

Updated gap prioritisation and work program

Hanover – April 8th 2014

Smart Grids Standardisation director

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SGCG – Smart Grids – Set of Standards Working Group

L. Guise – Convenor of the SG-SS group
T. De Zwart – Co-convenor
Smart Grid Co-ordination Group



Scope of the Set of standards group

Scope of work

- **Standardisation gaps - Priority ranking**
- **Working program setting-up and follow-up**
- **List of standards**

Organization & membership

- About 60 members including :
 - Utilities experts : the most present
 - Technology providers experts: from T&D or IT
 - May involve chairman and secretaries of the main technical bodies involved in this standardisation process
- Reports to the CEN-CENELEC-ETSI Smart gRids co-rodination group
- Reports to the European Commission Smart Grdis Reference Group (EG1)

First mandate phase (2011-2012)

The “First set of standards group” initiated a first list of smart grid standardisation gaps in 2011

- Standardisation gaps identified and ranked through a large survey
- 1st Report of gaps & ranking delivered by June 29th 2011
- Quite a “robust” alignment on priorities, seen from all stakeholders
- Final report released (with all comments resolution) as SGCG_Sec0028_DC report by 19th Oct 2011.

This work lead to select about 16 gaps, and to associate to them a gap leader, as well as a dashboard

- Each gap is followed in details
- Very strong and tight relationship with the technical bodies incharge of producing the standards

The group reports on the update of the standardisation work programme on a regular basis (~6 months)

Introduction

The « first set of standards » report

- originally mandated by the European Commission :
M/490 Smart Grids mandate, issued on Jan 2010

Objectives : a « European » selection guide for Smart Grids standards

- Delivered by End 2012
- Easy reading → System entry point

The FSS report consolidates results from 3 other groups

- (Architecture, Ucs/Process, Security)

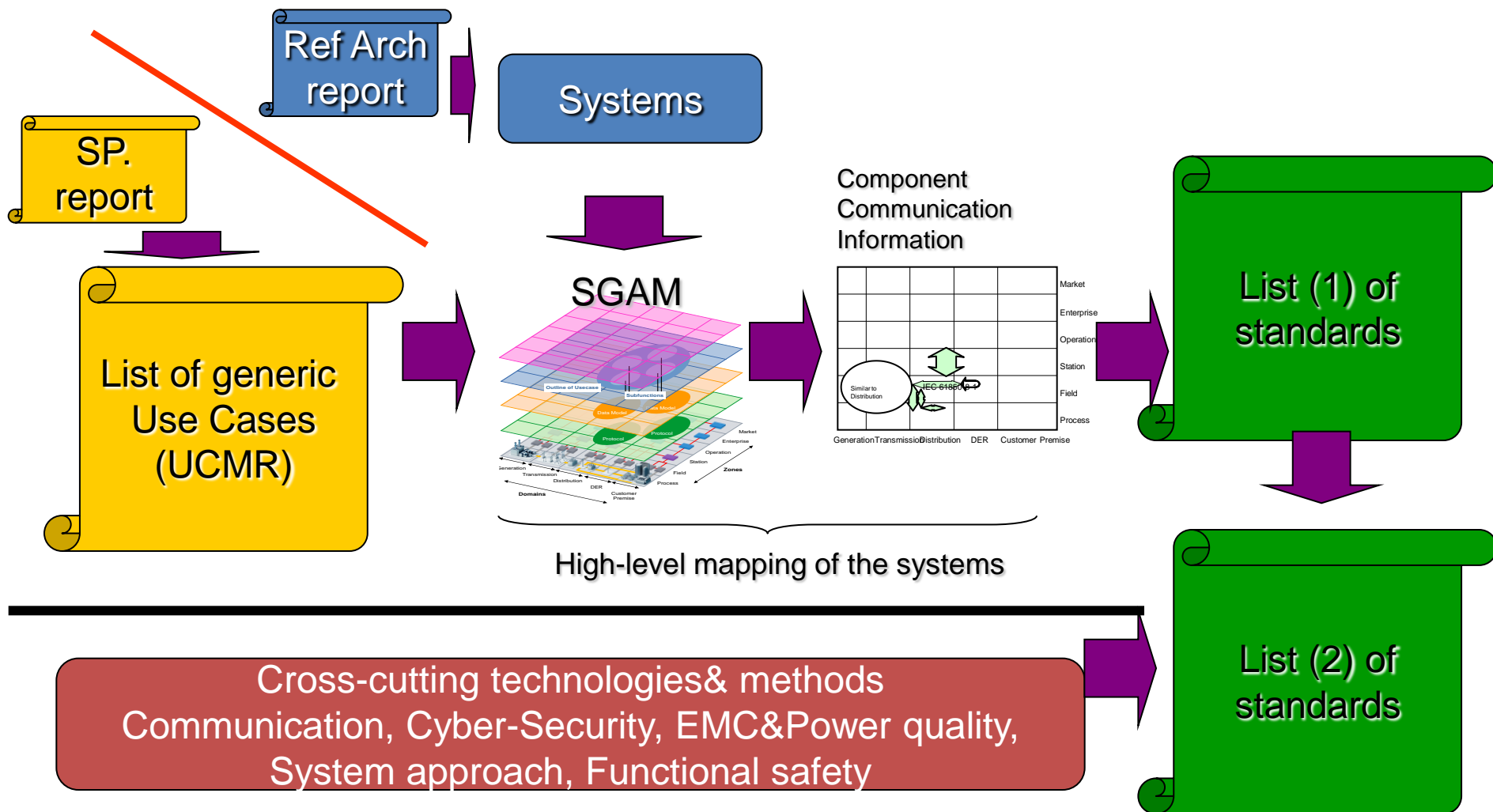
This document includes relevant standards

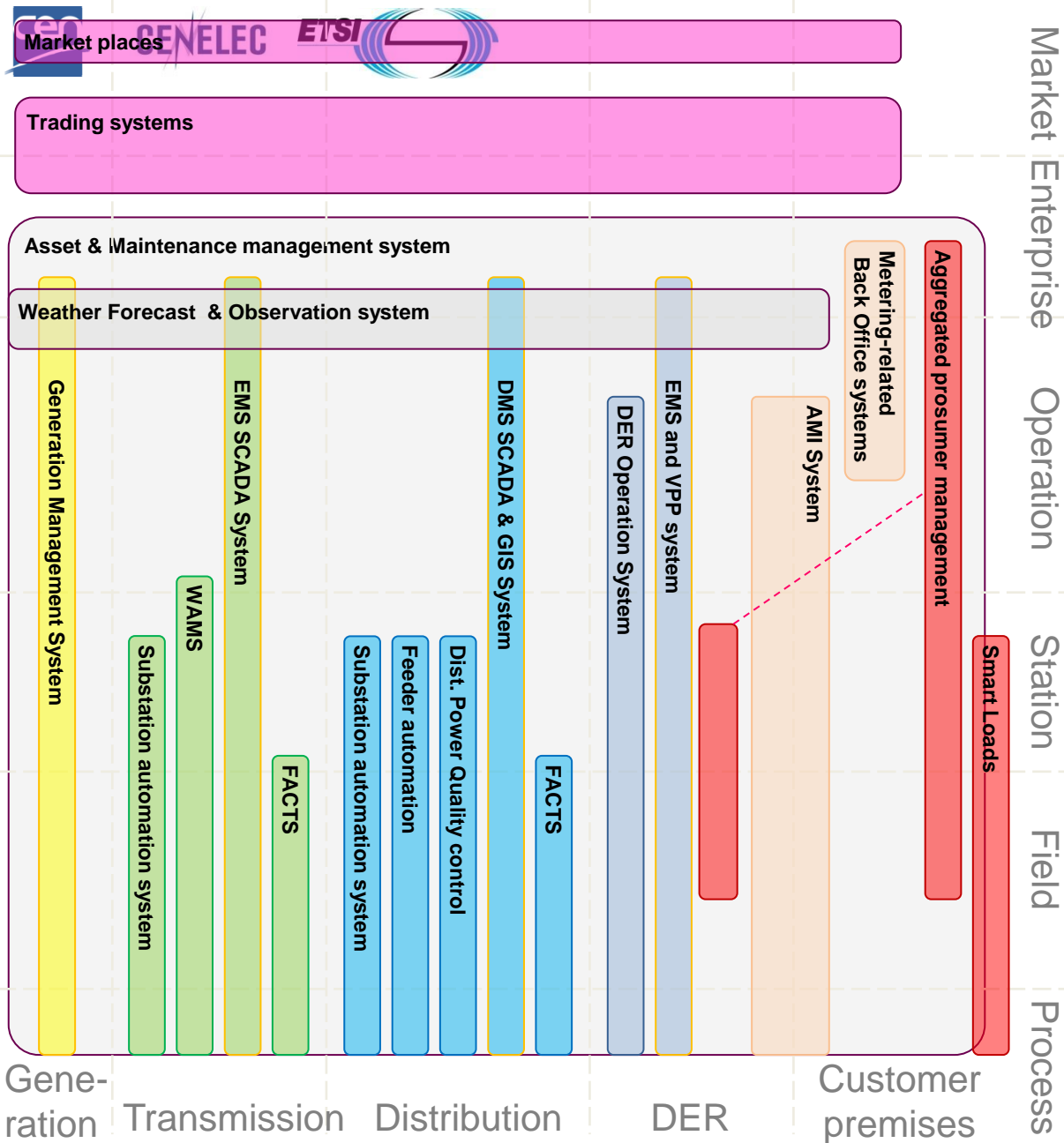
- EN/IEC standards
- But many other bodies are considered such as ITU, ISO, IEEE, IETF,

The FSS report is the new basis of the IEC smart Grids roadmap (2.0 to be issued soon – drafting finished).

First set of standards

Report structure





System breakdown

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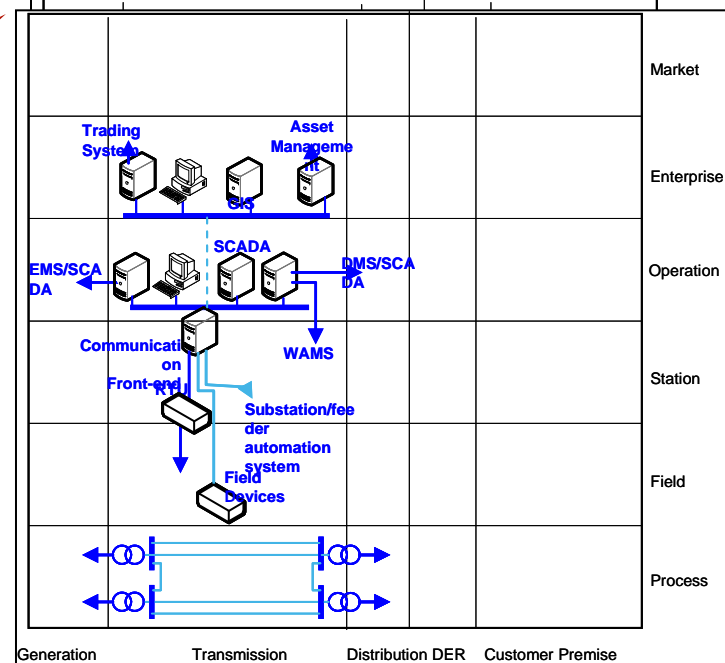
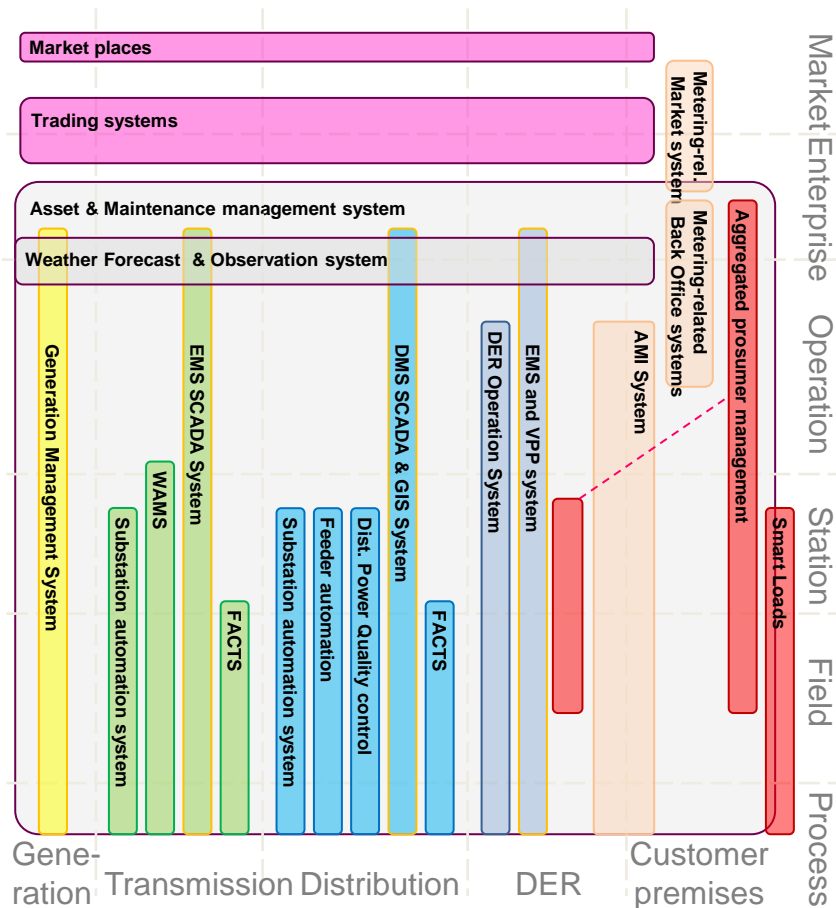
Communication network management system

Clock reference system

Authentication authorization accounting systems

Device remote configuration system

FSS Report content



Layer	Standard	Comments
Information	EN 61970-1 EN 61970-2 EN 61970-301 EN 61970-401 EN 61970-453 EN 61970-501	Energy management system Application Program Interface
Communication	IEC/TR 62325	Framework market communication
Communication	EN 60870-5-101 EN 60870-5-104 EN 60870-6	Telecontrol protocols
Information	IEC/EN 61850 (all parts)	See substation automation system in 8.3.1
Information	IEC 62351	Security - all parts
Information (guidelines)	IEC 62357	Reference architecture power system information exchange
Information	IEC 62361	Harmonization of quality codes



Second mandate phase. Starting 2013-01

- **Updated list of gaps**

- A survey on new gaps was set up towards SG-CG members from May 8th to June 7th, then extended to July 31st 2013
 - A template filling-up needed for expressing the gap

- **Ranking by SG-CG stakeholders got by Nov 15th**

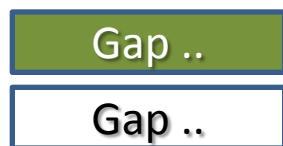
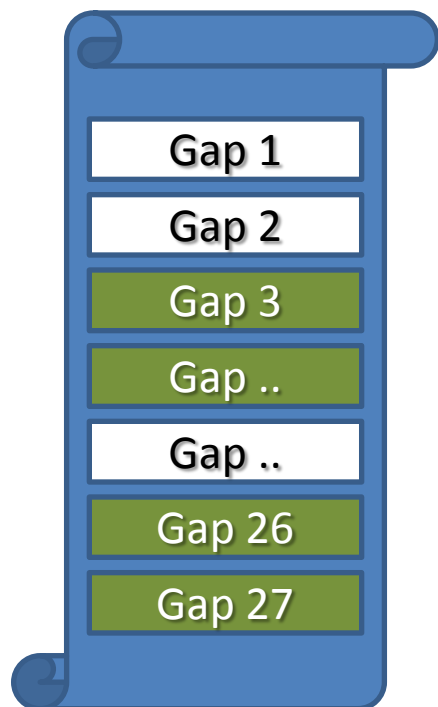
- Ranking survey answers :
 - 5 european associations
 - 4 national committees
 - 3 standardisation entities

- **Publication of list of gaps issued by End 2013**

- SGCG_Sec0060_DC_WGSTD_IntermediateReport.pdf

List of gaps setting-up

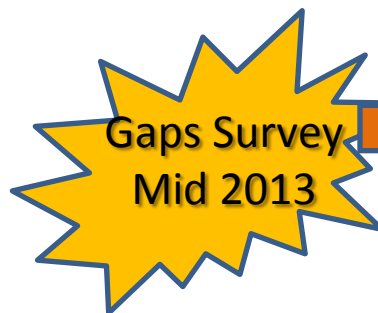
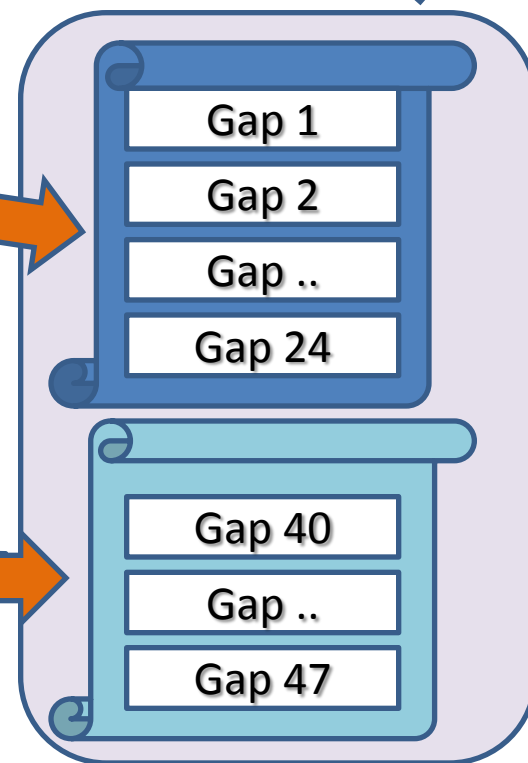
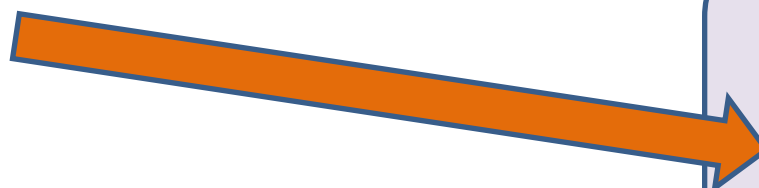
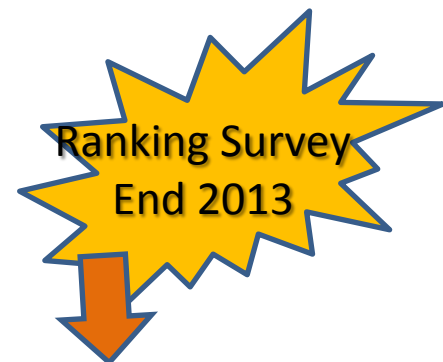
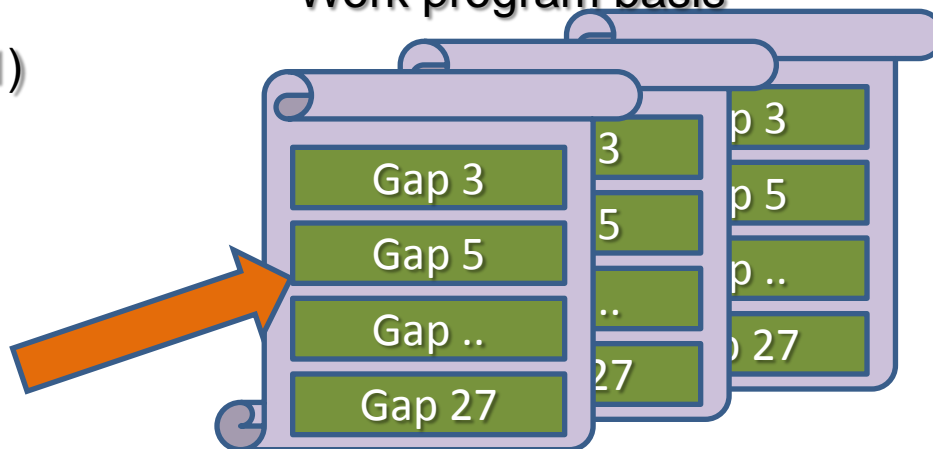
Initial list (Nov 2011)



Highest priority

Low priority

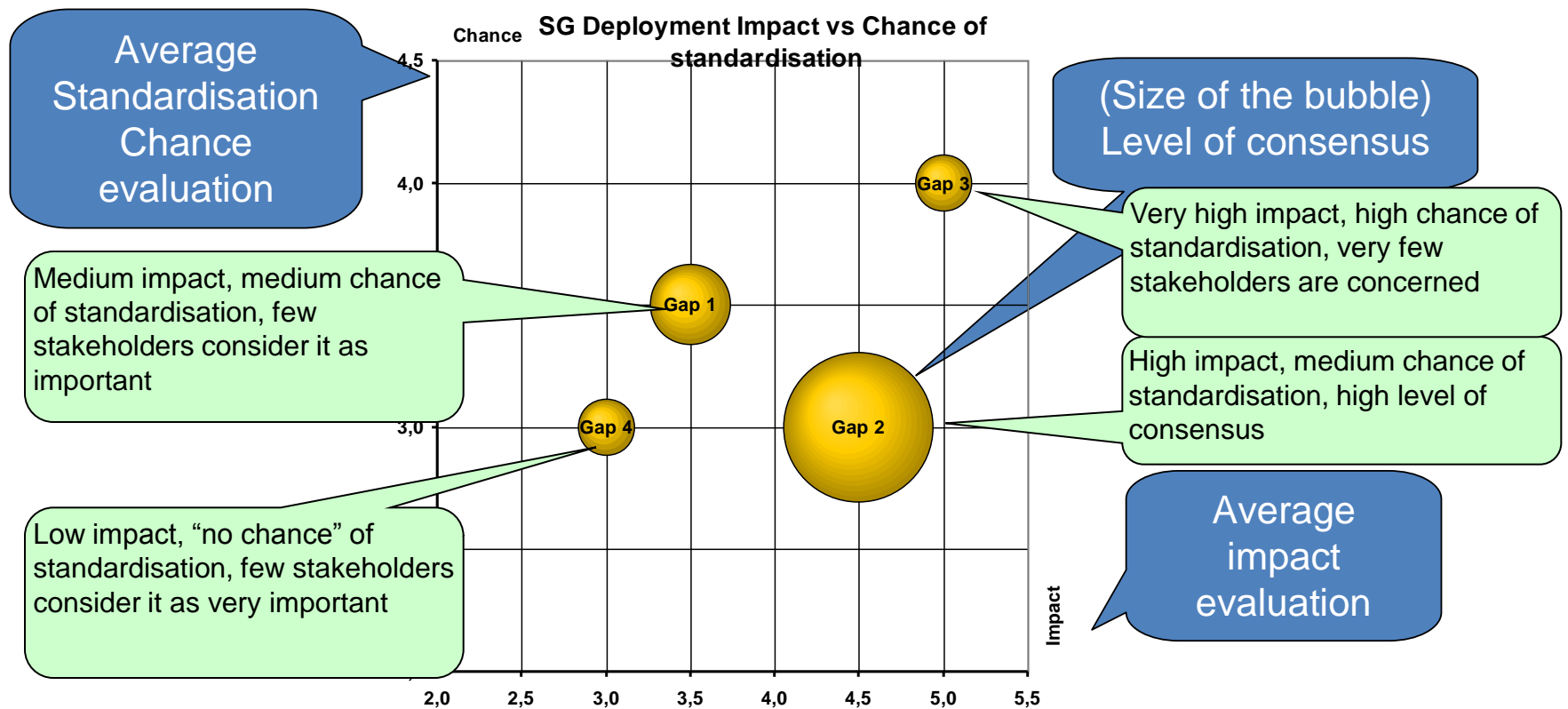
Work program basis



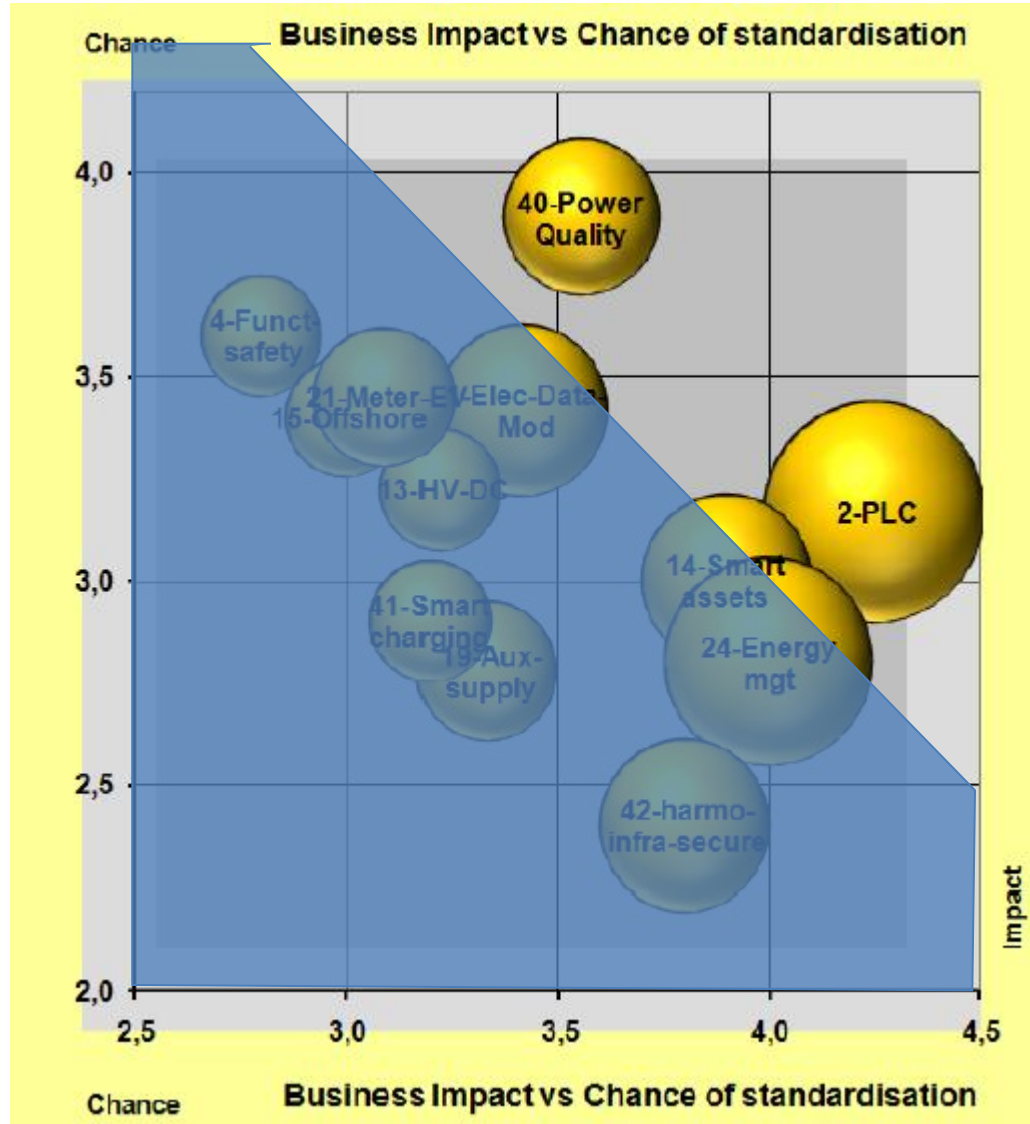
List of gaps proposed for ranking

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

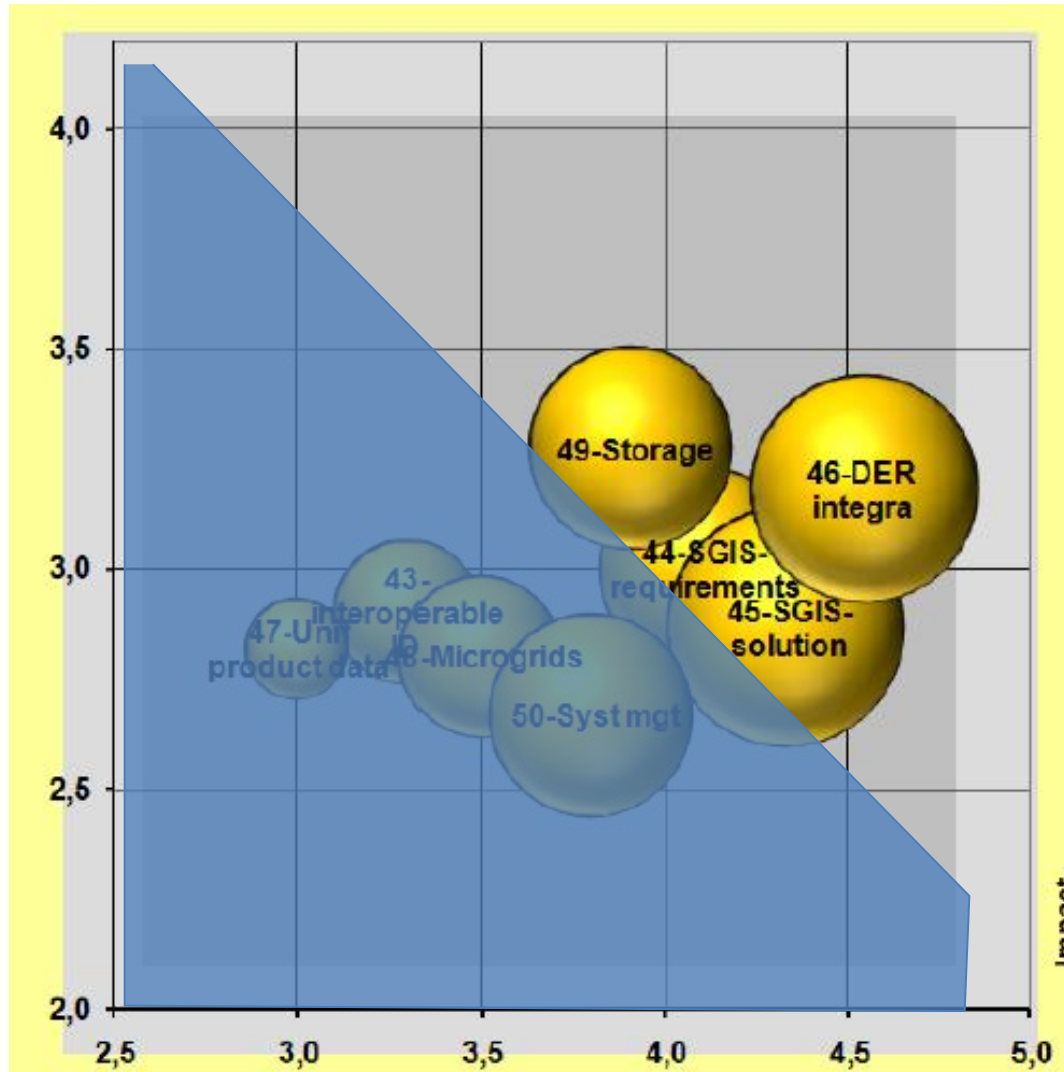
Ranking method (reminder)



Analysis – Results (latest information processed in meeting)



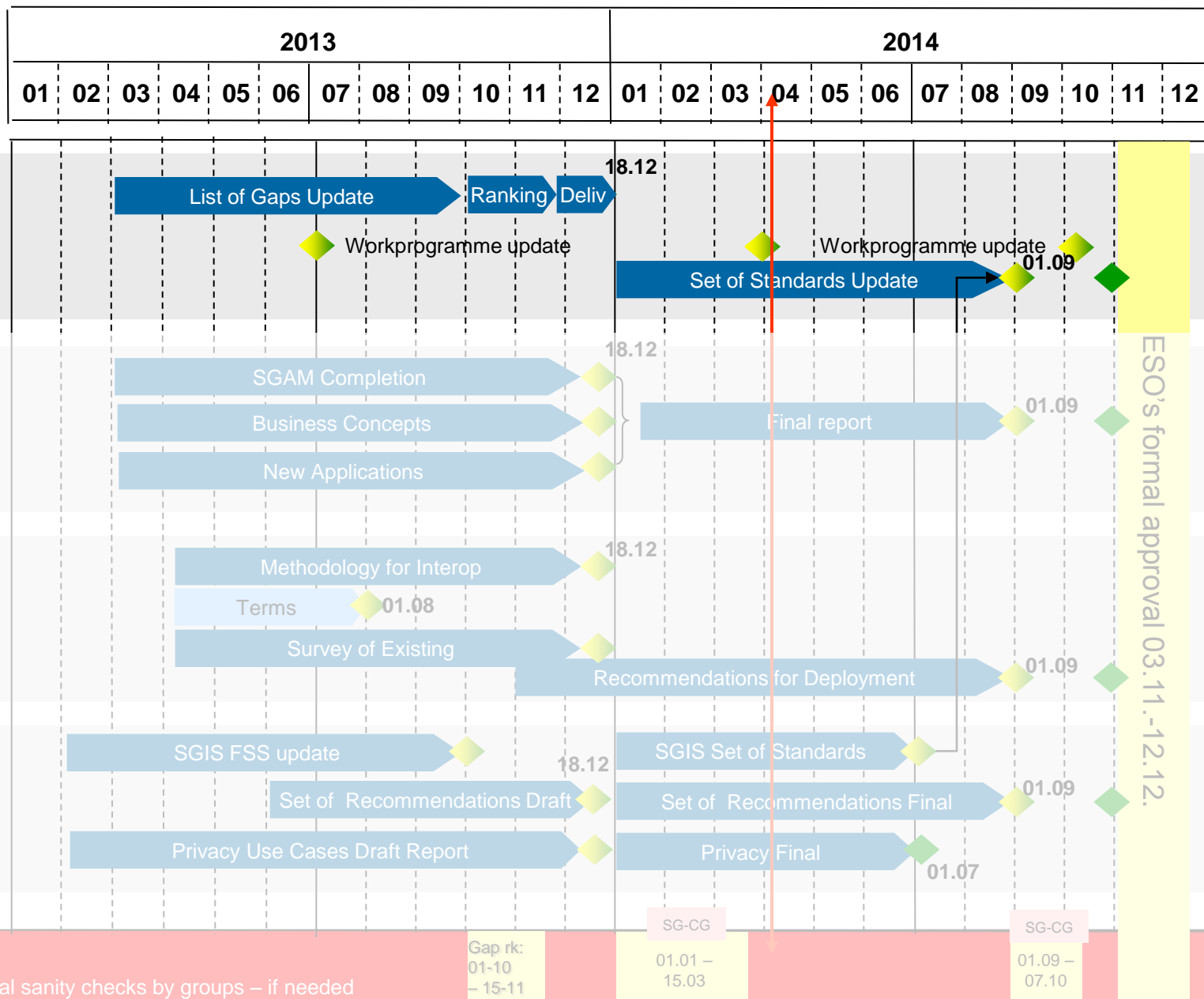
Analysis – Results (latest information processed in meeting)





Other SG-SS activities

- Smart Grid Set of standards (rev 2) planned by end of 2014
 - Work has started
 - The “Set of standards” document structure was re-assessed
 - Few modifications
 - Better alignment with other SG-CG documents
 - Sections were re-assigned to “owners”
- **The “set of standards” report update is aiming to be transformed into a formal TR, after ESO’s approval**



Work program follow-up summary

Smart Grids standardisation work program update

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.

Smart Grids standardisation work program update

Gap Nb	ID	Gap summary	Leading body	Comments in gap filling-upachievement
18 (should 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
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 - TC95	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

Smart Grids standardisation work program update

Gap Nb	ID	Gap summary	Leading body	Comments in gap filling-upachievement
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
5+2	EMC-1	Review existing standards (EMC)	TC210	Very dense work, trying to understand the phenomena and reach a consensus. Work is progressing. Many initiatives to solve the issue.
7	EMC-3	Consider distorting current emissions from DER equipment	TC210	

Smart Grids standardisation work program update

Gap Nb	ID	Gap summary	Leading body	Comments in gap filling-upachievement
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 missing
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