

STARGRID

*Standards analysis supporting
smart energy grid development*

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Workshop FUTURED-STARGRID

Madrid, 12 Junio 2014

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Datos básicos del proyecto

- **Proyecto Europeo FP7** (ICT-2011.6.1 Smart Energy Grids)
- *Coordination and Support Action*
- Duración: **2 años (01/10/2012 - 30/09/2014)** . Posible prórroga 3-4 meses)
- Presupuesto total: **1,36 M€**
- Consorcio: **5 socios**



Fraunhofer Institute for Wind Energy and Energy System Technology (IWES), coordinator



Ricerca sul Sistema Energetico SpA RSE SpA (RSE)



Romanian Standards Association (ASRO)



TECNALIA Research & Innovation



European Distributed Energy Resources Laboratories (DERlab)

Qué pretende el proyecto

- **Objetivos:**
 - Evaluación del panorama internacional en materia de **normalización para smart grids**, incorporando la visión de la industria
 - “Visión” de la industria: reacciones a las iniciativas de normalización, opiniones, requisitos, problemas detectados
 - Apoyo a políticas de normalización a través de conclusiones y recomendaciones para los organismos de normalización, Comisión Europea, etc.
- **Alcance:**
 - Global con foco en Europa
 - Actividades de comités de normalización e iniciativas industriales
- **“Smart grids” con énfasis en las áreas de:**
 - Integración de DER y control de red
 - Gestión de la demanda
 - Smart metering

Qué pretende el proyecto

- **Relación con el SGCG:**
 - Desinformación y **recelo inicial**
 - Diferencias:
 - Objetivos diferentes: STARGRID **no** trabaja como **respuesta al M/490**. No duplica el trabajo del SGCG, lo aprovecha.
 - Trabajo complementario al del SGCG: recogida de la **visión de la industria**
 - Extensión del trabajo de SGCG cubriendo también **iniciativas industriales** (alianzas, soluciones tecnológicas, estándares de facto, propietarios/abiertos...) con vocación de convertirse en una futura norma europea/internacional
 - Aunque el foco es UE, el alcance de STARGRID es **internacional** (al menos “un vistazo”)
 - **Colaboración actual:** workshops/eventos conjuntos, participación en teleconferencias, revisión del trabajo de STARGRID.

Organización del trabajo

Mapping

- Análisis de **actividades de normalización e iniciativas industriales** en smart grids
- **Repositorio** de documentos asociados
- **Criterios de evaluación:** gaps, puntos críticos, solapes, prioridades, etc.

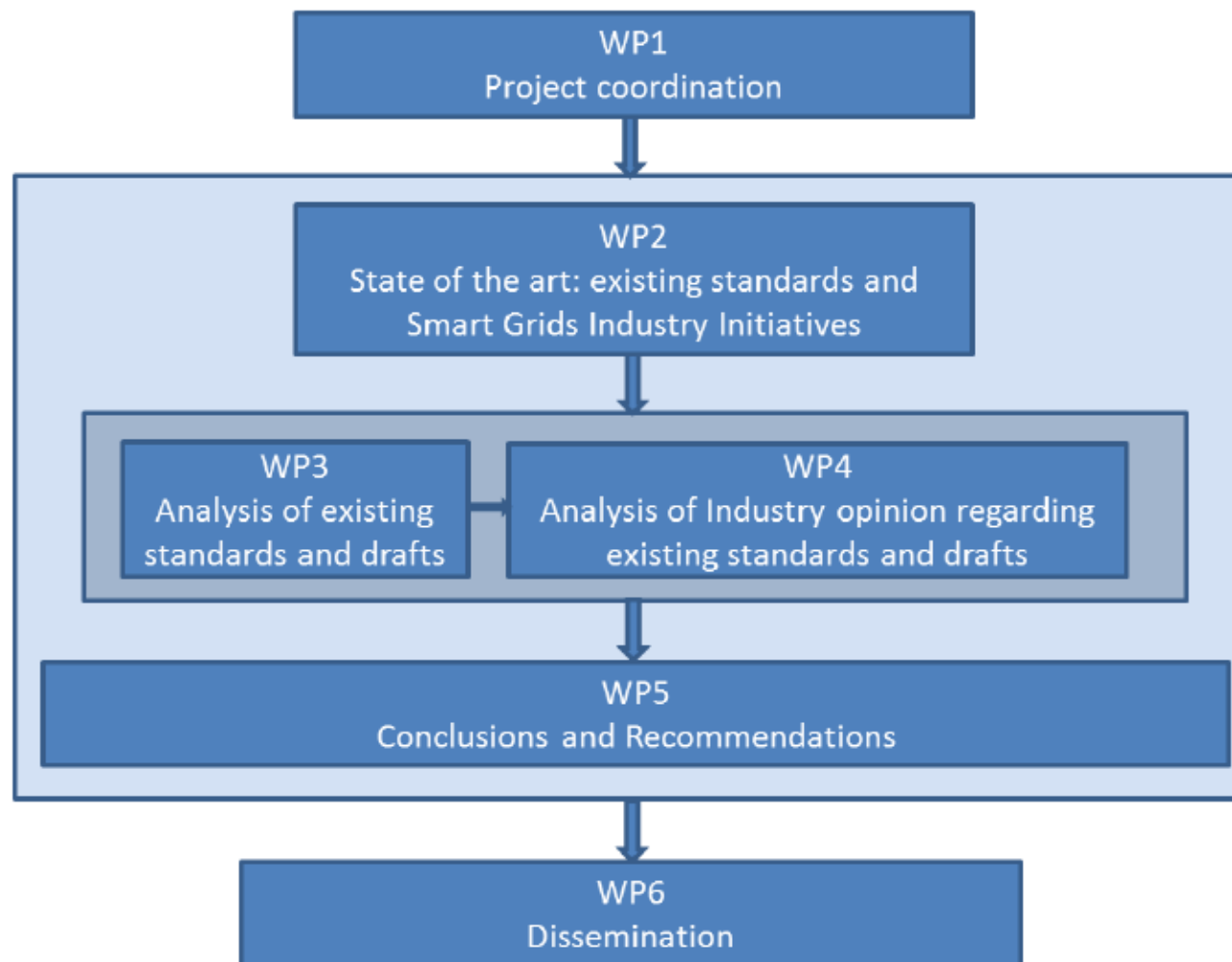
Interacción

- Recogida de **requisitos** de los stakeholders
- **Consulta a la industria:**
 - Detección de grado de uso de normas, preocupación, conocimiento e implicación en normalización
 - Trasladar su visión y opinión (requisitos, necesidades, sugerencias, etc.)
 - Instrumentos: entrevistas, workshops, cuestionarios
- **Evaluación crítica**



Resultados

- **Conclusiones**
- **Publicaciones**
- **Recomendaciones** a organismos de normalización, Comisión Europea, industria, políticos, etc.

Organización del trabajo



Algunos resultados hasta la fecha

STARGRID
FP7 - 318782



**D2.1 – SMART GRID STANDARDIZATION
DOCUMENTATION MAP**

Version	V1.0	Status	Final Draft
Work Package	WP2	Preparation Date	2013-06-27
Due Date	M8	Submission Date	2013-07-02
Main Author(s)	Inés Gómez (Tecnalia) J. Emilio Rodríguez (Tecnalia) Speranta Stomff (ASRO) Joseba Jimeno (Tecnalia) Christoph Nölle (IWES)		
Contributors	Ibon Arechalde (Tecnalia) Eduardo García (Tecnalia) Eutimio Sánchez (Tecnalia) David Nestle (IWES)		
Dissemination Level	PU	Nature	R
Keywords	Smart Grid, Standardization, Industry initiatives		

Acronym	Name		
CLC TC 57	Power systems management and associated information exchange		
Status	<input checked="" type="checkbox"/> Active <input type="checkbox"/> Inactive <input type="checkbox"/> Disbanded <input type="checkbox"/> Planned <input type="checkbox"/> Other		
Establishment date	--		
Ending date	--		
Website	http://www.cenelec.eu/dyn/www/?p=104:29:483471777398831:::FSP_ORG_ID,FSP_LANG_ID:10649,25#1		
Contacts	Name	Email	Telephone
Chairman	Mr Thierry Lefebvre (FR)		
Secretary	Mr Heiko Englert (DE)		
Scope – Focus – Description of activities			
Scope: CLC TC57 is the mirror committee for IEC TC57. In general CLC TC57 adopts IEC standards developed by IEC TC57, so, the main scope of this Technical Committee is similar to that of IEC TC57, to prepare international standards for power systems control equipment and systems. Standards prepared by other technical committees of the IEC and organizations such as ITU and ISO shall be used where applicable. Although the work of TC 57 is chiefly concerned with standards for electric power systems, these standards may also be useful for application by the relevant bodies to other geographical widespread processes.			
Structure: The CLC TC 57 committee has the following Working Groups: WG01: Smart Grid Mandate M/490			
Activities: The publications already available and mostly adapted from IEC standards are summarized in the following link: http://www.cenelec.eu/dyn/www/?p=104:22:483471777398831:::FSP_ORG_ID,FSP_LANG_ID:10649,25#2 And the projects currently under development: http://www.cenelec.eu/dyn/www/?p=104:22:483471777398831:::FSP_ORG_ID,FSP_LANG_ID:10649,25#1			
Comments			
The main activities of this Technical Committee are directly related to those of the IEC TC57. For more information on the standards published by this TC, please see also the form draft for the IEC TC57 (included in this deliverable)			

- Informes sobre el “Estado del Arte” sobre actividades de normalización e iniciativas industriales en SG
 - Información básica relevante (última revisión 14/02/2014)
 - Inventario de grupos y documentos (sin análisis)

Algunos resultados hasta la fecha

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**D2.2 – SMART GRID INDUSTRY
INITIATIVES DOCUMENTATION MAP**

Version	V1.0	Status	Final
Work Package	WP2	Preparation Date	2013-06-28
Due Date	MB	Submission Date	2013-07-02
Main Author(s)	Christoph Nölle (WES) Stephan Engel (WES) J. Emilio Rodríguez (Tecnalia)		
Contributors	David Nestle (WES) Giorgio Franchioni (RSE)		
Dissemination Level	PU	Nature	R
Keywords	Smart Grid, Standardisation, Industry Initiatives		

INDUSTRY INITIATIVE	
Acronym	Name
E@H	Energy@Home Association
Type	Industry Initiative
Status	<input checked="" type="checkbox"/> Active <input type="checkbox"/> Inactive <input type="checkbox"/> Finished <input type="checkbox"/> Planned <input type="checkbox"/> Other
Establishment date	2012
Ending date	--
Website	http://www.energy-home.it
Members	
Founding members Electrolux, Enel, Indesit Company and Telecom Italia	
Scope – Focus – Description of activities	
Scope The Energy@home Association has the mission of developing and promoting technologies and services for energy efficiency in smart homes, based upon the interaction between user devices and the energy infrastructure. It is a non-profit Association founded on July 2012 as a follow-up of a collaboration project among the four founding companies started in 2009.	
Activities As a main achievement, Energy@home released a set of technical specifications and an interoperable fully-integrated system comprising smart broadband gateway, smart meter, smart plugs, smart domestic appliances and a user interface application. The specifications are based on the ZigBee Home Automation profile, and the E@H association contributes their results back to this profile. A field trial has been started in 50 private premises in Italy.	

- Informes sobre el “Estado del Arte” sobre actividades de normalización e iniciativas industriales en SG

- Información básica relevante (última revisión 14/02/2014)
- Inventario de grupos y documentos (sin análisis)

Visión de la industria: mecanismos

Interacción

- Recogida de **requisitos** de los stakeholders
- **Consulta a la industria:**
 - Detección de grado de uso de normas, preocupación, conocimiento e implicación en normalización
 - Trasladar su visión y opinión (requisitos, necesidades, sugerencias, etc.)
 - Instrumentos: entrevistas, workshops, cuestionarios
- **Evaluación crítica**

- **Workshops nacionales e internacionales**
- **Cuestionario**
- **Entrevistas**

Visión de la industria: workshops STARGRID

- **Workshop internacional: Bruselas, 16 Mayo 2013** (organizado conjuntamente con la European Technology Platform Smart Grids)
- **Workshop nacional: Bucarest, 11 Sept 2013** (coincidiendo con Congress of Energy and Electric Equipment, CEEER 2013)
- **Workshop nacional: Milán, 30 Octubre 2013**
- **Workshop internacional: Hannover, 10 abril 2014** (organizado conjuntamente con el SGCG, coincidiendo con la feria Hannover Messe)
- **Workshop nacional: Madrid, 12 Junio 2014** (organizado conjuntamente con FUTURED)



Visión de la industria: cuestionario

- Estructura del cuestionario

Section 1	Section 2	Section 3	Section 4	Section 5
General infos on the Organization and its involvement in STD process	Core SG Standards	Priority Topic 1: DER Integration and Grid Control	Priority Topic 2: Demand – Response Management	Priority Topic 3: Smart Metering
		General STD requirements		
		Gaps and required actions		
		Standardization initiatives awareness		

- Resultados: aprox. 100 respuestas, 70 respuestas representativas
- Estadísticamente poco representativo: no permite generalizar ni por país ni por grupo de stakeholder
- Quizás podría indicar alguna tendencia. Análisis comparativo
- Feedback valioso a título individual (visión particular de cierta empresa/persona): “pistas”

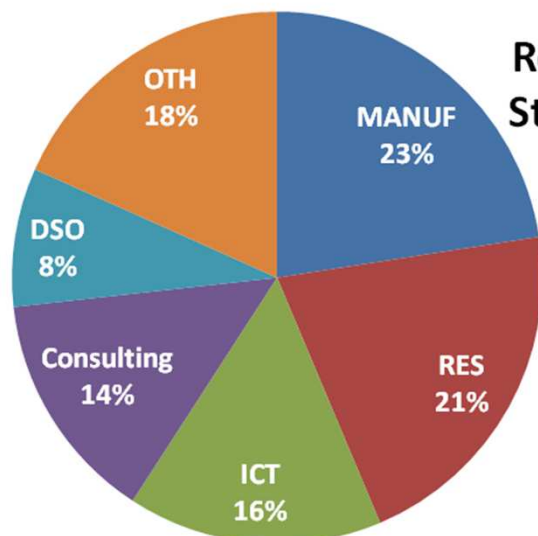
Visión de la industria: cuestionario

- Distribución de respuestas:

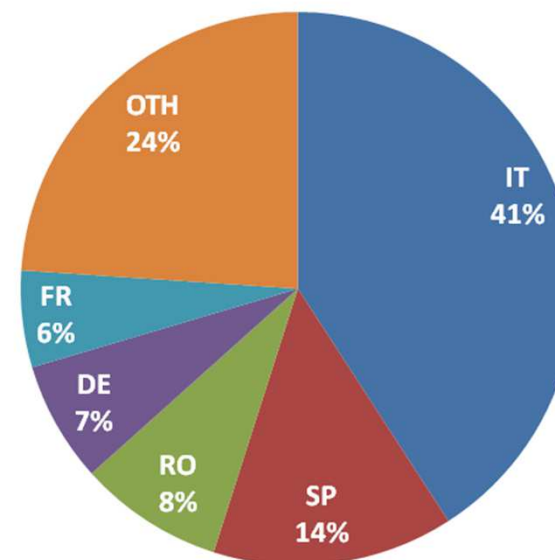
STAKEHOLDERS:

MANUF	RES	ICT	Consult	COMM Infra	DSO
16	15	11	10	2	6
SFW	Utility	Consum	TSO	Bulk Gen	TOT
3	3	1	2	2	71

Represented Stakeholders



Countries coverage



COUNTRY:

IT	29
SP	10
RO	6
DE	5
FR	4
GR	2
EU	2
CY	1
BE	1
UK	2
SI	1
USA	2
PL	1
NO	1
CZ	1
SE	1
AT	1
WW	1
TOT	71

Visión de la industria: cuestionario

• Smart Grid core standards (IEC)

Required Assessment:	to the represented Organization Score: 1-5												
RELEVANCE & FUTURE IMPACT	Nr of valid answers												
	IEC 60870-5 Telecontrol equipment and systems Part 5: Transmission protocols (including parts 101/104)												
	IEC 60870-6 - Tase.2 Telecontrol equipment and systems - Part 6: Telecontrol protocols compatible with ISO standards and ITU-T												
	IEC 61850 - Power Utility Automation Communication networks and systems in substations												
	IEC 61968 - CIM for Distribution Application integration at electric utilities - System interfaces for distribution management												
	IEC 61970 - CIM for Energy Management Energy management system application program interface (EMS-API)												
	IEC 62325 - CIM for Market Communication Framework for energy market communications												
	IEC 62351 - Security Power systems management and associated information exchange - Data and communications security												
	IEC 62056 - DLMS / COSEM Electricity metering - Data exchange for meter reading, tariff and load control												
	IEC/TR 62357 - Service Oriented Architecture (SOA) Power system control and associated communications - Reference architecture for object models, services and												
	IEC PAS 62559 - Methodology IntelliGrid methodology for developing requirements for energy systems												
	IEC 62488-1 - Power line communication systems for power utility applications - Part 1: Planning of analogue and digital power line carrier systems operating over EHV/HV/MV												
	AVERAGE												
	OVERALL	64	3,14	2,81	3,54	3,16	3,13	2,70	3,11	3,31	3,00	2,60	2,60
ITALY	25	2,80	2,68	3,23	2,75	2,92	2,25	2,72	2,41	2,91	2,54	2,40	2,69
SPAIN	9	4,00	2,78	3,33	2,44	2,44	2,11	2,78	4,56	2,67	2,44	3,11	2,97
GERMANY	5	3,60	2,60	4,80	4,00	3,60	3,40	4,40	2,80	3,40	2,25	1,80	3,33
ROMANIA	6	3,67	3,83	4,00	3,20	3,33	3,33	3,33	3,17	3,50	3,17	3,33	3,44
MANUFACTURERS	14	2,93	2,36	3,20	2,77	3,08	2,38	2,79	3,31	2,85	2,69	2,62	2,81
RESEARCH	13	2,31	1,92	3,08	2,85	2,46	2,15	2,54	2,92	2,25	2,38	2,62	2,50
ICT	9	3,44	2,78	4,11	4,22	3,78	3,22	3,89	3,89	3,78	3,11	2,11	3,48
DSO	6	3,83	3,50	3,50	3,00	3,00	2,83	3,50	3,83	2,83	2,67	3,17	3,24
CONSULTING	10	3,60	3,30	4,10	3,50	3,50	3,10	3,50	3,30	3,00	2,44	3,00	3,30

Visión de la industria: síntesis de resultados del cuestionario

- Integración de DER y control de red: prioridad de los gaps

Gaps and required actions	AVG	IT	SP	DE	RO	MAN	ICT	DSO	TSO
	Agr / Rlv								
Std gap: Smart Grids request increased automation levels of the distribution grid, to ensure higher efficiency of operation, security, control and quality	4,46	4,32	4,75	4,40	5,00	4,58	4,50	4,60	4,50
	3,51	3,95	4,75	4,40	4,60	4,00	4,25	4,20	4,00
Std gap: Electrical connections and operation rules of DERs should be harmonized across Europe	4,16	4,22	4,25	4,20	4,20	4,50	4,25	4,00	4,50
	3,93	4,13	4,38	3,60	4,20	4,17	4,13	3,80	4,00
Std gap: Installation rules of DER should be adapted to allow for new ways of operating grids, such as microgrid.	3,98	4,05	4,00	3,00	4,40	3,70	4,63	3,40	4,00
	3,76	3,71	3,71	3,20	4,60	3,50	3,38	3,40	4,50
Reg gap: Communication protocols as well as information data models for control center have to be harmonized	3,95	3,88	3,88	4,40	4,40	3,83	3,78	4,40	3,50
	3,82	3,83	3,63	4,20	4,00	3,82	3,67	4,40	4,00
Std gap: New EMC requirements will arise from the development of the grid, requiring reviewing of the Standards	3,43	3,33	4,13	2,00	4,00	3,50	3,50	3,00	3,50
	3,48	3,30	4,50	1,50	4,20	3,42	3,50	3,25	3,50

Visión de la industria: síntesis de resultados del cuestionario

- Integración de DER y control de red: familiaridad con las actividades de normalización

Standardization related Initiative	AVG	IT	SP	DE	RO	MAN	ICT	DSO	TSO
IEC 61850-90-X Communication networks and systems for power utility automation (e.g. IEC 61850-90-14 for FACTS (Flexible AC Transmission Systems))	3,17	3,00	3,25	4,00	3,00	3,20	3,75	3,20	3,50
IEC 62786 Ed. 1.0 Smart Grid User Interface: Demand Side Energy Sources Interconnection with the Grid (TC 8)	2,62	2,94	2,25	2,00	2,75	2,30	1,86	3,20	1,50
IEC 61968 - Common Information Model (CIM) / Distribution Management. Part 8: Interface Standard For Customer Support	3,22	2,89	3,00	4,00	3,60	2,40	4,00	3,80	2,00
IEC/TS 62351-8 Ed. 1.0 Power systems management and associated information exchange - Data and communications security - Part 8: Role-based access control (TC 57 WG 15)	2,77	2,72	2,50	3,80	2,80	2,70	3,25	3,00	1,50
Pr IEC 61000-X: Electromagnetic Compatibility (EMC) (TC 77)	2,88	2,67	3,00	1,80	3,80	3,40	2,25	2,00	2,50
ENTSO-E Network Codes (RfG): Requirements for Grid Connection of Generators	2,79	2,47	2,63	3,80	4,00	2,27	2,71	3,00	3,00

Visión de la industria: cuestionario

- Gestión de la demanda: prioridad de los gaps

Gaps and required actions	AVG Agr /Rlv	IT	SP	DE	RO	MAN	ICT	DSO	TSO
Std. gap: There is an urgent market need (in Europe) for a Demand Response standard, defining the communication between service providers (e.g. utilities or aggregators) and end customers	4,14	4,20	4,33	4,20	4,80	3,71	4,29	4,33	4,00
	3,78	3,67	3,67	3,67	4,40	3,83	3,67	3,50	4,00
Std. gap: The definition of a data model that can be mapped to different information layer standards is a suitable approach to handle the problem of incompatible protocols	3,40	3,40	3,33	3,50	3,40	4,00	3,30	3,30	3,00
	3,22	3,70	3,20	1,90	3,70	4,00	3,20	2,70	3,50
Std. gap: Standardised protocol converter and runtime environment for energy management applications at the customer premises are required	3,60	3,60	3,67	3,40	3,60	3,80	3,60	3,50	2,75
	3,17	3,20	3,67	1,60	3,30	3,30	3,25	3,50	3,00
Regulation gap: The current EU electricity wholesale market model has to be adapted to allow for market integration and Ancillary Services	3,71	3,76	4,00	4,75	3,40	3,71	4,00	4,25	2,50
	3,48	3,88	3,33	2,67	3,40	3,40	3,57	3,67	2,50

Visión de la industria: cuestionario

- Smart metering: prioridad de los gaps

Gaps and required actions	AVG	IT	SP	DE	RO	MAN	ICT	DSO	TSO
	Agr/ Rlv								
Std. gap: Interoperability for the different smart meter standards to be achieved at the data model level (for example, using DLMS/COSEM)	3,20	3,13	3,40	2,50	4,00	3,29	3,11	2,67	2,50
	3,39	3,47	3,40	3,25	3,80	4,00	3,33	3,67	3,00
Regulation gap: Strong security mechanisms (encryption & authentication) mandatory for the WAN communication of the smart meter gateway	4,13	3,87	4,00	4,75	4,20	3,86	4,56	4,33	4,50
	3,87	3,47	3,40	3,00	3,80	3,57	4,44	3,67	4,00
Regulation gap: Full access to grid related smart meter data at the customer connection point by the grid operators (for example: voltage, current, cos ϕ)	4,07	4,29	4,40	4,00	4,60	4,71	4,00	5,00	3,50
	3,74	3,71	3,40	3,33	4,60	4,29	4,00	4,33	3,50
Regulation gap: Home devices control: smart meters to be the gateway by which electricity supply can be controlled remotely (entire supply or individual appliances)	3,93	4,14	4,00	3,50	4,40	4,43	4,25	4,00	4,00
	3,59	4,07	3,40	2,25	4,00	4,00	3,63	4,33	3,50
Std. gap: Standardized communication profile for the connection of controllable loads or an energy management system to the smart meter gateway is missing	3,77	4,00	3,80	3,75	3,60	4,29	4,13	4,00	3,00
	3,23	3,57	3,00	3,25	3,60	3,71	3,25	3,67	3,00

Visión de la industria: cuestionario

- Smart metering: familiaridad con las actividades de normalización

Standardization related initiative	AVG	IT	SP	DE	RO	MAN	ICT	DSO	TSO
IEC 62056 Series (incl. DLMS/COSEM)	3,02	2,36	4,40	2,50	2,60	3,33	4,00	2,67	1,50
IEC 61334 - DLMS (PLC) Distribution automation using distribution line carrier systems (TC 57 WG 9)	2,88	2,14	4,40	2,75	2,40	2,83	3,63	2,67	2,00
IEC 61968-9 - CIM for Distribution Application integration at electric utilities - System interfaces for distribution management Part 9: Interface Standard for Meter Reading & Control (TC 57 WG 14)	2,71	2,14	2,20	3,50	2,80	2,83	3,38	2,00	2,00
IEC 62056-6-9 Mapping between the Common Information Model CIM (IEC 61968-9) and DLMS/COSEM (IEC 62056) data models and message profiles (TC 13)	2,68	2,07	3,40	3,00	2,25	3,17	3,14	3,33	2,00
ZigBee Smart Energy Profile (SEP) 2.0	2,59	2,50	2,00	2,00	1,50	2,67	3,57	2,67	1,00
prTS 50567-1 (PRIME) Meter data exchange over power lines – Part 1: Lower layer profile using OFDM modulation Type 1 (CLC TC 13)	2,52	2,14	4,80	1,00	2,80	2,50	3,25	2,33	1,50

Visión de la industria: entrevistas

- El cuestionario ofrecía la posibilidad de una entrevista posterior
- Herramienta complementaria al cuestionario. Extensión del mismo
- Estructura de la entrevista:

Level	Subject
Level 1	Relevance of the raised technical topics → Impresión general del cuestionario
Level 2	Participation in the STD process
Level 3	Specific requirements in Standards → Puntos relevantes del cuestionario
Level 4	Awareness/Assessment of STARGRID initiative
Level 5	Recommendations/suggestions to Standardization Organizations

Visión de la industria: entrevistas (algunas frases)

- ✓ **(General)** “No hay necesidad estándares globales para Smart Grids, ya los definen las utilities”
- ✓ **(General)** “El problema es que los requisitos (por ejemplo, seguridad de la información, modelos de información) no están claros y acordados. Una vez que eso se resuelva, la implementación no será un problema ya que las tecnologías ya existen (por ejemplo, criptografía, ontologías)”
- ✓ **(General)** “Normas demasiado complejas pueden matar el mercado”
- ✓ **(Interoperabilidad)** “El cumplimiento de estándares abiertos es una condición básica pero no suficiente para alcanzar una interoperabilidad real: se necesitan especificaciones adicionales para cubrir la funcionalidad completa”
- ✓ **(Interoperabilidad)** “La normalización para conseguir la interoperabilidad no debe limitar el potencial de diferenciación e innovación en los productos”
- ✓ **(Seguridad)** “Evitar la tentación de cifrar y autenticar todo y seguir un enfoque más lógico en base a casos de uso (problema: esto es algo que los políticos no entienden)”.

Visión de la industria: entrevistas (algunas frases)

- ✓ **(Certificación)** “Los ensayos de conformidad no son suficientes para garantizar la interoperabilidad. Es necesario desarrollar los procedimientos y los ensayos de interoperabilidad”.
- ✓ **(Certificación)** “La interoperabilidad es un asunto sistémico: la auto-certificación por parte del fabricante de un producto no es suficiente”
- ✓ **(Conexión de GD)** “En las normas de interconexión de generación distribuida algunos requisitos técnicos pueden suponer un incremento de los costes y procedimientos más largos en el tiempo” versus “La falta de armonización conduce a unos costes de adaptación muy elevados (diferentes soluciones para diferentes mercados)”
- ✓ **(Smart metering)** “La armonización en smart metering es imposible: incluso cumpliendo con DLMS, los modelos de datos finales son diferentes para cada país (diferentes funcionalidades y requisitos)”
- ✓ **(Gestión de la demanda)** “Necesidad urgente de normalizar las señales de gestión de la demanda: OpenADR es un protocolo maduro. En este aspecto, Europa va claramente detrás”

Análisis de normas y especificaciones técnicas

- Tres áreas de interés de STARGRID: DER integration and grid control, demand response, smart metering
- Análisis basado en la visión/requisitos de la industria (cuestionarios, entrevistas, *position papers*, etc.). No es un análisis línea a línea de todos y cada uno de los documentos/normas
- Metodología interna (basada en el ranking del cuestionario: gaps/puntos críticos → requisitos asociados, normas relevantes)

Subject	Subject: Questionnaire reference (row, gaps DR)	Questionnaire gaps ranking (V 2014-01-23)		Standards to be analysed	Avg. questionnaire relevance (N.e. = Not evaluated)	Requirements	Questionnaire reference (row)	Questionnaire requirements ranking (2014-01-28)
		Avg. Agreement	Avg. relevance					
Std. gap: Communication between grid operators or service providers and the end customer. (SGCG: Gap 10 - Gen-3 Ind-2 HB-2 - Extended field data modelling standard (part of IEC 61850) to support demand response, DER, VPP and home/building/industry automation)	60	4.0	3.60	OpenADR 2.0B	2.93	Modular architecture	8	3.86
				IEC 62746	3.18	Scalability	9	3.96
				ZigBee SEP 2.0	2.64	Information Security	10	4.00
						Support for operating modes: direct control, incentives based, autonomous mode	15-21, 41	3.57
						Data Privacy	23	3.70
				Possible extension to IEC 61850-7-420, IEC 61850-90-X, Echonet, AS/NZS 4755	3.39 N.e. N.e. N.e.	Bidirectional communications (support for status information of connected devices)	32	3.74
						Support for multiple and upcoming communication technologies	36	3.90
						Seamless communication	-	-

Análisis de normas y especificaciones técnicas

- Ejemplo de análisis realizado (herramienta interna):
 - Área de interés de STARGRID: **smart metering**
 - Documento: **ETSI GS OSG 001 v1.1.1 “Open Smart Grid Protocol”**

	Document Type:	ID:	Status	High-Level Requirements reviewer	
	Industry Group Specification	ETSI GS OSG 001 v1.1.1: Open Smart Grid Protocol	Published		
	Requirement/Evaluation Criterion	Priority Stakeholder	Evaluation/Document-internal reference	Overlaps with other standards/specifications [source]	Notes, Recommendations
System architecture & performance	Interoperability	Meter manufacturer, DSO, meter operator	Not considered	There are solutions for interoperability allowing the access of OSGP-based smart meters using the widely used DLMS/COSEM application data model using IEC 62056 parts 47, 53, 61, and 62	
	Security	Customer, DSO, meter operator	Considered in Clause 7	OSGP uses EN 14908 as session layer. EN 14908 already includes authentication services, but OSGP extends them at the application layer and complementing them with confidentiality services (encryption)	
	Modularity	Meter manufacturer, DSO, meter operator	Considered in the entire specification		Specification applicable not only to smart meters but many smart grid devices
Specific Requirements for “Smart metering”	Remote connection/disconnection	DSO, meter operator	Considered in Clause 8.10 (Load Disconnect Contactor) and Clause 8.11 (Control Relay). Load disconnection when maximum power level is reached, prepaid credit finished,...		
	Quality of Supply control	DSO, meter operator	Considered in Clause 8.8 (monitored parameters: voltage sags and swells, overcurrents, power interruptions, frequency, THD, phase loss)		
	Load profile data	Customer, service provider	Considered in Clause 8.5		
	Usability of AMI for additional services	Service provider	In addition to billing, other services are outlined: power quality control (Clause 8.8), demand side management (load control in Clauses 8.10, 8.11, peak demand measurements in Clause 8.15), and variable tariffs (ToU in Clause 8.2)		
	Provision of data from the AMI for grid control purposes	DSO	Not considered		
	Provision of a variable price signal to customers	Customer, DSO, service supplier	Considered in Clause 8.2 (Time-of-Use calendar, over power threshold tariff, ...)		
	Billing based on actual consumption	Customer	Considered in Clause 8.4.1 (self-reads) and Clause 8.4.3 (on-demand reads)		
Consumer Empowerment	Data privacy	Customer	Considered in Clause 7	OSGP uses EN 14908 as session layer. EN 14908 already includes authentication services, but OSGP extends them at the application layer and complementing them with confidentiality services (encryption)	
	On-demand meter data access	Customer	Considered in Clause 8.4.3		The specification foresees a manual override from one tariff to another (Clause 8.2.1)
	Data visualisation (consumption and billing information)	Customer	Considered in Clause 8.9: display showing consumption, remaining prepaid credit, etc.		
ations	Standardised interfaces and data exchange formats	DSO, meter operator	Device data representation considered in Clause 6	OSGP adapts ANSI C12 table structure for a networking protocol for meters and other utility devices as well	This requirement shall appear in standards associated to the

Análisis de normas y especificaciones técnicas

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- **CLASIFICACIÓN (SGCG, IEC, STARGRID)**

	IEC Smart Grid Standards Map http://smartgridstandardsmap.com		Smart Grid Architecture Model (SGCG SGAM)					
STARGRID priority topic	IEC Component Cluster*	IEC Component / Network	SGAM Interoperability Layer	OSI communication layers	SGAM Systems (mapped to domains in WG Interop Excel sheet)	SGAM Zones	Keywords	Communication medium
Smart metering	Automated Metering Infrastructure	Revenue meter	Communication: higher-layer	5-7	AMI System	Process	AMI (Advanced Metering Infrastructure)	Power Line (but not tied to a specific communications physical layer)
		Neighborhood Network	Information			Field	Communication	
		H1 network (Meter <-> external display)				Station	Data Model	
		H2 network (SMG <-> EMG)				Operation		

Diseminación: STARGRID Web, *hub* de información para la industria

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Standards Hub for Smart Grid Industries

STARGRID

Recent years have seen an ever increasing pace in Smart Grid deployment activities. The development and adoption of open standards that ensure both interoperability and security are essential for this process. STARGRID is a collaborative Coordination and Support Action funded by the European commission under the 7th Framework programme, aiming at the provision of a comprehensive analysis of the current standardisation efforts, considering also new industry developments and initiatives in the field. The project is carried out by a Consortium of 5 partners from 4 European countries and will be running for two years (October 2012 – September 2014).

- Project presentation
- Work flow
- Project partners

News

The questionnaire is now online. Take a few minutes to participate!
10 September, 2013

Find the agenda of the STARGRID workshop on the 11th of September in Bucharest online.
10 September, 2013

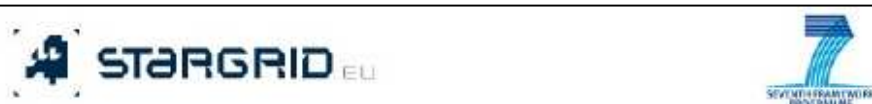
Material

Project fact sheet

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Newsletter

Diseminación: STARGRID Newsletters



NEWSLETTER - June 2013

STARGRID workshop starts the industry consultation process

The first STARGRID workshop on 16 May, 2013, in Brussels (BE) brought together 25 promoters and stakeholders of European Smart Grid industry initiatives to discuss the impact of current standardization activities on technologies, Smart Grid development and the market. The event was the starting point of the STARGRID consultation process with the Smart Grid industries.



The workshop was comprised of three sessions: "Smart Metering", "Voltage Control and DG integration" and "Demand Response". Each of them included short presentations on relevant standardization initiatives and a round table discussion of critical issues. It was organized with the support of the European Technology Platform [ETP SmartGrids](#). Presentations can be downloaded on the [STARGRID](#) website.

Next workshops will be organized in a series of regional workshops in Romania, Italy, Spain and Germany starting in September 2013.



NEWSLETTER - March 2014

STARGRID jointly with the CEN-CENELEC-ETSI Smart Grid Coordination Group:

Standardising the Smart Grid Vision. Is the Smart Grid standardisation framework ready for the Smart Grid rollout?

Workshop at Hannover Messe: 10 April, 2014



STARGRID and CEN-CENELEC-ETSI SMART GRID COORDINATION GROUP are organising a joint workshop to bring together representatives of the standardisation bodies with Smart Grid stakeholders to enhance together the efforts in the forming of the Smart Grid standardisation landscape. The aim of the workshop is:

- To present recent progress and current activities related to the European Smart Grid standardisation framework involving mainly projects of the European and International standardisation organisations under the European Commission mandates M/490 (Smart Grid standardisation) and M/441 (Smart Meter standardisation), but also adjacent regulatory initiatives and open industry

Próximos pasos

- Nueva **base de datos** sobre actividades de normalización e iniciativas industriales (grupos y documentos):
 - Información básica
 - Clasificación múltiple (componentes IEC, SGAM, OSI,...)
 - Resultados del análisis STARGRID
- Finalización del **análisis de normas y especificaciones técnicas**
- Elaboración de **conclusiones y recomendaciones**
- **Workshop final** de proyecto en Bruselas (finales 2014)
- Participación en **evento organizado por la Comisión** con participación de SGCG, SMCG, STARGRID, etc. (comienzo 2015)

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