Smart Grid Implementation

Taking down the walls

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Gulf Power
Energy Select
Residential Service Variable Pricing (RSVP)

- Went into effect in 2000
- Four pricing periods (Low, Medium, High and Critical)
- Over 8,500 customers currently on the program
- 2.1 kW reduction per customer

Components

- Metering/communication equipment
- Programmable thermostat
- Load control relays for two other devices (water heater, pool pump, car charging station, etc.)
Energy Select
Awards and Recognition

• New Product Award – 2002, National Society of Professional Engineers

• Award for Achievement in Energy Services – 2002, Association of Energy Services Professionals Int'l

• Governor's New Product Award – 2001, Florida Professional Engineers in Industry

• Platts Global Energy Award, Finalist – 2001
Energy Select
Highlights

- 10,000 Systems Installed
- 95% Customer Satisfaction Rating
- ~8% Churn Rate
- 2009 Company Goal – 1500 Net Customer Additions
- Rolling Out New Thermostat
- Instituted Web-Based System Programming
Energy Select

Current Limitations

- Requires a residential phone line
- Limited to 2 other devices
- Requires relatively expensive specialized equipment
- 200 Amp maximum service

Generation III

- Integration of AMI network and HAN
- No residential phone line required
- Additional device control
- Limited additional equipment cost
- Service size limitation removed

Source: digitalbomedesignline.com
Putting the pieces together…

**Smart Power**

**Generation/Resources**
- Nuclear
- Clean coal
- Gas
- Renewables
- Hydro/pump storage
- Energy efficiency
Putting the pieces together…

**Smart Power**

**Distributed Resources and Energy Efficiency**

- Small scale renewable
- Storage technologies
- Electric transportation/Smart charging
- Off-peak loads and distributed generation
- Network EE improvements
Smart Grid

- Renewable integration
- Self-healing networks
- Dynamic line rating
- Remote equipment monitoring automation

Generation, Transmission, & Distribution

- Quality Power: reliability, restoration, harmonics, voltage
- Asset management
- Cyber security
Putting the pieces together…

Smart Grid

Advanced Metering Infrastructure (AMI)

- Remote meter reading
- Remote connects / disconnects
- Load profile information
- Revenue protection
- Load control / Smart Charging
- Customer Reliability Information

Gulf Power has ~15,000 units in the field with plans to have 40,000 by year-end
Putting the pieces together…

Smart Choices

Customers

- **Technology Enablers**
  - Internet and other information networks
  - PCs – television - communications devices
  - Controllers (thermostats, etc.)

- **Smart Appliances**
  - HVAC
  - Washers/dryers
  - Refrigerators
  - Electronics
  - Lighting

- **Efficiency Technologies**
  - Geothermal heat pumps & water heaters
  - Solar water heaters
  - Lighting
  - Electric transportation

- **Dynamic Pricing**

- **Risk Management Projects**
Conclusions

• Established history of success

• Barriers/Risks
  – Technology development
  – Cyber security
  – Interoperability

• Ensuring our core value
  – Customer Focus