Dumb Policies and Smart Grids: A Utility Perspective

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Jon Brock
President, The Desert Sky Group
Providing Clarity for Changing Industries
At Desert Sky Group, our people have been in the field and in the Board room with backgrounds in regulation and rates, engineering, as CXOs, and as mission critical project managers. We understand the roles and accountabilities of utility and energy leaders and apply the knowledge and clarity necessary to achieve measurable return on investment for our customers.

Our unique approach to problem solving and client interactions, combined with our comprehensive industry knowledge, subject matter expertise and experience, enables us to deliver cutting-edge guidance and support to utility and energy clients around the world.

Market Research, Trends, Analysis & Benchmarking
- Competitive Intelligence, SWOT Analysis, In depth surveys, customized research, market planning, market intelligence
- 100% of primary research is conducted in-house, maintains excellent relationships with utilities, commissions, consumer advocates

Subject Matter Expertise & Testimony
- Experts from the utility and energy industry
- Expert testimony, rebuttal testimony, expert witness services, unblemished testimony record

Project Management, Oversight & Quality Assurance
- Program management, project management, effective and proven methodologies, Quality Assurance, Integration planning
- Industry experts with experience to reduce risk, single point of contact for utilities, service providers, third parties
Definitions

- AMI – advanced metering infrastructure
- AMR – automated meter reading
- BPO – business process outsourcing
- CC&B – customer care & billing
- CIS – customer information system
- DA – distribution automation
- DMS – distribution management system
- FAO – finance/accounting outsourcing
- HRO – human resources outsourcing
- PDA – personal digital assistant
- PHEV – plug-in hybrid electric vehicle
- SCADA – supervisory control and data acquisition
What Constitutes “Smart?”

Edison vs Graham Bell

If Alexander Graham Bell were somehow transported to the 21st century, he would not begin to recognize the components of modern telephony – cell phones, texting, cell towers, PDAs, etc. – while Thomas Edison, one of the grid’s key early architects, would be totally familiar with the grid.
$3.4b Stimulus Funding for Smart Grid
Electric Value Chain

- Generation (Utility & Merchant)
- Transmission & Distribution
- Consumer
Electric Value Chain

Generation (Utility & Merchant) 65%

Transmission & Distribution 29%

Consumer 6%

Electric Utility Cost Structure
Utility Industry Historical Context

1980s
- AMR (one-way)
- SCADA
- Mainframe CIS
- Distribution Automation (DA)

1990s
- Wholesale Gas/Electric deregulation
- Client/Server CIS
- Retail Competition @ Electric Level

2000s
- Internet
- EPAct 2005
- Smart Meters (two-way)
- AMI
- Distribution Management Systems (DMS)
- ARRA Stimulus - $3.4 billion announced

2010
- Hyped Smart Technologies
“Smart” functionalities that impact consumers

- Dynamic Prices
- Smart Appliances
- PHEVs
- Distributed Generation
- Portals
- Pre-Pay
- Remote Connect/Disconnect

- Automated Outage Notify
- Settle across utilities
- Real-time billing (no batch)
- Customer self-service
- Communication channels
- Security
Ownership Structure

- Investor-owned regulated by state/provincial commission
- Municipal “regulated” by city council
- Cooperative “regulated” by members
- Energy Retailers not really regulated unless serving “price-to-beat” consumers
Investor-owned: SmartPowerDC, Pepco

1. Located in the Nation’s Capital - Washington D.C.
2. The pilot program was initially recommended by the Office of the People’s Counsel (OPC) and funded by Pepco shareholders
3. Involves ALL stakeholders by design
   • Regulatory (DC Public Regulatory Commission)
   • Consumer groups (OPC and DC Consumer Utility Board)
   • Distribution utility (Pepco)
   • Utility worker’s union (IBEW Local 1900)
4. Stakeholder collaboration encouraged dialogue and understanding resulting in technology breakthroughs
5. Three different pricing plans tested at the same time
   • Hourly, critical peak price, critical peak rebate
Investor-owned: SmartPowerDC, Pepco

- **Communicate more.** Current levels and approaches are not sufficient to reach many customers... customers want PHI to be more “proactive” in communicating

- **Forthright.** Confusion about rates and bills breeds suspicion and mistrust; explaining why PHI does what it does will help project transparency and trustworthiness

- **Recognition.** Customers need personalized feedback and recognition to encourage behavior change

- **Walk the Talk.** Show customers what (and why) PHI is acting on its own to: a) contain costs; b) improve the environment; c) set a good example

- **Affordability.** Will continue to challenge PHI’s credibility... address it head-on
Investor-owned: SmartPowerDC, Pepco

• **Green** = **dollars** + **carbon**. Personal environmental stewardship is a key motivator for a cross-section of customer types... but never divorced from cost

• **Information**. Customers want to know What to do to save money/energy, and How to do it (tools, not just suggestions)

• **New Media**. Customers in all demos are open to opting-in to digital communication channels to receive / exchange information

• **Under-promise/over-deliver**. Especially as relates to new pricing plans... timing is crucial

• **CSRs**. Customers will rely heavily on customer service representatives for information... “Smart Advisory Help Desk”
Municipal: Austin Energy Utility

Benefits

• Reduced operating costs (fewer truck rolls)
• Improved outage management – ability to quickly determine if power is off or on
• Reduced number of delayed and estimated bills
• Reduced energy theft
• Monitor and manage power factor rates
• Lower procurement costs
• Improves load profiler
• Improves distribution load management and planning
• Greater historical load and usage data
• Better asset management and maintenance
• Reduces need for additional generation and transmission capacity
• Supports any market price-responsive tariff requirements
Municipal: Austin Energy Consumer Benefits

- Reduce outages significantly
- Increase power quality significantly
- Faster notification and restoration times from outages
- Receive usage information to better understand and manage their bills, and ability to participate in energy efficiency and demand response programs
- Reduced inconvenience by no longer needing to unlock gates and tie up dogs for meter reads
- Improvements in timeliness and accuracy of billing, fewer estimated bills
- Remote service turn-on and shut-off
- Customer can call utility customer service for real-time meter read or via in-home display, portal, smart phone
- Customer can manage smart appliances via portal / IHD
- Ability to use in pre-pay, TOU, real-time, etc.
Energy Retailer: Direct Energy

Before Pilot

After Pilot

thrilled
expected
enthusiastic
glad
impatient
proud

ambivalent
frustrated
indifferent
apathetic
useless
Consumer Expectations - that thing attached to your hand

Consumers don’t view the meter or thermostat as the primary interface for the data rich and intelligent real-time assistance that is expected from a home energy management solution. And you need a multi-screen solution.

Google search results for “energy management”
136 million ‘hits’ in 0.33 seconds

ATT mobile real time usage and billing information
45 seconds

iTunes download of entire Beatles anthology:
3 minutes

Delayed stock price information on CNN.com
20 minutes

Digital acceptance of Federal Tax Return from Internal Revenue Service
2 days

Average delivery time for an energy bill
30 days
Disconnected Consumer and Utility Perspectives

Consumer Perspective

Groceries  Medical  Traffic  Work Tasks  $$$  Vacation  School  Elderly Parents

Family Activities  Career

Doctor appt.  Credit Card Bill  Friends

Mortgage  Retirement

Weather  Energy Bill  Dinner

Home Maintenance

Energy Bill

Demand Response

To raise energy usage awareness a consumer service must acknowledge the noise level and fit into consumers’ lifestyle not simply show up and expect attention.

Traditional Utility Perspective

Rate Base  Regulatory

kWh  Reliability

CAPEX/OPEX  Demand Response

Base Load  Peaking

Net Generation  Load

Standalone energy displays or applications will fail.
Energy Retailer: Direct Energy

Sailing the sea of customer desires....in search of relevance

Me too.
Me too.
Me too.
More information can be found at:

- [www.smartgridcc.org](http://www.smartgridcc.org)
- [www.sgiclearninghouse.org](http://www.sgiclearninghouse.org)
- [www.gridwise.org](http://www.gridwise.org)
- [www.ieee-pes.org](http://www.ieee-pes.org)
- [www.caba.org](http://www.caba.org)
Thank You!

8547 E. Arapahoe Road
#J-137
Greenwood Village, CO
80112

Direct: 505.249.5127
Fax: 505.792.6011
jbrock@desertskygroup.com
www.desertskygroup.com

Jon T. Brock
President