The Smart Grid and the Consumer

Bernie Neenan
EPRI Technical Executive
Innovative Smart Grid Technology Conference
January 21, 2009
What Consumes want from Electricity Sector Investments

- Low-cost power
- Reliable power

Traditional, and still universally held consumer expectations

What we say the Smart Grid Provides

- Enable demand response
- Renewable integration
- Robust competition
- More accurate billing
- Reduced cost of supply
- PQ for 21st Century businesses
- Self healing grid

- Asset optimization
- Attack resistant
- Involves customers
- Robust competition
- Customer choices
- Reduced losses
- Load shifting
- Achieve RPS goals
Shopping for Smart Grid Benefits

1. Utility Cost Savings
2. Energy and Demand Conservation
3. Improved Reliability
4. Improved Power Quality
5. Environmental Improvements
6. National Security
7. Sustainable Economic Prosperity
Utility Cost Savings

Shop

• Lower operating O&M costs (non-generation)
• Added revenues from increased sales and services

CheckOut

• Attributed book or marginal costs
• Net revenues from new services sales
Energy and Demand Conservation

• Energy (KWH) reduction
• Lower capacity (kW) requirements
• Cost-reducing portfolio reconfiguration

• Avoided capital costs
• Avoided energy generation costs
• Lower T&D losses

What about collateral externality benefits attributable to conservation??
Improved Reliability

• Few outages
• Shorter outages
• Better conveyance of outage state information to consumers

• Value of lost load
Improved Power Qualify

• Reduced sags and spikes
• Fewer harmonic disturbances

• Reduced household inconvenience
• Reduced business losses
Environmental Improvements

- Reduced Carbon emissions
- Reduced air bourn particulates
- Reduced medical costs
- Lower morbidity and mortality
National Security

- Reduced generation from imported oil

- Value of security to the country and its citizens
Sustainable Economic Prosperity

• More jobs
• Better jobs
• Business expansion

• Higher household income
• More even income distribution
• Expanded GNP, trade balance
Consumer Perceptions and Attitudes about Smart Grid Benefits

- Utility Cost Savings
- kWhs and kWs reductions
- Environmental Improvements
- Power Quality
- Improved Reliability
- National Security
- Sustainable Economic Prosperity
Selling the Smart Grid

• Collaborate to establish robust protocols for estimating Smart Grid benefits
• Use the protocols
• Articulate the benefits in ways that customers can understand and buy into
• Be prepared to demonstrate that the benefits were indeed delivered
Together...Shaping the Future of Electricity

Bernie Neenan
Technical Executive
865.218.8133
bneenan@epri.com