharing activities. Regarding the use of standards, available standards will be used as much as possible in the different demonstration projects.

Regarding scaling-up and replication activities, barriers to scaling-up of obtained results will be identified and solutions will be proposed to remove these. Replication rules for the six demonstration projects will also be studied. A particular Work Package has been designed in the project to address these issues (GWP3).

6.3 EcoGrid EU

Analyzed Project	EcoGrid EU	**Project Scope**	☑ European Project ☐ National Project
GRID+ Experts	Carlos Costa (Enel-EDSO4SG), Raphael Rinaldi (Enel-EDSO4SG), Javier González (Zabala)		
EEGI Team Experts			
Date of Evaluation	October 2012		
Proposal for EEGI Label	**EEGI Core** ☑	**EEGI Support** ☐	**No Label** ☐

Motivation for proposal of EEGI Label

The FP7 EcoGrid EU project led by SINTEF Energy Research involves a large scale demonstration of a real-time market concept for additional balancing and ancillary services. The project will aim to demonstrate a real-time market place for distributed energy resources. The demonstration will take place in Bornholm Island, Denmark, location that includes 28.000 customers of which 2000 will be directly involved in the project. The project aims to demonstrate a real power system with more than 50% renewable energy, in preparation of a fast track towards European real-time market operation of RES and DER. In total, the project addresses solutions related to fourteen functional objectives as described in the *EEGI Roadmap 2010-18 and Implementation Plan 2010-12*.

Regarding standards and interoperability issues, a separate task in one of the WPs has been dedicated to standardization, and in particular to provide a framework for standards in communication and device descriptions, so an interoperable system can be assembled together. Cyber security and privacy issues are addressed in the same task. Regarding customer acceptance, the demonstration work package will study this issue and produce deliverables in this regard. In relation to EEGI knowledge sharing activities, the project will actively contribute to the dissemination of results and is committed to comply with this scheme.

Regarding scaling-up and replication activities, the project has a dedicated WP titled “Framework condition, deployment and replication” which will study framework conditions on Bornholm and across Europe with four specific case studies: Iberian, Belgium, Germany and the Netherlands. These will provide a more in depth understanding of conditions that are relevant for successful deployment of the EcoGrid model. The project will also identify a few sites in Europe where the first replications of the project results could be potentially realized with the highest chance of success.

6.4 InovGrid (Portugal)

Analyzed Project	InovGrid (Portugal)	**Project Scope**	☐ European Project ☑ National Project
GRID+ Experts	Carlos Costa (Enel – EDSO4SG), Raphael Rinaldi (Enel - EDOS4SG), Javier González (Zabala)		
EEGI Team Experts	Helfried Brunner (Austria), Angel Diaz (Spain)		
Date of Evaluation	October 2012		
Proposal for EEGI Label	**EEGI Core** ☑	**EEGI Support** ☐	**No Label** ☐

Motivation for proposal of EEGI Label

InovGrid, Portuguese National Project led by EDP Distribuição complies with all the necessary criteria necessary for EEGI Core Label. The project aims at replacing the current LV meters with electronic devices called EDP Boxes (EB), using AMM (Automated Meter Management) standards. These EB are integrated in an automated third generation electrical grid (smart grid) in which network devices are placed (DTC) that will manage the EB through new TI/SI solutions by aggregating the gathered information and providing new services to consumers. The project involves a large-scale demonstration with approximately 150.000 customers impacted by the demo project. The main innovation of the project is the concept of an open platform supporting market services, making energy users aware of the amount of energy/money/CO2 emissions inherent to each activity in their home. The project will integrate a wide variety of solutions with a total of 12 functional objectives addressed as described in the *EEGI Roadmap 2010-18 and Implementation Plan 2010-12*.

Regarding the environmental impact of the project, major project results are public and contribute to main goals on efficiency, and integration of RES. The project is fully committed to comply with the EEGI knowledge sharing scheme. Regarding interoperability issues, the project will focus on interoperable solutions coming from different suppliers, and based on open standards such as PLC Prime. Regarding social acceptance issues, the project includes social studies in order to validate and measure the impacts of the project near the consumers and other related stakeholders.

Regarding scaling-up and replication activities, these issues are further studied with the support of the European project called SUSTAINABLE, which is expected to start in end-2012, early 2013. InovGrid provides an extensive Cost-Benefit Analysis and was chosen as the single case study by the EC/JRC/EURELECTRIC smart grid business assessment methodology EPRI.

6.5 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 10 EEGI labelling group

7 NEXT STEPS

This document would need to be revised with consideration to the updated EEGI Roadmap published in December 2012.

The next stage for this project would be to continue labelling both national and European projects and this could be done using an online platform. An internet based database management system could be used to facilitate the 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

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:

- Solutions involve new/novel technologies, that 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.
- 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.

ID 3.2	Project complies with knowledge sharing rules specified in EEGI Programme

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.

As defined by the developed EEGI working group on knowledge sharing, knowledge to be shared is of different type and includes:

- Technical set-up and performance
- Cost level
- Project Management
- Environmental Impact
- Other issues

A brief description of each is given below (from latest knowledge sharing proposal):

Technical set-up and performance

- Key inputs and outputs and basic design,
- Functional specification,
- Reliability of the novel solution,
- Performance at different levels, including differences between expected and real performance,
- Increase in amount of RES accommodated in the grid,
- Future identified Research and Development issues,

Cost level

- Estimated CAPEX and OPEX,
- Estimated saves in grid development and system operational costs,
- Estimated cost per additional clean MWh integrated in the grid,

Project management

- Lessons learnt,
- Legislation/permitting issues,
- Stakeholders' management, including interaction with Government and local authorities,
- Project planning,
- Project commercialization

Environmental impact

- Impact during construction and operation under normal conditions,
- Other environmental risks in the event of equipment major failure,

Other issues

- Risk of incidents affecting security of supply,
- Monitoring and resolution systems to track safety,
- Social acceptance and pubic (customer) awareness issues,

All this 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.
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.
As a minimum, the project must demonstrate that it complies with the FP7 rules on knowledge sharing.
Projects must provide clear indications that knowledge sharing rules as specified by EEGI are followed for fulfilment of this criterion.

ID 3.3	Project has policy on standards/interoperability from the design stage

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.
The solutions the Project validates must support European standardization and interoperability

efforts at all applicable levels.

ID 3.4	Project considers & analyzes cyber security issue and data privacy (if applicable)

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.

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

Projects must therefore include in their proposed solutions an analysis of cyber security issues related to the developed solutions. In the rare case where cyber security is considered to be not relevant, this criterion is not required to be fulfilled.

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.

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.

Projects must consider/analyze both issues (if applicable) to satisfy Criteria 2.6

ID 3.5	Project considers issues regarding the environmental impact and the social acceptance of deployment of solutions (if applicable)

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.

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.

ANNEX 2 FUNCTIONALITY OBJECTIVES CRITERION DETAILED DEFINITION

ID 5.1	**The Project is in line with EEGI Objectives and goals of at least three EEGI Functional projects, as defined in the *EEGI Roadmap 2010-18 and Implementation Plan 2010-12*.** **Project must provide a clear commitment for supporting and collaborating with other relevant projects.**
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 projects.** In this context, the work performed in Step 4 of EEGI Labelling Criteria must be picked up. Furthermore, in the context of creating a family of projects for each EEGI Functional Project, 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).	

ID 5.2	**Project provides proposal for scaling-up of solutions, and existence and quality of a Deployment Plan of the tested solution.**
In the context of the EEGI, as defined in the EEGI Roadmap 2010-28 and Implementation Plan 2010-12, 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.	

ID 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.**
In the context of the EEGI, as defined in the EEGI Roadmap 2010-28 and Implementation Plan 2010-12, Deployment refers to full scale implementation of a given solution on the electricity network. 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 the possibility to be installed in different conditions. Deployment Plan must take the issue of replicability in 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.

For compliance with this criterion, described Deployment Plans must be clear and plausible (i.e. is the Deployment Plan realistic and believable?).

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. Furthermore, full deployment of solutions should expect estimated benefits to exceed estimated costs.
Projects who do not include a Deployment cost/benefit Plan, or whose cost/benefit Deployment Plan have expected costs to exceed benefits will not comply with this criteria, necessary for “EEGI Core” project labelling.

ANNEX 3 EEGI LABELLING TEMPLATE

EEGI Labeling: Template

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:	☐ Transmission Network Project, ☐ DSO involved	☐ Distribution Network Project, ☐ TSO involved
6 Total Project Budget in Euro		
7 Physical Location(s) of the physical implementation of each demo site(s)		
8 Budget of each individual demo (preferred) or total of all demos		
9 Number of Transmission Network Operators with significant involvement in project		
10 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	•		At least one individual demo of Project has budget **greater or equal to 15M€ OR at least 20000 customers impacted during project duration (Directly AND Indirectly)**.	YES | NO | LACK INFORMATION
1.2	•	•	At least one individual demo of Project has budget **greater or equal to 2M€ OR at least 1000 customers impacted during project duration (Directly AND Indirectly)**	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 **three Transmission Network operators**	YES | NO | LACK INFORMATION	
2.2		●	●	Project/Proposal provides proof of significant involvement of at least **one Distribution Network operator**	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	● *(if applicable)*	● *(if applicable)*	Project considers & analyzes cyber security issue and data privacy	YES | NO | LACK INFORMATION | NOT APPLICABLE	
3.5	● *(if applicable)*	● *(if applicable)*	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 Table

TSO (including interfaces TSO/DSO)

EEGI Functional Objective	Functionalities	ID of Functionalities	Objectives	Functionality Tested / Demonstrated in Project (mark with X)	Comments (optional)
C1	T1.- A toolbox allowing new network architecture assessment in the pan-European transmission system	K.T.1	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 favor cross-border operation.		
	T2.- Advanced tools to analyze pan-European network expansion options according to energy scenarios for Europe	K.T.2	Analysis of pan-EU grid expansion scenarios: beyond 2020 and up to 2050, especially with RES integration.		
			Consideration of power flow control devices, active demand, storage facilities at an European level (for more than 1 country).		
			Coordinated planning taking into account network investment in future competitive electricity markets and for an optimized reliable network.		

	T14.- Environmental impact and social acceptance of transmission facilities	**K.T.14**	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	T3.- Demonstration of power technology for increased network flexibility	**K.T.3**	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 power technology for novel network architecture	**K.T.4**	Demonstration of new AC EHV lines (EU backbone)		
			Demonstration of HVDC links		
			Demonstration of superconducting technologies		
	T5.- Demonstration of renewable integration	**K.T.5**	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	T6.- Innovative tools for pan-European network observability	**K.T.6**	Assessment & validation of performances of -local sensors & data processing against requirements of state estimation & dyn. simulation		
			Development of local state models with right level of intelligence at substation level, using this information with state estimation & dyn. Sim.		
			Standardization of communication, sensing infrastructure & data exchange		
	T7.- Innovative tools for coordinated operations with stability margin evaluation	**K.T.7**	Methods & tools for supporting a EU reliability doctrine to allow system operating under narrower stability margins		
			Develop new approach to establish coordinated defense plans based on new set of principles and methods taking uncertainty into account.		
	T8.- Improved training tools to ensure better coordination at the regional and pan-European levels	**K.T.8**	RT simulators of the entire EU power system for training purposes in order to reproduce and understand large-scale incidents		
			Training & certification procedures for operators: TSO operators, DSO operators (interface grid/distribution) & Plant operators (interface grid/power plant)		

			Development and testing of common procedures to face emergency scenarios		
	T9.- Innovative tools and approaches for pan-European network reliability assessment	**K.T.9**	Survey of the current N-1 approach for security criteria at a EU level		
			Definition of required level of reliability from the end-user perspective		
			Risk-based approach for security criteria for different time-frames likely to replace the current security approaches		
			Development of indicators for planners and operators for making decisions using cost/benefit analyses		
C4	T10.- Advanced tools for pan-European balancing markets	**K.T.10**	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	**K.T.11**	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 for renewable market integration	**K.T.12**	Design market mechanisms for controlling RES production (under regional/ local constraints or electric imbalance situation)		
			Develop tools for obtaining ancillary services and balancing energy from RES		
			Design market mechanisms for incentivizing the flexibility of future and current production units		

			Design and development of market mechanisms for an active demand side management (DSM) in electrical system operations		
	T13.- Tools for the integration of active demand in electrical system operations	**K.T.13**	Specifications of a pan-EU system for demand side management (DSM) based on experimentally validated business models and business cases		
			Specifications for standards in telecommunication infrastructures and a governance model to make these standards evolve within a world-based approach		
			Perform large-scale experiments involving metered customers that show the costs & benefits of DSM approaches at pan-EU level		
			Develop a set of standards for data exchange at pan-EU level		
C5	TD1.- Increased observability of the electrical system for network management and control	**K.TD.1**	Load and generation modeling 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 centers responding to both TSO/DSO constraints		

	TD2.- Integration of demand-side management into TSO operations	**K.TD.2**	Models to describe customer behavior 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 by DSOs	**K.TD.3**	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 defense and restoration plan	**K.TD.4**	Simulation tool allowing for the detection of weak points of reconnection scenarios involving DER units		
			Assessment of potential contribution of RES, DER and micro-grids to defense plans (black-start capabilities, islanding capabilities)		
			Joint TSO/DSO approach for defense plans involving DER and micro-grids		

			Regulatory and technical challenges to implement restoration plans at pan-EU level		
	TD5.- Joint taskforce on IT system protocols and standards	**K.TD.5**	Data exchange protocols for smart grid applications		
			Semantic models for metering, demand response and electric transportation data		
			Information models for the EU Smart Grids		

Distribution Network				
EEGI Functional Objective	**ID of Functionalities**	**High-level Functionalities**	**Functionality Tested / Demonstrated in Project (mark with X)**	**Comments (optional)**
Active Demand Response	**D1**	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.		
Integration with Smart Homes	**D2**	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 DSO and "Smart Home".		
Smart Metering Infrastructure	**D3**	Smart Metering Infrastructure that allows remote measurement of consumer energy consumption		
		Smart Metering Infrastructure that allows remote measurement of voltage, frequency, load, flicker, etc.		
		Smart meter infrastructure that includes interface with indoor environment (i.e. display)		
		Smart meter infrastructure that allows connection and disconnection of appliances beyond the meter at the consumer's premises.		
Smart	**D4**	Systems tools for analyzing and processing meter data, to achieve detailed information on LV		

Metering Data Processing		network performance (e.g. power quality, power outages, losses estimation, load characteristics, etc.)		
		Systems tools for analyzing and processing meter data, to detect electricity thefts and locate meter faults.		
		Systems tools for analyzing and processing meter data, to detect meter tampering.		
		System tools managing meter data, which optimize system and energy management.		
Integration of small DER	**D5**	Voltage control and congestion management in LV network by reactive and active power management of SDER (local, centralized and a combination of both)		
		Innovative/Enhanced LV network planning and operation strategies aimed at increasing DER hosting capacity		
		LV network operating centers (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)		
Integration of medium DER	**D6**	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.		
		Demand Response –by DER connected to MV network (i.e. controllable loads and storage) aimed at increasing MV network hosting capacity.		
		Congestion management, dispatching and balancing of DER at MV level.		
		Innovative/Enhanced MV network planning and operation strategies aimed at increasing DER hosting capacity		
Integration of storage technologies	**D7**	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)		
	D8	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)		

Integration of electric vehicles		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).		
Monitoring and control of LV networks	**D9**	Improved planning methodologies for LV networks based on AMM data		
		Use of AMM data for improved quality of supply management (losses, load characteristics and power quality).		
		Use of AMM communication channel for load control, allowing better use of existing network, and reducing outages.		
		Use of AMM data for outage and fault management		
		Development of remote control systems for LV network monitoring.		
Automation and Control of MV networks	**D10**	Systems that are able to implement network monitoring in an efficient and effective way		
		Network remote control and network automation that allow DSOs to ensure better security of supply and optimize workforce management in case of grid failures.		
		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.		
		Advanced systems for fault localization		
New methods and systems support	**D11**	Advanced systems for predictive maintenance		
		Advanced systems for implementing network investments optimization		
		Advanced algorithms for load forecasting		
		Advanced asset management tools for equipments maintenance		
		Advanced asset management tools for network design and planning		
		Advanced algorithms for local forecasting of renewable production (wind, solar)		
Integrated Communications Solution	**D12**	Secure, reliable and standards based IP-based communication infrastructure on all nodes of Distribution network		
		Network devices that allow use of power line carrier communication (e.g. coupling equipment) in the DSO (MV & LV)		
		New SCADA and Network Management application software, optimally distributed between the Control Center and HV/MV and MV/LV substations		
		Development, test and implementation of new standards (system architecture, data reference model : CIM, COSEM, IEC 61850, …)		

EEGI Functionalities	
Number of EEGI Functional Projects Addressed (i.e. count number of Xs in all tables of step 4)	

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	●	●		The Project is in line with EEGI Objectives and goals of **at least three EEGI Functional projects**, as defined in the *EEGI Roadmap 2010-18 and Implementation Plan 2010-12*. Project must provide a clear commitment for supporting and collaborating with other relevant projects.	YES | NO | LACK INFORMATION	
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.	YES | NO | LACK INFORMATION	
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.	YES | NO | LACK INFORMATION	
5.4	●	●		Project provides Deployment cost/benefit analysis.	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	xxxxxxxxxxxxxxxxxxxxxxxxxxx

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/QUESTIONNAIRE

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 Carlos Costa Rausa with copy to Raphael Rinaldi

(To: carlosfrancisco.costarausa@enel.com, cc: raphael.rinaldi@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:	☐ Transmission Network Project, ☐ DSO involved	☐ Distribution Network Project, ☐ TSO involved
Total Project Budget		
Number of demonstration sites		
Physical Location of the demo sites (if applicable)		
Budget in Euro of each individual demo (preferred; if not available specify total)		
Number of customers impacted by demo		
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 in Europe?
2. Please indicate if the Project has a firm commitment to comply with the EEGI knowledge sharing scheme. Please indicate the type of innovation and knowledge from the project that the project intends to make public and to what degree. *(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 the projects intends to test and how? If not addressed, why not?

4. Please indicate, how the project addresses issues related to cyber security and privacy? If not addressed, why not?
5. Please indicate **what environmental impacts and what social acceptance** of deployed solutions the project intends to address and how? If not addressed, why not?
6. Please describe how the project intends to scale-up the solutions demonstrated in the Project within the network operated by the main transmission and/or distribution system operators of the Project. Is there existence of a Deployment Plan related to the scaling-up of the project solutions within the above mentioned network. If not addressed, why not? ***Note:*** *Scalability of solutions is understood as the extension to which an experience can be brought to a bigger area within the same region, i.e. same regulatory regime and customer conditions. In the case that scalability 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 scalability/replicability studies in another financing mechanism – i.e. European Project)*

7. Please describe how the project intends to replicate the solutions demonstrated in the Project in other EU27 Member States networks. Is there existence of a Deployment Plan related to the replication of the project solutions in other EU27 Member States networks. If not addressed, why not? ***Note:*** *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)*
8. Please indicate if the Project provides an estimate for the costs and benefits of the deployment of project solutions in local networks and/or in other EU27 Member States. If not addressed, why not?


SEVENTH FRAMEWORK
PROGRAMME

STEP 4: EEGI Functionalities Table					
TSO (including interfaces TSO/DSO)					
EEGI Functional Objective	**Functionalities**	**ID of Functionalities**	**Objectives**	**Functionality Tested / Demonstrated in Project (mark with X)**	**Comments (optional)**
C1	T1.- A toolbox allowing new network architecture assessment in the pan-European transmission system	**K.T.1**	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 favor cross-border operation.		
	T2.- Advanced tools to analyze pan-European network expansion options according to energy scenarios for Europe	**K.T.2**	Analysis of pan-EU grid expansion scenarios: beyond 2020 and up to 2050, especially with RES integration.		
			Consideration of power flow control devices, active demand, storage facilities at an European level (for more than 1 country).		
			Coordinated planning taking into account network investment in future competitive electricity markets and for an optimized reliable network.		

	T14.- Environmental impact and social acceptance of transmission facilities	**K.T.14**	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	T3.- Demonstration of power technology for increased network flexibility	**K.T.3**	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 power technology for novel network architecture	**K.T.4**	Demonstration of new AC EHV lines (EU backbone)		
			Demonstration of HVDC links		
			Demonstration of superconducting technologies		
	T5.- Demonstration of renewable integration	**K.T.5**	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	T6.- Innovative tools for pan-European network observability	**K.T.6**	Assessment & validation of performances of local sensors & data processing against requirements of state estimation & dyn. simulation		
			Development of local state models with right level of intelligence at substation level, using this information with state estimation & dyn. Sim.		
			Standardization of communication, sensing infrastructure & data exchange		
	T7.- Innovative tools for coordinated operations with stability margin evaluation	**K.T.7**	Methods & tools for supporting a EU reliability doctrine to allow system operating under narrower stability margins		
			Develop new approach to establish coordinated defense plans based on new set of principles and methods taking uncertainty into account		
	T8.- Improved training tools to ensure better coordination at the regional and pan-European levels	**K.T.8**	RT simulators of the entire EU power system for training purposes in order to reproduce and understand large-scale incidents		
			Training & certification procedures for operators: TSO operators, DSO operators (interface grid/distribution) & Plant operators (interface grid/power plant)		

			Development and testing of common procedures to face emergency scenarios		
	T9.- Innovative tools and approaches for pan-European network reliability assessment	**K.T.9**	Survey of the current N-1 approach for security criteria at a EU level		
			Definition of required level of reliability from the end-user perspective		
			Risk-based approach for security criteria for different time-frames likely to replace the current security approaches		
			Development of indicators for planners and operators for making decisions using cost/benefit analyses		
C4	T10.- Advanced tools for pan-European balancing markets	**K.T.10**	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	**K.T.11**	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 for renewable market integration	**K.T.12**	Design market mechanisms for controlling RES production (under regional/ local constraints or electric imbalance situation)		
			Develop tools for obtaining ancillary services and balancing energy from RES		

			Design market mechanisms for incentivizing the flexibility of future and current production units		
			Design and development of market mechanisms for an active demand side management (DSM) in electrical system operations		
	T13.- Tools for the integration of active demand in electrical system operations	**K.T.13**	Specifications of a pan-EU system for demand side management (DSM) based on experimentally validated business models and business cases		
			Specifications for standards in telecommunication infrastructures and a governance model to make these standards evolve within a world-based approach		
			Perform large-scale experiments involving metered customers that show the costs & benefits of DSM approaches at pan-EU level		
			Develop a set of standards for data exchange at pan-EU level		
C5	TD1.- Increased observability of the electrical system for network management and control	**K.TD.1**	Load and generation modeling 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 centers responding to both TSO/DSO constraints		
TD2.- Integration of demand-side management into TSO operations	**K.TD.2**	Models to describe customer behavior 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 by DSOs	**K.TD.3**	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 defense and restoration plan	**K.TD.4**	Simulation tool allowing for the detection of weak points of reconnection scenarios involving DER units		
		Assessment of potential contribution of RES, DER and micro-grids to defense plans (black-start capabilities, islanding capabilities)		

			Joint TSO/DSO approach for defense plans involving DER and micro-grids		
			Regulatory and technical challenges to implement restoration plans at pan-EU level		
	TD5.- Joint taskforce on IT system protocols and standards	**K.TD.5**	Data exchange protocols for smart grid applications		
			Semantic models for metering, demand response and electric transportation data		
			Information models for the EU Smart Grids		

Distribution Network				
EEGI Functional Objective	**ID of Functionalities**	**High-level Functionalities**	**Functionality Tested / Demonstrated in Project (mark with X)**	**Comments (optional)**
Active Demand Response	**D1**	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.		
Integration with Smart Homes	**D2**	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 DSO and "Smart Home".		
Smart Metering	**D3**	Smart Metering Infrastructure that allows remote measurement of consumer energy consumption		

Infrastructure		Smart Metering Infrastructure that allows remote measurement of voltage, frequency, load, flicker, etc.		
		Smart meter infrastructure that includes interface with indoor environment (i.e. display)		
		Smart meter infrastructure that allows connection and disconnection of appliances beyond the meter at the consumer's premises.		
Smart Metering Data Processing	**D4**	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.)		
		Systems tools for analyzing and processing meter data, to detect electricity thefts and locate meter faults.		
		Systems tools for analyzing and processing meter data, to detect meter tampering.		
		System tools managing meter data, that optimize system and energy management.		
Integration of small DER	**D5**	Voltage control and congestion management in LV network by reactive and active power management of SDER (local, centralized and a combination of both)		
		Innovative/Enhanced LV network planning and operation strategies aimed at increasing DER hosting capacity		
		LV network operating centers (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)		
Integration of medium DER	**D6**	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.		

		Demand Response –by DER connected to MV network (i.e. controllable loads and storage) aimed at increasing MV network hosting capacity.		
		Congestion management, dispatching and balancing of DER at MV level.		
		Innovative/Enhanced MV network planning and operation strategies aimed at increasing DER hosting capacity		
Integration of storage technologies	**D7**	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)		
Integration of electric vehicles	**D8**	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).		
Monitoring and control of LV networks	**D9**	Improved planning methodologies for LV networks based on AMM data		
		Use of AMM data for improved quality of supply management (losses, load characteristics and power quality).		
		Use of AMM communication channel for load control, allowing better use of existing network, and reducing outages.		
		Use of AMM data for outage and fault management		
		Development of remote control systems for LV network monitoring.		
Automation and Control of MV networks	**D10**	Systems that are able to implement network monitoring in an efficient and effective way		
		Network remote control and network automation that allow DSOs to ensure better security of supply and optimize workforce management in case of grid failures.		
		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.		
		Advanced systems for fault localization		
New methods and systems	**D11**	Advanced systems for predictive maintenance		

support		Advanced systems for implementing network investments optimization		
		Advanced algorithms for load forecasting		
		Advanced asset management tools for equipments maintenance		
		Advanced asset management tools for network design and planning		
		Advanced algorithms for local forecasting of renewable production (wind, solar)		
Integrated Communications Solution	**D12**	Secure, reliable and standards based IP-based communication infrastructure on all nodes of Distribution network		
		Network devices that allow use of power line carrier communication (e.g. coupling equipment) in the DSO (MV & LV)		
		New SCADA and Network Management application software, optimally distributed between the Control Center and HV/MV and MV/LV substations		
		Development, test and implementation of new standards (system architecture, data reference model-: CIM, COSEM, IEC 61850, …)		

REFERENCES

[1] EEGI Roadmap 2010-18 and Detailed Implementation Plan