The Intersection of Smart Grid Technology and Intellectual Property Issues

Welcome

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The Intersection of Smart Grid Technology and Intellectual Property Issues

Intellectual Property Trends in Smart Grid Technology

Stuart Soffer, IPriori, Inc.

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www.ipriori.com

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What is Green IP?

- *"technology* designed to reduce or eliminate adverse consequences to human health and the environment while performing its intended application."

What is a Smart Grid?

"The Robot is a Model B-9, Class M-3 General Utility Non-Theorizing Environmental Control Robot."

Dr. Smith, "A Doctor of intergalactic environmental psychology expert in Cybernetics and an enemy agent."

Robot image from "the SMART GRID: an introduction."
http://www.oe.energy.gov/DocumentsandMedia/DOE_SG_Book_Single_Pages(1).pdf

A Smart Grid Patent

US 20090030712A1

(19) **United States**

(12) **Patent Application Publication**

Bogolea et al.

(10) **Pub. No.: US 2009/0030712 A1**

(43) **Pub. Date: Jan. 29, 2009**

(54) **SYSTEM AND METHOD FOR TRANSFERRING ELECTRICAL POWER BETWEEN GRID AND VEHICLE**

(75) Inventors: **Bradley D. Bogolea**, Beaver, PA (US); **Patrick J. Boyle**, Dallas, PA (US)

Correspondence Address:
WINSTON & STRAWN LLP
PATENT DEPARTMENT
1700 K STREET, N.W.
WASHINGTON, DC 20006 (US)

(73) Assignees: **Bradley D. Bogolea; Patrick J. Boyle**

(21) Appl. No.: **11/878,714**

(22) Filed: **Jul. 26, 2007**

Publication Classification

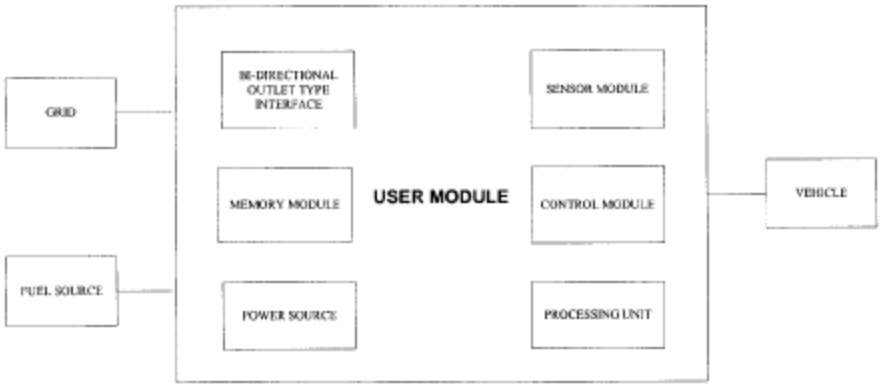
(51) **Int. Cl.**

G06Q 50/00	(2006.01)
B60K 1/00	(2006.01)
G08G 1/123	(2006.01)
H02J 7/00	(2006.01)

(52) **U.S. Cl.** **705/1**; 180/65.1; 320/109; 340/988; 903/903; 903/907; 903/908

(57) **ABSTRACT**

The present invention discloses a system for transferring electrical power between a grid and at least one vehicle. The vehicle can be Battery Electric Vehicle (BEV), Plug-in Hybrid Electric Vehicle (PHEV) or Fuel Cell Vehicle (FCV). The type of vehicle will be recognized and controlled by the system to support demand response and supply side energy management. Vehicle recognition can be carried out by load signature analysis, power factor measurement or RFID techniques. In an embodiment of the invention, the grid is a Smart Grid. The present invention also discloses a method for facilitating electrical power transfer between the grid and the vehicle.



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12/878714 Bogolea & Boyle

- 1. A system for transferring electrical power between a grid and at least one vehicle, the system comprising:
- (a) a user module and
- (b) a communication network connecting the user module to the grid and to the vehicle.

2. The system of claim 1, wherein the grid is a ***Smart Grid***.

3. The system of claim 1, wherein the vehicle is a Battery Electric Vehicle (BEV).

4. The system of claim 1, wherein the vehicle is a Plug-in Hybrid Electric Vehicle (PHEV).

5. The system of claim 1, wherein the vehicle is a Fuel Cell Vehicle (FCV).

6. The system of claim 1, wherein the communication network comprises of Communication Over Power Line (COPL), Bluetooth, IEEE 802.15.4, ZigBee, cellular wireless network or IP based computer network. [sic].

What is a Smart Grid?

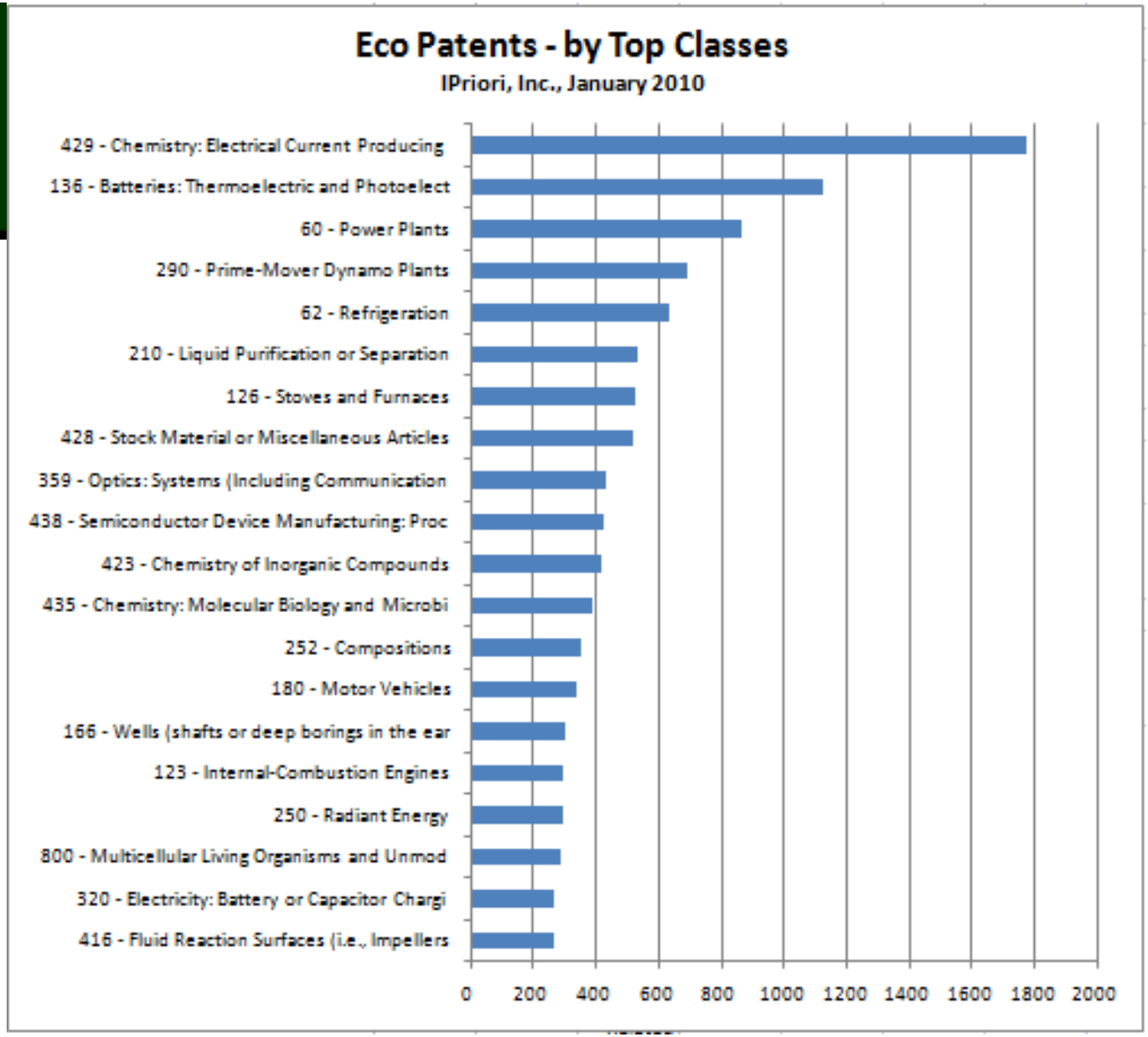
- Delivering electricity from suppliers to consumers using two-way digital technology for control.

- http://www.oe.energy.gov/SmartGridIntroduction.htm

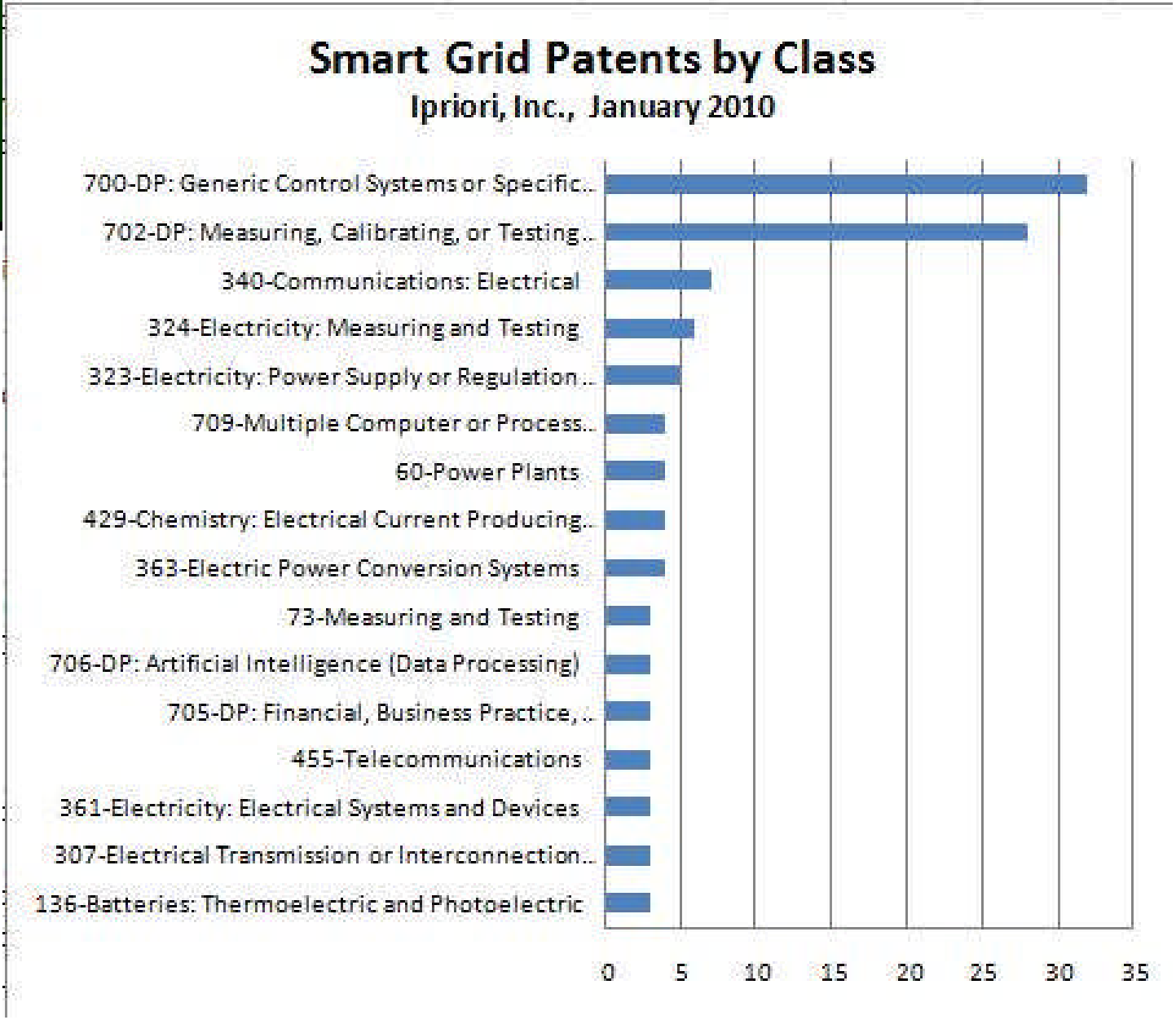
Applicants in Applications

- Accenture
- GridPoint, Inc. (Acquired V2Green) Plug-in Electric Vehicle Management, controls the flow of electricity between the grid and plug-in vehicles,
- Intellon Corporation Purchased by Atheros. communications (PLC) solutions for home networking, networked entertainment, broadband-over-powerline (BPL) access, Ethernet-over-Coax (EoC) and smart grid management application
- Bradley Bogolea

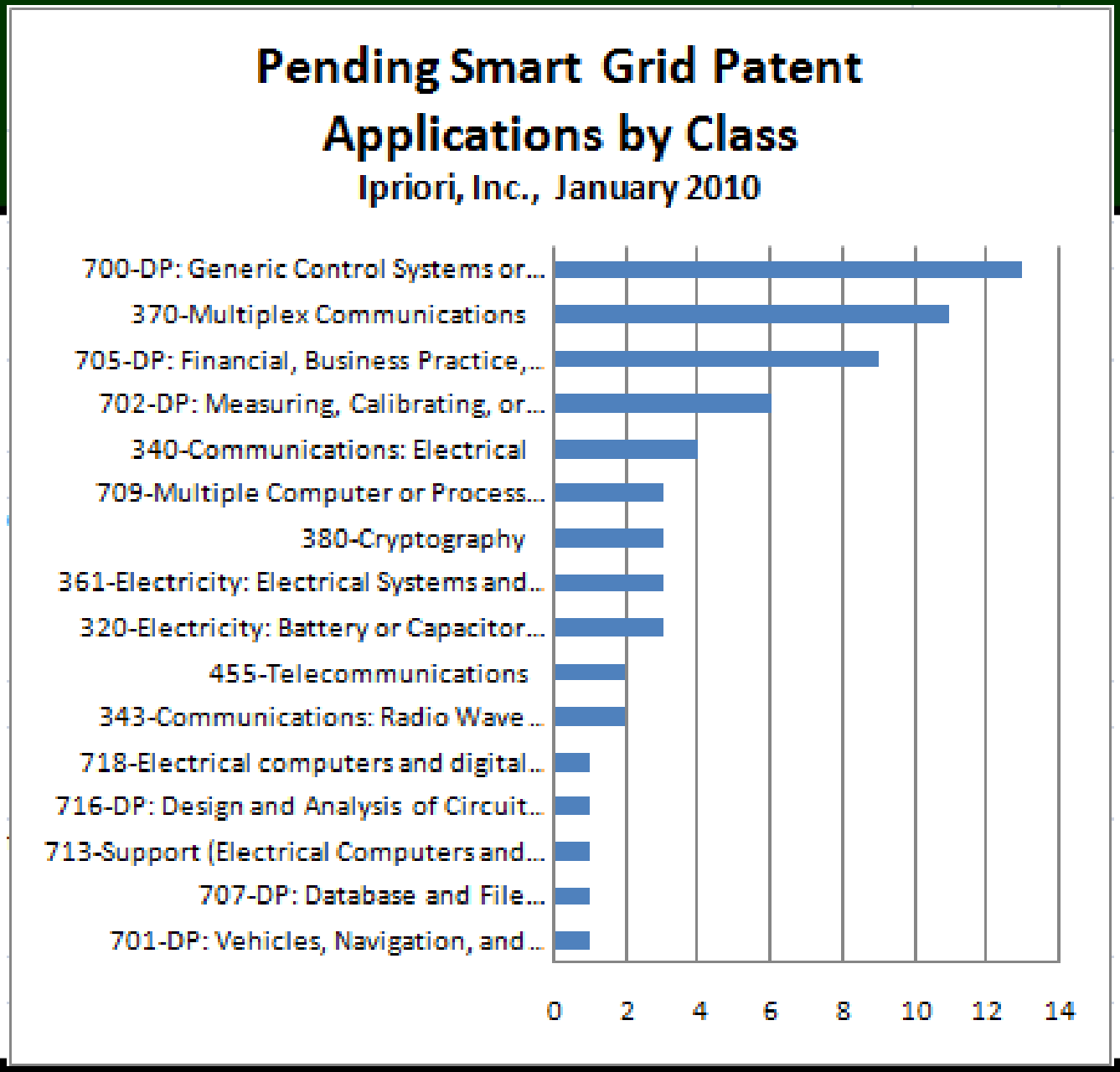
Green Eco Patents



Smart Grid Issued Patents



Smart Grid Pending Applications



Dynamic Architecture (David Fisher)

Interstitial Wind Turbines

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5,394,016 - Solar and wind energy generating system for a high rise building (Hickey, 1995)

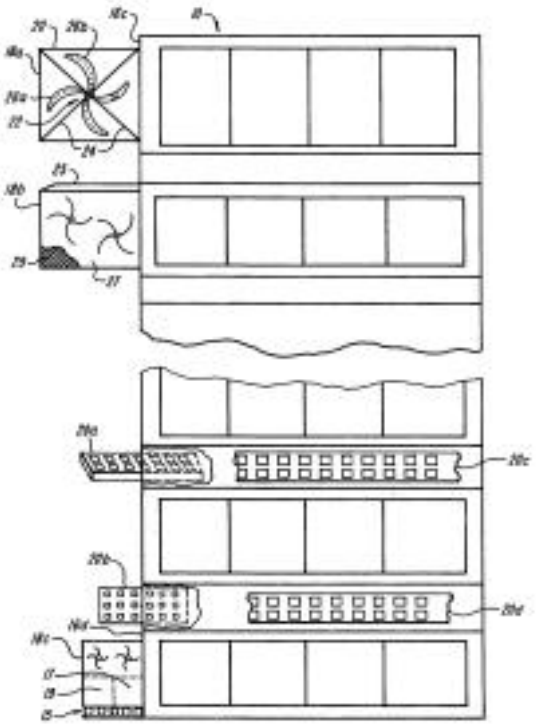


FIG. 2

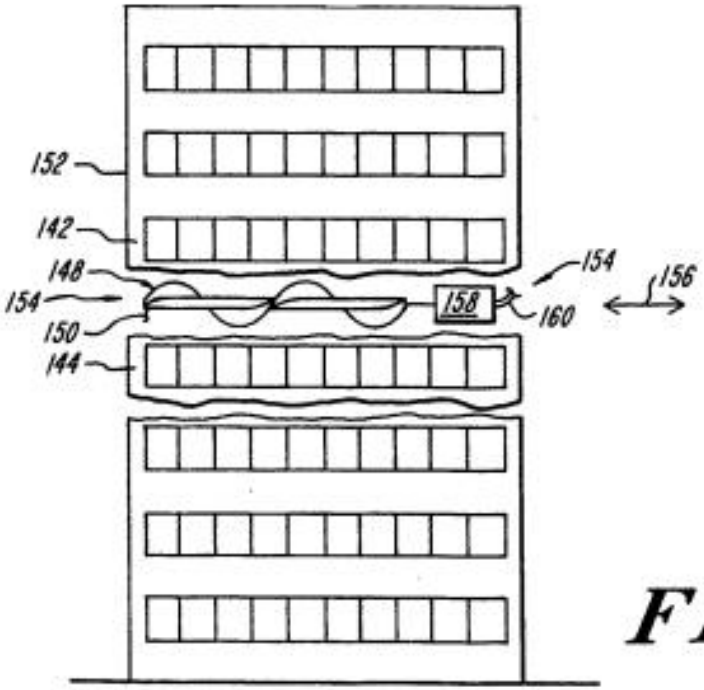


FIG. 9

1,400 square-foot revolving house

"The 1,400 square-foot revolving house built by Francois Massau in 1958 still turns, making a complete circle in 90 minutes, admitting more sunlight into its rooms as needed."

New York Times, Sept 1, 2008

Green Computing
Google's Ocean Data Center

- Water-Based Data Center 20080209234
- Kurp, Green Computing, October 2008 Communications of the ACM, Volume 51 Issue 10

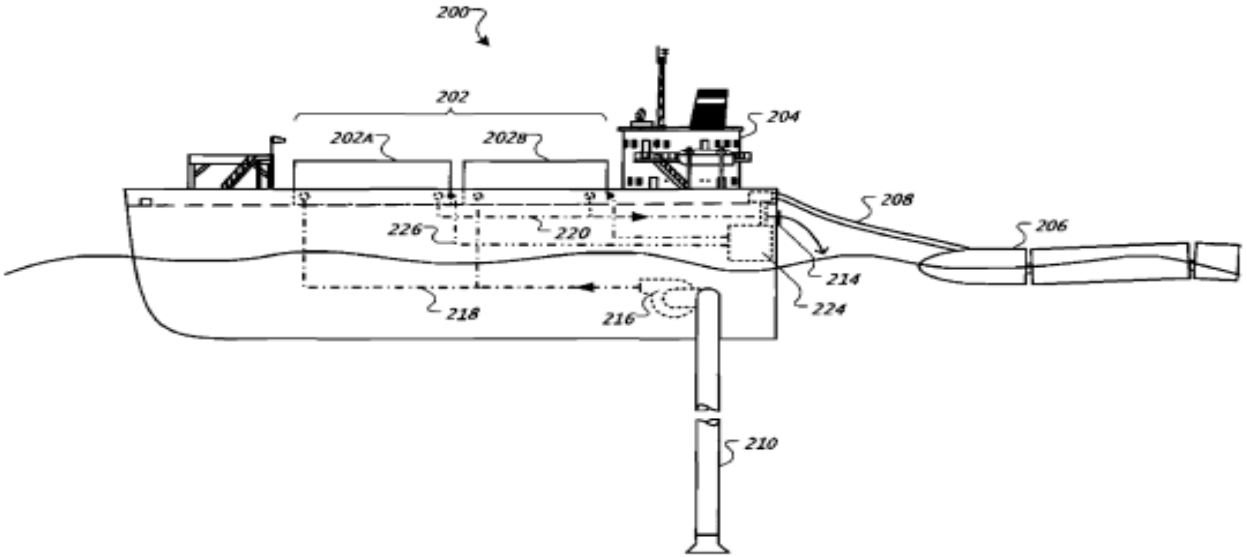
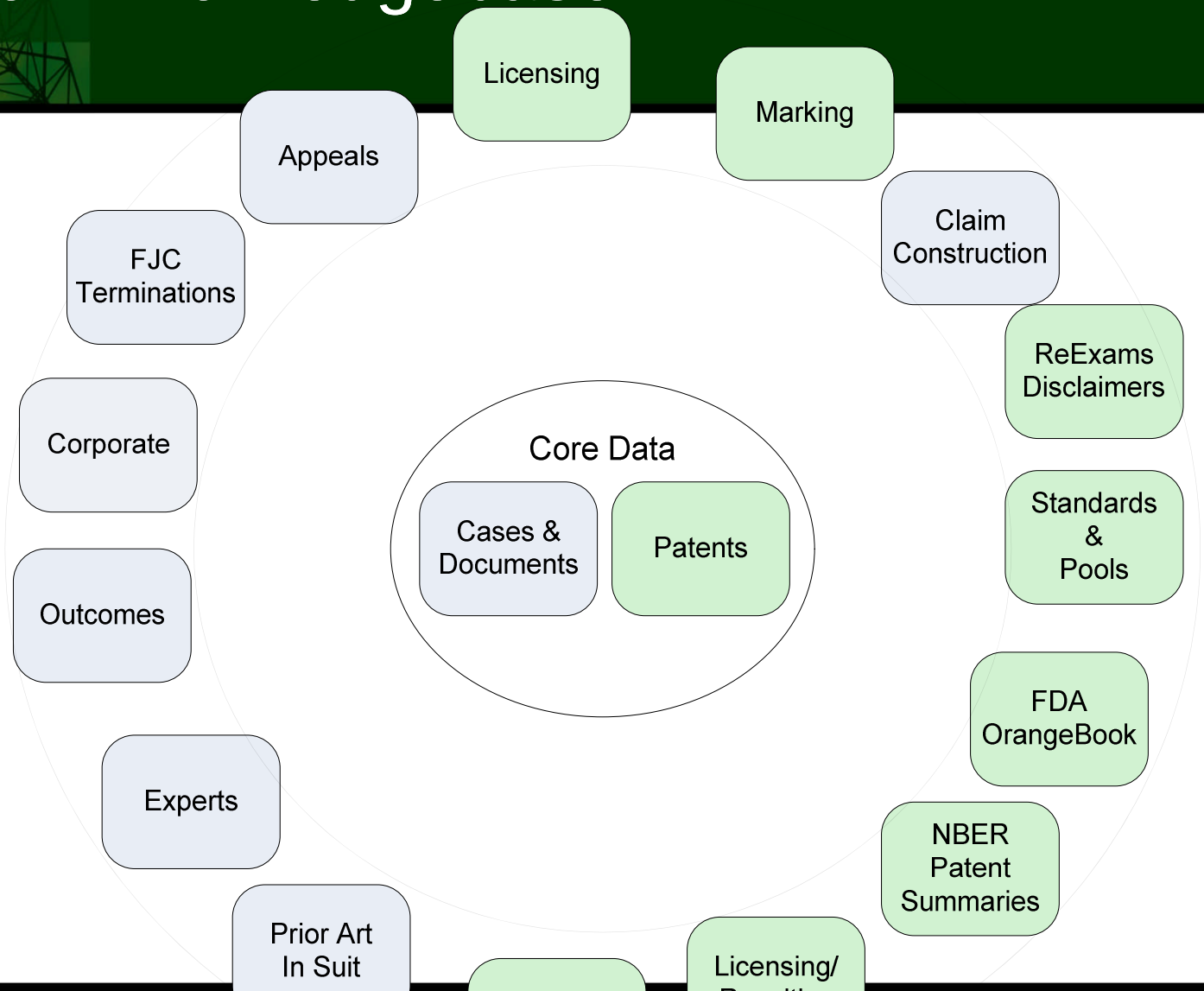


FIG. 2

Patent Application Publication Aug. 28, 2008 Sheet 4 of 7 US 2008/0209234 A1

IPriori Knowledgebase



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The Intersection of Smart Grid Technology and Intellectual Property Issues

Smart Grid IP Litigation
It's Coming – Are You Ready?

Steven D. Hemminger
C. Augustine Rakow
Alston+Bird, LLP

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Topics

- What to Expect
- Current Litigation
- What Can You Do To Prepare?

What to Expect

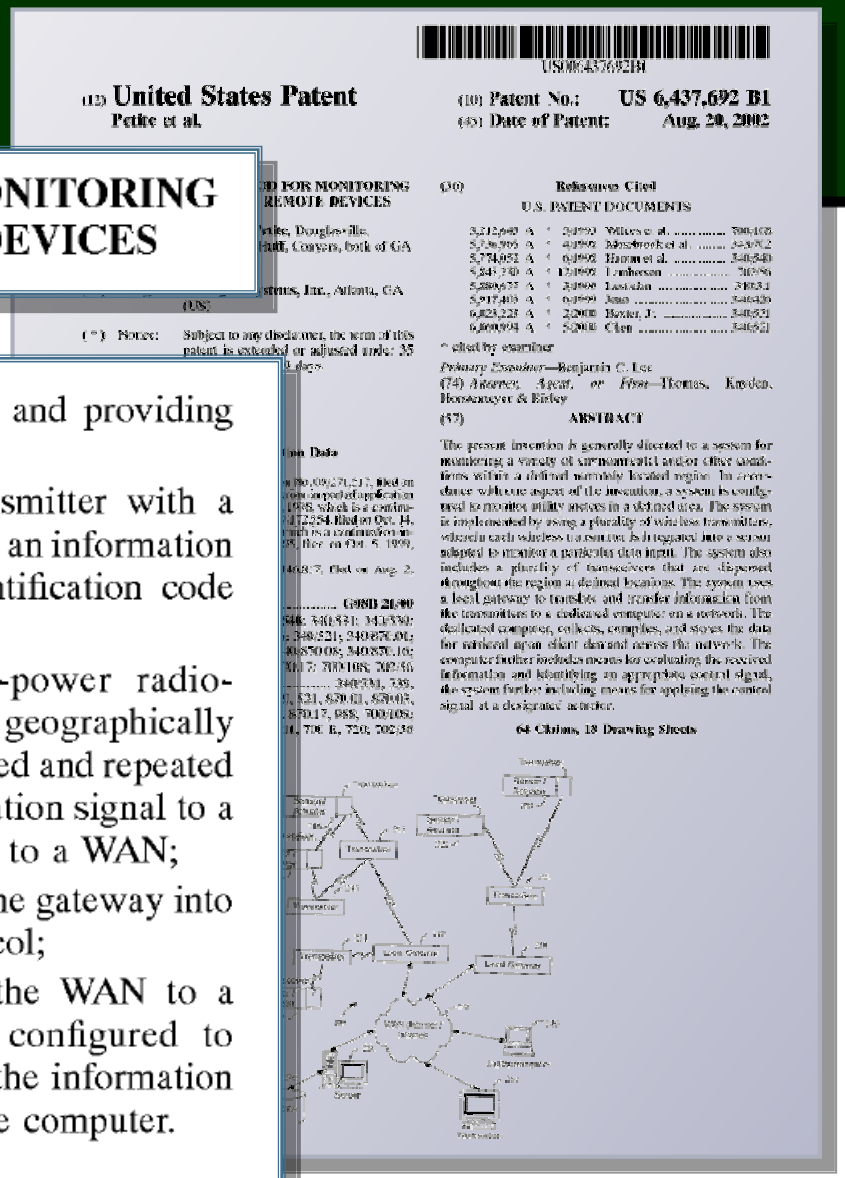
- Telecom
  - Patent Infringement Cases against the major providers (AT&T, Baby Bells, etc.)
    - 1980 - 1990 <10 cases
    - 1990 to present > ~60 cases
  - Patent Infringement Cases against electrical utilities
    - 2000 - 2010 < 10 cases
    - 2010 - 2030 > ~60 cases

Recent Litigation Affecting the Grid

- *Sipco v. Florida Power & Light Co. et al.*
  - *Silver Spring Networks, Inc. v. Sipco*
  - Settled January 2010
  - David Petite (INTUS)

- *EMS Technologies, LLC. v. GE, Silver Spring Networks, et al*, 2:10-cv-00032-TJW (E.D. Tex.)
  - Filed 01/26/2010

Sipco's Patent



(12) **United States Patent**
Petite et al.

(10) Patent No.: US 6,437,692 B1
(45) Date of Patent: Aug. 20, 2002

SYSTEM AND METHOD FOR MONITORING AND CONTROLLING REMOTE DEVICES

(57) ABSTRACT

18. A method for collecting information and providing data services comprising:

adaptively configuring at least one transmitter with a sensor wherein the transmitter generates an information signal consisting of a transmitter identification code and an information field;

placing a plurality of relatively low-power radio-frequency (RF) transceivers dispersed geographically wherein the information signal is received and repeated as required to communicate the information signal to a gateway, the gateway providing access to a WAN;

translating the information signal within the gateway into a WAN compatible data transfer protocol;

transferring the information signal via the WAN to a computer wherein the computer is configured to manipulate and store data provided in the information signal; and granting client access to the computer.

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EMS' Complaint

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

NOLOGIES, LLC.

FF,
V.

AL ELECTRIC COMPANY,
ORIZED INSTALLERS
ORK, LLC, D/B/A/ GE HOME
OLOGIES,
ORIZED INTEGRATORS
ORK, LLC, D/B/A/ GE HOME
OLOGIES, D/B/A AIN GROUP,
UTHORIZED INTEGRATORS
ORK, AND D/B/A AIN
ON CONTROLS, INC.
VELL AUTOMATION INC.,
VELL AUTOMATION
NATIONAL HOLDINGS LLC,
VELL SOFTWARE, INC.,
-BRADLEY COMPANY,
-BRADLEY COMPANY, LLC,
-BRADLEY COMPANY, INC.,
-BRADLEY TECHNICAL
ES, INC.,
SPRING NETWORKS, INC.;

BOX TECHNOLOGY INC. ,

ANTS.

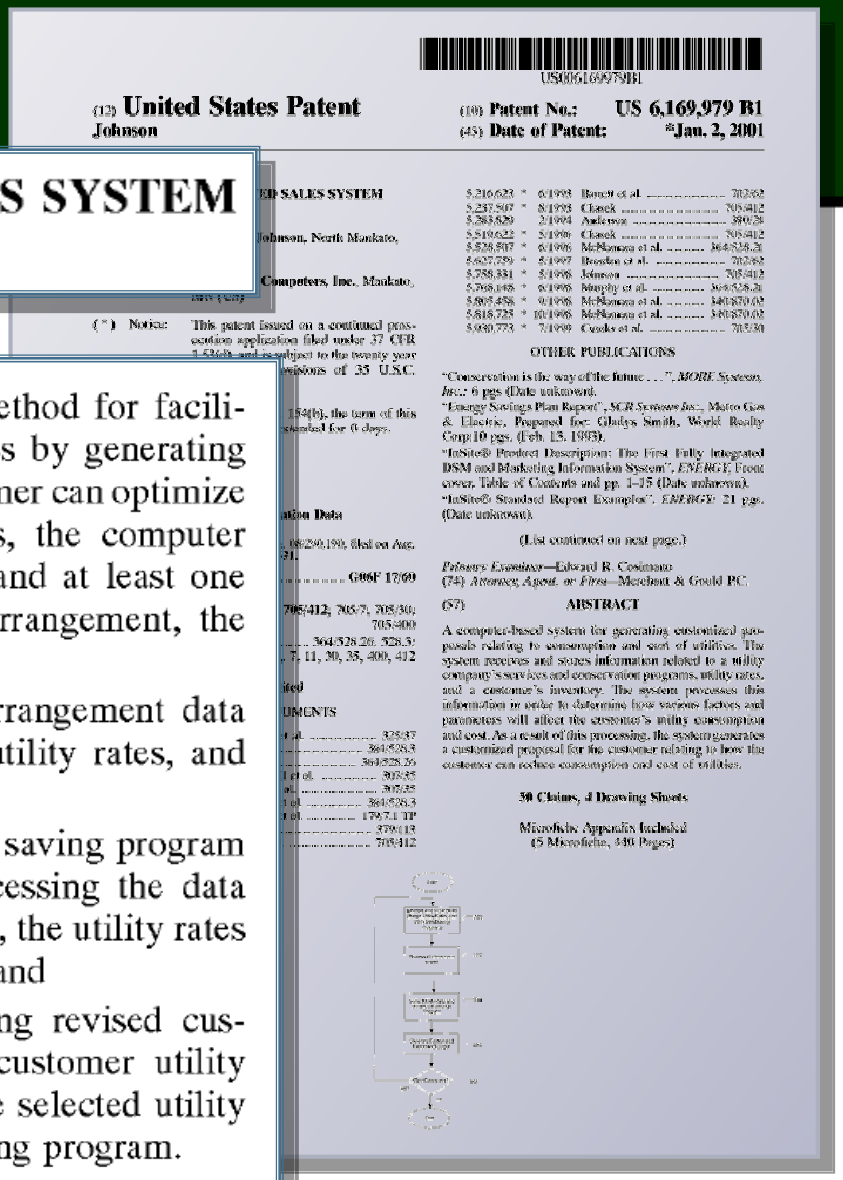
Civil Action No. _____

JURY TRIAL DEMANDED

(1) GENERAL ELECTRIC COMPANY,
(2) AUTHORIZED INSTALLERS NETWORK, LLC, D/B/A/ GE HOME TECHNOLOGIES,
(3) AUTHORIZED INTEGRATORS NETWORK, LLC, D/B/A/ GE HOME TECHNOLOGIES, D/B/A AIN GROUP, D/B/A AUTHORIZED INTEGRATORS NETWORK, AND D/B/A AIN
(4) JOHNSON CONTROLS, INC.
(5) ROCKWELL AUTOMATION INC.,
(6) ROCKWELL AUTOMATION INTERNATIONAL HOLDINGS LLC,
(7) ROCKWELL SOFTWARE, INC.,
(8) ALLEN-BRADLEY COMPANY,
(9) ALLEN-BRADLEY COMPANY, LLC,
(10) ALLEN-BRADLEY COMPANY, INC.,
(11) ALLEN-BRADLEY TECHNICAL SERVICES, INC.,
(12) SILVER SPRING NETWORKS, INC.; AND
(13) GREENBOX TECHNOLOGY INC. ,

DEFENDANTS.

EMS' Patent



(12) **United States Patent**
Johnson

(10) **Patent No.: US 6,169,979 B1**
(45) **Date of Patent: *Jan. 2, 2001**

COMPUTER-ASSISTED SALES SYSTEM FOR UTILITIES

24. A computer system implemented method for facilitating sales of utility products and services by generating customized reports related to how the customer can optimize its costs for utility products and services, the computer system including a memory arrangement and at least one processing unit coupled to the memory arrangement, the method comprising the steps of:

receiving and storing in the memory arrangement data representing customer utility usage, utility rates, and utility costs saving programs;

selecting a utility rate and a utility costs saving program for the customer in response to processing the data representing the customer utility usage, the utility rates and the utility costs saving program; and

generating customized reports illustrating revised customer costs based on applying the customer utility usage to the data representative of the selected utility rate and the selected utility costs saving program.

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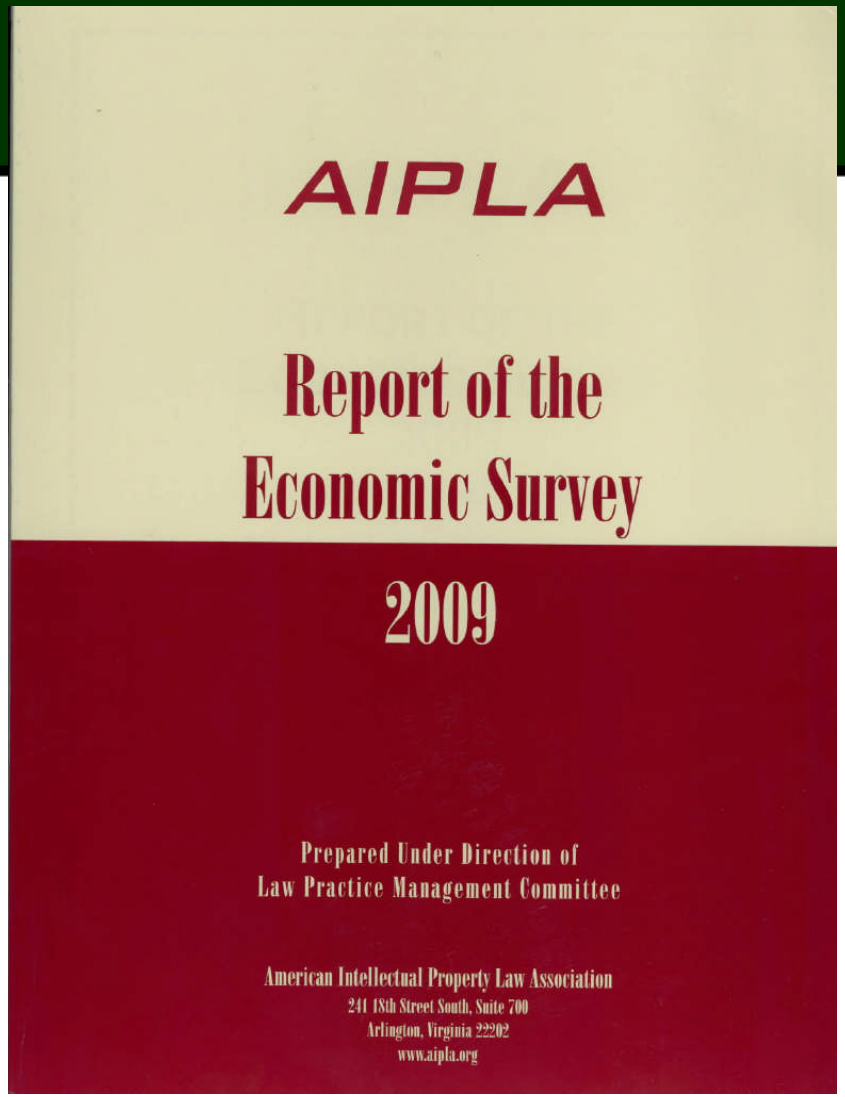
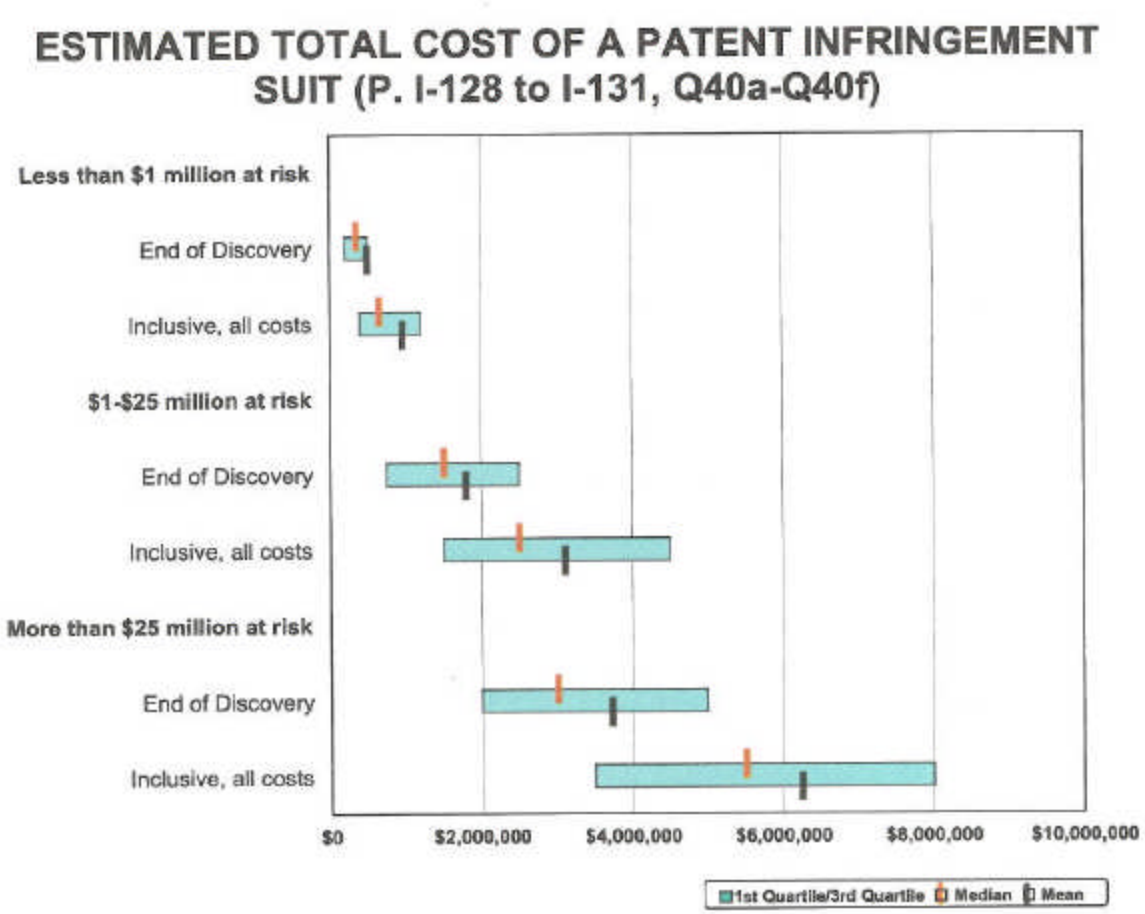
More Litigation Affecting the Grid

- ***IP Co. v. Oncor, Reliant, Comverge, Sensus, Trilliant, Tendrill, et al.* 2:09-cv-00037-DF (filed 1.29.2009 E.D. Tex.)**
  - US Pat Nos 7,054,271 6,249,516 – Wireless network system for optimizing communication pathways.
  - Claims against Oncor, Reliant and Tantalus dismissed or withdrawn.
  - Discovery motions by both sides pending.
- ***EON Corp. v. Sensus Metering Systems*, 2009cv00116 (E.D. Tex. filed March 13, 2009)**
  - US Pat Nos. 5,388,101 5,481,546 -- Two-way interactive communication video network.
- ***Certain Variable Speed Wind Turbines and Components Thereof* US ITC Inv No. 337-TA-641**
  - *General Electric Co., v. Mitsubishi Heavy Industries, et al.*
  - Third Party Impact – Iberdrola
  - Appeal expected to finding of no infringement by the commission

Value of patents



Value of patents



Value of Patents

Total Costs: Litigation-Patent Infringement by Location

Litigation-Patent Infringement $1-$25M inclusive, all costs (000s) by Location (Q40d)

Litigation-Patent Infringement >$25M Inclusive, all costs (000s) by Location (Q40f)

	Total	Boston CMSA	NYC CMSA	Minne.-St. Paul PMSA	Other Central	Texas	L.A. CMSA	S.F. CMSA	Other West
Number of Respondents	398	29		16	46	47	21	39	33
Mean (Average)	$3,731	$3,407	$4,7	$3,247	$2,104	$3,735	$4,367	$4,690	$3,367
First Quartile 25%	$2,000	$1,750	$2,5	$2,000	$788	$2,500	$1,800	$3,000	$975
Median (Midpoint)	$3,000	$3,000	$4,0	$2,500	$2,000	$3,500	$3,500	$4,000	$3,000
Third Quartile 75%	$5,000	$4,750	$7,0	$4,000	$3,000	$5,000	$6,000	$6,000	$5,000

Litigation-Patent Infringement >$25M inclusive, all co

	Total	Boston CMSA	NYC CMSA	Minne.-St. Paul PMSA	Other Central	Texas	L.A. CMSA	S.F. CMSA	Other West
Number of Respondents	405	30		17	46	47	20	42	34
Mean (Average)	$6,250	$6,592	$7,8	$5,565	$3,626	$6,120	$7,610	$7,511	$6,718
First Quartile 25%	$3,500	$3,500	$5,0	$3,550	$1,800	$4,000	$4,000	$5,000	$2,225
Median (Midpoint)	$5,500	$7,000	$7,000	$5,000	$3,000	$6,000	$6,000	$7,000	$5,250
Third Quartile 75%	$8,000	$9,000	$10,000	$7,000	$4,125	$7,500	$11,500	$10,000	$9,250

L.A. CMSA	S.F. CMSA
20	42
$7,610	$7,511
$4,000	$5,000
$6,000	$7,000
$11,500	$10,000

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What Should You Be Doing

- Offensively
  - What is the business objective
    - Identify target
  - Review existing portfolio
  - Damages/Injunction/Exclusion Order
    - Is it worth the cost of litigation
      - Wait until damages accrue
  - Evaluate Your Exposure to a counterclaim
    - Evaluate the target's portfolio
    - Can it be minimized by indemnity agreements
    - Can you be enjoined

What Should You Be Doing

- Defensively
  - Identify Most likely source of attack
    - Competitor
    - NPE (non practicing entity)
  - Identify Exposure (if possible)
    - Damages/Injunction/Exclusion Order
    - Can it be minimized by indemnity agreements
    - Is it worth the cost of litigation
      - Settle for cost of litigation
  - Counterclaim
    - Review existing portfolio
    - Develop a patent portfolio
  - DJ action

THANK YOU

The Intersection of Smart Grid Technology and Intellectual Property Issues

Session I – Competitive IP Landscape

Panel:

IP & Data Security Challenges

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IP & Data Security Challenges

- Moderator : Steve Hemminger, Alston & Bird
- Guest Panelists
  - Walter Bak
    Exponent
  - Dr. Erfan Ibrahim
    Electric Power Research Institute
  - Augie Rakow
    Alston & Bird

NIST Smart Grid Road Map

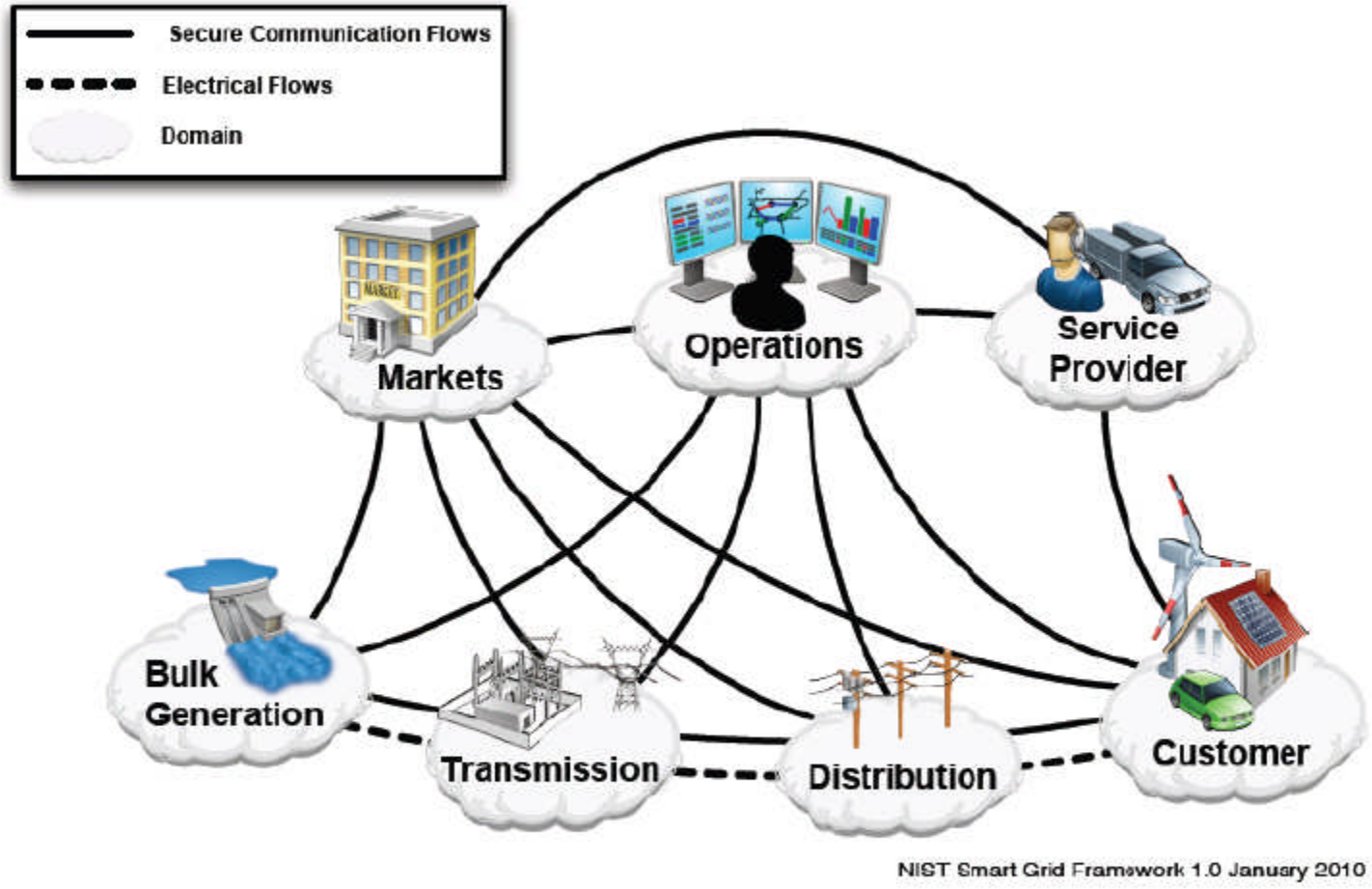

Figure 3-1 Interaction of actors in different Smart Grid Domains through Secure Communication Flows and Electrical Flows.

The Intersection of Smart Grid Technology and Intellectual Property Issues

PATENTS AND SMART GRID STANDARDS

Jeff Young
Alston & Bird LLP

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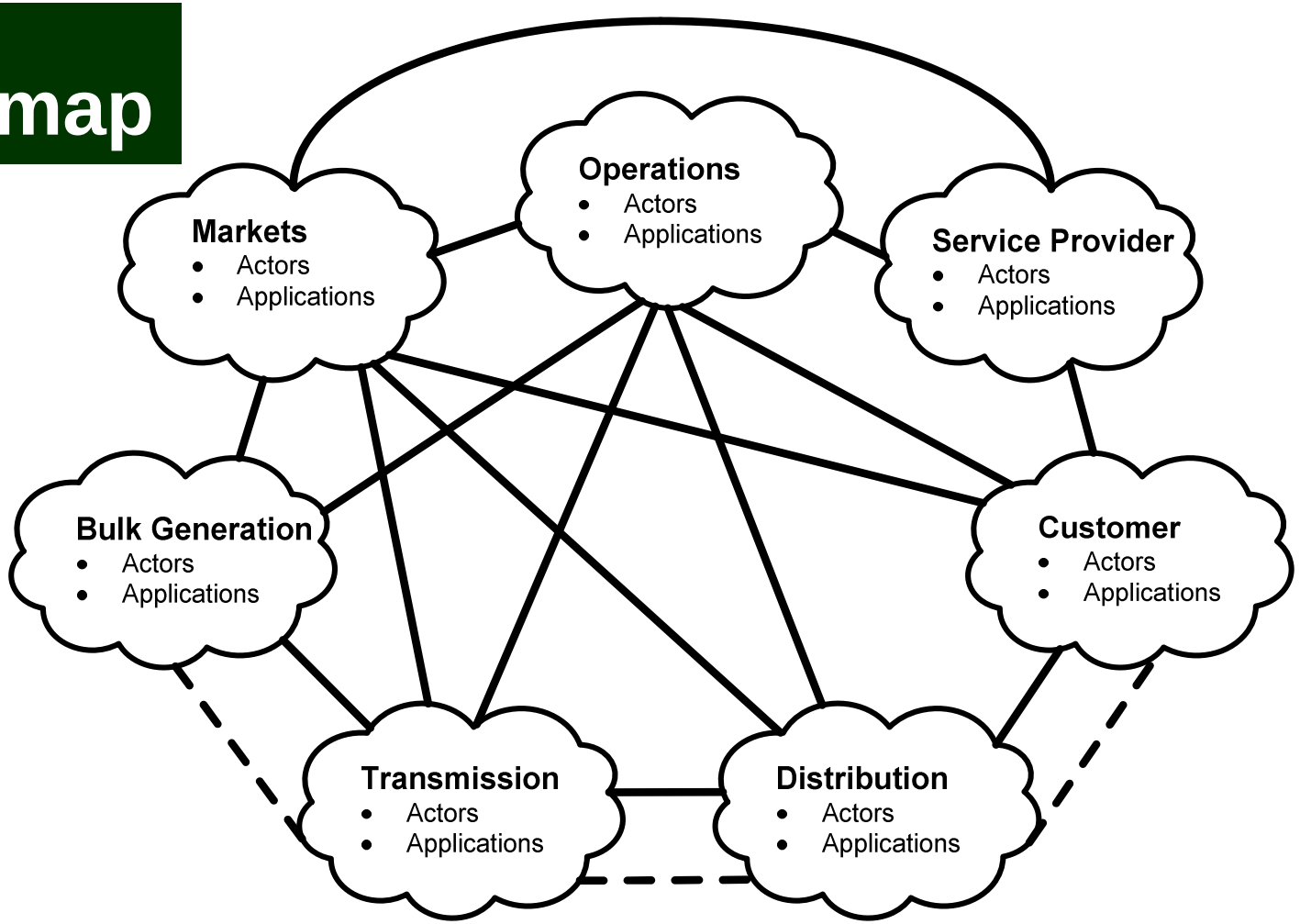
THE SMART GRID STANDARDS MANDATE

- Energy and Independence and Security Act (EISA) of 2007
  - FERC (Federal Energy Regulatory Commission)
  - NIST (National Institute of Standards and Technology)
    - responsible for coordinating the development of . . . standards, to achieve interoperability of Smart Grid devices and systems, with input and cooperation from . . . agencies and interested private sector entities.
  - EISA does not deal with private IP that impacts the Smart Grid

NIST Roadmap



Smart Grid Conceptual Model (EPRI)

NIST: Priority Smart Grid Applications and Requirements

- Wide-Area Situational Awareness (WASA)
- Demand Response
- Electric Storage
- Electric Transportation
- Advanced Metering Infrastructure (AMI)
- Distribution Grid Management (DGM)
- Cybersecurity

- NOTE: Intimidating data processing needs

SMART GRID INTEROPERABILITY PANEL

- Membership: "Stakeholders" from industry, SDOs, government, consumers, associations, academia, regulatory, venture capital
- SGIP stated activities:
  - Does not directly develop or write standards.
  - Stakeholders participate in the ongoing coordination, acceleration and harmonization of standards development.
  - Reviews use cases, identifies requirements, coordinates conformance testing, and proposes action plans for achieving these goals.

SMART GRID INTEROPERABILITY PANEL

- Working with SDOs and companies to facilitate specific standards.
  - e.g., Energy Storage Interconnection Guidelines (a Priority Action Plan):
    - Leading SDOs: IEEE, IEC
    - Collaborators (SDOs and companies): A123Systems; ABB; AEP; Altairnano; BuildingSmart; CSA-Standards; DTE Energy; EPRI; FSEC; GMATC; NEC-NFPA; NEMA; Novus Energy; NREL; ORNL; OSCRE; SAE; Satcon; Sandia; S&C; UL

SMART GRID INTEROPERABILITY PANEL

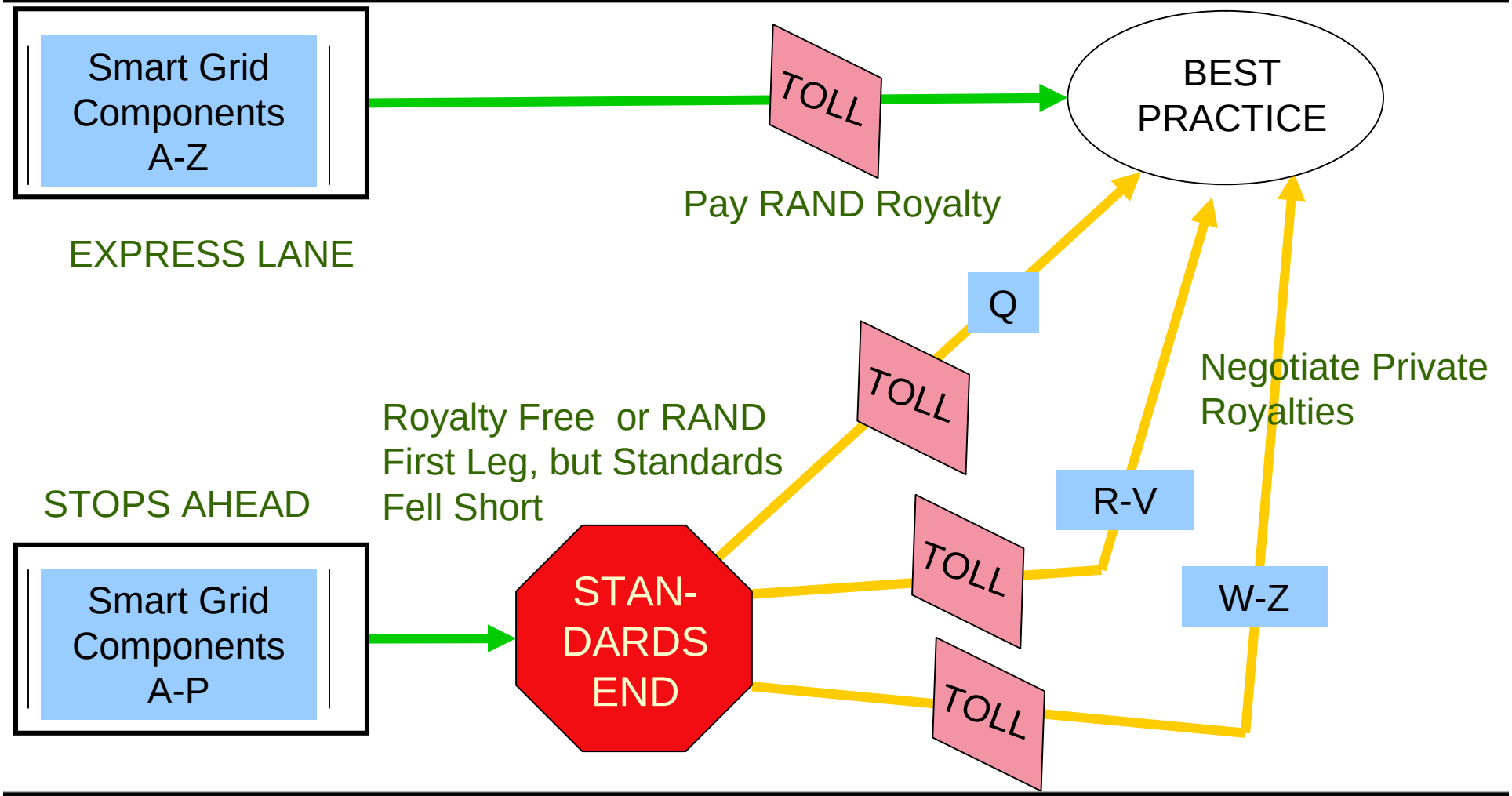
- NIST through SGIP will have a major influence on:
  - Determining which standards are deemed interoperable.
  - Guiding priorities for research & development.
- Speed of standards making will be extraordinary.

- http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/SGIP#Introduction_to_the_Smart_Grid_I

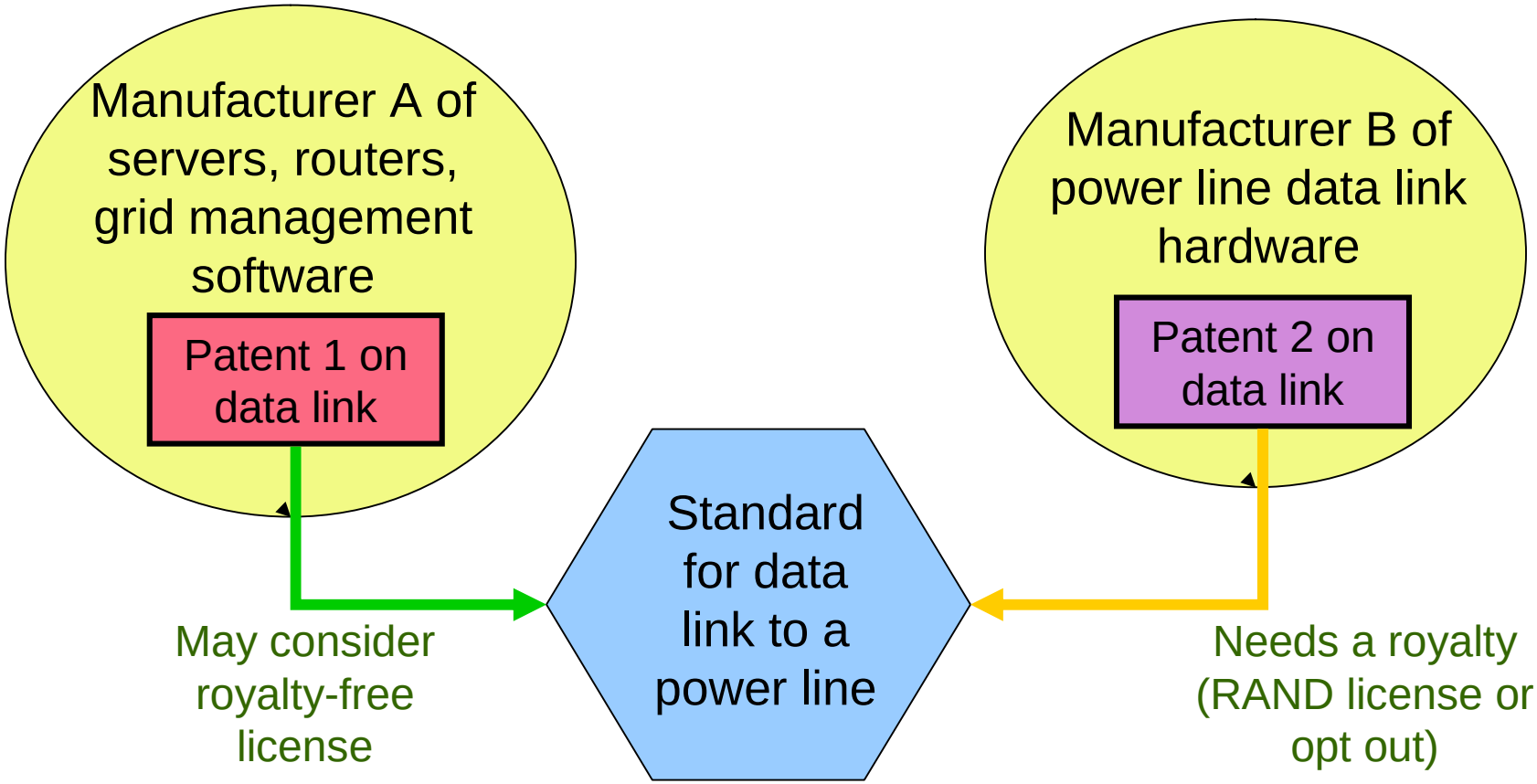
GOAL OF STANDARDS

- ADOPT BEST PRACTICES
  - May require proprietary technology
- UNIVERSAL AVAILABILITY
  - The Challenge: attain through either royalty free or RAND licensing
  - Consequence of failure: “dumbed down” standard

IMPACT OF PATENTS ON THE STANDARDS PROCESS



WILL PATENT OWNERS COOPERATE?



FEDERAL GOVERNMENT ROLE

- FERC/NIST involvement does not make the Smart Grid "open source" as in royalty free
- RIGHT TO USE
  - The U.S. Government can practice any U.S. patent, itself or through government contractors, in exchange for a royalty determined by negotiation or by a federal court.
- FEDERAL FUNDING OF DEVELOPMENT
  - Under the Bayh-Dole Act, generally a government contractor may elect to retain title to the patent, subject to a royalty-free license to the government and the possibility of "march in" rights in certain circumstances.
  - Federal Government research laboratories often obtain patents on inventions of government employees.

SAFE STANDARDS PARTICIPATION

- Legal Obligations May Come With Participation in an SDO (a/k/a SSO)
  - Disclosure of IP Rights
  - Licensing all comers
- Sources of Obligations:
  - Membership Agreements & Policies
    - Participants' Understanding/Implementation
  - Antitrust Laws
  - Unfair Competition Laws
  - Waiver of IP Rights

“PATENT HOLD-UP” SAGAS

- RAMBUS (DRAM and DDR SDRAM)
  - Participated in JEDEC, disclosed initial patent, did not disclose subsequent applications. Sued competitors practicing standards.
  - Vilified as a “patent hold-up.”
  - Weathered an FTC antitrust violation and verdict of fraud
- QUALCOMM (MPEG)
  - Intentionally hid IP from the SSO (JVT), knowing it might reasonably be necessary to practice the standard, and that SSO participants treated the policy as imposing a duty to disclose.
  - Then misled the trial court by falsely asserting that Qualcomm did not participate in the SSO.
  - Patents ruled unenforceable against standard-compliant products

RESPONSE OF THE SDOs

- Tighter disclosure requirements to avoid “patent hold-ups”
- Prohibition against knowing concealment of IP rights (“essential claims”)
- Tighter licensing obligations in some cases

EXAMPLE: SGIP IP POLICY

- Input is received on a non-confidential basis
- Patents may cover SGIP approved products
  - If so, patent owner will be asked to commit to grant RAND or royalty-free licenses.
  - On such a commitment, users will be notified of the patent.
  - On denial, careful consideration is given to inclusion
  - SGIP does not search for relevant patents or assess those brought to its attention
- Copyrights – SDO's retain copyright in standards documents

- NOTE: Query under what circumstances SGIP will identify and approve products?

EXAMPLE: IEEE PATENT POLICY

- Disclosure obligation:
  - Participants *shall* inform the IEEE of potential essential claims of which they are personally aware and *should* disclose patents of others.
  - Any assurance as to a licensing position when requested must be made after a reasonable and good faith inquiry into the IP a party owns, controls, or can license.

- Some SSO policies allow a participant to opt out of licensing before their patent is adopted in a standard (e.g., RFID)

EXAMPLE: NEMA PATENT POLICY

- Bound upon joining a subdivision authorized to make a standard
- Participants must disclose "essential patent claims" that they own, control, or have the ability to license, as expeditiously as possible
  - And give assurance that a RAND license will be granted either royalty-free or for a reasonable royalty
  - Continuing disclosure obligation, but participants need not search their patents
  - Party can withdraw assurance on establishing availability of non-infringing alternatives
- NEMA can ask a patent owner for a RAND licensing assurance when informed by a third party of essential patent claims

SAFE AND EFFECTIVE STANDARDS PARTICIPATION

- ADOPT CLEAR INTERNAL POLICIES
  - Company will comply with SDO patent policies.
  - Company will not knowingly withhold IP rights in an SDO process.
  - Company will make considered decisions for compliance with SDO policies regarding disclosure of proprietary information
    - Outside of Working Group sessions
    - In consultation with the Legal Department
  - That required disclosures and licensing commitments will be made in writing by management.

EXAMPLES OF EASY-TO-FOLLOW INTERNAL PROCEDURES

- Adopt a fact sheet template for internal approval of joining an SDO process.
  - Require a description of trade secrets and patent rights likely to be involved in the standard.
  - What will Company gain and lose if its technology is adopted in the standard?
  - What competitor tactics are expected?

- Prior to each Working Group session, have an internal meeting:
  - Remind participants the SDO meeting is not under NDA.
  - Cover Company information that should not be disclosed.
  - Remind participants not to make any licensing commitment.
  - OK to say: Company policy is to comply with SDO patent policy, and appropriate steps will be taken after consultation with management.

- Adopt a report template to be completed after Working Group meetings, copy to Legal Department

THANK YOU!

- Contact info: jeff.young@alston.com

The Intersection of Smart Grid Technology and Intellectual Property Issues

Session II – Standards & IP

Panel:
Standards and Your Business

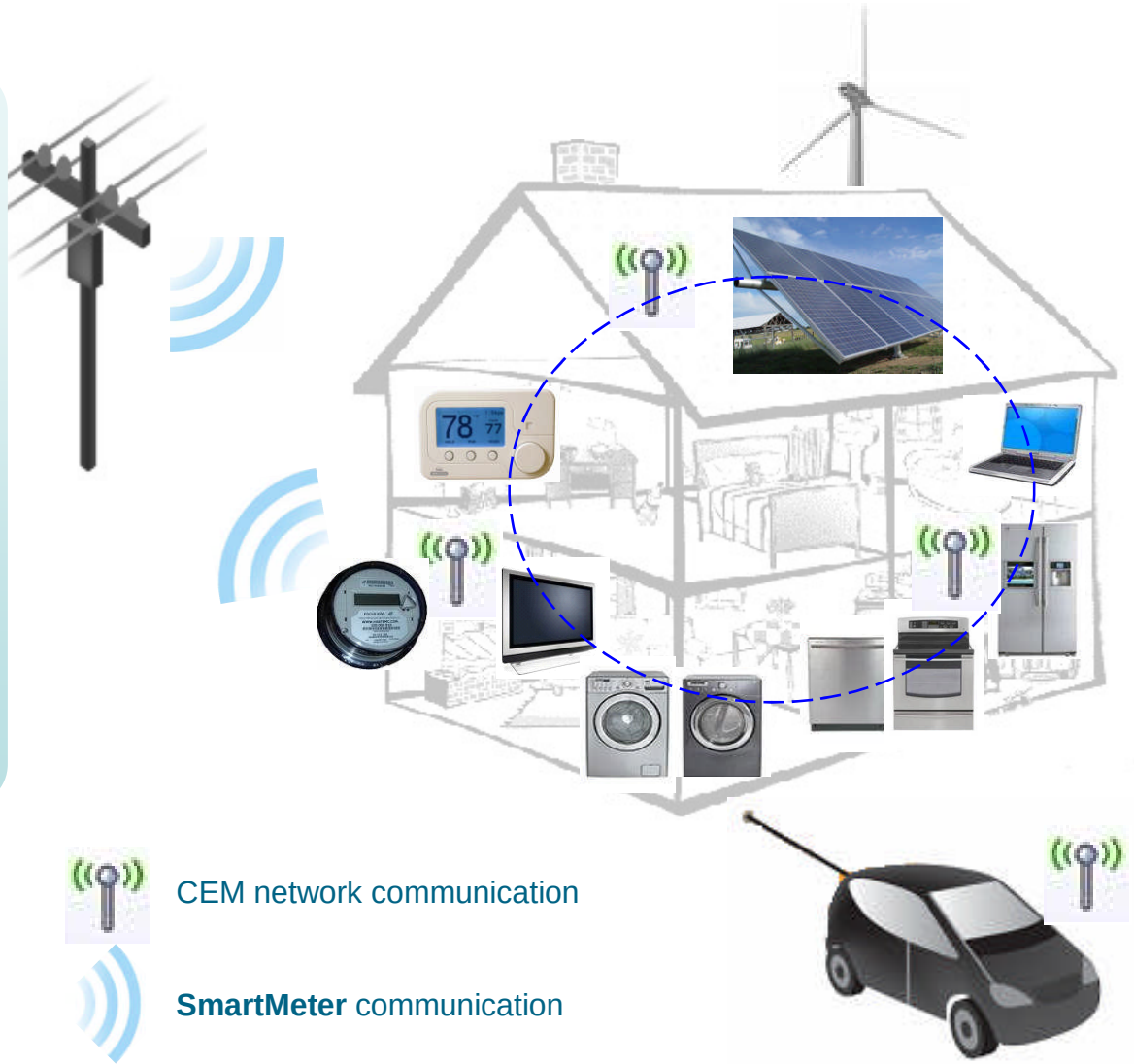
ALSTON+BIRD LLP Exponent® Joint Venture SILICON VALLEY NETWORK

Standards and Your Business

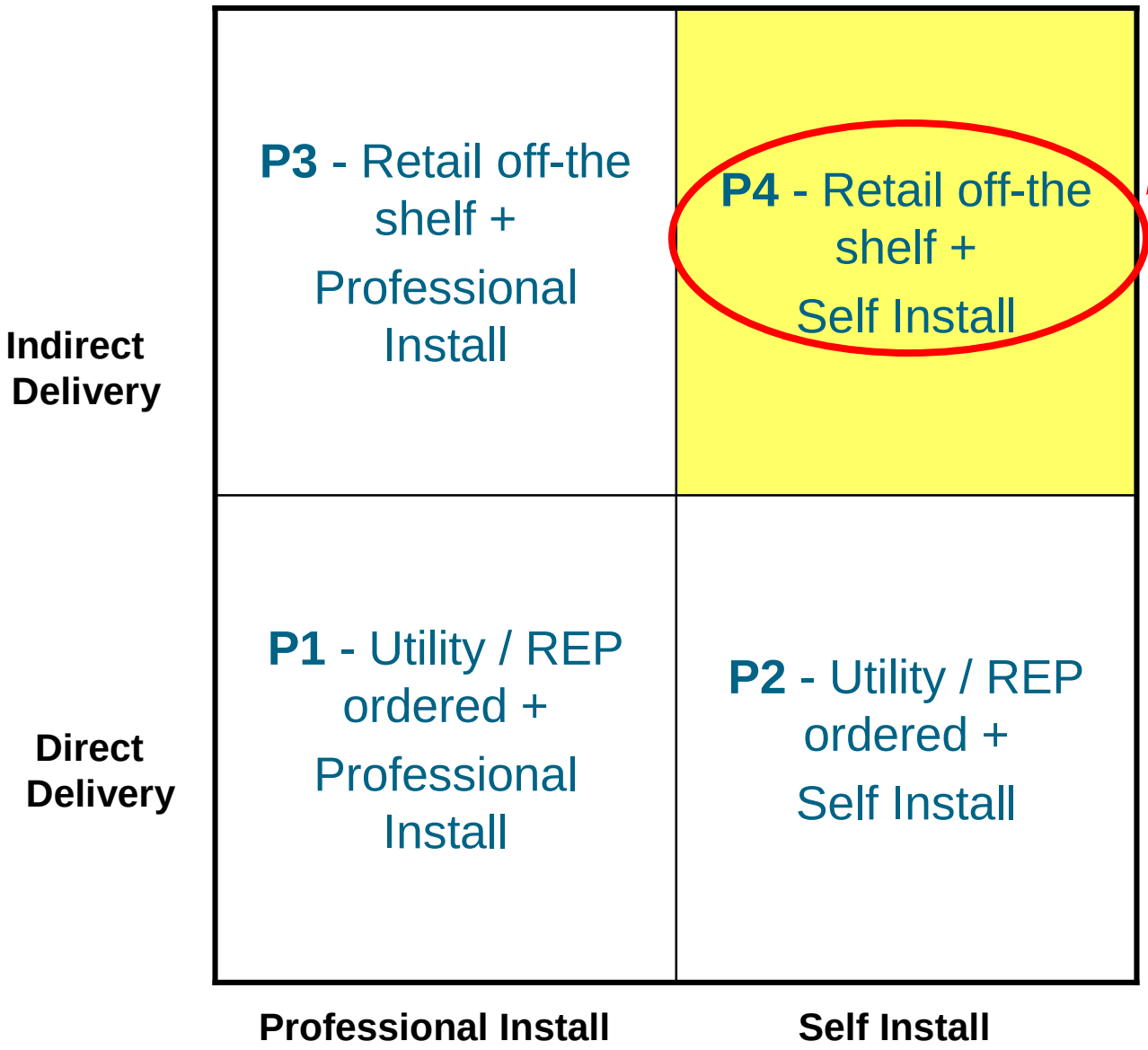
- Moderator : Jonathan Gordon, Alston & Bird
- Guest Panelists
  - Ken Van Meter
    Lockheed Martin Energy Solutions
    Board of Governors, SGIP
  - Zahra Makoui
    PG&E Smart Grid Standards Lead
  - Jeff Young
    Alston & Bird

Customer Energy Management Network

- ***SmartMeter*** **electric meter will serve as gateway**
- **Standards-based solutions are driving down costs, increasing availability**
- **Significant opportunities for automated customer energy management**



Why Pursue Standards Based Solutions?

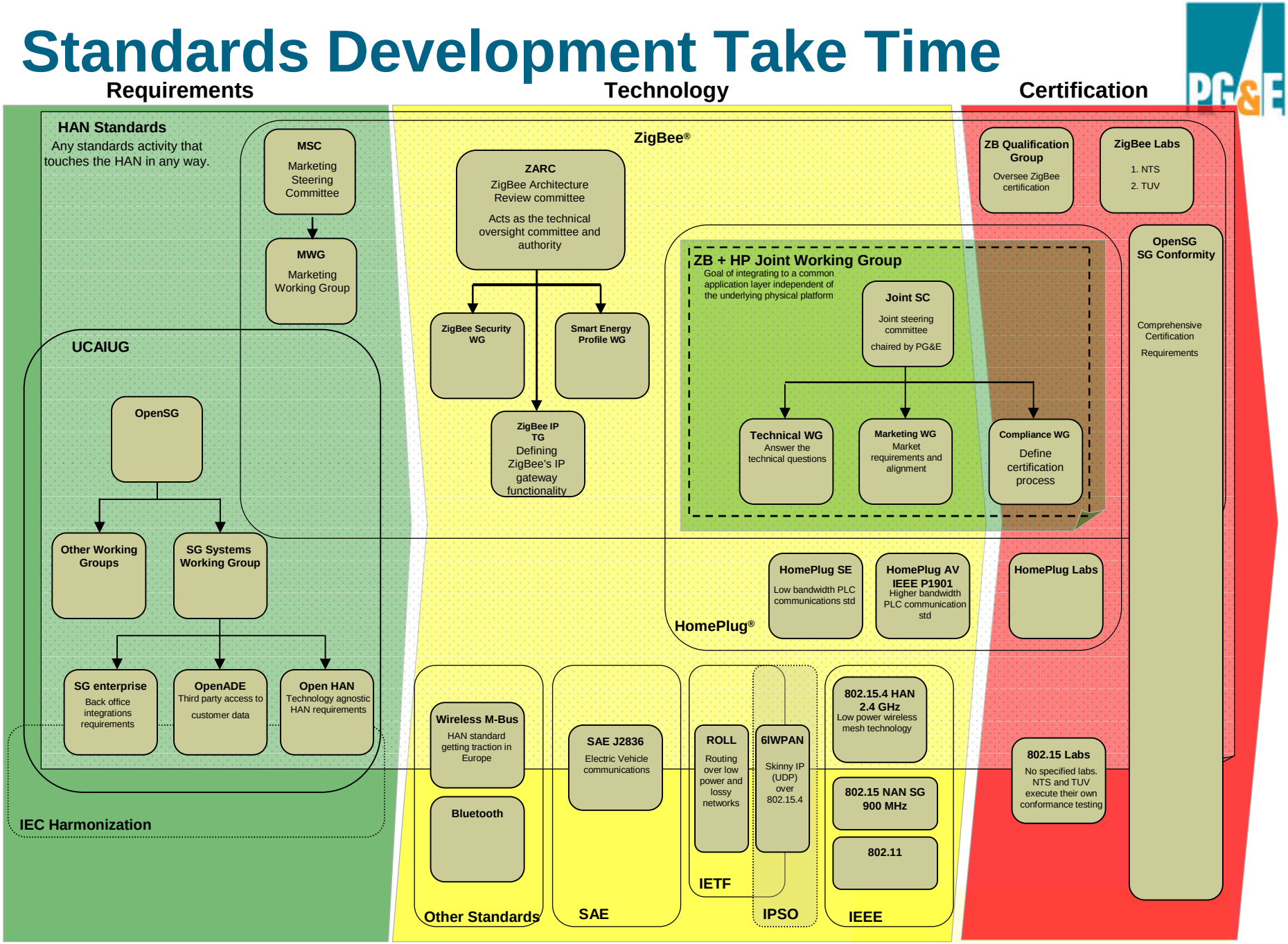


MASS MARKET availability for HAN Devices

Authentication and **Authorization** process is critical element to enable mass market ability for customers to self-install retail products

Source: ZigBee+HomePlug SmartEnergy Profile (SE 2.0) Market Requirements Document

Standards Development Take Time



Please note: The data on this page is for the purpose of illustration only and may not accurately represent the organizations named on this slide.

Benefits of Open Standards

- 50% in integration cost savings
- High workforce availability
- Lower life cycle costs
- Reduced maintenance and training costs
- Reduced development costs
- Security and network management requirements better understood

At PG&E

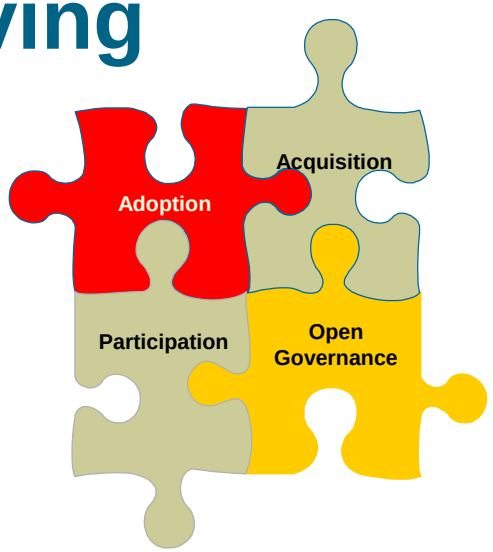
the benefits

and costs savings

due to our involvement in standards bodies have been extremely tangible

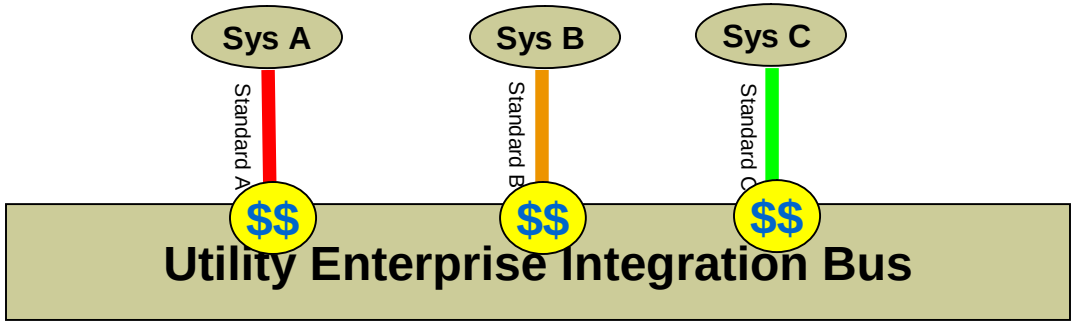
Standards Can Be Deceiving

- Standards ≠ Openness



- Standards ≠ Interoperability

- Interoperable Standards ≠ Automatic Cost Savings



Standards and Your Business

Thank you

The Intersection of Smart Grid Technology and Intellectual Property Issues

Integrating of Utility Scale Renewable Generation

January 29, 2010

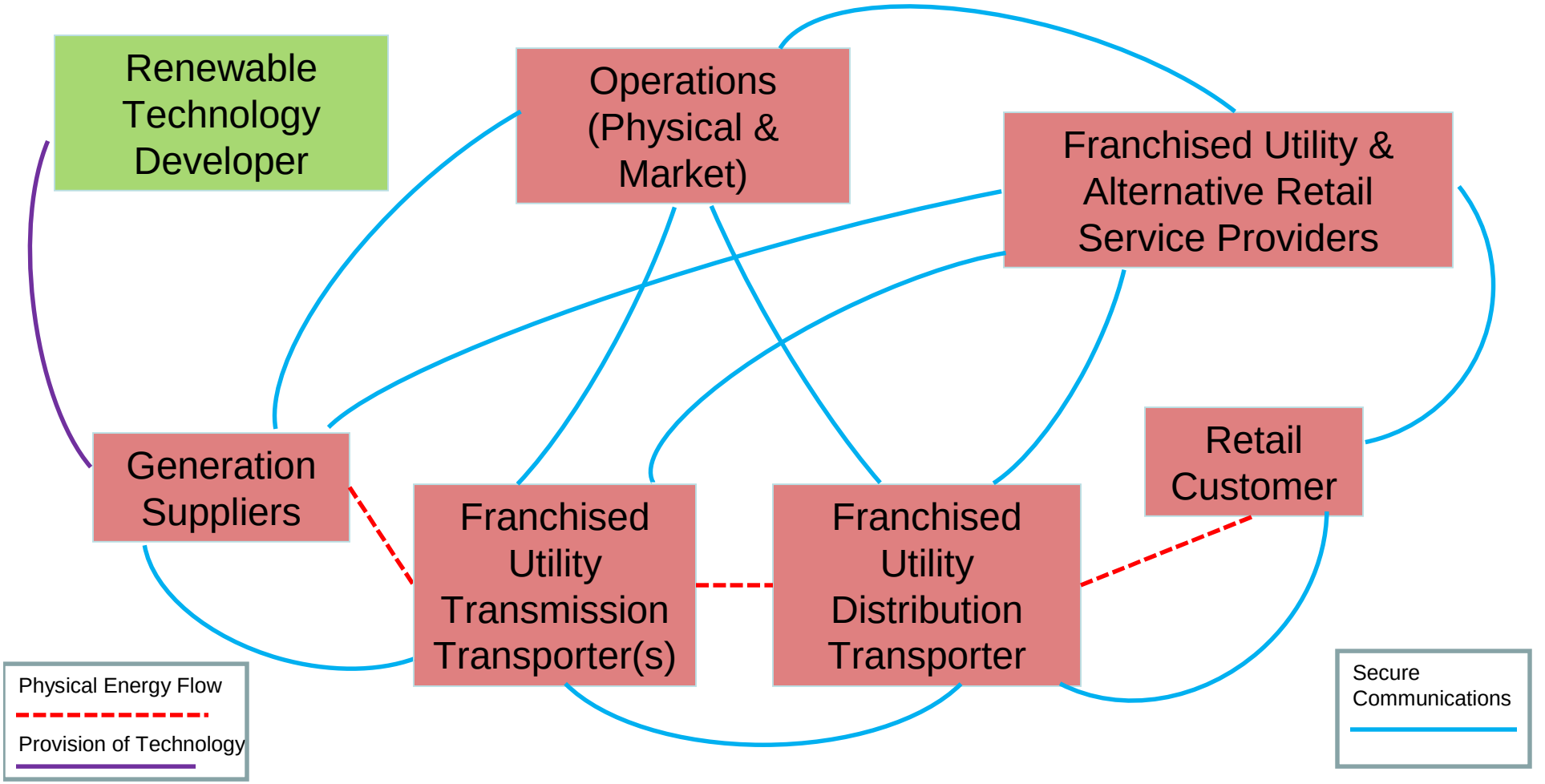
Ed Stoneburg - Exponent

ALSTON+BIRD LLP Exponent® Joint Venture SILICON VALLEY NETWORK

Integrating of Utility Scale Renewable Generation

- Functional Entities Associated with Utility Scale Renewable Generation
  - Roles
  - Risks
  - Intellectual Property Interests/Impacts

Functional Entities in the Integration of Utility Scale Renewable Generation



Roles in the Integration of Utility Scale Renewable Generation

	Functional Entities						
Functional Entity Roles/Obligations	**Renewable Technology Developer**	**Generation Suppliers**	**Franchised Utility and Alternative Retail Service Providers**	**Franchised Utility Transmission Transporter**	**Franchised Utility Distribution Transporter**	**Operations (Physical & Market)**	**Retail Customer**
Purchasing of capacity and energy			X				
Satisfying Renewable Portfolio Standards			X				
Bulk delivery of energy				X			
Local deliver of energy					X		
Compliance with grid requirements (reliability, planning, system protection, communication)		X	X	X	X	X	
Reliable provision of capacity and energy		X					
Efficient market operation						X	
Reliable system operation						X	
Technology package providing reliable, cost-effective performance	X						
Technology compatibility with utility grid requirements	X						
Efficient energy consumption							X

Risks in the Integration of Utility Scale Renewable Generation

	Functional Entities						
Functional Entity Risks	**Renewable Technology Developer**	**Generation Suppliers**	**Franchised Utility and Alternative Retail Service Providers**	**Franchised Utility Transmission Transporter**	**Franchised Utility Distribution Transporter**	**Operations (Physical & Market)**	**Retail Customer**
Meet power supply demand requirements of customers in accordance with reliability requirements			X				
Meet Renewable Portfolio Standard requirements			X				
Plan, build, operate, and maintain transmission system prudently				X			
Plan, build, operate, and maintain distribution system prudently					X		
Failure to meet capacity and energy delivery requirements of Power Purchase Agreements (PPA)		X					
Failure to meet NERC reliability requirements		X	X	X	X	X	
Ability to raise capital for projects or development	X	X		X	X		
Financial impacts of PPA		X	X				
Impact of outages & Price Risks							X

IP Interests/Impacts in the Integration of Utility Scale Renewable Generation

	Functional Entities						
Functional Entity Intellectual Property (IP) Interests/Impacts	**Renewable Technology Developer**	**Generation Suppliers**	**Franchised Utility and Alternative Retail Service Providers**	**Franchised Utility Transmission Transporter**	**Franchised Utility Distribution Transporter**	**Operations (Physical & Market)**	**Retail Customer**
Need open access to provide for system protection and communication compatibility to meet NERC reliability and system operator requirements		X	X	X	X	X	
Typically a user of IP		X	X	X	X	X	X
Developer and Owner of IP	X						
Needs IP to provide competitive advantage in the market	X						
Needs IP to provide raise capital for technology development	X						

The Intersection of Smart Grid Technology and Intellectual Property Issues

Session III – IP & Deal Making

Panel:

IP Incentives & Obstacles in Deal Making

ALSTON+BIRD LLP Exponent® Joint Venture SILICON VALLEY NETWORK

IP Incentives & Obstacles in Deal Making

- Moderator : Tom Wingard, Alston & Bird
- Guest Panelists
  - Joe Beyers
    Ambature, LLC
  - Mike Dorsey
    The Westly Group
  - Ed Stoneberg
    Exponent

The Intersection of Smart Grid Technology and Intellectual Property Issues

Finding the Keys to the Smart Grid

Ken Van Meter
Principal, Energy and Cyber Services
Lockheed Martin

ALSTON+BIRD LLP Exponent® Joint Venture SILICON VALLEY NETWORK

The Smart Grid is, and must be, a national priority

- **Security**
- **Economy**
- **Climate**

What are the real barriers to the Smart Grid?

- **Ideological**
- **Political**
- **Financial**
- **Technological**

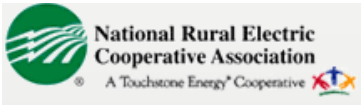
Technology is they key…. but it is not the hand

- **Alignment of outcomes and expectations with programs**
- **Forging a real (and realistic) business case**
- **Driving innovation onto a mountain that is shaped like success**

It's a watt.com world

- **"Push" programs from government and regulators**
- **Reluctant investment, and investments**
- **Gated entrepreneurism, with a big safety net**

So how do we fling open the gate?

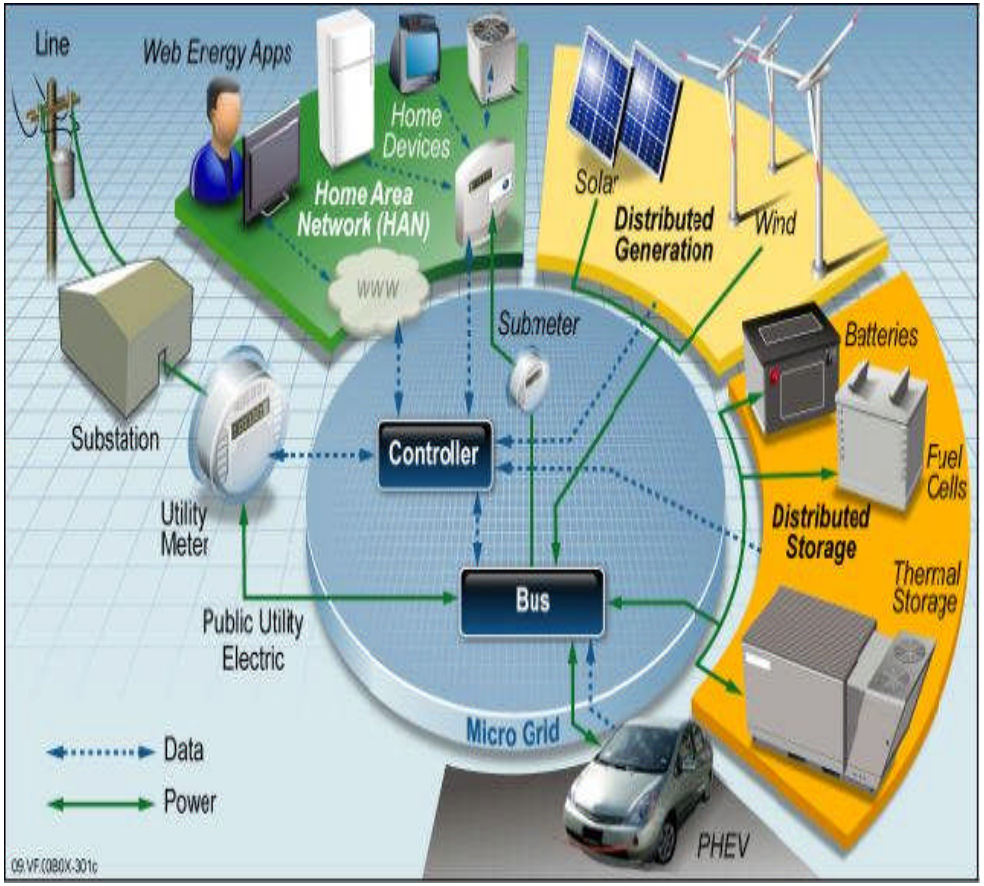


- **Standards, real or de facto, must happen *now***
- **Leadership by the *industry and media* must build a “pull” by the public**
- **Darwin needs to get back to work**

The agony of cold feet…

- **Consumer backlash…do we need another "information superhighway"?**
- **Stranded investment, financial failures and blighted careers**
- **Setting out to swim half way across the river**

Who holds the keys? We do…



- **Aligning the *big* dollars with the big (and right) dreams**
- **Accepting nothing less than bold progress**
- **Building the *real* Grid will create the real jobs, for decades to come**

Remember who we're building it for