Planning

Incumbent Developer Issues

Cost Allocation

Siting
Current Transmission Planning Regions

This map is for illustration purposes only. This map generally depicts the borders of regional transmission planning processes through which transmission providers have complied with Order No. 890. Those borders may not be depicted precisely for several reasons (e.g., not all transmission providers complying with Order No. 890 have a defined service territory). Additionally, transmission planning regions could alter because transmission providers may choose to change regions.

Source: Derived from Energy Velocity
“Transmission planning for a reliable, economic and open grid...”
Dominion MicroGrid
Vision

Regional Transmission Operator (RTO)

Military, Commercial, Industrial Microgrid

Dominion Substation
E-Grid Database
Electrical GIS

System & Regional Operations Center
Billing
Back Office
Customer Bills
The Hunt for Transmission and Distribution Losses

2010 Electric System Loss ~ 10.3% Includes Transmission, Distribution and “Behind

Transmission Loss ~1.5%

Transmission to Distribution Loss ~0.9%

High & Low Voltage Distribution Loss ~0.5%

Distribution to Secondary Loss ~0.8%

Behind the Meter ~5%

Secondary Loss ~1.6%
Grid Benefits of Demand Response

* PJM Study - a 3% Reduction in Demand of Top 20 5hr Blocks in 5 Mid-Atlantic States Could Save $280 Million annually.

* Brattle Group - a 5% Reduction in Grid Peak Load (757 GW) Can Result in $3 Billion Savings Annually, for PV Over 20 Yrs of $31 Billion.
Transactive Load

ETS Heat

Ice-based AC

EV

Source: VCharge
Regulation Supply (incidental charging)

- Blue: Regulation Signal
- Red: Vehicle Power
- Green: Battery SoC (%)

Power (kW)

State of Charge (%)
LI-ION BATTERIES

Cumulative Cost

Years After Purchase

$4.00/gal.
$0.09¢/kWh (2009 avg)
Maintenance costs and rebate not applied

Payment to owners of cash back vehicles average $2,400 annually
Thank you!