



Open Smart Grid (OpenSG) Technical Committee

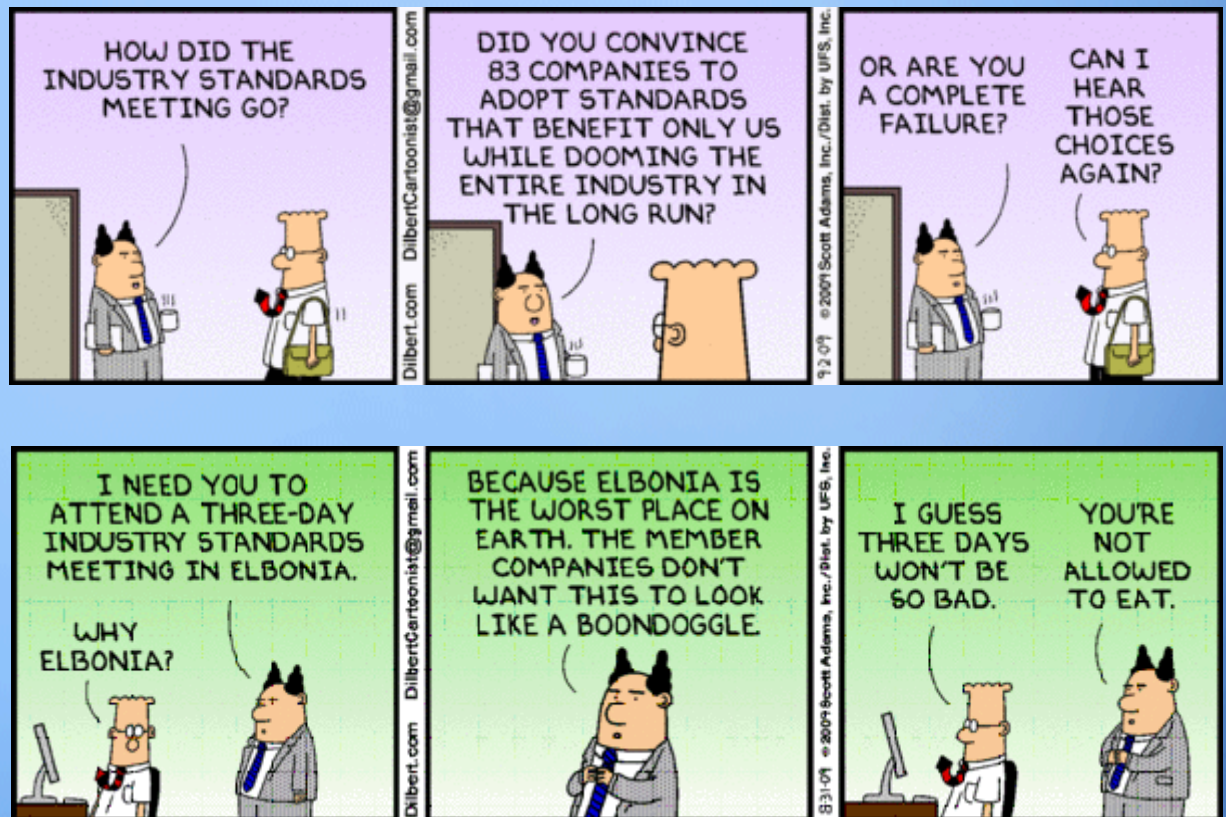
Nov 2011 F2F Boot Camp

Chris Knudsen

OpenSG Technical Committee Chair

Agenda

- Introductions
- UCA Overview
- OpenSG Overview
- History, how we got here...
- Q&A



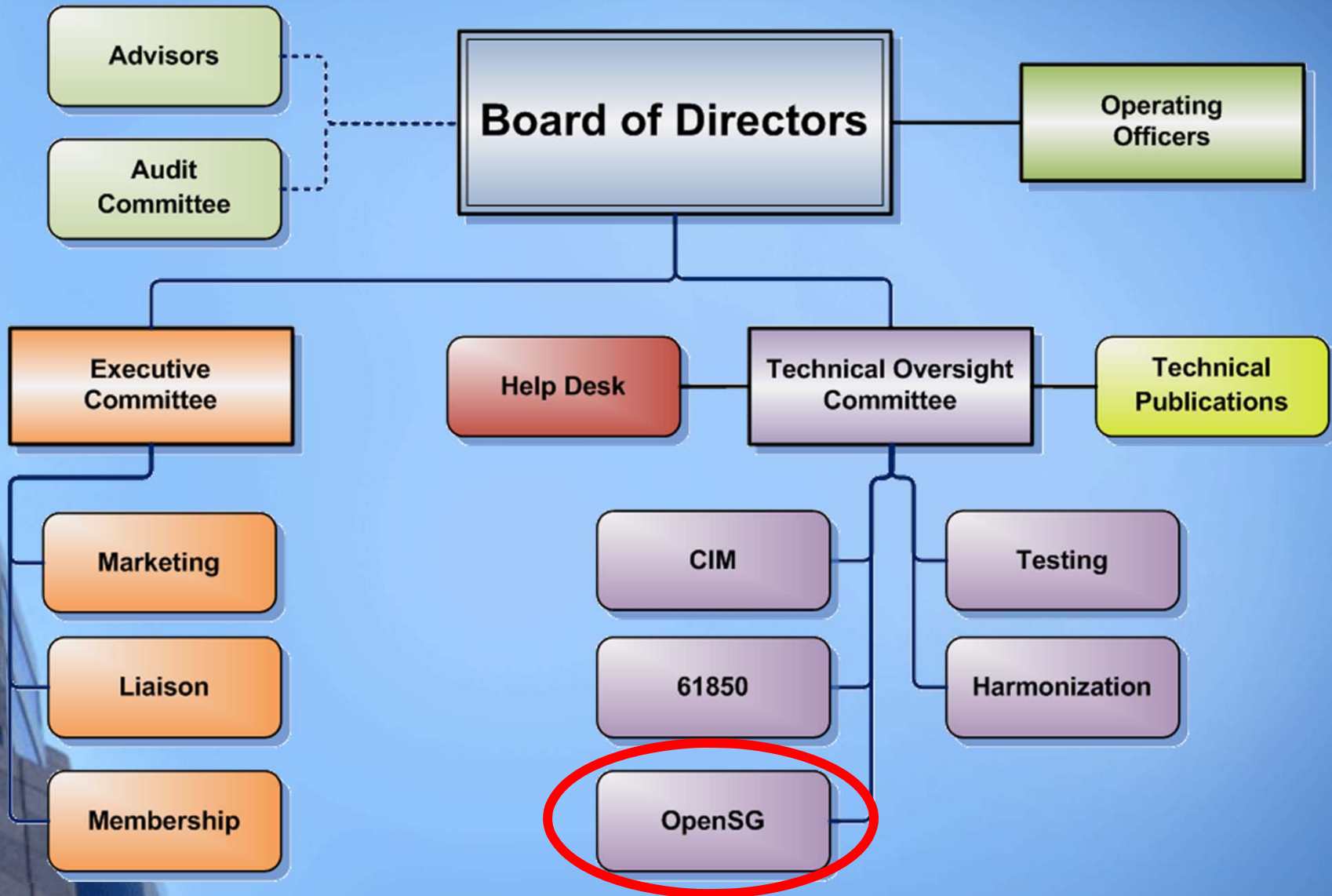
UCA International Users Group

- MMS Forum 1993 -> AEP Substation Initiative 1996 -> UCA2 User Group 1999
- Incorporated June 2002 as a 501(c)(3) Corp (IEC protocol)
- Organization supports individual and corporate members from utilities, vendors, and others
 - >180 corporate members
 - Members from 45 countries
- Hundreds of "friends of the UCAIug"
 - Members of our various informative list servers

UCAIug Mission (from Charter)

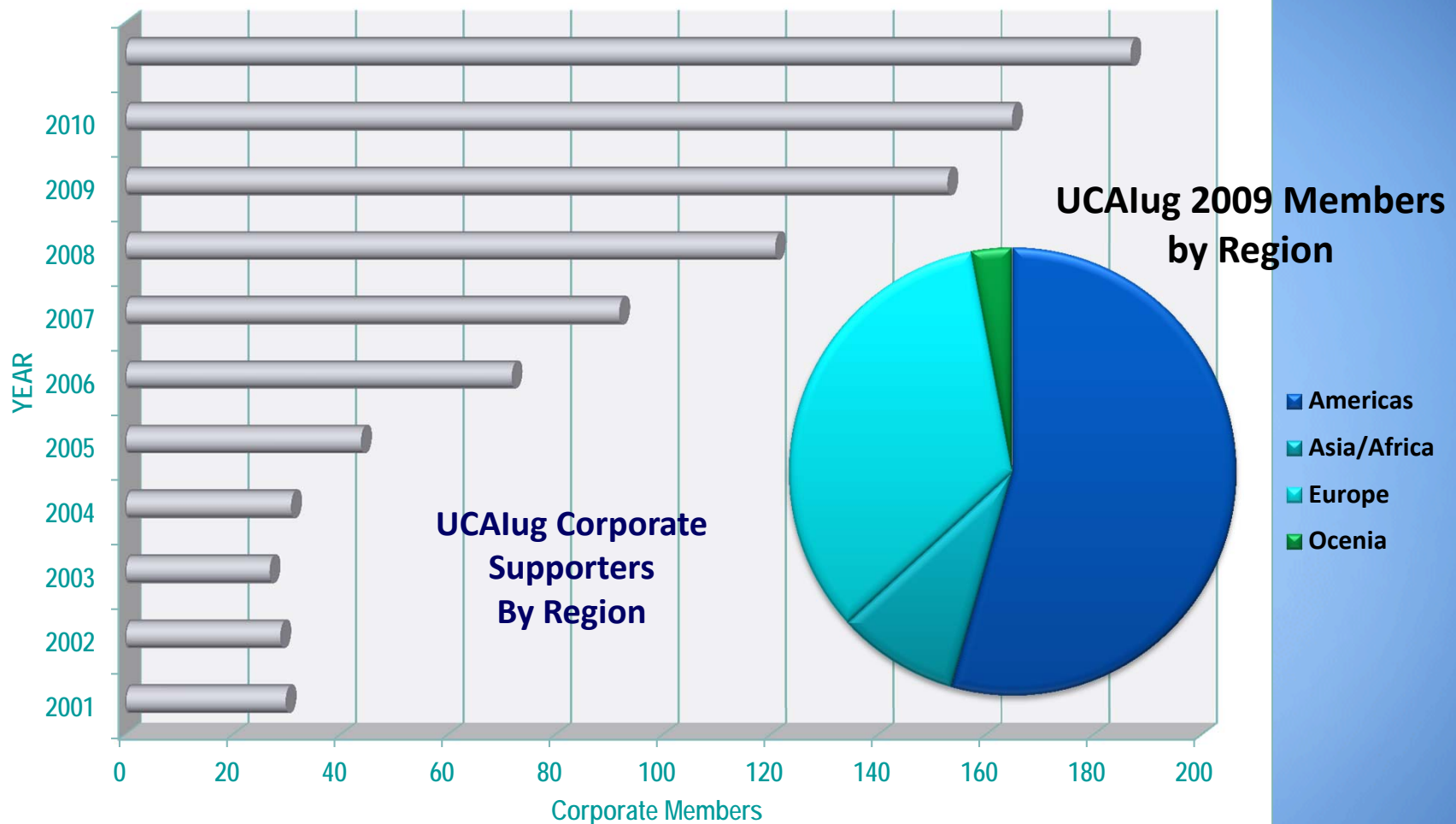
- *Enable utility integration* through the deployment of **open standards**
- *Provide a forum* for the various stakeholders in the utility industry to *work cooperatively together* as members of a common organization to:
 - **Influence, select, and/or endorse** open and public standards appropriate to the utility market based upon the needs of the membership
 - Specify, develop, and/or accredit product/system testing programs that **facilitate the field interoperability** of **products and systems** based upon these standards
 - Implement educational and promotional activities that **increase awareness and deployment** of these **standards** in the utility industry

UCAIug Organization Chart



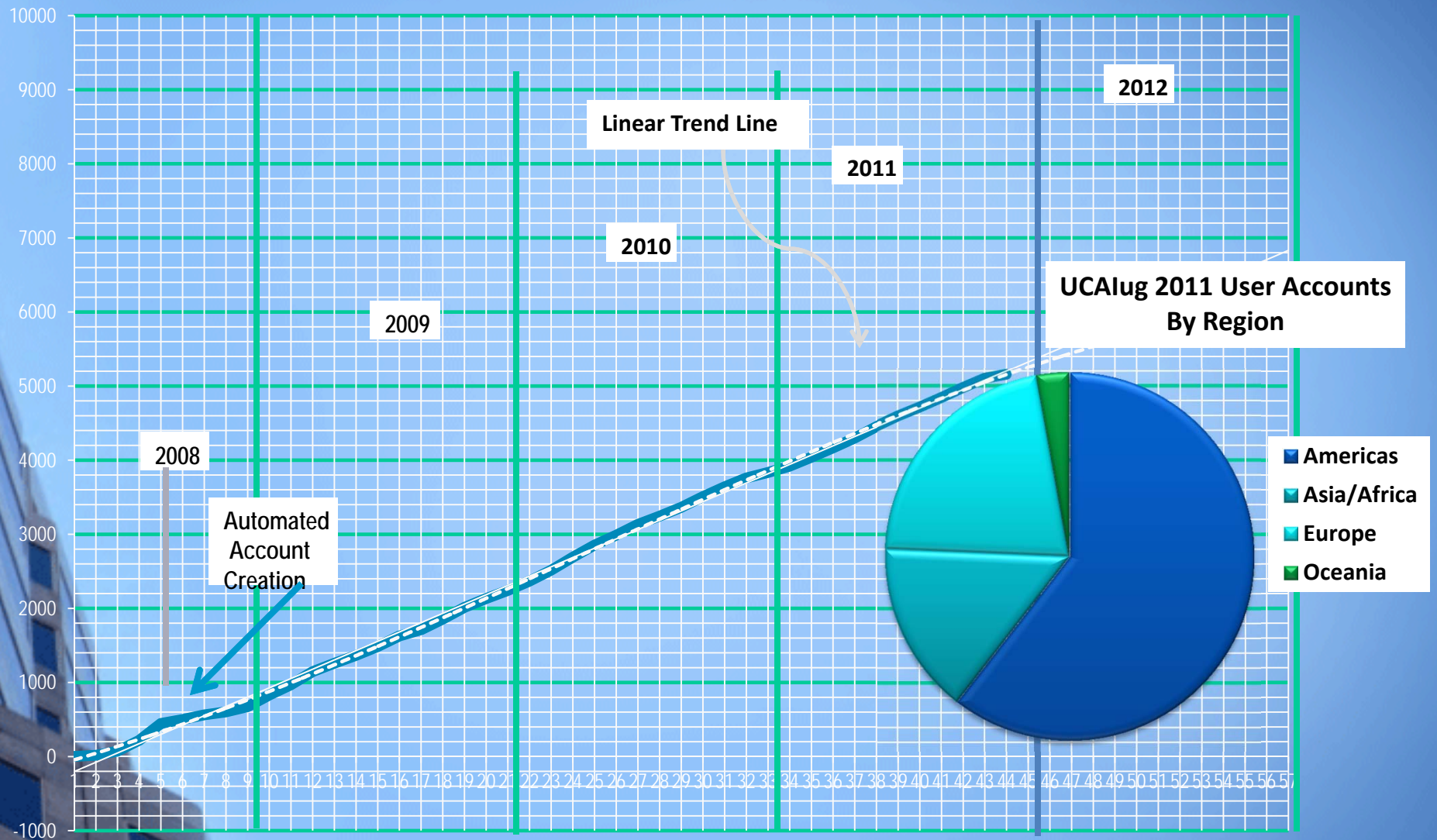
<http://www.ucaiug.org/>

UCAlug Corporate Supporters

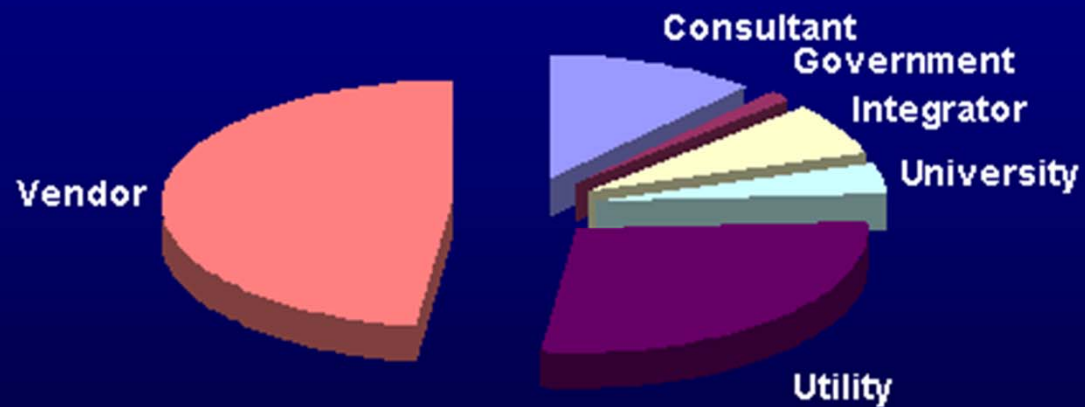


UCAlug Corporate Supporters

UCAlug User Accounts



UCAlug Membership Composition



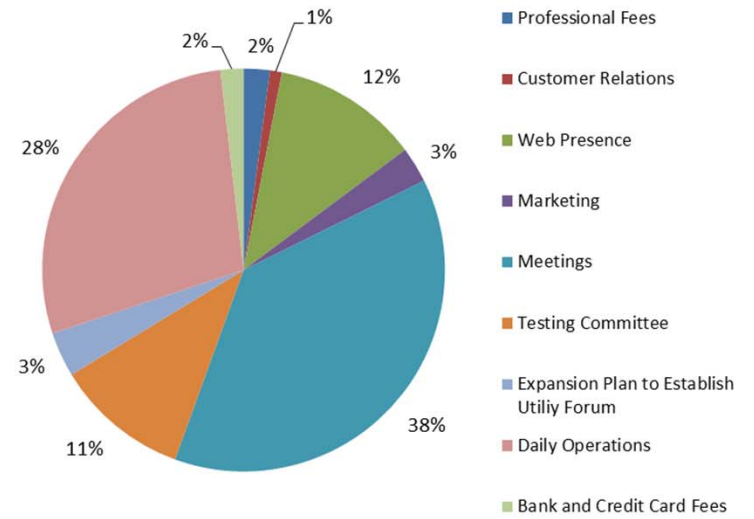
UCAlug Budget

Historic

Budget Comparison



UCAlug 2011 Projected Expenditures



Where the Budget Goes

Total Projected Income

\$865,400

Projected Expense

Professional Fees	\$17,500
Customer Relations	\$8,000
Web Presence	\$98,200
Marketing	\$24,000
Meetings	\$315,988
Testing Committee	\$90,000
Expansion Plan to Establish Utiliy Forum	\$30,000
Daily Operations	\$235,930
Bank and Credit Card Fees	\$15,400

Total Projected Proposed Budget Expenditures

\$835,018

Projected 2009 Income Less Expenditures

\$30,382

Balance brought forward from 2010 operations

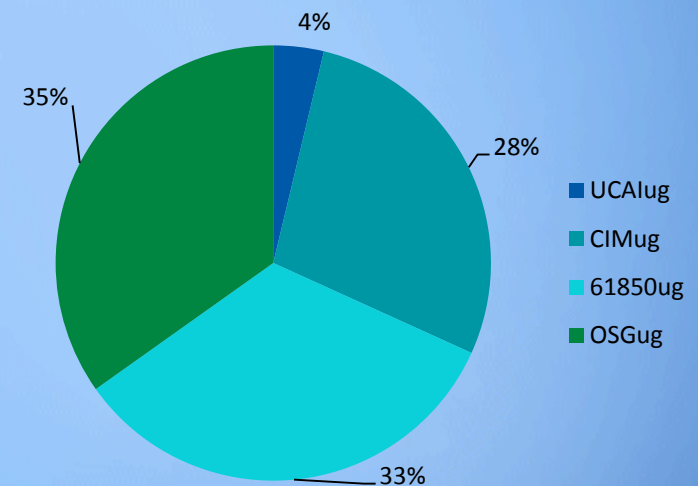
-\$30,000

Projected Balance at end of 2011 operations

\$382

Prioritized 2011 Contingency Budget

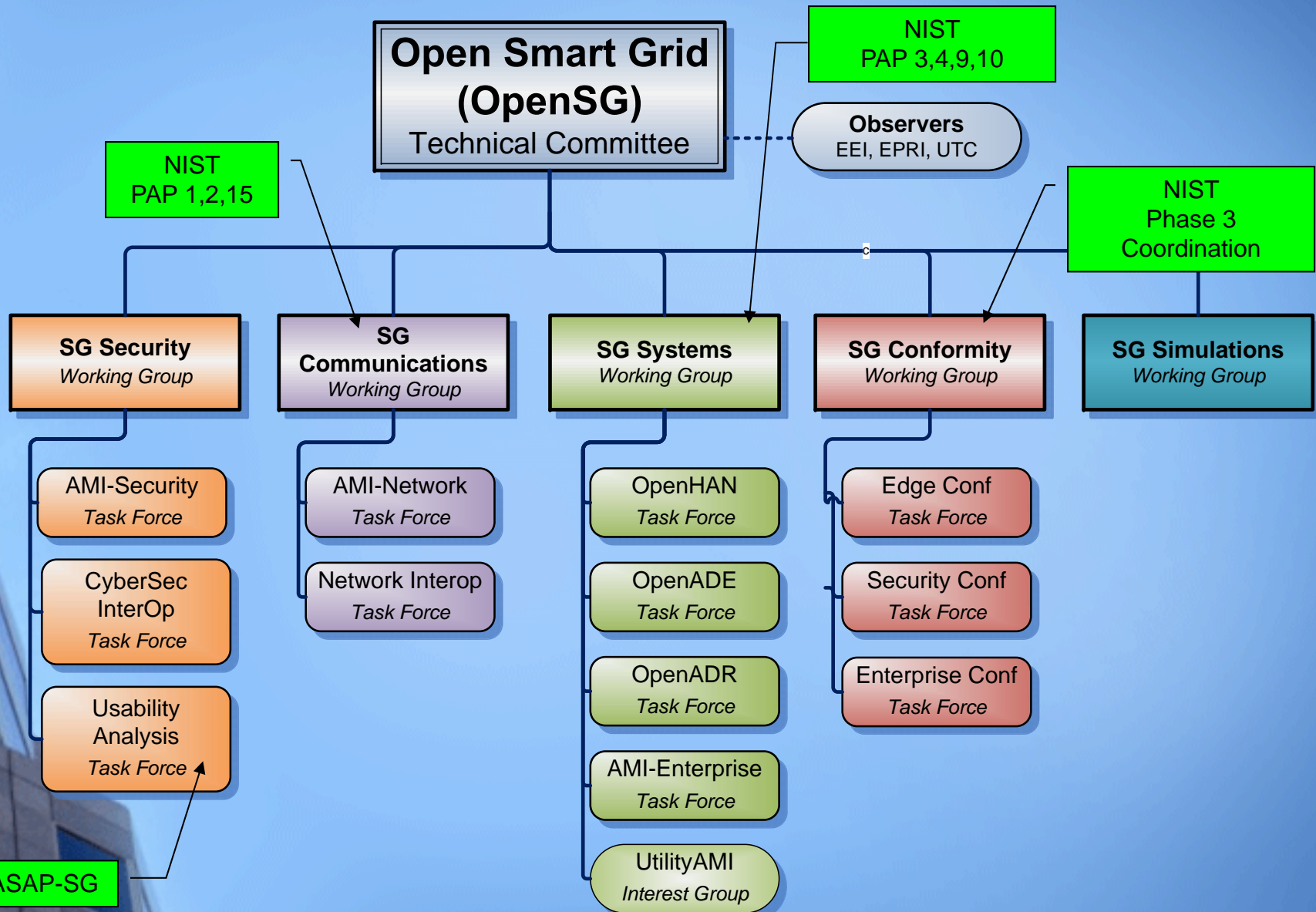
\$0



Board of Directors

- Erich W. Gunther - EnerNex Corporation (Chair)
- Dan Nordell - Xcel Energy
- Thierry Lefebvre - RTE
- Clemens Hoga - Siemens
- John Burger - AEP
- Wayne Longcore - Consumers Energy
- Mark Simon - ComEd (Exelon)
- Margaret Goodrich – CIM-GID Consultant
- Bob Yinger - SCE

OpenSG Major Work Areas



OpenSG Technical Committee Objectives

1. Prioritize technical initiatives (strategic planning)

Focused on identifying:

- Optimal sequence of activities
- Interdependencies of technical issues

2. Ensure appropriate and adequate resources exist

Address:

- Immediate-term technical standards or implementation issues
- Longer range technical issues
 - Resolved in a sequence that addresses interdependency issues

OpenSG Technical Committee Objectives

3. Proper oversight, status reporting, accountability, resource management and planning
 - Ensure tactical responsiveness and organizational agility
4. Identify and prioritize new technical issues and initiatives as they arise
 - Examples: conf WG and new Simms WG

OpenSG Technical Committee Objectives

5. Ensure high degrees of transparency to technical activities as standards are being developed

Ensure sponsors and other constituents have a formalized means of understanding:

- What alternatives are being discussed
- What decision criteria are being used to select a particular standard

→ Allow constituents to assess the impact of any particular standard on their own organizations

OpenSG Technical Committee Members

	Voting Members	Name	Role
1	AEP	Randy Lowe	Rep
		George Bjelovuk	Alt
2	BC Hydro	Dave DeYagher	Rep
		Roger Goodwin	Alt
3	CenterPoint	Chuck Hackney	Rep
		Dwayne Turner	Alt
4	Consumers Energy	Matt Gillmore	Rep
			Alt
5	DTE Energy	Bill Cloutier	Rep
		Kostas Tolios	Alt
6	Duke Energy	Gary Stuebing	Rep
		David Masters	Alt
7	EPRI	John Simmins	Rep
		Don Von Dollen	Alt
8	FPL	Phil Slack	Rep
		Andre Cassulo	Alt
9	Hypertek	Marty Burns	Rep
			Alt
10	Oncor	Larry Kohrmann	Rep
		Tom Anthony	Alt
11	PEPCO	Robert Stewart	Rep
		Mike Kuberski	Alt
12	PG&E	Zahra Makoui	Rep
		Raj Iyengar	Alt
13	Reliant Energy	Mark Smith	Rep
			Alt
14	SCE	Jeff Gooding	Rep
		Jeremy McDonald	Alt
15	SDG&E	Josh Gerber	Rep
		Mark Bowne	Alt

	Observer Members	Name	Role
WG	SG Communications	TBD	Chair
TF	SG-Network TF	Matt Gillmore	Chair
TF	Network Interop TF	Tom Herbst	Co-Chair
		Kelly Flowers	Co-Chair
WG	SG Conformity	Bruce Muschlitz	Chair
TF	Edge Conformance	Phil Beecher	Chair
TF	Enterprise Conformance	Mark Ortiz	Chair
TF	Security Conformance	Bobby Brown	Chair
WG	SG Security	Darren Highfill	Chair
TF	AMI-Security TF	Darren Highfill	Chair
TF	CyberSec-Interop TF	Dave Teumim	Chair
TF	Embedded System Security TF	Mark Ward	Chair
TF	Usability Analysis TF	John Lilley	Chair
WG	SG Simulations	Craig Rodine	Chair
WG	SG Systems	Brent Hodges	Co-Chair
		Greg Robinson	Co-Chair
TF	AMI-Enterprise	Mark Ortiz	Chair
TF	Enterprise Info Mgmt	Jim Horstman	Chair
TF	OpenADE	Dave Mollerstuen	Chair
TF	OpenADR	Albert Chiu	Co-Chair
		Ed Koch	Co-Chair
TF	OpenHAN	Erich Gunther	Chair
IG	UtilityAMI	Erich Gunther	Chair
		Chris Knudsen	
	EEI	Chris Eisenbrey	
	EEI	Luis Jahn	
	EnerNex	Aaron Snyder	
	GI	Belinda Lucero	
	UCAlug	Kay Clinard	
	UCAlug	Dave Elve	
	UTC	Klaus Bender	
	UTC	Mike Oldak	

OpenSG Technical Committee Members

Utility / Contact	residential customers	AMI Meters by	AMI Meters by	Service Territory	Transmission	Distribution	Generation
	(Millions)	EOY 2010 (Millions)	EOY 2012 (Millions)	(Square Miles)	(Miles of Line)	(Miles of Line)	(MW)
AEP	5.2	0.25	1.1	197,500	39,000	213,000	39,000
Consumers	1.8		1	29,000		70,259	6536
CenterPoint	2.2						
SDG&E	1.4	0.2	1.5				
SCE	5	1.1	5	50,000		250,000	23,100
Reliant	1.7						14,000
PG&E	4.5	8	10	70,000	18,000	140,000	6,833
FPL	4.5	1.5	3.5	22,000	6,500	65,000	39,000
Oncor	2.5	1.5	3.1	53,000	14,000	102,000	-
Duke	4.5	1		48,000	21,000	151,000	35,000
PHI	1.8	0.433		8,821	4,579	34,739	
BC Hydro	1.8		1.8	42,600	11,515	35,281	11345
DTE Energy	2.1	0.17	0.66	7,600		40,000	11084
	39.00	14.15	27.66	335,521.00	55,094.00	643,279.00	91,065.00
US totals	128	128	128	3,537,438	157000		
Percent	30%	11%	22%	9%	35%		

OpenSG Participation in SG Standards Development

- Concentration of utilities engaged in active deployments [not pilots] of Smart Grid systems
 - Over 35 million US households
 - Over 14 million smart meters deployed by EOY 2010 and 25 million by 2012
 - 55,000 miles of transmission lines, over 600,000 miles of distribution lines covering over 319,000 sq miles
- OpenSG includes broad energy industry expertise (utilities, vendors, consultants, government, universities, etc.)
- OpenSG creates working groups and task forces to address current Smart Grid priorities with a focus on pragmatic execution
- OpenSG defines utility requirements for inclusion into national / international standards bodies
- Proven experience in requirements development and facilitation of standards development
 - OpenHAN → formation [Mar 2007] → spec [SRS 1.04] → technical implementation [Smart Energy profile] in 12 months and recognized as one of the initial list of Smart Grid standards by NIST in May 2009
- OpenSG is technology and SDO neutral

OpenSG Participation in SG Standards Development

The mission of the UCAIug and OpenSG is not to develop standards, but provide business and industry requirements to accelerate standards development

- OpenSG is collaborating with NAESB [then FERC and NARUC] on NIST Priority Action Plans related to pricing, scheduling, and demand response
- OpenSG is highly aligned with the EISA 2007 objectives and the ARRA 2009 funding requirements
- OpenSG has engaged heavily in the NIST process since inception
- OpenSG's goal is to align resources and harmonize the SG standards effort to accelerate standards development and adoption

OpenSG History

2007

- Too many HAN standards but none fully met requirements
- Lack of coordination in utility efforts
- Utilities would not agree to a common technical solution due to differences in regulation, topography, and technology preferences
- No Utility alignment on SG standards
- OpenHAN Task Group begins work.

2008

- OpenHAN 1.0 approved.
- ZigBee a good choice due to industry support despite technical issues
- Initiates cross utility leadership discussions
- First cross utility meeting held in Houston (June)
- Identified and communicated gaps in ZigBee standard
- Talks initiated with HomePlug to align with ZigBee on Smart Energy.
- Active in defining AMI Security requirements under UCA and DOE funded projects such as ASAP

2009

- Aligning utilities on common Home Area Network strategy
- ZigBee Smart Energy (SE) 1.0 technical issues identified with resolutions in SE 2.0
- Formed joint ZigBee & HomePlug group to develop multi-medium ZigBee SE 2.0
- Re-birth of utility-led initiatives through UCA International Users Group
- Defining SG standards in the industry
- Led migration of AutoDR to UCA governance
- Expansion needed to address T&D and generation
- Increased focus on security
- Industry liaisons with EPRI/EEI and other organizations

2010

- Smart Energy 2.0 release includes end to end system view, comprehensive certification process and IEC/IETF/IEEE compliance
- Implementing Smart Grid standards strategy
- Expanded scope of UCA to cover Smart Grid strategy
- Close working ties with NIST and DOE, etc.

SE 2.0 Progress

May 2008:

First SE 1.0 Certified Device Announced – flexibility in use key;DLRC, Simple metering, EI use cases as basis (also OpenHAN)



March 2009 :

SE 2.0 MRD and Use cases release

May 18 2009 :

DOE press release announces SE2.0 as one of the initial 16 low hanging fruit standards identified through the NIST process

March 2010

WiFi + ZigBee collaborations announced



April 2011

SE 2.0 Application spec delayed

Nov 2011

Interop #1

2008

2009

2010

2011

October 2008

Add'l stakeholders identified: HomePlug, SAE, IPSO, etc.
New Use Cases indentified.
SE 2.0 Launched



August 2009

PAP 3,4,9,10
Harmonization meeting
Conclusion: SE 2.0 consistent with group identified direction.



April 2010

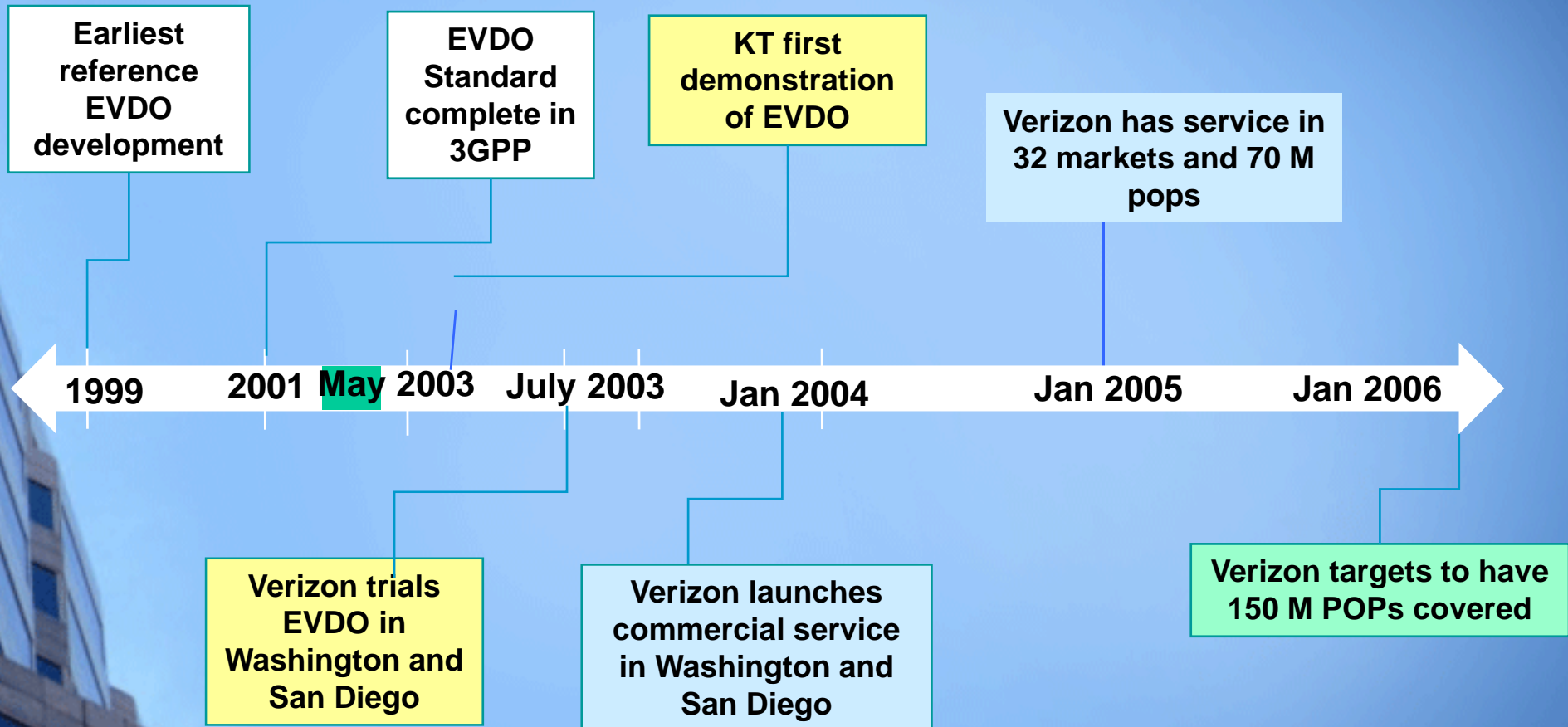
Draft SE 2.0
Released for Public comment



August 2011

SE 2.0 Application spec work resumes

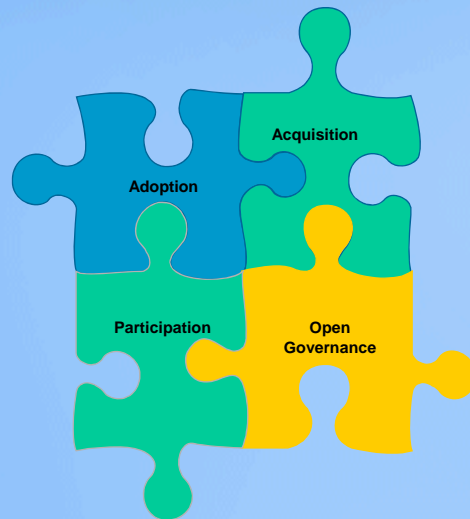
Typical cellular standards timeline



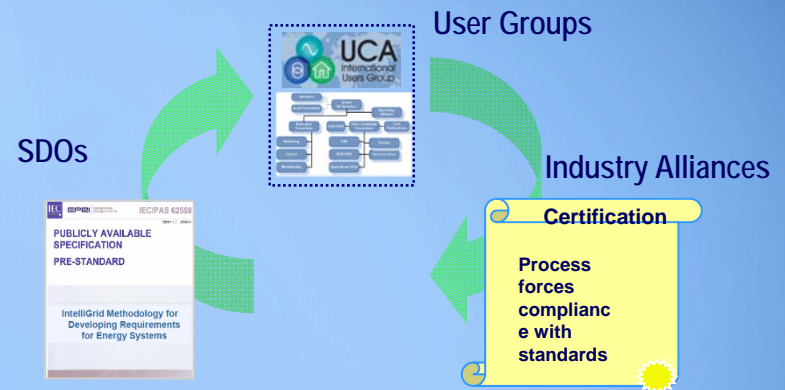
Current Smart Grid Standards Strategy – Key Principles

- Without open standards a Smart Grid will not be achieved
- Without industry compliance Smart Grid Interoperability won't be achieved

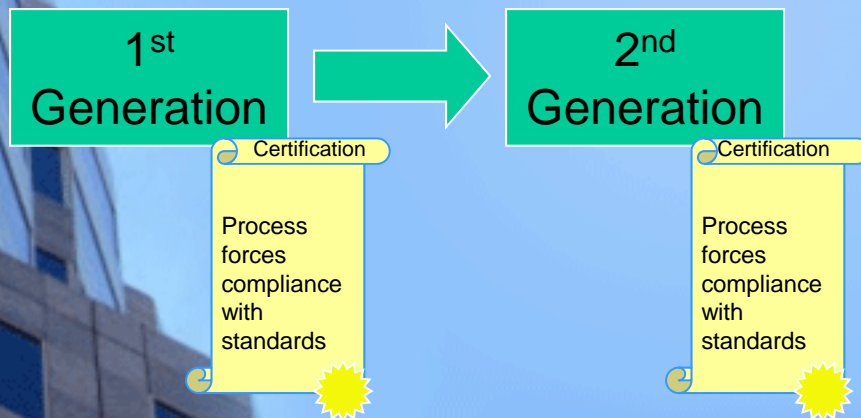
1. Openness



2. Separation of Duties



3. Generational Compliance



4. Loose Coupling



Shaping 2011 OpenSG Strategic Goals

- SG Simulations WG
 - define how edge devices integrate as a closed-loop system
 - Impact on distribution system and closed loop design constraints for stability
- Communications Strategy for Broad Coverage (Dist Sys level)
 - -SG comms work with UTC/WCA
- Integrated Demand Response/Advanced Load Control
 - Address edge devices as an integrated systems approach incorporating all edge devices and market interfaces/services
- ASAP-SG Security Profiles next round, weave into SG Security/SGIP-CSWG
- Enterprise Information Management w.r.t. CIM interoperability projects, Data Reference Architecture
- Open Source repository for test cases and lab artifacts
- Standards as tools to help define "adoption of new methodologies"

Present OpenSG WG/TF Membership

- Join the UCAIug at:
 - <http://www.ucaiug.org/Pages/join.aspx>
- Get web site user ID at:
 - <http://osgug.ucaiug.org/>
- Join mailing lists at:
 - <http://www.smartgridlistserv.org/>

OpenSG Listservs as of 11/15/11

OpenSG OpenADR and SG Security Crosstalk (19 Subscribers)
OpenSG SG Network and SG Security Crosstalk list (43 Subscribers)
OpenSG SG Systems WG OpenADE Task Force (124 Subscribers)
OpenSG SG Systems WG OpenADR Task Force (171 Subscribers)
OpenSG SG Communications WG Network Interop Task Force (32 Subscribers)
OpenSG SG Communications WG SG Network Task Force (146 Subscribers)
OpenSG SG Communications Working Group (43 Subscribers)
OpenSG SG Conformity WG Edge Conformance Task Force (46 Subscribers)
OpenSG SG Conformity WG Enterprise Conformance Task Force (24 Subscribers)
OpenSG SG Conformity WG Security Conformance Task Force (88 Subscribers)
OpenSG SG Conformity Working Group (42 Subscribers)
OpenSG SG Security WG AMI-SEC Task Force (352 Subscribers)
OpenSG SG Security Announcements (325 Subscribers)
OpenSG SG Security WG Cyber Security Interop Task Force (71 Subscribers)
OpenSG SG Security WG Embedded Systems Security Task Force (79 Subscribers)
OpenSGug SG Security Technical Discussion List (175 Subscribers)
OpenSGug SG Security Usability Task Force (31 Subscribers)
OpenSG SG Systems WG AMI Enterprise Task Force (168 Subscribers)
OpenSG SG Systems WG OpenHAN Task Force (329 Subscribers)
OpenSG SG Systems WG Service Definition Team (22 Subscribers)
OpenSG SG Systems WG UtilityAMI Interest Group Members (90 Subscribers)
OpenSG SG Systems WG UtilityAMI Interest Group Guests (91 Subscribers)
OpenSG SG Simulations Working Group (90 Subscribers)

Total = 2601

Note: 3/7/11 = 1854

Questions?

For any additional information,
please do not hesitate to contact us

Note: Full participation requires
UCAIug membership – join at
<http://www.ucaiug.org/>

OpenSG Technical Committee Chair

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