

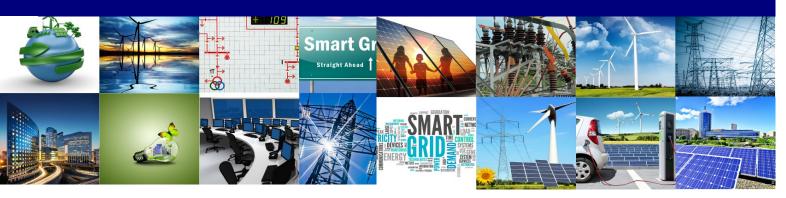




Project No. 609687 FP7-ENERGY-2013-IRP

ELECTRA

European Liaison on Electricity Committed Towards long-term Research Activities for Smart Grids



WP 12 Dissemination, Knowledge Transfer And Exploitation

Deliverable 12.1 ELECTRA IRP Website Availability

04/06/2014



ID&Title Dissemination: ELECTRA IRP website availability

Short description (Max. 50 words):

28

This document provides a description of the main features of the ELECTRA IRP website.

version	Version Date Modification's nature			
V0.01	28/04/2014	First Draft		
V1.00	20/05/2014	Under Review		
V2.00	04/06/2014	Released		
Accessibility	Accessibility			
□ PU, Public □ PU, PUDLIC □ PU, PUDLIC □ PUDL				
PP, Restricte	PP, Restricted to other program participants (including the Commission Services)			
RE, Restricted to other a group specified by the consortium (including the Commission Services)				
CO, Confidential, only for members of the consortium (including the Commission Services)				
If restricted, please specify here the group:				
Owner / Main responsible:				
WP 12 Leader:		Luciano Martini (RSE)		
Reviewed by:				
Project Coordinator:		Luciano Martini (RSE)	29/05/2014	
Final Approval by:				
ELECTRA Technical Committee TOQA appointed Reviewer:		-	04/06/2014	

04/06/2014 Page 2 of 28



Authors

Name	Last Name	Organization	Country
Antonio	Guagliardi	RSE	Italy
Luca	Radaelli	RSE	Italy
Fabrizio	Garrone	RSE	Italy

04/06/2014 Page 3 of 28



Copyright

@ Copyright 2013-2016 The ELECTRA Consortium

Consisting of:

Coordinator		
Ricerca Sul Sistema Energetico – (RSE)		
Participants		
Austrian Institute of Technology GmbH - (AIT)	Austria	
Vlaamse Instelling Voor Technologisch Onderzoek N.V (VITO)	Belgium	
Belgisch Laboratorium Van De Elektriciteitsindustrie - (LABORELEC)	Belgium	
Danmarks Tekniske Universitet - (DTU)	Denmark	
Teknologian Tutkimuskeskus - (VTT)	Finland	
Commissariat A L'Energie Atomique Et Aux Energies Alternatives - (CEA)	France	
Fraunhofer-Gesellschaft Zur Förderung Der Angewandten Forschung E.V – (IWES)	Germany	
Centre For Renewable Energy Sources And Saving - (CRES)	Greece	
Agenzia Nazionale per Le Nuove Tecnologie, L'Energia E Lo Sviluppo Economico Sostenibile - (ENEA)		
Fizikalas Energetikas Instituts - (IPE)	Latvia	
SINTEF Energi AS - (SINTEF)	Norway	
Instytut Energetyki - (IEN)	Poland	
Instituto De Engenharia De Sistemas E Computadores Do Porto - (INESC_P)	Portugal	
Fundacion Tecnalia Research & Innovation - (TECNALIA)	Spain	
Joint Research Centre European Commission - (JRC)	Belgium	
Nederlandse Organisatie Voor Toegepast Natuurwetenschappelijk Onderzoek – (TNO)	Netherlands	
Turkiiye Bilimsel Ve Teknolojik Arastirma Kurumu - (TUBITAK)	Turkey	
University Of Strathclyde - (USTRATH)	UK	
European Distributed Energy Resources Laboratories (DERlab)	Germany	
Institute for Information Technology at University of Oldenburg (OFFIS)	Germany	

This document may not be copied, reproduced, or modified in whole or in part for any purpose without written permission from the ELECTRA Consortium. In addition to such written permission to copy, reproduce, or modify this document in whole or part, an acknowledgment of the authors of the document and all applicable portions of the copyright notice must be clearly referenced.

All rights reserved.

This document may change without notice.

04/06/2014 Page 4 of 28



Executive Summary

This document gives an overview of the ELECTRA IRP website, available at: http://www.electrairp.eu.

The website was developed, is hosted and is maintained by RSE as leader of the project and the WP12. The website itself and this document constitute the project deliverable D12.1.

The web is considered as one of main media for the dissemination of the most important results achieved in the project. The web allows to reach large part of the public in a fast and economical way, providing information on the project as well as public deliverables to be downloaded and consulted, if interested.

The website provides two different levels of access: the public and the restricted area access.

The public website is used for dissemination of ELECTRA achievements and latest news to general users interested in the ELECTRA project.

A restricted access is given to all ELECTRA members and peculiar features are available and include: a document sharing platform, a unique calendar function, an automatic newsletter and a tag system for the documents uploaded. The website aims to be a dynamic portal with social interaction among partners members to share the information about common research activities. Registered users can upload and download files autonomously, allowing a fast and secure delivery of documents among WP members. Also, the website lets users organize events in a simple way just by selecting the date on a calendar and selecting the members to be invited. A further feature is a plugin which deploys a tagging system to index documents and relative keywords to facilitate the access of documents on a particular topic. Finally, a forum has been created to create a common platform for WP members to share ideas and suggestions.

Implemented feature are intended to be used to provide project partners a common sharing platform to facilitate ideas and documents exchange in a fast, secure and immediate way. The website perfectly embrace the goal of ELECTRA of encouraging the cooperation among European countries and research centres.

This deliverable presents the website and its features in detail, providing a description of its peculiarities and an explanation of its usage.

04/06/2014 Page 5 of 28



Terminologies

Definitions

Table 1 – List of acronyms

	Furancan Ligioan on Floatricity Committed		
ELECTRA	European Liaison on Electricity Committed		
	Towards long-term Research Activity		
AB	Advisory board		
CSIRO - CN	Commonwealth Scientific and Industrial		
00110 011	Research Organisation - China		
EDSO4SG	European Distribution System Operators f		
	Smart Grids		
EERA	European Energy Research Alliance		
EERA JP Smart Grids	European Energy Research Alliance Joint		
ELIXA 3F SITIATE GITUS	Program Smart Grids		
ENTSO-E	European Network pf Transmission System		
EN130-E	Operators for Electricity		
EPRI – USA	Electric Power Research Institute – USA		
ERI – CN	Energy Research Institute - China		
ETP SmartGrids	European Technology Platform Smart Grid		
EU	European Union		
FP7	Framework Program 7		
ICB	International Coordination Board		
IRP	Integrated Research Programme		
	International Energy Agency Implementing		
ISGAN	Agreement for a Co-operative Programme		
	on Smart Grids		
ITU	International Telecommunication Union		
ID.	International Telecommunication Union		
JP	Joint Programme		
SC SC			
	Joint Programme		
SC	Joint Programme Steering Committee		
SC SG	Joint Programme Steering Committee Smart Grids Shanghai Jiao Tong University – China European Association of the Electricity		
SC SG	Joint Programme Steering Committee Smart Grids Shanghai Jiao Tong University – China		
SC SG SJTU – CN	Joint Programme Steering Committee Smart Grids Shanghai Jiao Tong University – China European Association of the Electricity		
SC SG SJTU – CN	Joint Programme Steering Committee Smart Grids Shanghai Jiao Tong University – China European Association of the Electricity Transmission and Distribution Equipment		

Abbreviations

D DeliverableM MilestoneR Report

04/06/2014 Page 6 of 28



Table of Contents

1.	In	troduc	tion	9
	1.1	Sco	pe of the document	9
2	Р	ublic w	eb design	. 11
	2.1	Hon	nepage	. 11
	2.2	Maii	n body	. 11
	2.	.2.1	About ELECTRA IRP	. 12
	2.	.2.2	Project structure	. 12
	2.	.2.3	ELECTRA IRP Partners	. 14
	2.	.2.4	Links	. 16
	2.	.2.5	EERA SG JP	. 16
	2.	.2.6	Dissemination	. 16
	2.3	Foo	ter menu	. 18
3	R	estricte	ed Area	. 19
	3.1	Foru	um	. 19
	3.2	Cale	endar	. 20
	3.3	Mee	etings	. 21
	3.4	Doc	cument sharing	. 22
	3.5	Proj	ject deliverables	. 22
	3.6	Pro	pose new content	. 23
	3.7	Pro	pose new link	. 24
	3.8	Key	words and tags	. 24
	3.9	Nev	vsletter	. 24
4	SI	hort su	mmary about the website internal trial	. 25
5	C	onclusi	ions	. 26
6	R	eferen	ces	. 27
7	D	isclaim	ner	28



List of figures and tables

Figure 1 – Homepage	11
Figure 2 – About ELECTRA IRP page	12
Figure 3 – Project structure page	13
Figure 4 – WP1 description page	13
Figure 5 – Partners page	14
Figure 6 – Advisory board members page	15
Figure 7 – International coordination members page	15
Figure 8 – Links page	16
Figure 9 – Related projects link page	16
Figure 10 - Dissemination page	17
Figure 11 – Papers, coordination and support actions page	17
Figure 12 – Footer menu	
Figure 13 – Restricted area login page	
Figure 14 – Forum page	
Figure 15 - Calendar in the restricted area	21
Figure 16 – SC meeting page	
Figure 17 – SC meeting upload window	
Figure 18 – File repository page	
Figure 19 – Internal and public deliverables page	
Figure 20 – New content proposal page	
Figure 21 – New link proposal page	24
Table 1 – List of acronyms	6



1. Introduction

We expect the website to be the main medium used for dissemination by the ELECTRA IRP project. The public version of the website aims at informing the users to the main topics of the projects and the specific results achieved. In this context, news and events are constantly published to keep the public updated.

Using the social networks (Facebook, Twitter, etc.) gives the chance of a wide diffusion of the news and constitutes a very powerful tool to spread the information. However, it can also be harmful when dealing with sensible topics at the European level; therefore, social web potentialities are exploited carefully.

Together with the public website version, a series of features have been implemented to fulfil the ELECTRA IRP partners' needs such as a document sharing platform to allow to upload/download documents to be shared and a calendar function to enable the members to organize events, web and physical meetings, and conference calls.

The first version of the website was designed in early 2014 and it was approved by the end of March 2014. After an internal trial period, to check information consistency and to test its main functionalities, the website is live and operational since 1st April 2014.

It is anticipated that the website will be subjected to continuous updates and improvements to make sure it is always suitable to support the ELECTRA project necessities related to knowledge sharing and communications & dissemination matters. In particular, further developments will be implemented before the end of 2014 in order, for example, i) to migrate the whole content of the present EERA JP on Smart grids share point on *Google Drive*, and ii) to incorporate the online application procedure needed to allow the researchers exchange mobility scheme (ELECTRA WP9: first call October 2014). Moreover, additional improvements will reflect the feedback from users' experience and partners' actual needs.

1.1 Scope of the document

This document provides an overview of the website that has been developed for the ELECTRA IRP project. It also includes information about the intended use of the single elements of the public website and contains information about other means of sharing documents and data that can be used.

The project's public website address is: http://www.electrairp.eu. The website is hosted by RSE as part of the dissemination activities of the WP12, for which it is responsible. The public section, accessible to everyone, contains:

- all the news and events related to the project;
- a public calendar of events and meetings;
- general information about the goals of the project;
- detailed information about each WP;
- link to the EERA JP SG website;
- all public material (deliverables, technical workshop material, etc.) about the results achieved in the project;
- links to the project partners' homepages;

04/06/2014 Page 9 of 28



· other.

Moreover, the website gives detailed information about the companies and the organizations participating in the project, together with the contacts of the people directly involved.

In addition, the ELECTRA IRP website has a restricted section specifically developed for the project partners and can be accessed using a username and password. This restricted section contains:

- a personalized calendar for the meetings;
- deliverables, milestones and internal reports;
- a document sharing platform which enables to share specific documents for each WP and each meeting;
- · administrative documents, templates and forms;
- planned publications.

04/06/2014 Page 10 of 28



2 Public web design

In this chapter, a detailed description of the public website is given.

The header is always present on all the pages of the website and clearly shows the project name and logo as well as the EU and Consortium logos. This assures transparency and underlines the European level of the project.

RSE is responsible for the development, management and update of the website on a regular basis as it is the ELECTRA IRP Dissemination leader. RSE assures that the website is updated with press releases, publications, deliverables and that all the news and event are carefully posted in the news section to keep the general public informed about the project.

RSE owns, hosts and maintains the server.

2.1 Homepage

Figure 1 shows the homepage of the website. The header is clearly visible and shows the project logo, its full name, social networks share links and the login feature for the restricted area access. The main body is composed by the bar menu that allows an easy website navigation. News and events are highlighted in the central part of the page, giving great importance to the dissemination of the latest project achievements. On the right part of the page, news and events are grouped in the relative box and are placed together with the newsletter box. Below them, a calendar box informs the public with the upcoming open events and meetings. At the bottom of the homepage the footer provides the "Contact us" feature, the disclaimer and the site map.



Figure 1 – Homepage

2.2 Main body

The main body bar is a simple tool for the website navigation and is made of seven menus:

Home (see chapter 2.1);

04/06/2014 Page 11 of 28



- About ELECTRA IRP (see subchapter 2.2.1);
- Project structure (see subchapter 2.2.2);
- Partners (see subchapter 2.2.3);
- Links (see subchapter 2.2.4);
- EERA SG (see subchapter 2.2.5);
- Dissemination (see subchapter 2.2.6);
- Footer (see subchapter 2.3).

Each menu can have an internal sub-menu for a more detailed description as it is outlined in the relative subchapter.

2.2.1 About ELECTRA IRP

Figure 2 shows an overview description of the ELECTRA IRP project, providing a first general picture of the project to the public. The EU initiative and the strong relationship between ELECTRA IRP and EERA SG JP are presented, as well as the international approach is highlighted. In this case, the international perspective is intended to be not only as a cooperation among EU countries, but also with extra-EU partners, in particular the USA, Japan and the BRICS countries. A scheme provides a visual image of the project description, stressing the vertical and horizontal integration that the future power system will need.



Figure 2 - About ELECTRA IRP page

2.2.2 Project structure

The project structure menu gives a detailed description of the projects and of each WP, as depicted in Figure 3.

04/06/2014 Page 12 of 28





Figure 3 – Project structure page

The project structure is dived into three sub-menus:

- Research and technical development (WP3-8);
- Coordination and support actions (WP1-2 and WP9-10);
- Other (WP11-12).

Each sub-menu allows to access the relative page for each WP, where an exhaustive description of the single WP is provided, together with the WP leader and vice-leader contacts. Figure 4 shows the WP1 related webpage and constitutes an example of each WP page.



Figure 4 – WP1 description page

04/06/2014 Page 13 of 28



2.2.3 ELECTRA IRP Partners

The partners section is divided into three pages: partners, advisory board members and international coordination members.

2.2.3.1 Partners

Figure 5 shows the first part of the list of all the ELECTRA IRP partners involved directly in the project. Twenty-one European partners, representing sixteen countries, are present.

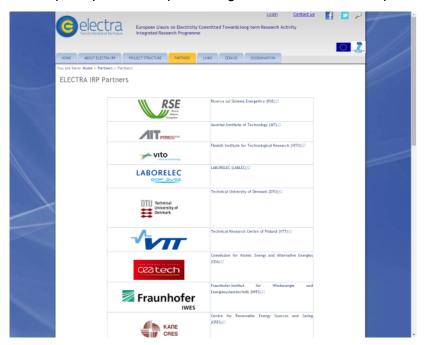


Figure 5 – Partners page

2.2.3.2 Advisory Board members

The page, depicted in Figure 6, provides the list of the present Advisory Board members. Among them, the ENTSO-E and the ENDSO4SG, grouping the main European TSOs and DSOs respectively, as well as T&D Europe and ETP Smart Grid.

04/06/2014 Page 14 of 28





Figure 6 - Advisory board members page

2.2.3.3 International coordination members

The page is shown in Figure 7 and provides a list of the international partners; note that in this project, the word "international" means not related to the EU only. The list includes important organizations from the US, such as EPRI, from China, such as SJCT, ERI and CSIRO, and other international organizations such as ISGAN and ITU.



Figure 7 – International coordination members page

04/06/2014 Page 15 of 28



2.2.4 Links

Figure 8 shows the page related to the links section. The page provides all the links for: partners, EERA projects, Advisory board members, international coordination members and related projects. Figure 9 shows part of the list of the projects related to the ELECTRA IRP, together with their own description; note that the previous projects are used as a starting point for ELECTRA IRP, counting on the results already achieved.



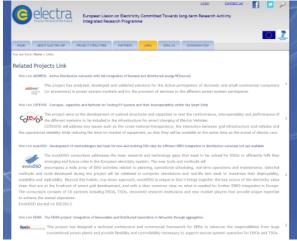


Figure 8 - Links page

Figure 9 – Related projects link page

2.2.5 **EERA SG JP**

Due to the strong relationship between ELECTRA IRP and the EERA SG JP, the relative link to its website is given in the main body menu. In this way, the EERA SG JP is the highlighted and the user can easily access to its specific website. In particular, the user is invited to look at how the ELECTRA IRP aims at reinforce the integration of the European research centres and to continue the work started with the EERA SG JP. Note that in this framework the ELECTRA IRP integrates the strong cooperation born within the EERA SG JP with European funds, necessary to align the research on common topics and with full collaboration among the partners. The cooperation results also in joint events, i.e. SC meeting and technical workshops, where participants can share the latest research achievements and keep reinforcing the European cooperation to reach common goals, such as the ambitious targets set by Europe for the 2030 power system.

2.2.6 Dissemination

A specific section for the dissemination of the ELECTRA IRP achievements is provided. The related web page is given by Figure 10, where the user can directly download relevant papers and articles published on journals of stakeholder or scientific journals, together with ELECTRA public deliverables.

04/06/2014 Page 16 of 28





Figure 10 - Dissemination page

The section is divided into three sub-sections:

- Papers Coordination and support actions;
- Public deliverables;
- Media.

The page related to the single subsection gives more details on each published element and the link for a direct download. Figure 11 provides an example and represents the "Papers, coordination and support actions" subsection.



Figure 11 - Papers, coordination and support actions page

04/06/2014 Page 17 of 28



2.3 Footer menu

The footer menu, shown in Figure 12, gives the access to three different links: the "Contact webmaster" form, the disclaimer and the website map. In particular, the contact form allows to send an email to the project coordinator, RSE, for any comment or suggestion.



Figure 12 - Footer menu

04/06/2014 Page 18 of 28



3 Restricted Area

The restricted area is intended to be used by the project members. They can access the restricted area with a username and a password through the login page, shown in Figure 13.

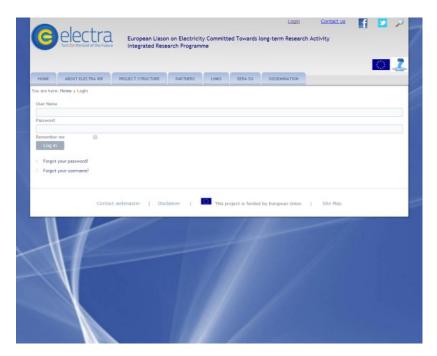


Figure 13 – Restricted area login page

The restricted area is composed by six subsections:

- Forum (see subchapter 3.1)
- Calendar (see subchapter 3.2)
- Propose new meeting (see subchapter 3.3)
- Document sharing (see subchapter 3.4)
- Project deliverables (see subchapter 3.5)
- Propose new content (see subchapter 3.6)
- Propose new link (see subchapter 3.7)

3.1 Forum

The forum, depicted in Figure 14, has been implemented to provide a platform for common discussions and share of ideas. The forum has an open access to all the members, that can also open new topics as desired. The aim is to provide a further platform to share ideas and comments, and to keep the largest number of members informed about other WP main discussions.

04/06/2014 Page 19 of 28



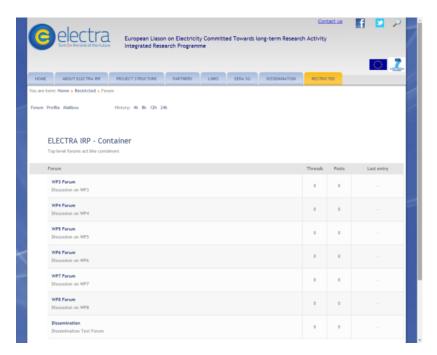


Figure 14 - Forum page

3.2 Calendar

The restricted area enables the project members to have a personalized view of the calendar. In addition to the public events, the user can visualize the meetings for the Committee and/or WP for which he/she is actually involved in. In this way, each project member has a personalized calendar which acts as a reminder and an organizer. Figure 15 shows how the calendar page looks like: it can be seen that users can also propose a new event, related to a WP or to a Committee. The meeting visibility has to be chosen; in particular, the event can be accessed only by the specific WP/Committee members or also by the public. The event approval is given by WP leaders which are in charge of organizing each WP meetings on the calendar. Once the event is accepted, a mailing system automatically alerts the people involved by email whenever an event is created or modified; thus, the system is able to keep the user updated in a fully automatic way.

04/06/2014 Page 20 of 28



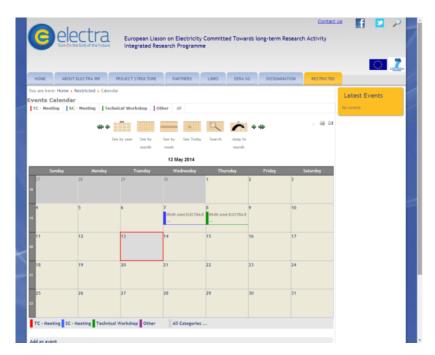


Figure 15 - Calendar in the restricted area

3.3 Meetings

The meetings section is divided into three subsections:

- Steering Committee
- Technical Committee
- Other meetings

Figure 16 shows the Steering Committee (SC) Meetings webpage, where the list of the uploaded documents can be seen, together with the author's name and the number of downloads ("hits").



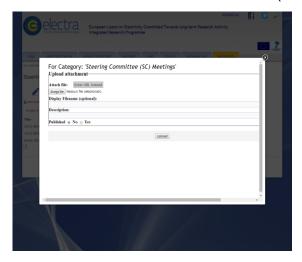


Figure 16 – SC meeting page

Figure 17 – SC meeting upload window

Figure 17 shows the window that allows to upload an attachment specifying the filename and a short description of the document, i.e. an abstract. In a similar way, it is possible to upload

04/06/2014 Page 21 of 28



documents for the Technical Committee (TC) meetings and any other meeting.

This section gives a quick overview of all the ELECTRA meetings, together with the related documentation attached, without having to search for each of them in the calendar.

3.4 Document sharing

The document sharing page, shown in Figure 18, allows the members to share documents among the other partners. The repository folder has been subdivided in different folders to keep a friendly layout and facilitate the files search. Each WP has a related folder where members can upload the documents for each task. In this way, an immediate access to common documents is given to all partners' members of ELECTRA IRP and the documents sharing is facilitated. A backup of all documents is performed weekly and it is stored in a protected server.

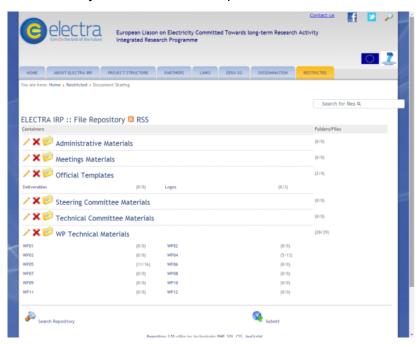


Figure 18 – File repository page

3.5 Project deliverables

Figure 19 shows the project deliverables which can be internal or public. Authorized members can upload official documents in both the folders and the web administrator is in charge of publishing the public deliverables.

04/06/2014 Page 22 of 28



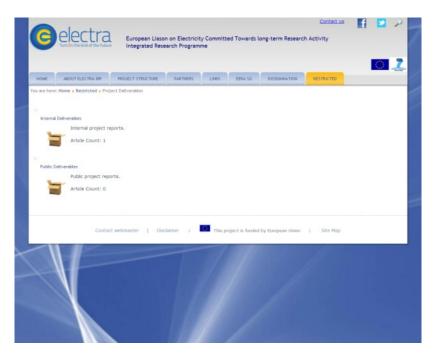


Figure 19 - Internal and public deliverables page

3.6 Propose new content

The feature is represented in Figure 20 and allows the authorized members to propose a new content in the website, specifying whether it is public or restricted to the partners' members (or even only a part of them, i.e. the members of the SC). The website administrator is in charge of publishing the new content, after careful checking.

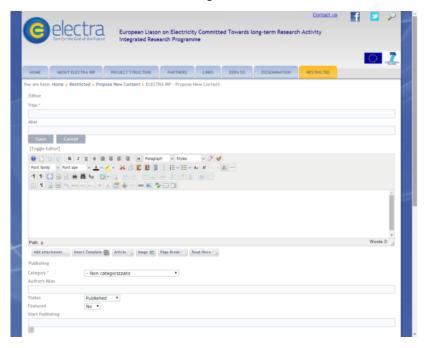


Figure 20 - New content proposal page

04/06/2014 Page 23 of 28



3.7 Propose new link

In a similar way, it is possible to propose a new link in the Links menu of the website main body (Figure 21). Also in this case, it is necessary to specify the category of the link, i.e. whether it is a link of partners, EERA, Advisory board members, etc. Also in this case, the website administrator is responsible of publishing the new link on the website, making it accessible to the public.

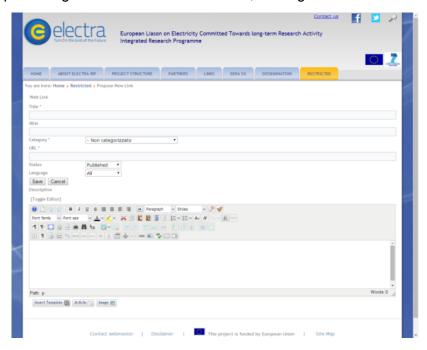


Figure 21 – New link proposal page

3.8 Keywords and tags

Keywords can be linked to the attachment to facilitate the users in searching for files which are related to the attachment itself. A plugin is able to perform a fully automatic procedure to group documents with the same keywords and to create a box where the most used keywords are shown. This system is similar to the tag system of the social networks and enables the users to access documents which are related to each other. The same concept is adapted to the document abstract: in this case, the plugin groups documents where a specific word appear in the text. The feature is particularly interesting as it is able to simplify the research of documents in the document sharing platform, especially when many of them are uploaded.

3.9 Newsletter

An automatic newsletter system is being implemented in the website thanks to a plugin. Every 4 months, the system is able to generate an automatic email to be sent to all the partners' members based on the most recent news, events and the most downloaded documents. In this way, an automatic procedure keeps the project partners updated to the latest news and project achievements.

04/06/2014 Page 24 of 28



4 Short summary about the website internal trial

The website has been developed at different phases. In the first phase, a trial version of the website was designed to check its features and functionalities, before the final web release. The trial version of the website was available only in the RSE Intranet, starting from early 2014.

First, a complete list of all the features that were identified as needed for the website has been created. Then, appropriate plugins have been implemented for a first check of their functionalities. The website trial version allowed authorized users to test its features, its stability, its layout and passed through a debugging process. In particular, the website security was carefully checked to ensure that the project members can access only the documents they are authorized for. This activity has been considered as important since sensible documents may be available on the website. Moreover, speed test have been conducted to check the full compatibility of the various plugins and to obtain an acceptable website response time.

By the end of March 2014, the test activity was completed and the website features were frozen. The final step consisted in the final release of the website for the live operation, which took place in 1st April 2014.

04/06/2014 Page 25 of 28



5 Conclusions

Among the various dissemination activities of the ELECTRA IRP, the website has a great importance as it has been designed to be one of the main tool to spread the project results and achievements and to keep the public updated with the latest news of the project. Due to the relevance that a global medium has, the website is perfectly suitable to keep the largest number of people updated. News and events sections are constantly updated and properly highlight the strong interaction between the ELECTRA IRP and the EERA SG as many events are actually joint ELECTRA and EERA sessions.

Furthermore, users can easily access public material to get a more detailed description of the technical achievements.

The website restricted area has been designed to fulfil partners needs and also to provide a common sharing platform. Since, it is very useful to share both working documents and final reports and deliverables among the project partners, the ELECTRA IRP website has advanced features to facilitate the documents search, the events management and project communication needs. In particular, the "calendar" function allows to organize both web and physical meetings easily and quickly, providing the members with the related material.

A beta version of the website was developed in early 2014 and passed through an internal testing period. After its final approval by the end of March 2014, the website has been launched since 1st April 2014.

Further improvements of the website may be undertaken based on the feedback from users' experience to fully fit partners' actual needs.

04/06/2014 Page 26 of 28



6 References

- [1] http://www.electrairp.eu (ELECTRA IRP web site)
- [2] http://sites.google.com/site/eerasmartgrids/home (EERA JP SG web site)
- [3] http://cordis.europa.eu/fp7/home_en.html (EU FP7 CORDIS web site)

04/06/2014 Page 27 of 28



7 Disclaimer

The ELECTRA project is co-funded by the European Commission under the 7th Framework Programme 2013.

The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Commission.

The European Commission is not responsible for any use that may be made of the information contained therein.

04/06/2014 Page 28 of 28