

The Governor's Conference on Energy: Demand Side Management at Dominion

Brandon Stites

Director,
Energy Conservation & Advanced Metering

October 13, 2010



Dominion[®]
It all starts here.[®]

Dominion's Journey into Demand Side Management

2007 *(In Conjunction with VA Energy Plan)*

- September - Filed for 9 Pilot Programs in Virginia
- October - Launched CFL (Compact Fluorescent Light) Pilot Program

2008

- January - Launched 9 Pilot Programs w/ Quarterly Reporting to Virginia SCC

Residential Energy Audits
ENERGY STAR® Homes
Direct Load Control (A/C Switch)
Distributed Generation

Energy Efficiency Welcome Kits
In-Home Display
Small Commercial Energy Audits
Programmable Thermostats
Critical Peak Pricing

2009

- Developed portfolio of initial programs (DSM I) and filed with Virginia SCC
- Began building the internal systems to launch, administer and promote the programs
- Launched AMI Demonstration (Midlothian, Charlottesville)

2010

- March – Received Order from Virginia SCC Approving 5 DSM Programs
- May – Launched 5 Approved DSM Programs
- June – Expanded AMI Demonstration to Northern Virginia

Approved Programs

Launched May 1, 2010

Residential Energy Efficiency Programs

Home Energy Improvement (Low Income)

- Free energy audit identifies and corrects areas where a customer can save money on energy bills
 - ❑ Improvements may include CFLs, water heater blankets, caulking, weatherstripping, door sweeps, expandable foam air sealing, low-flow shower heads, faucet aerators, replace furnace filters, duct sealing, pipe wrapping, and attic insulation
- Income-qualifying families are eligible
- Canvassing approach to marketing

Three Year Totals

| | |
|----------------|------------------|
| Participation | 15,740 customers |
| Energy Savings | 6.5 MWh |



Residential Energy Efficiency Programs

Residential Lighting Program



- Qualifying ENERGYSTAR® lighting from participating stores at an automatic discount courtesy of Dominion
- List of participating stores and products on www.dom.com, keyword “conservation”
- Discount depends on store and product



| Three Year Totals | |
|-------------------|-----------------|
| Participation | 7,798,123 bulbs |
| Energy Savings | 218.5 MWh |

Commercial Energy Efficiency Programs

HVAC Upgrade & Commercial Lighting

- Rebates for upgrading HVAC and/or lighting to more efficient product.
- Rebate amount dependent on type of upgrade.
- Installations completed by a network of licensed contractors.

| HVAC Three Year Totals | |
|------------------------|---------------|
| Participation | 630 customers |
| Energy Savings | 18.3 MWh |

| Lighting Three Year Totals | |
|----------------------------|---------------|
| Participation | 461 customers |
| Energy Savings | 118.2 MWh |



Residential Demand Response Programs

Smart Cooling Rewards Program

- Customer allows Dominion to cycle A/C and heat pumps during peak periods (June – September)
- \$40 annual incentive for participating
- Primary promotion through Direct Mail
- Called 15 times in 2010



| Three Year Totals | |
|-------------------|------------------|
| Participation | 77,254 customers |
| Demand Reduction | 77.3 MW |



Commercial Demand Response Programs

Commercial Distributed Generation (Pilot)

- Leverage existing or new backup generation capacity at customer sites during peak demand periods. Filed in NC. To be proposed in VA.
- Incentive is paid to the vendor based on capacity enrolled and amount of generation dispatched. Customer compensated for fuel when event called.
- Customers pay a monthly service payment to the contractor and receive a discount for the backup generation service in exchange for being called upon to operate up to 120 hours per year.
- Called 29 Times in 2010.

| Three Year Totals | |
|-------------------|--------------|
| Participation | 42 customers |
| Demand Reduction | 44.5 MW |

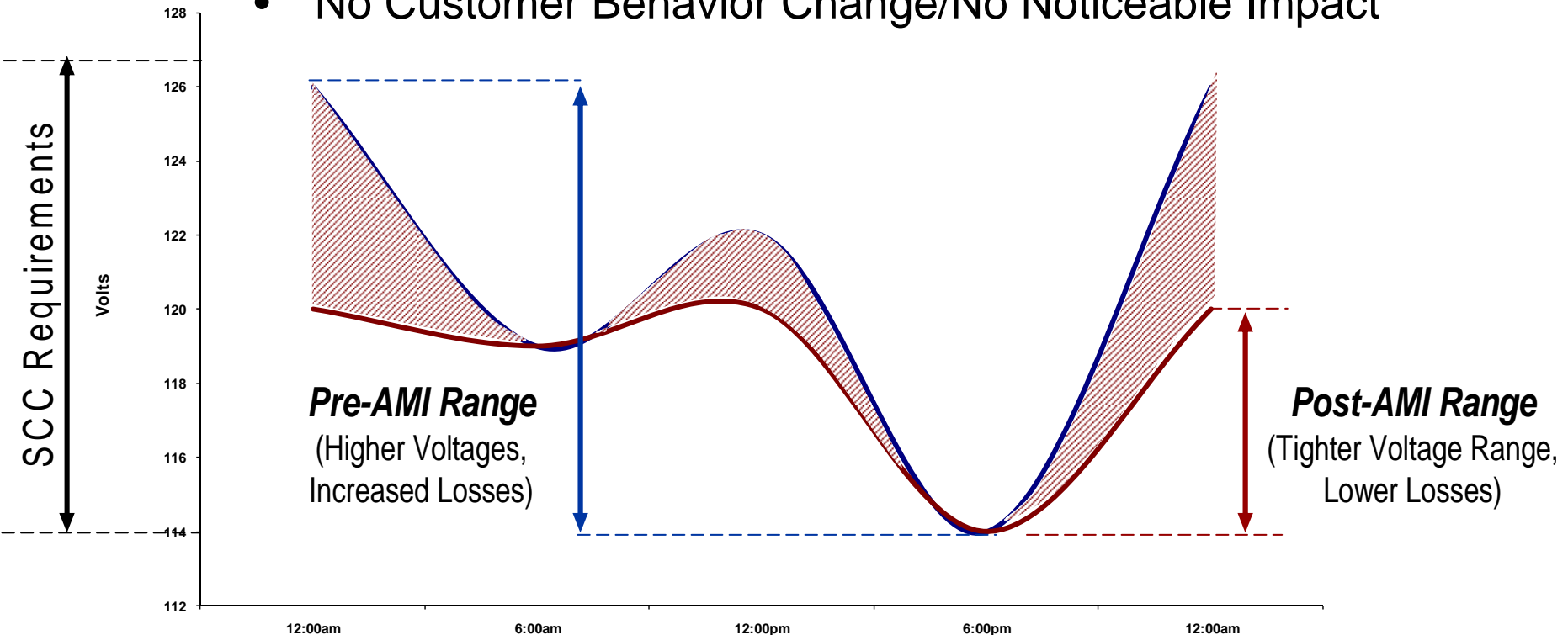


Proposed Programs

System-wide Energy Efficiency Programs

Voltage Conservation Program

- Application enabled by Advanced Metering Infrastructure
- Uses customer voltage feedback from smart meters (AMI)
- Controls voltage to a more precise level
- Results in 4% reduction in off-peak energy usage
- No Customer Behavior Change/No Noticeable Impact

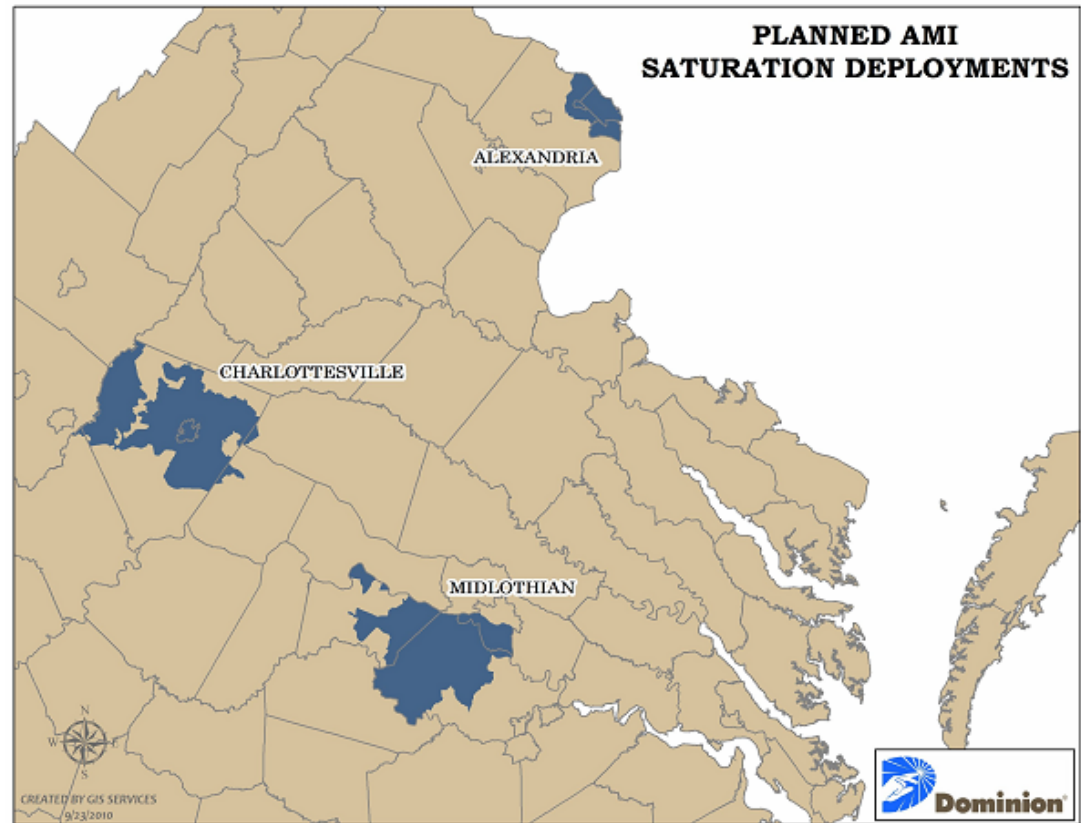


Advanced Metering Infrastructure 2010 AMI Demonstration

AMI is Being Deployed in Three Areas to Demonstrate AMI Capabilities

Saturation Deployments

- Midlothian (6,700 meters)
 - Voltage Conservation M&V
 - Two representative circuits
- Charlottesville (50,000 meters)
 - Diverse elevations
 - Rural
 - Communications challenges
 - Circuit Lengths
 - Higher Voltage Drops
- Northern Virginia (32,000 meters)
 - Urban
 - Short Circuit Lengths
 - Lower Voltage Drops



Advanced Metering Infrastructure

Initial AMI Capabilities

1

Remote Reads

- Perform remote meter reading, processing through dependent systems to render a customer bill

2

Voltage Conservation

- Provide data to enable off-peak voltage reduction and validate conservation benefits

3

Remote Turn-On and Turn-Off

- Demonstrate meter remote turn-on and turn-off functionality

4

Outage Notification

- Demonstrate power outage and restoration notification functionality

5

Demand Side Management

- Interval Data supports DSM Evaluation, Measurement & Verification
- Support proposed dynamic rates (Sept. 2010 Filing)

Residential Energy Efficiency Programs

Proposed Future Programs

Heat Pump Upgrade Program: Allows participants to upgrade their heat pump(s) from older, less efficient heat pump(s) to more efficient units. Participants receive a one-time incentive of approximately \$200 for each upgraded unit.

Residential Heat Pump Tune-Up Program: Allows participants to have their existing heat pumps tuned up by a professional HVAC service technician to optimize performance for a one time incentive of approximately \$100 per unit to help offset the cost of the tune-up.

Residential Duct Sealing and Testing Program: An auditor will perform an on-site detailed review of a customer's home and energy consumption with specific emphasis on EE measures with pre-rebate payback periods of three years or less. Participant will receive a written report. Full audit price will be refunded to the customer upon adequate documentation of implementing EE improvements or participation in a Company EE program that exceeds the cost of the audit.

Commercial Energy Efficiency Programs

Proposed Future Programs

Commercial Duct Sealing and Testing Program: Promotes testing and general repair of poorly performing duct and ADS system in commercial facilities. Such systems include air handlers, return and supply plenums, and any connecting ducts. Participants would be provided an incentive for sealing ducts in existing buildings using aerosol sealant, mastic, or foil tape with an acrylic adhesive.

Commercial Re-commissioning Program: Offers building owners a systematic process for evaluating a structure's major energy-consuming systems and identifying opportunities to optimize equipment operation.

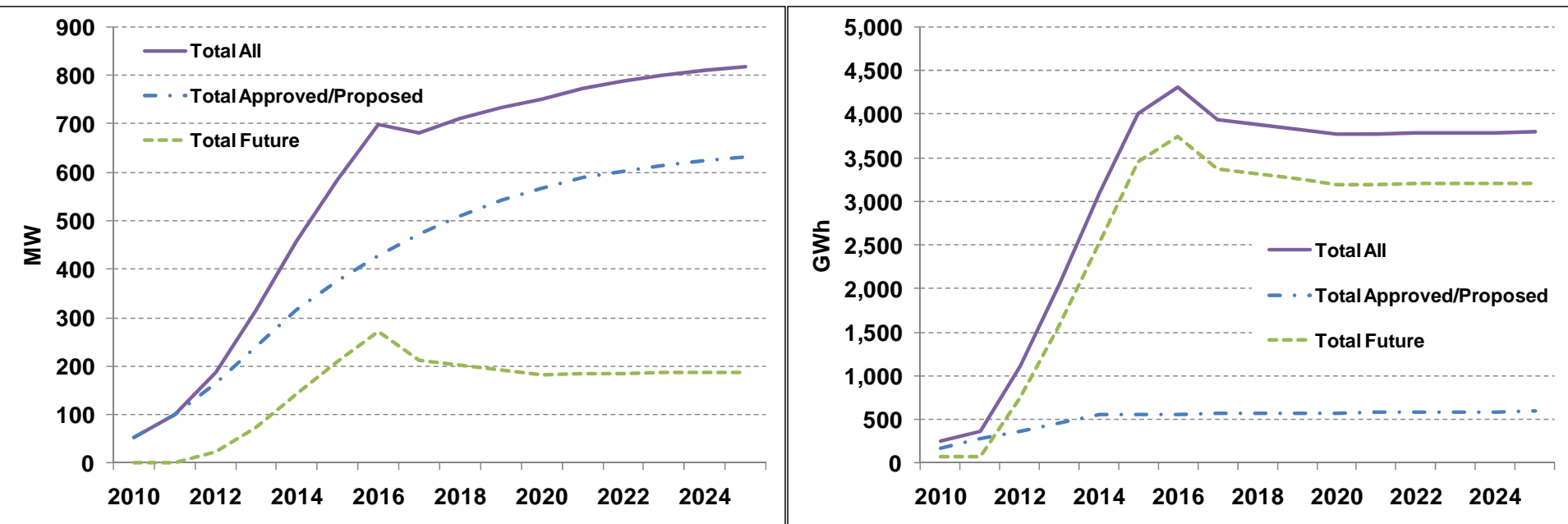
Commercial Refrigeration: Designed to help customers reduce electric strip heater usage and anti-sweat heater consumption in refrigeration equipment. The program applies to customers who are retrofitting or replacing existing refrigeration equipment or installing new refrigeration equipment. Participants can earn an incentive per kilowatt (kW) saved from the licensed contractor who installs the system.

Commercial Energy Audit Program: An auditor will perform an on-site energy audit, with the participant receiving a written report showing the projected energy and cost savings that could be anticipated from implementation of identified options. The full price of the audit will be refunded to participants once they provide adequate documentation of implementing measures or participation in a Company EE program that exceeds the cost of the audit.

Approved & Future DSM Program System Impact

2010 Integrated Resource Plan

Figure 5.5.7.2



DSM Peak Reductions (MW)

DSM Energy Savings (GWh)



Dominion[®]
It all starts here.[®]