

The background of the slide is a light blue color with a network diagram. A central red sphere is connected to several yellow rectangular blocks by white lines. Some of these blocks are further connected to other yellow blocks, creating a web-like structure. Several stylized business figures in suits are standing on the yellow blocks, some holding briefcases. The overall theme is interconnectedness and business strategy.

Policy Roadmap Segment  
Regulatory Changes to Support the Smart Grid  
Ben Boyd, V.P. Regulatory\Policy  
EnerNex

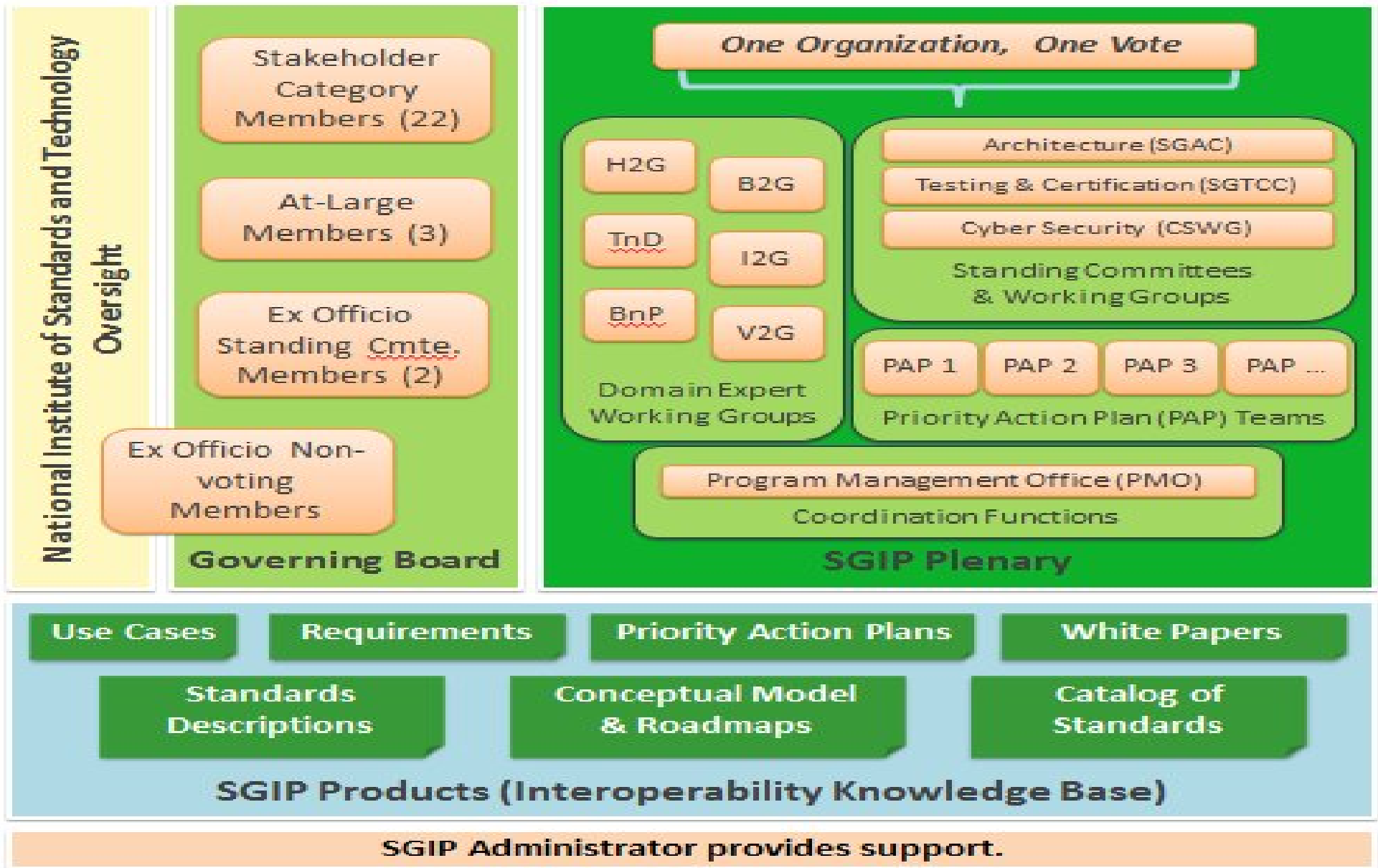
- Who We Are
- EnerNex is an electric power engineering and smart grid consulting firm specializing in the development and application of new electric power technologies.
- Founded in 2003 by: Erich Gunther, Robert Zavadil, and Jeffrey Lamoree.
- Employs some of the most recognized experts in electric power engineering technology.
- NIST/SGiP contract administrator.
- Visit us on the web at [www.enernex.com](http://www.enernex.com)



## Regulatory Changes to Support the Smart Grid

- This presentation will take a high level approach in identifying the Smart Grid Interoperability Panel's (SGiP) many roles in the national standards development process.
- It will review the SGiP's outreach efforts to State Regulators, and review some of the standards germane to state regulators which are currently being considered in selected priority action plans of the SGiP.
- The final section discusses why State Regulators should be considering policy changes and what they can do to support interoperability within the Smart Grid.

# Looks Like This: SGIP Structure



SGIP member companies work in teams to produce work products

- **Total number of Member Organizations: 704 (July 680)**
  - number of Participating Member Organizations: 380 (July 372)
  - number of Observing Member Organizations: 324 (July 308)
  - number of Organizations who joined in July & August: 24
- **Total # of Individual Members\*: 1,854**
- **Number of Organizations by Country**

USA: 623	North America (non-US): 32
Europe: 23	Asia: 18
Oceania: 6	South America: 1
Africa: 1	

As of August 26, 2011

- The mission of the SGiP is to provide a strong framework for coordination of **all stakeholders** of the Smart Grid to accelerate standards harmonization and development. The SGiP does not write standards, but instead develops and reviews use cases, identifies requirements, and proposes action plans for achieving these goals. It has many roles and three principal responsibilities:
  - To provide the technical guidance necessary to facilitate standards development for the Smart Grid
  - To specify the necessary testing and certification requirements to assess the achievement of interoperability using Smart Grid Standards
  - To oversee the performance of these activities to maintain momentum and achievement.
  - AND IT NEEDS YOUR INVOLVEMENT!!!!

- To date SGiP has created the \*Twiki for transparency.
- It has presented two standards update Webinars to the regulatory community/NARUC membership
- It has assigned, through the Administrator's office, a Liaison Officer to NARUC to assist in the translation of techie, a.k.a. geek, to a more local vernacular, a.k.a. regulese.
- It has a Business and Policy Domain Expert Working Group examining regulatory impact of potential standards and business practices.
- \*<http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/WebHome>

NARUC (Robin Lunt) , APPA (Mike Hyland), NRECA (Tony Thomas), and the Canadian Energy Association are members of SGiP.

– Governing Board Representation

- State and Local Regulators

- Commissioner Paul Centolella, Public Utility Commission of Ohio

– State Member Organizations

- Alabama Public Service Commission
- Alberta Utilities Commission (Canada)
- Arkansas Public Service Commission
- California Public Service Commission
- California Energy Commission
- D.C. Public Service Commission
- Georgia Public Service Commission
- Maine Public Utilities Commission
- State of Vermont, Public Service Department
- Kentucky Public Service Commission
- New Jersey Board of Public Utilities
- New York State Dept. of Public Service
- Oklahoma Corporation Commission
- Pennsylvania Public Utility Commission
- Public Utilities Commission of Ohio
- Public Utility Commission of Texas
- Illinois Commerce Commission
- Missouri Public Service Commission
- Michigan Public Service Commission

<http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/SGIPMembersList>



Priorit y	Standard/Publicat ion	Title	Responsible WG
1	IEEE C37.238	IEEE Standard Profile for Use of IEEE 1588 Precision Time Protocol in Power System Applications	PAP13
2	OASIS WS-Calendar	Web Services Calendar	PAP04
3	IEEE 1901-2010	IEEE Standard for Broadband over Power Line Networks: Medium Access Control and Physical Layer Specifications	PAP15
3	ITU-T G.9972	Coexistence mechanism for wireline home networking transceivers	PAP15
4	SGIP 2011-0008_1	PAP 18: SEP 1.x to SEP 2.0 Transition and Coexistence White Paper	PAP18
5	IEEE P1815	Standard for Electric Power Systems Communications - Distributed Network Protocol (DNP3)	PAP12
6	IEEE P1815.1	Standard for Exchanging Information Between Networks Implementing IEC 61850 and IEEE Std 1815 (Distributed Network Protocol - DNP3)	PAP12
7	IEC 61400-25-2	Wind turbines - Part 25-2: Communications for monitoring and control of wind power plants – Information models	PAP16
9	NAESB REQ-22	Third Party Access to Smart Meter-based Information	CSWG
10	IEC/TS 62351-1	Power systems management and associated information exchange - Data and communications security - Part 1: Communication network and system security - Introduction to security issues	CSWG
10	IEC/TS 62351-2	Power systems management and associated information exchange - Data and communications security - Part 2: Glossary of terms	CSWG
10	IEC/TS 62351-3	Power systems management and associated information exchange - Data and communications security - Part 3: Communication network and system security - Profiles including TCP/IP	CSWG
10	IEC/TS 62351-4	Power systems management and associated information exchange - Data and communications security - Part 4: Profiles including MMS	CSWG
10	IEC/TS 62351-5	Power systems management and associated information exchange - Data and communications security - Part 5: Security for IEC 60870-5 and derivatives	CSWG
10	IEC/TS 62351-6	Power systems management and associated information exchange - Data and communications security - Part 6: Security for IEC 61850	CSWG
10	IEC/TS 62351-7	Power systems management and associated information exchange - Data and communications security - Part 7: Network and system management (NSM) data object models	CSWG
10	IEC/TS 62351-8	Power systems management and associated information exchange - Data and communications security - Part 8	CSWG

# Planned PAP Closings by Quarter

PAP	2009		2010				2011				2012				Highlights (See other slides for details)
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
PAP 00 - Meter Upgradeability Standard	X														Now in the Catalog of Standards. PAP CLOSED
PAP 01 - Role of IP in the Smart Grid				X											Now in the Catalog of Standards. PAP CLOSED
PAP 02 - Wireless Communications for the Smart Grid												X			Version 1 Now in the Catalog of Standards; Version 2 under development
PAP 03 - Common Price Communication Model									X						In review by SGAC, CSWG, and PMO
PAP 04 - Common Scheduling Mechanism									X						Waiting for Plenary vote
PAP 05 - Standard Meter Data Profiles										X					Iterating within SSO after discussion at Governing Board meeting in July
PAP 06 - Common Semantic Model for Meter Data Tables										X					PAP team developing UML Model
PAP 07 - Electric Storage Interconnection Guidelines												X			Awaiting standards handback from SDOs
PAP 08 - CIM for Distribution Grid Management													X		Developing requirements affecting IEEE 1547 and IEC 61850-7-420
PAP 09 - Standard DR and DER Signals													X		SSO developing Standard
PAP 10 - Standard Energy Usage Information												X			Now in the Catalog of Standards. PAP LEFT OPEN FOR ADOPTION SUPPORT
PAP 11 - Interoperability Standards to Support Plug-in Electric Vehicles									X						Waiting for Plenary vote; PAP is CLOSED
PAP 12 - IEC 61850 Objects/DNP3 Mapping												X			In review by SGAC and CSWG; SSO developing Standard
PAP 13 - Time Synchronization, IEC 61850 Objects/IEEE C37.118 Harmonization													X		Waiting for Plenary vote
PAP 14 - Transmission and Distribution Power Systems Model Mapping												X			PAP team developing requirements under new scope
PAP 15 - Harmonize Power Line Carrier Standards for Appliance Communications in the Home													X		Broad Band in review by SGAC and CSWG; SSO developing Narrowband PLC Standard
PAP 16 - Wind Plant Communications									X						SSO developing Standard
PAP 17 - Facility Smart Grid Information Standard												X			SSO developing Standard
PAP 18 - SEP 1.x to SEP 2 Transition and Coexistence									X						In review by SGAC and CSWG
	1	0	0	0	0	1	0	0	0	4	3	5	3	2	

Note: Above dates are when PAPs expected to close after all their tasks have been completed

## September 2011 Activities - PMO Monthly Report

- PAP 00 – Meter Upgradeability Standard – CoS
- PAP 01 – Role of IP in the Smart Grid – CoS
- PAP 02 – Wireless Comm. For the Smart Grid – V1 CoS
- PAP 10 – Standard Energy Usage Information – CoS
- PAP 11 – Interoperability Standards to Support Plug-in EVs – to be voted
- SAE J2836\_1 USE CASES FOR COMMUNICATION BETWEEN PLUG-IN VEHICLES AND THE UTILITY GRID - CoS
- SAE 2847-1 COMMUNICATION BETWEEN PLUG-IN VEHICLES AND THE UTILITY GRID - CoS
- SAE J1772™-2010 ELECTRIC VEHICLE AND PLUG IN HYBRID ELECTRIC VEHICLE CONDUCTIVE CHARGE COUPLER – CoS
- NISTER 7628 – GUIDELINES FOR CYBER SECURITY
  - <http://csrc.nist.gov/publications/PubsNISTIRs.html#NIST-IR-7628>

<http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/SGIPCoSStandardsInformationLibrary>

## What keeps Regulators Awake at Night!

- No. 1 – Cyber Security
- No. 1 – Privacy
- No. 1 – RF Health Issues
- No. 1 – High Bills related to Smart Meters
- No. 1 – \*TOU – Use or not use – when?
- No. 1 – Black out threats
- No. 1 - ????????
- \*[http://www.emeter.com/smart-grid-watch/2011/most-u-s-consumers-want-time-of-use-electricity-pricing/?mkt\\_tok=3RkMMJWWfF9wsRonv6%2FJZKXonjHpfsX%2B6OksXbHr08Yy0EZ5VunJEUWy34oCWoEnZ9mMBAQZC81kzQIMH%2FI%3D](http://www.emeter.com/smart-grid-watch/2011/most-u-s-consumers-want-time-of-use-electricity-pricing/?mkt_tok=3RkMMJWWfF9wsRonv6%2FJZKXonjHpfsX%2B6OksXbHr08Yy0EZ5VunJEUWy34oCWoEnZ9mMBAQZC81kzQIMH%2FI%3D) –article by Chris King

With interoperable standards, utility customers benefit because you can:

- Integrate new systems with much less effort, create vendor competition, minimize/eliminate vendor lock-in
- Enable innovation – provide insight instead of data.
- Drive down costs through competition between vendors
- Ensure uniformity throughout the grid, plug and play
- Build in security at the beginning

It is important to understand that **standards are not static**. They continue to be maintained and updated to reflect evolving technology and requirements. This is a normal part of the standards process.

- Each of the standards needs to be reviewed to determine relevance to state jurisdiction
- What does it mean to my state?
  - Do they enable an existing or envisioned policy to be cost effectively implemented?
  - Will/could/should this standard impact previous, current, or future proceedings or rulemakings such as those related to approved or pending utility smart grid projects?
- What can I do as a State Regulatory Agency?
  - Analyze all existing dockets for applicability
  - Analyze against core policy objectives for applicability
  - Develop guidelines for when/how utilities should consider them
  - Mandate specific standards be considered in certain situations
  - “Score” utility project proposals based on use of standards

- “If you are not part of the solution, you are part of the problem”. Anti War Protestor -Circa 1964
- Become an activist – join the SGiP.
- Remote access is available to PAP meetings, Plenary meetings, Webinars, and Working Group meetings.
- Host Smart Grid Statewide Collaborative Meetings open to all stakeholders.
- Business as usual is reactive, not proactive.
- Get educated! Take advantage of the “living work shop” activity going on in other states.

## SGIP CONTACTS

For questions or assistance regarding SGIP membership	email <a href="mailto:sgip_administrator">sgip_administrator</a>
For questions or assistance regarding this site	email <a href="mailto:sgwikisupport">sgwikisupport</a>
For calendar submissions	submit to <a href="#">sgip_submission</a>
For media inquiries	contact <a href="#">Carrie Parks</a> of <a href="#">EnerNex</a>
To contact the SGIP Administrator	email <a href="mailto:sgip_administrator">sgip_administrator</a>
To contact the SGIP Governing Board	email <a href="mailto:sgipgb_administrator">sgipgb_administrator</a>

**Not sure who can help? When in doubt, please contact the [SGIP Administrator](#).**

## SGIP MAILING LISTS

All SGIP member representatives who share an email address with the Administrator are already subscribed to the SGIP Member News.

Non-SGIP Members who would like to receive SGIP News updates	<a href="mailto:SGIP-Non-Members-Notify@SMARTGRIDLISTSERV.ORG">SGIP-Non-Members-Notify@SMARTGRIDLISTSERV.ORG</a>	<a href="#">Join SGIP-Non-Members-Notify</a>	<a href="#">SGIP-Non-Members-Notify</a>
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<a href="#">Specialty Groups</a>	<a href="#">Send an email to SGIP Email List</a>	<a href="#">Join a SGIP Email List</a>	<a href="#">Review Archive of Email List</a>
<a href="#">Program Management Office (PMO) - coordinate PAP progress</a>	<a href="mailto:SGIP-PMO-All@SMARTGRIDLISTSERV.ORG">SGIP-PMO-All@SMARTGRIDLISTSERV.ORG</a>	<a href="#">Join SGIP-PMO-All</a>	<a href="#">SGIP-PMO-All</a>
<a href="#">Communications, Marketing &amp; Education Working Group</a>	<a href="mailto:SGIPGB-CMEWG-All@SMARTGRIDLISTSERV.ORG">SGIPGB-CMEWG-All@SMARTGRIDLISTSERV.ORG</a>	<a href="#">Join SGIPGB-CMEWG-All</a>	<a href="#">SGIPGB-CMEWG-All</a>
<a href="#">Bylaws and Operating Practices Working Group</a>	<a href="mailto:SGIPGB-BOPWG-All@SMARTGRIDLISTSERV.ORG">SGIPGB-BOPWG-All@SMARTGRIDLISTSERV.ORG</a>	<a href="#">Join SGIPGB-BOPWG-All</a>	<a href="#">SGIPGB-BOPWG-All</a>
<a href="#">Intellectual Property Rights Working</a>	<a href="mailto:SGIPGB-IPRWG-All@SMARTGRIDLISTSERV.ORG">SGIPGB-IPRWG-All@SMARTGRIDLISTSERV.ORG</a>	<a href="#">Join SGIPGB-IPRWG-All</a>	<a href="#">SGIPGB-IPRWG-All</a>

(<http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/SGIPContact>)



Questions???

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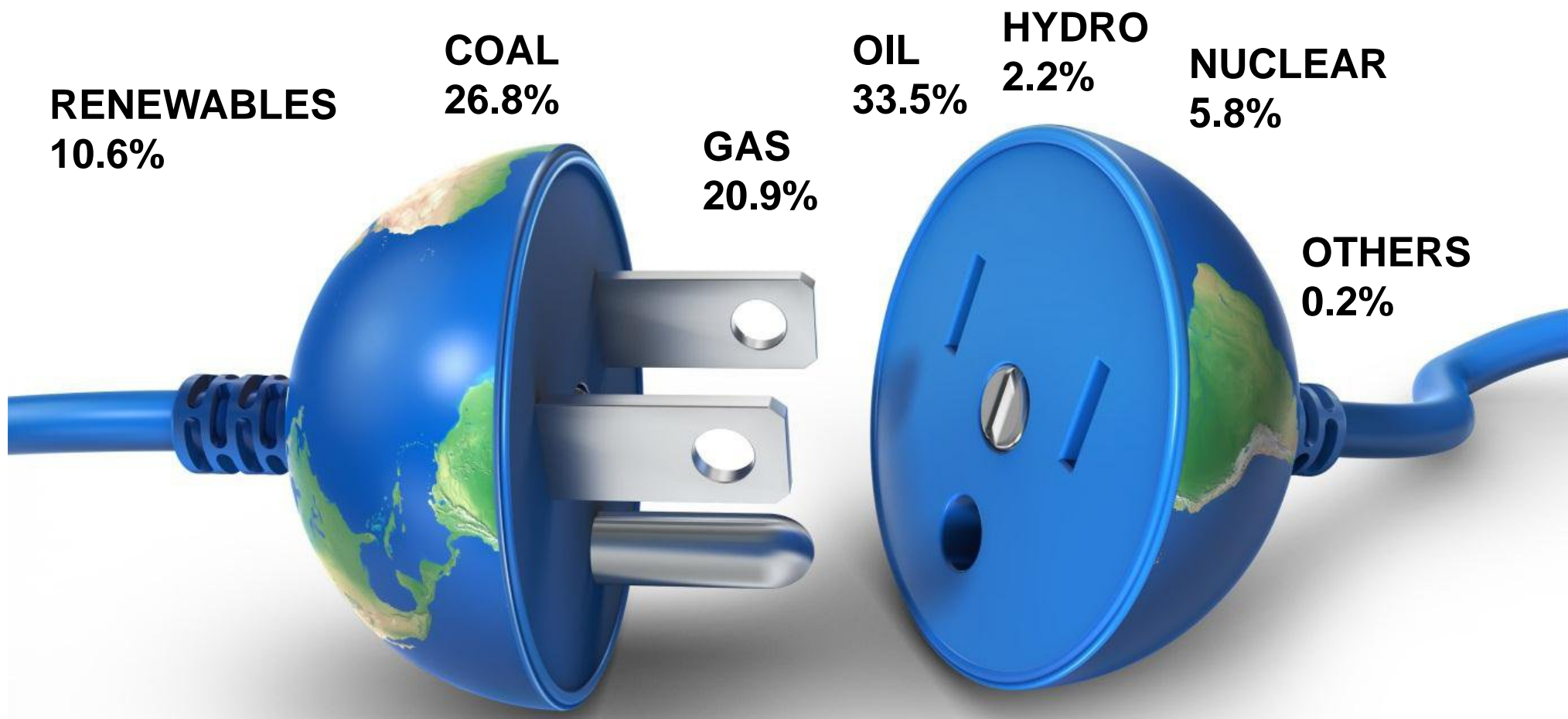
Ben Boyd, Vice President, Regulatory\Policy

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865.566.1113 cell



# TOTAL WORLD ENERGY SUPPLY 2008



Thank you for your attention

Source: IEA and SGIIP

# Reference Material

## EnerNex: What We Do

- **Our mission** is to be the preferred supplier of specialized engineering services to the electric power industry.
- **Our focus** is to help our customers solve electric power related issues and develop technology and expertise that will improve the operation and reliability of electric power systems.
- **Our offering** is a cross-cutting blend of experience in engineering to government, utilities, research, commercial product lines, industry and private institutions.

- **Areas of Expertise**

- **Smart Grid Engineering**

- Cyber Security
- Advanced Metering Infrastructure
- Demand Response and Energy Efficiency
- Grid-related Enterprise Architecture
- Smart Grid Collaboration and RoadMaps
- Testing and Research and Development
- Utility Communications Architecture and Implementation
- Systems Engineering
- Regulatory
- Smart Grid Labs

- **Power System Consulting**

Wind Energy Consulting and Renewable Integration  
Systems Monitoring and Analysis  
Transmission and Distribution System Studies  
Power Quality

*Clients such as:* Georgia Power, PacifiCorp, Northeast Utilities, ISO New England, UWIG, U.S. Dept. of Energy

