Panorama normativo en Smart Grids

Carmen Martín Marino
Madrid, 12-06-2014

AENOR

Cronología

Junio 2010-Marzo 2011 - Actividad del CEN/CLC/ETSI JWG "Standards for Smart Grids".

Objetivo: elaboración de un informe estratégico que defina los requisitos de normalización para implementar la visión europea en smart grids, especialmente teniendo en cuenta las iniciativas del Grupo de Trabajo de la CE sobre Smart Grids.

Marzo 2011 - M/490, Mandato de normalización a los Organismos Europeos de Normalización (ESOs) para promover el desarrollo de las Smart Grids en Europa.

"*Desarrollar un marco que permita a los Organismos Europeos de Normalización el desarrollo y mejora de normas en el campo de los Smart Grids, manteniendo una coherencia a nivel horizontal y promoviendo la innovación continua*"

En el marco de esta normalización, se espera que CEN, CENELEC y ETSI faciliten al menos:

- Una arquitectura de referencia,
- Un conjunto consistente de normas,
- Un proceso y un conjunto de herramientas colaborativas para una normalización continuada y sostenible.

- Coordinación con M/441 (Smart Metering *(SM-CG)*) y M/468 (Charging of VE *(EM-CG)*).

Junio 2011 – Informe final del CEN/CLC/ETSI JWG "Standards for SG" + Recomendaciones para la normalización de las smart grids en Europa.

Cronología

Julio 2011 – Creación del CEN-CENELEC-ETSI Smart Grids Coordination Group *(SG-CG)*

• Secretaría: CCMC
• Composición: Miembros de CEN y CENELEC, ETSI Board, ETSI Secretariat, Asociaciones europeas, EEGI *(European Electricity Grid Initiative)*, Smart Grid ETP, CEN-CLC Focus Group Vehículo eléctrico y CEN-CLC-ETSI Coordination Group Smart Meter, TCs de CEN, CLC y ETSI junto con observadores de CE, EFTA, ISO, IEC, UIT-T, NIST-SGIP…

• Objetivos principales *(a completar antes de* 2012-12-31*)*:

- Coordinar la respuesta al M/490 por parte de los ESOs
- Constituirse como una plataforma de discusión sobre las cuestiones de normalización futuras en el ámbito de la SG
- Establecer alianzas con otros grupos que estén trabajando en este ámbito *(UIT-T, Smart Grids ETP…)*

• Estructura:

Steering Group. Grupo ejecutivo que apoya al Coordination Group.
WG Reference Architecture. Define la Arquitectura de Referencia.
WG Sustainable Processes. Define los Casos de Uso.
WG First set of standards. Define y prioriza las normas a modificar y elaborar.
WG Information Security. Grupo consultivo sobre temas de SI en las normas horizontales y verticales a definir por el FSS WG.

Cronología

Diciembre 2012 – Los Consejos Técnicos de CEN/CENELEC y el ETSI Board *(Enero* 2013*)* aprueban los informes siguientes:

- Sustainable Processes
- First set of standards
- Reference Architecture
- Information Security
- Framework document

Disponibles en la página web de CEN-CENELEC:
http://www.cencenelec.eu/standards/Sectors/SustainableEnergy/Management/SmartGrids/Pages/default.aspx

La entrega de estos informes a la Comisión Europea constituye la respuesta de los ESO al M/490

Enero 2013 – ***European Conference on Smart Grid Standardization Achievements*** organizada en Bruselas por la CE junto con CEN, CENELEC y ETSI.

Presentación del trabajo desarrollado por los ESOs en el contexto del M/490 *(informes)* junto con lo realizado bajo el M/441 *(*Smart Metering*)* y M/468 *(*Charging of EV*)*.

Seguimiento nacional

Foro de Coordinación Smart Grids de AENOR

• **Objeto:** Seguimiento de los diferentes informes de normalización horizontales en curso a nivel europeo *(*e internacional*):*

•Foro de debate y puesta en común de los trabajos;
•Establecimiento de posiciones comunes cuando corresponda ⇒ Aportaciones al SG-CG basadas en el consenso.

• **Coordinación:** Dirección de Normalización de AENOR.

• **Participantes:** El foro estará abierto tanto a los expertos que participan en los diferentes grupos de trabajo a nivel europeo e internacional así como a los vocales interesados de los Comités técnicos de normalización relacionados y miembros de AENOR.

• **Operativa:** Distribución de documentación a través de e-comités.

Iteración del Mandato

– **Objetivo principal.** Poner en práctica la metodología desarrollada en la primera fase para que la utilización de las normas asegure una verdadera interoperabilidad para todos los casos de uso genéricos.

- **Metodología**
  Perfeccionamiento de la metodología para conseguir un conjunto de normas coherentes.

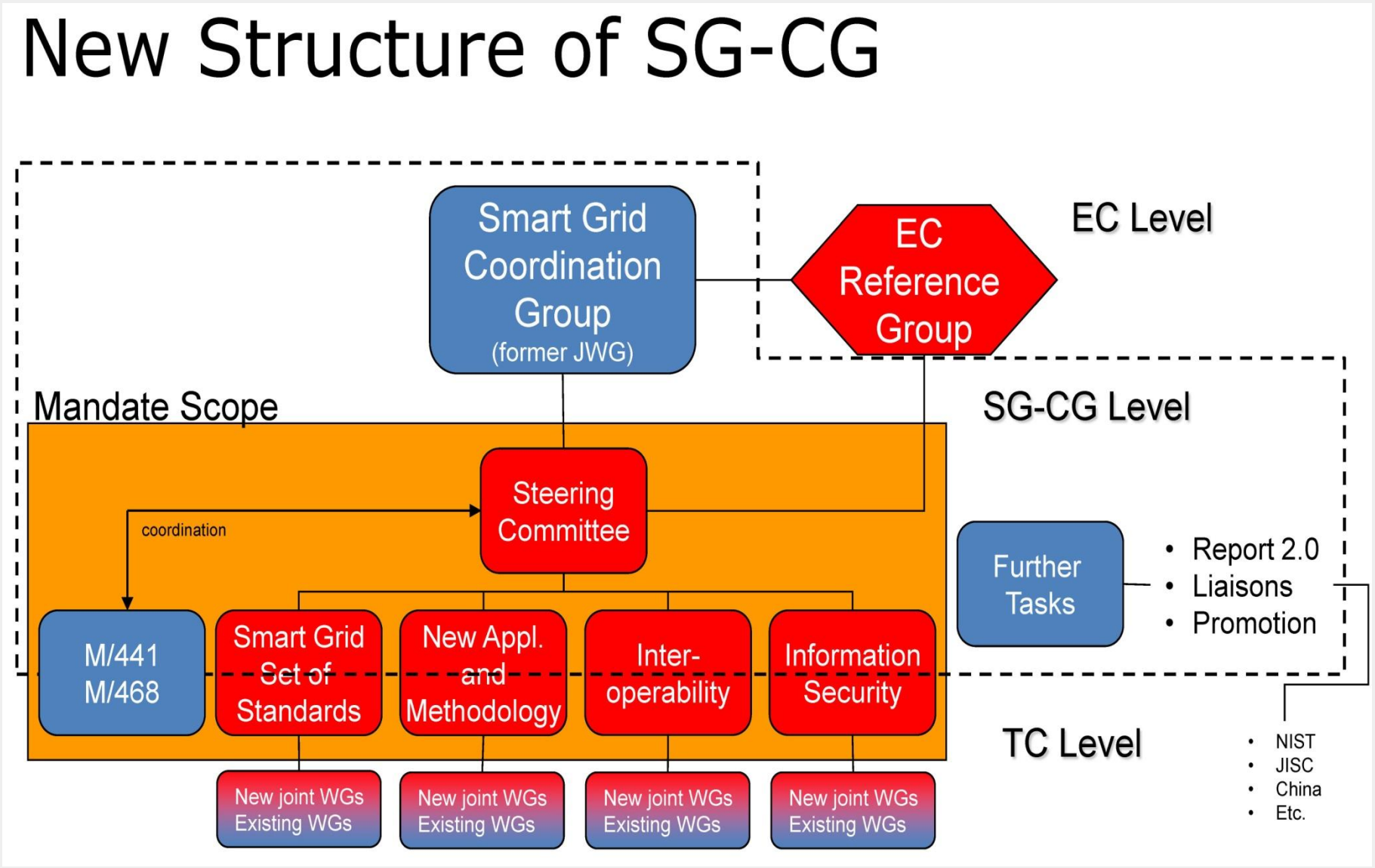
- **Conjunto coherente de normas**
  Que complemente al "First Set of Standards" ⇨ Priorización de nuevos "gaps" que deberán incluirse en el programa de trabajo en colaboración con los correspondientes TCs.

- **Interoperabilidad**
  Deberían estudiarse los siguientes aspectos de interoperabilidad:

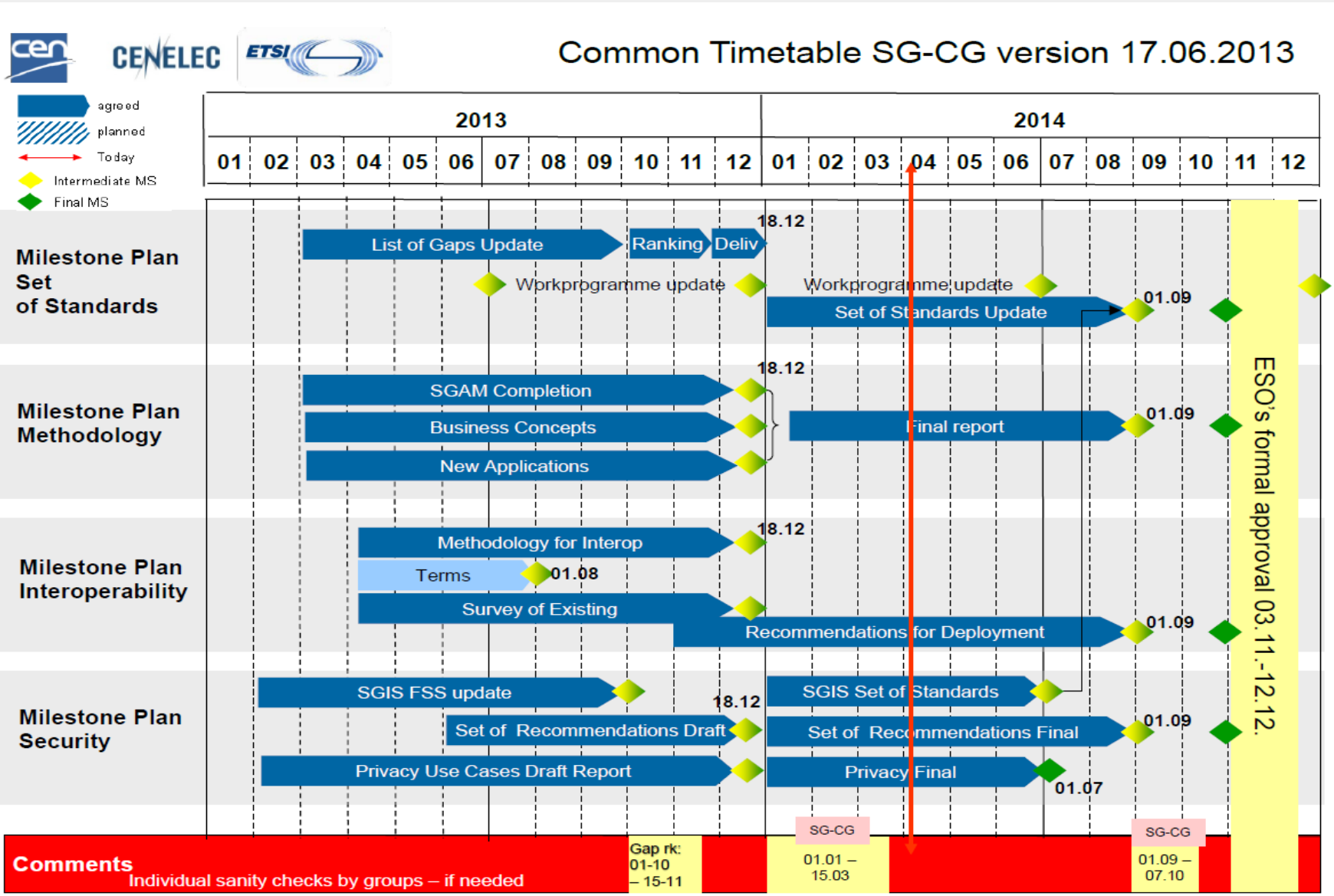
  - método de ensayo de interoperabilidad de los sistemas
  - mapa de ensayos de conformidad
  - evaluación de los perfiles necesarios

- **Nueva estructura de WG.** WG Smart Grid Set of Standards
  WG New applications and Methodology
  WG Interoperability
  WG Information Security
  \+ WG Dissemination *(desde* 2014-04-03*)*

Iteración del Mandato



Iteración del Mandato



AENOR

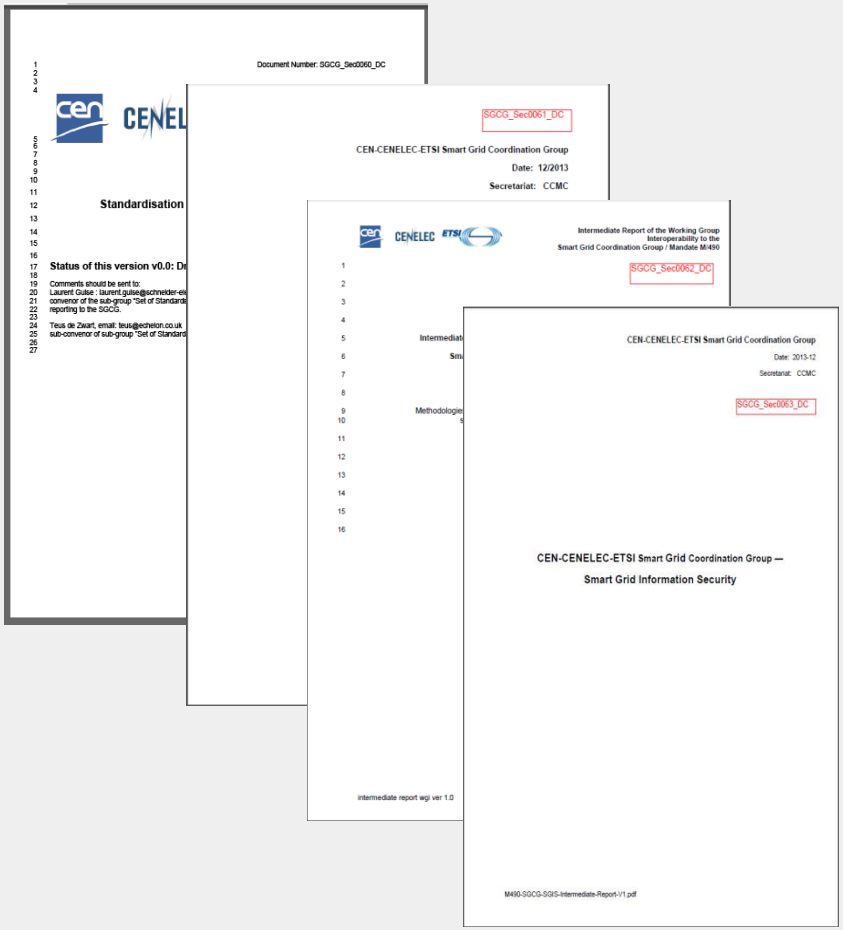
Status actual

- **Circulados los informes intermedios de los 4 WGs para una primera ronda de comentarios (*fecha límite: 2014-03-14*)**

SGCG_Sec0060_DC_WGSTD_IntermediateReport
SGCG_Sec0061_DC_WGMethod_IntermediateReport
SGCG_Sec0062_DC_WGInterop_IntermediateReport
SGCG_Sec0063_DC_WGSGIS_IntermediateReport

- **Objetivo: Versión final de los 4 informes:** Septiembre 2014.

- **Aprobación final por ESOs (CEN-CENELEC-ETSI):** Noviembre/Diciembre 2014



Qualitative Impact Assessment

➢ A solicitud de la CE, **evaluación del "First Set of Standards"** *(*puesta en práctica, impacto en el mercado,...*)*.

➢ Miembros del SG-CG con especial atención a las opiniones de T&D Europe, ANEC, DigitalEurope, ESMIG, Eurelectric, EDSO-SG, CEER, CECED, ORGALIME, ENTSO-E, ESMIG y CECAPI.

➢ En general, **se valora positivamente** el trabajo realizado en la primera fase.

➢ Algunos puntos de mejora:

- Constitución del WG Dissemination para difundir los resultados y poder evaluar el impacto con mayor precisión.
- Facilitar la utilización de los informes *(no expertos)* – herramientas más intuitivas.
- Identificar aquellas áreas en las que es más necesario la armonización de las normas *(demasiadas soluciones)*.
- Adecuada estabilidad del conjunto de normas.

WG SG Set of Standards

Objetivos:

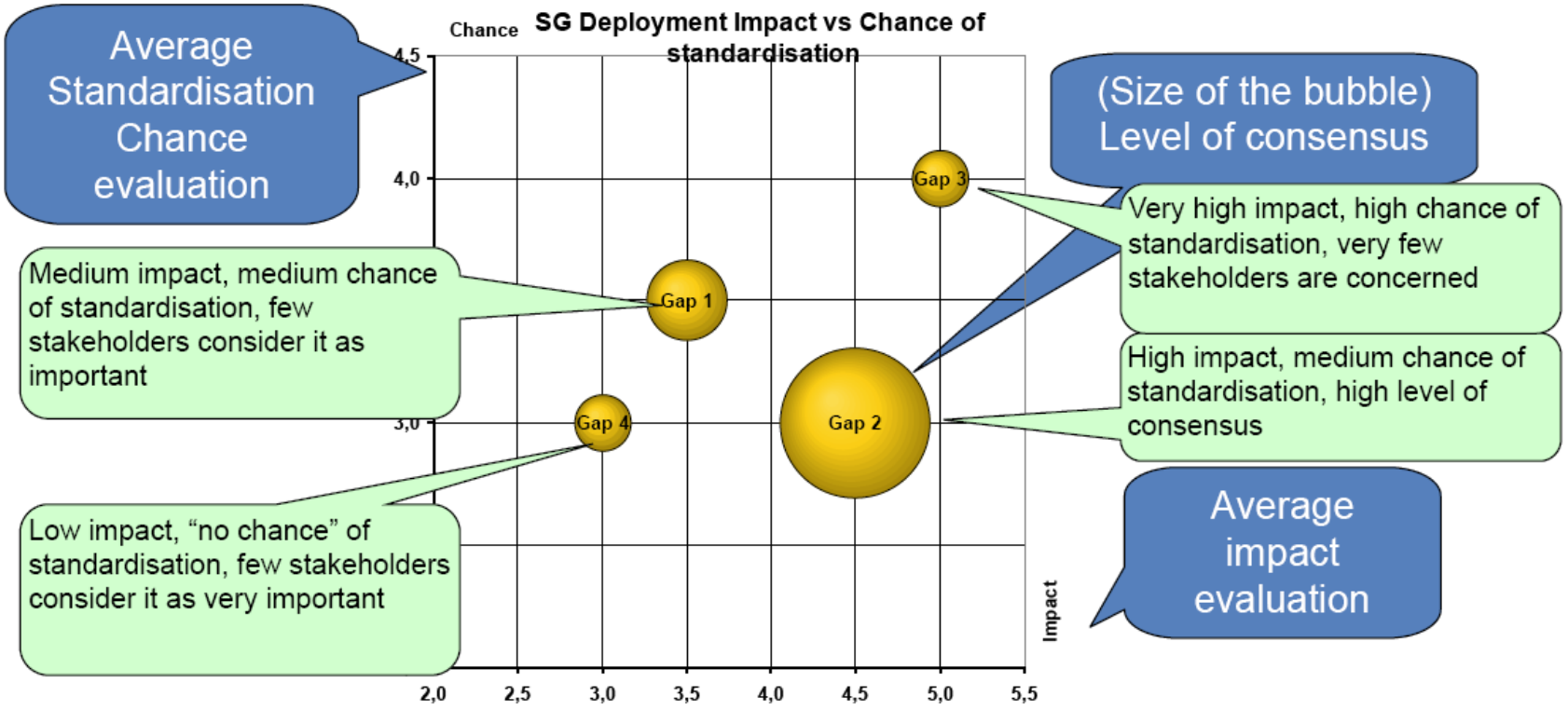
1. Actualización de la lista de gaps y ranking
2. Actualización periódica *(6 meses)* del programa de trabajo de normalización
3. Actualización del conjunto de normas *(finales de 2014)*

WG SG Set of Standards

Lista de gaps propuestos para el ranking – Contribución española

	ID	Gap summary (more details available in SG-SS document for ranking V0.0) All gaps may not be 100% in the exclusive scope of M/490, however may not be excluded at that stage.	Gap Impact	Standardisation chance
1	PPC-1	Electronic Data models (glossaries alignement)	3,0	4,0
2	Com-1	Further develop power/distribution line communication	4,0	4,0
4	Dep-1	Check relevance of existing methodologies on smart grids (dependability - functional safety)	2,0	2,0
13	T1	HV-DC grid architecture	3,0	3,0
14	T2 Dis-6	Smart assets	4,0	3,0
15	T3	(trasmission equipment fitting) offshore	3,0	3,0
19	Dis-5	Auxiliray power system standardisation	3,0	3,0
21	SM-2	Smart metering for EV	3,0	3,0
24	Ind-4	Energy management harmonised data model for industry and power grid	4,0	3,0
40		Power Quality implementation guide in IEC 61850 (profile)	4,0	3,0
41		Data communication between EV supply equipment and EV operators and E-mobility Service Providers for E-mobility Smart Charging	3,0	3,0
42		Enabling to leverage on harmonized infrastructure security and administration standards across smart grid sectors and layers	3,0	2,0
43		Interoperable identification and billing capabilities in the Smart Grid	3,0	3,0
44		Applicability of Requirement Standards for Operation and Implementation of Security and Privacy Measures	4,0	3,0
45		Applicability of Solution Standards Implementation of IT Security Measures	4,0	3,0
46		Handling DER integration	5,0	4,0
47		Unified product data structure to support asset management	3,0	3,0
48		Data modelling for Micro Grid Management	3,0	3,0
49		Handling storage as a DER	4,0	4,0
50		System management	4,0	2,0

Ranking method (reminder)



WG SG Set of Standards

Smart Grids gaps ranking Impact on work program

Theme	Gaps impact
Distributed Energy Resources (DER),	already an existing gap 10 in the Work Programme , but need to be split from it →can be combined with the new gaps 46 and 49
Cyber Security	Already partly addressed in the existing gap 18 → can be combined with the new gaps 44, 45 and the security part of new gap 42
EMC and Power Line Communication,	interference between domestic appliances and Power Line Communication → will be evident to assign to the already existing gap 5 evaluating the EMC standards
Power Quality	applied to IEC 61850 standard series → this will be an additional new gap 40
Smart Assets and Condition Monitoring	this combines the new gaps 14 and 47 because they are strongly related → merged into a new additional gap

WG SG Set of Standards

Actualización del programa de trabajo de normalización

Gap Nb	ID	Gap summary	Leading body	Comments in gap filling-upachievement
9	Gen-2 SM-1 Ind-1	(Revenue metering) Harmonisation between IEC 62056-XX (DLMS/COSEM) data model and IEC 61850/CIM	joint TC57& TC13	CIM and IEC 61850 parts are on the way
10	Gen-3 Ind-2 HB-2	Extended field data modeling standard (part of IEC 61850) to support demand response, DER, VPP and home/building/industry automation	TC57	Following the survey result (8), this gaps is now split into 2 parts - this one dealing with flexibility, and the next one dealing with DER integration.Work is taking longer than expected - A first CD document on Use cases circulated for comments in 06/2013, and should be finalised in 04/2014. The OpenADR standard was voted positively end 2013. The architecture document will take longer, including the harmonisation with OpenADR, and should be ready by 09/2014
46+49	Gen-3 Ind-2 HB-2	Extended field data modeling standard (part of IEC 61850) to support demand response, DER, VPP and home/building/industry automation	TC57	Publication of IEC 61850-90-15 dealing with DER integration and VPP is planned by 12/2014
8	Gen-1 Dis-2	Harmonized glossary, semantic & modeling between back-office applications (CIM)) and field applications (IEC 61850))	TC57	Following the positive vote of the proposal submitted by France, a Task Force is set and active. A first technical draft should be available end of 2014, encompassing the transmission substation domain. UML model for 61850 is internally ready (within IEC). A very heavy effort is on-going to produce the needed amendment explaining the change between the previos and new release. Change management processes remains critical.
18 (to be arranged to reflect 42+44+45)	Dis-4	Develop Cyber-Security requirements and solution standards	SGIS	Working plan is met. Good level of collaboration between SGIS and IEC TC57 WG15, as well with other bodies involved

SG-CG Report - Programme of standardisation work for the Smart Grid; v2.01; 2014-03-20 (Doc.: SGCG_Sec0032_05_DC)

AENOR

WG SG Set of Standards

Actualización del programa de trabajo de normalización

Gap Nb	ID	Gap summary	Leading body	Comments in gap filling-upachievement
11-12	Gen-5 Gen-4	Standard to allow all connected generators associated in VPPs to participate to new ways of operating grid standard for electrical connection and installation rules to ensure energy availability and security, in presence of high ratio of DER	TC8X - TC 95	TC 8X is working hard, and on schedule An Ad'hoc group is formed within IEC TC 95 to address SG specific protection functions (Convenor is from Europe (Germany)) A Cenelec TC95X technical committee is formed to support this initiative in Europe
26	Other-1	Smart Grid communication standards relying on the Internet based standard Web Services & harmonisation with CIM and IEC 61850	TC57	Finding a consensus between all experts took one (non expected) year, but is finally reached. The experts are now working in detailing the proposed solution.
17	Dis-3	Seamless communication between control centre and substation	TC57	Work is still on-going facing new technical difficulties, while resolving comments received from the first circulation. However the result is now close to the end, and should be released by 06/2014
16	Dis-1 Dis-7	Feeder and Advanced Distribution automation	TC57	Decision was made at the latest plenary meeting to freeze this initiative for one year by lack of experts.
3	Com-2	Harmonize activities on data transport technologies	TC57	Decision was made at the latest plenary meeting to re-assess the relevancy of this gap.
22	SM-3	From Smart metering to Smart Grid, and e-mobility	ad hoc group	First report circulated by End 2013
23	Ind-3	Smart metering data to building system interface	SMCG	On-going
25	Ind-5	Electrical installation allowing DER installation	TC64	New work was approved by 05/2013. Still some areas to clarify. Work is going-on

SG-CG Report - Programme of standardisation work for the Smart Grid; v2.01; 2014-03-20 (Doc.: SGCG_Sec0032_05_DC)

AENOR

WG SG Set of Standards

Actualización del programa de trabajo de normalización

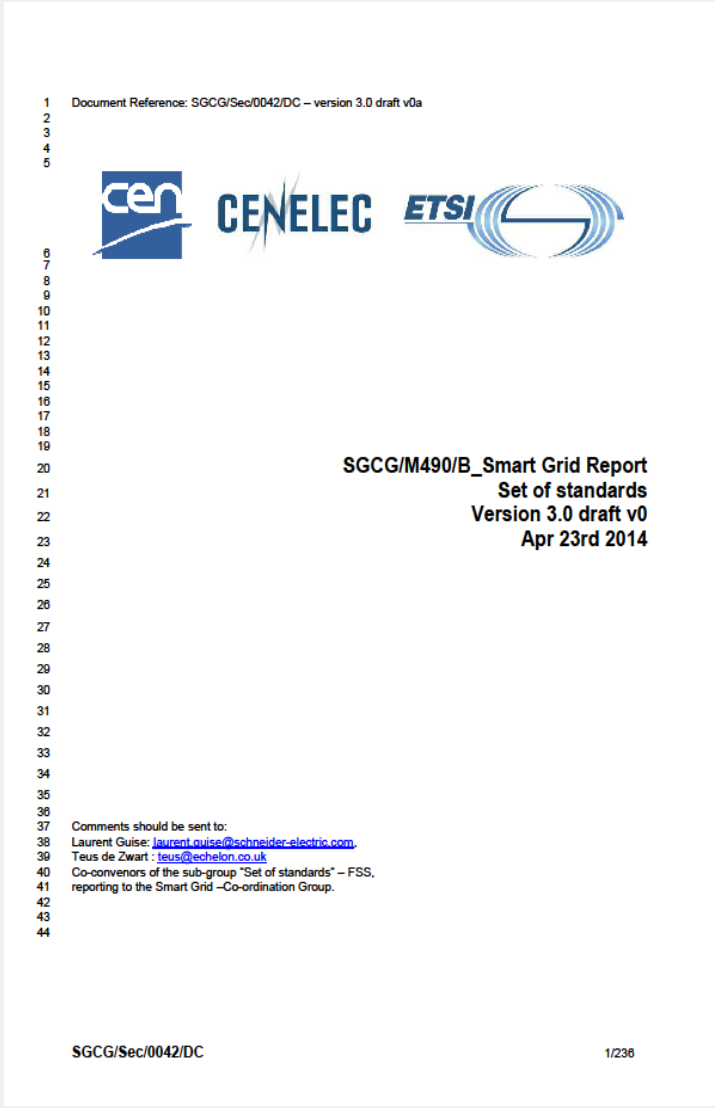
Gap Nb	ID	Gap summary	Leading body	Comments in gap filling-upachievement
5+2	EMC-1	Review existing standards (EMC)	TC210	Very dense work, trying to understand the phenomena and reach a concensus. Work is progressing. Many initiatives to solve the issue.
7	EMC-3	Consider distorting current emissions from DER equipment	TC210	
6	EMC-2	Review EMC and Power Quality levels	TC8X	
Other gaps				
27	Other 2	Integration of other standardized (or on-going to be) revenue metering protocols such as Meters&More, OSGP into the TC13 architecture using DLMS/COSEM as the single data model	SMCG	Roadmap is clearly defined - Work is on-going
13	T1	HV-DC grid architecture		Not followed - gap leader still misisng
New gaps				
40		Power Quality with 61850	TC57	Gap leader found - work well engaged
14+47		Smart assets + Unified data product	TC17	Gap leader found - work well engaged, but very wide scope

SG-CG Report - Programme of standardisation work for the Smart Grid; v2.01; 2014-03-20 (Doc.: SGCG_Sec0032_05_DC)

AENOR

WG SG Set of Standards

Conjunto de normas



Document Reference: SGCG/Sec/0042/DC – version 3.0 draft v0a

CEN CENELEC ETSI

SGCG/M490/B_Smart Grid Report
Set of standards
Version 3.0 draft v0
Apr 23rd 2014

Comments should be sent to:
Laurent Guise: laurent.guise@schneider-electric.com,
Teus de Zwart : teus@echelon.co.uk
Co-convenors of the sub-group "Set of standards" – FSS,
reporting to the Smart Grid –Co-ordination Group.

AENOR

Actividad en IEC

IEC Smart Grid Standardization Roadmap

Smart Grid
Optimal electricity delivery

- Smart Grid Standards Map
- World Smart Grid Forum
- Roadmap
- Insights
- IEC Standards
- Background
- Challenges
- Development

IEC Smart Grid Roadmap

You find here a detailed overview of the key areas of the Smart Grid. For each of them you find recommendations for immediate actions, with definitions and descriptions, as well as a list of all relevant IEC standards.

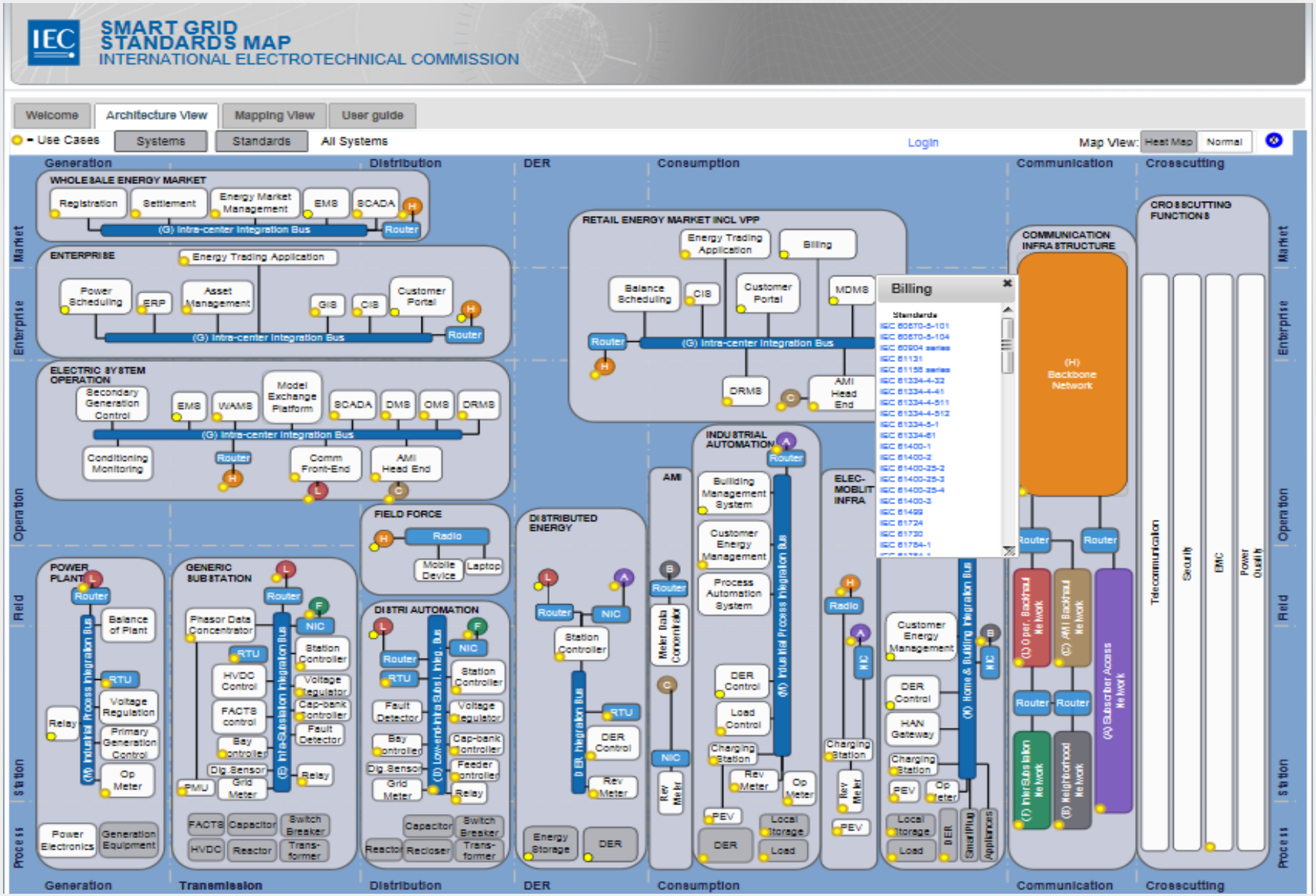
Download 1'517 kB

In addition to communication and security the following topics are covered:

- HVDC/FACTS
- Blackout Prevention/EMS
- Advanced Distribution Management
- Distribution Automation
- Smart Substation Automation
- Distributed Energy Resources
- Advanced Meter Infrastructure
- Demand Response and Load Management
- Smart Home and Building Automation
- Electric Storage
- Electromobility and Condition Monitoring

IEC Smart Grid Standards Map

Actividad en IEC



Panorama normativo en Smart Grids

Carmen Martín Marino
Dirección de Normalización
camartin@aenor.es
www.aenor.es

AENOR