Green Professionals Conference Portland, OR January 26, 2011

Jon Wellinghoff Chairman Federal Energy Regulatory Commission

Advancing Your Green Career

Agen Law Law Law

CABBAGE

in growth

Green Jobs In Energy

Traditional Electric System

Smart Response Electric System



Distribution Bulk Power System

21st Century Smart Grid



The Smart Grid Meets the Smart Store



Smart Grid Solutions

- End users have many bottom line improvement opportunities: Reduce peak demand charges, improve power factor, consume less kWh, shift peak-time usage, harvest demand response programs, substitute traditional base load, etc...
- Intelligent Automation, at the user site, will allow these measures to be used without injecting risk, asking for giant leaps of faith or layering their tech investment. Adoption can be achieved.



Economic Opportunities

 Demand Response Energy & Capacity **Peak and Non-Peak Ancillary Services** Regulation **Spinning Reserve** Var Support/Reactive Power

Grid Benefits of Demand Response

•PJM Study Shows That a 3% Reduction in Demand of Top 20 Five-hour Blocks in 5 Mid-Atlantic States Could Save \$280 Million per Year

•The Brattle Group Estimates That a 5% Reduction in Grid Peak Load (757 GW) Can Result in \$3 Billion Savings Annually, for PV Over 20 Years of \$31 Billion



VCharge - Transactive Energy Management



OPower - Web Platform Engaging Customers



Broad Customer Engagement Key to Success

% of Participating Households



Independent Verification by Summit Blue Demonstrates High Customer Engagement

Home Management Systems





Welcome, jbwellinghoff@yahoo.com

Top of Form Monitor:

Time:

Rate: Bottom of Form **Chart Style:**

Channel Energy (kWh)	Watts	Voltage	Current	t (A)	Spent	Last Received
Mains	0.11	615	125.30	6.98	\$0.01	2:51.10 PM
Refrigerator	0.00	1	125.30	0.00	\$0.00	2:51.10 PM
Family room	0.02	62	124.40	0.00	\$0.00	2:51.10 PM
Dishwasher	0.00	0	125.30	0.00	\$0.00	2:51.10 PM
Laundry	0.00	0	125.30	0.00	\$0.00	2:51.10 PM
A/C - Down	0.00	0	125.30	0.00	\$0.00	2:51.10 PM
A/C - up	0.00	0	124.40	0.07	\$0.00	2:51.10 PM
Air Handler - up	0.00	11	124.40	0.14	\$0.00	2:51.10 PM
Furnace - down	0.04	328	124.40	0.00	\$0.00	2:51.10 PM
Sump pump	0.00	12	124.40	0.00	\$0.00	2:51.10 PM
Energy Voltage / Current A	11					

Electric Transportationthe Energy Intersection



Regulation Services While Charging

Hadrophe 126





Energy Storage







