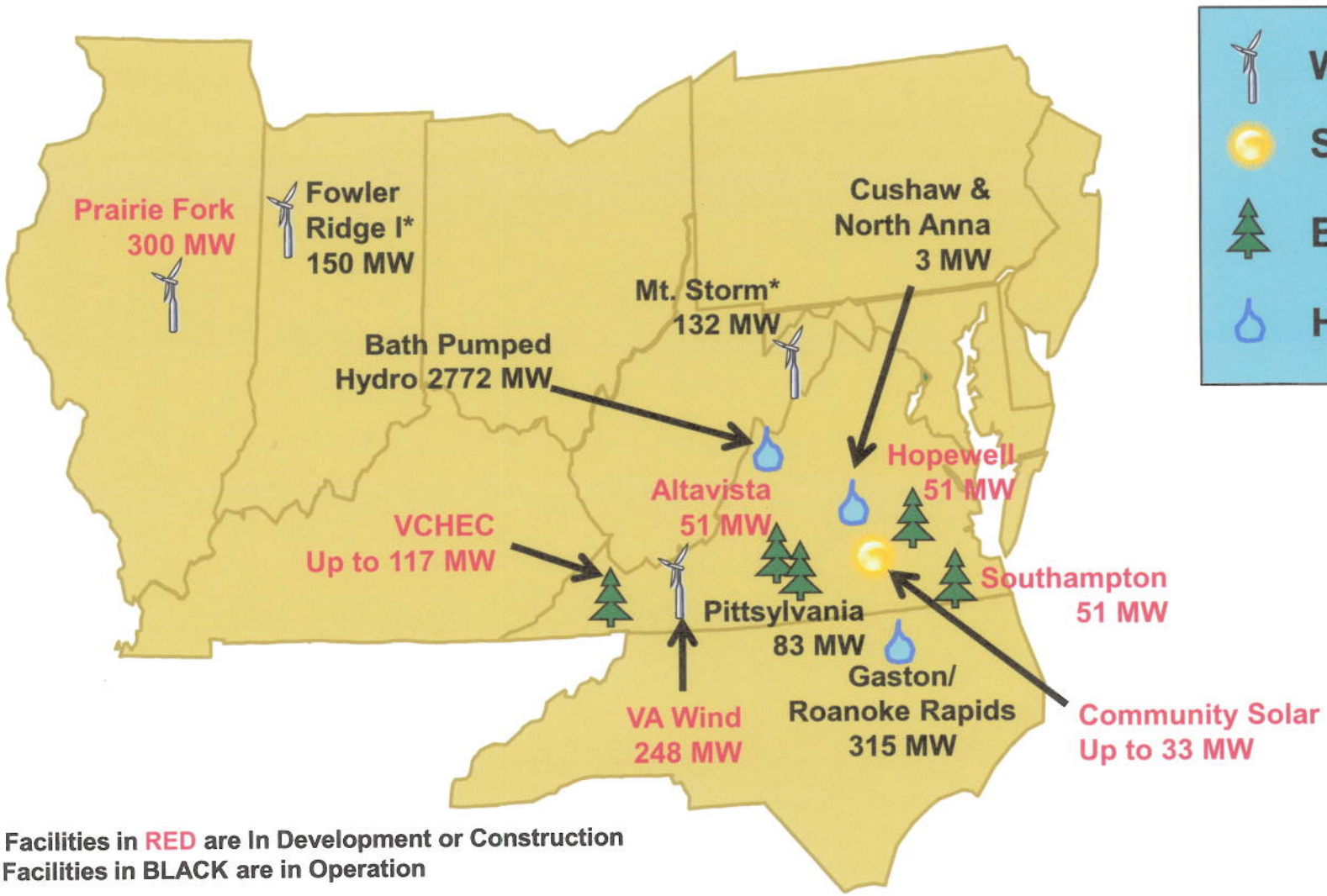
Dominion®

Update on Dominion's Renewable Energy Initiatives

Metropolitan Washington Council of Governments
Energy Advisory Committee

January 17, 2012

Dominion's Renewable Energy Facilities - Wind, Solar, Biomass and Hydro



Note: Facilities in RED are In Development or Construction
Facilities in BLACK are in Operation

* Megawatt capacity represents Dominion's 50% capacity only

Dominion Renewable Power Generation Portfolio (as of Dec. 1, 2011)

Dominion Generation
Renewable Power Generation Portfolio

Renewable Utility Generation	Fuel	Region	Capacity in Operation in 2011 (MW)	Cumulative Capacity in Operation & Development in 2012+ (MW)
Pittsylvania	Biomass	PJM	83	83
Altavista, Hopewell and Southampton	Biomass	PJM	6	153
Virginia City Hybrid Energy Center*	Biomass	PJM	-	117
Undisclosed New Biomass	Biomass	PJM	-	100
Gaston (1-4)	Water	PJM	220	220
Roanoke Rapids	Water	PJM	95	95
Cushaw	Water	PJM	2	2
North Anna	Water	PJM	1	1
Virginia Wind Projects	Wind	PJM	0	248
Community Solar Power Program	Sun	PJM	0	30
Renewable Utility Generation			**407**	**1,049**

Renewable Merchant Generation	Fuel	Region	Capacity in Operation in 2011 (MW)	Cumulative Capacity in Operation & Development in 2012+ (MW)
NedPower (w/ Shell WindEnergy, Inc.) **	Wind	PJM	132	132
Fowler-Ridge (w/ BP Alternative Energy, Inc.) **	Wind	PJM	150	150
Prairie Fork	Wind	PJM	0	300
Renewable Merchant Generation			**282**	**582**
Total Renewable Generation			**689**	**1,631**

* Represents up to 20% of our proposed Virginia City Hybrid Energy Center 585 MW coal station

** Megawatt capacity values reflect Dominion's interest only

Some development projects are not included in Dominion's current Capex Plan

Dominion's Proven Renewables Biomass Example

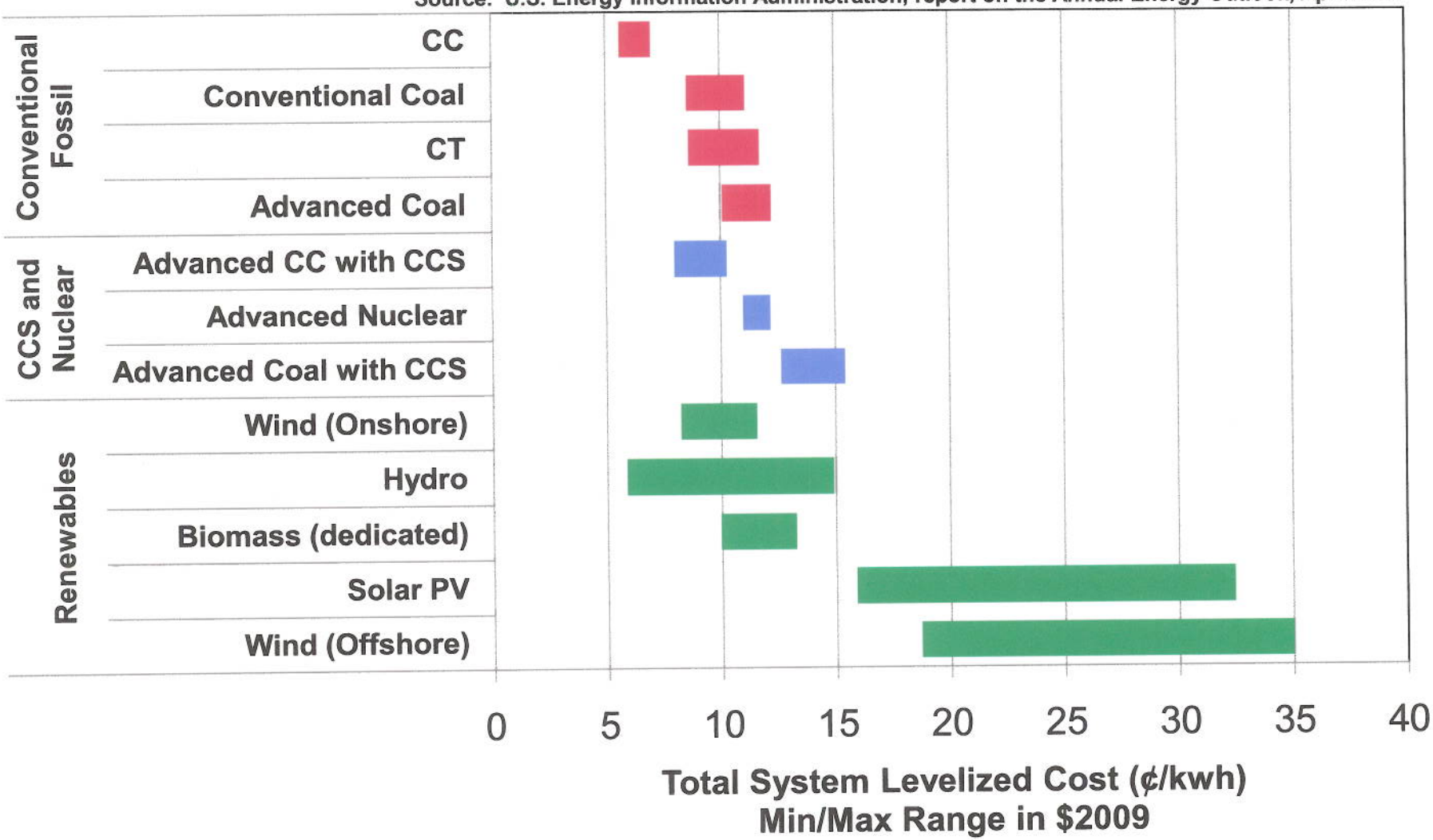
- Pittsylvania Power Station (biomass)
- Hurt, Virginia
- Capacity: 83 MW
- One of the largest biomass power facilities on the East Coast
- High reliability
- Base-load resource
- Wood: 650K tons/yr

Renewable Energy – Piece of Solution Now and Long Term

- Maintain a balanced, diverse generation portfolio
- Meet state renewable goals in Virginia and North Carolina
- Reduce our carbon intensity
- Create local economic development opportunities
- Hedge against potential future rise in fuel costs

Levelized Cost of New Generation: 2016 Commercial Operation

Source: U.S. Energy Information Administration, report on the Annual Energy Outlook, April 2011



CC = Combined Cycle; CT = Combustion Turbine; CCS = Carbon Capture & Sequestration; PV = Photovoltaic

Dominion's Renewable Projects In Development

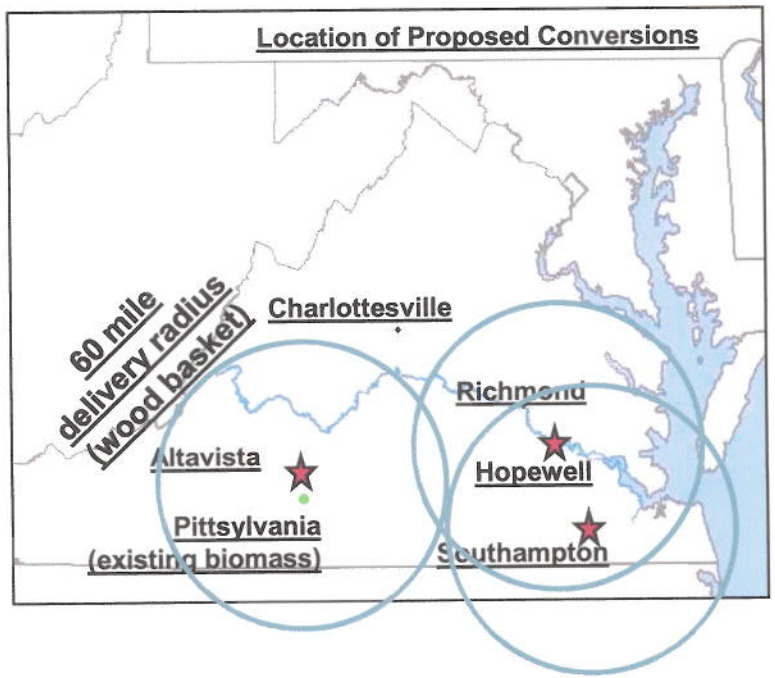
- **Biomass**
  - Potential Conversion of 3 small coal-fired units to wood
    - -Commercial Operation Date (COD) 2013
    - -Provide up to 153 MW base load generation
    - -Filed SCC application in June 2011
    - -Hearing January 2012
  - Virginia City Hybrid Energy Center (up to 20%)
    - -Sourcing wood fuel, projecting use 2 years after COD
  - Greenfield wood biomass sites (COD TBD)
    - -Siting efforts in development

- **Solar**
  - Community Solar Power Program
    - - 30 MW Company installations on leased roofspace (filed October 2011)
    - - Solar DG Purchase Tariff for 3 MW (to be filed by Q2 2012)

- **Wind**
  - Onshore (COD TBD)
    - -3 sites on Virginia Ridgeline
    - -Working with localities for support
  - Offshore (study and evaluation, COD TBD)
    - -Completed Transmission study, Member VA Offshore Wind Dev Authority
    - -Intend to participate in Call for Interest and Nominations (~Q1 2012)
    - -Awarded $500K grant for offshore wind cost evaluation

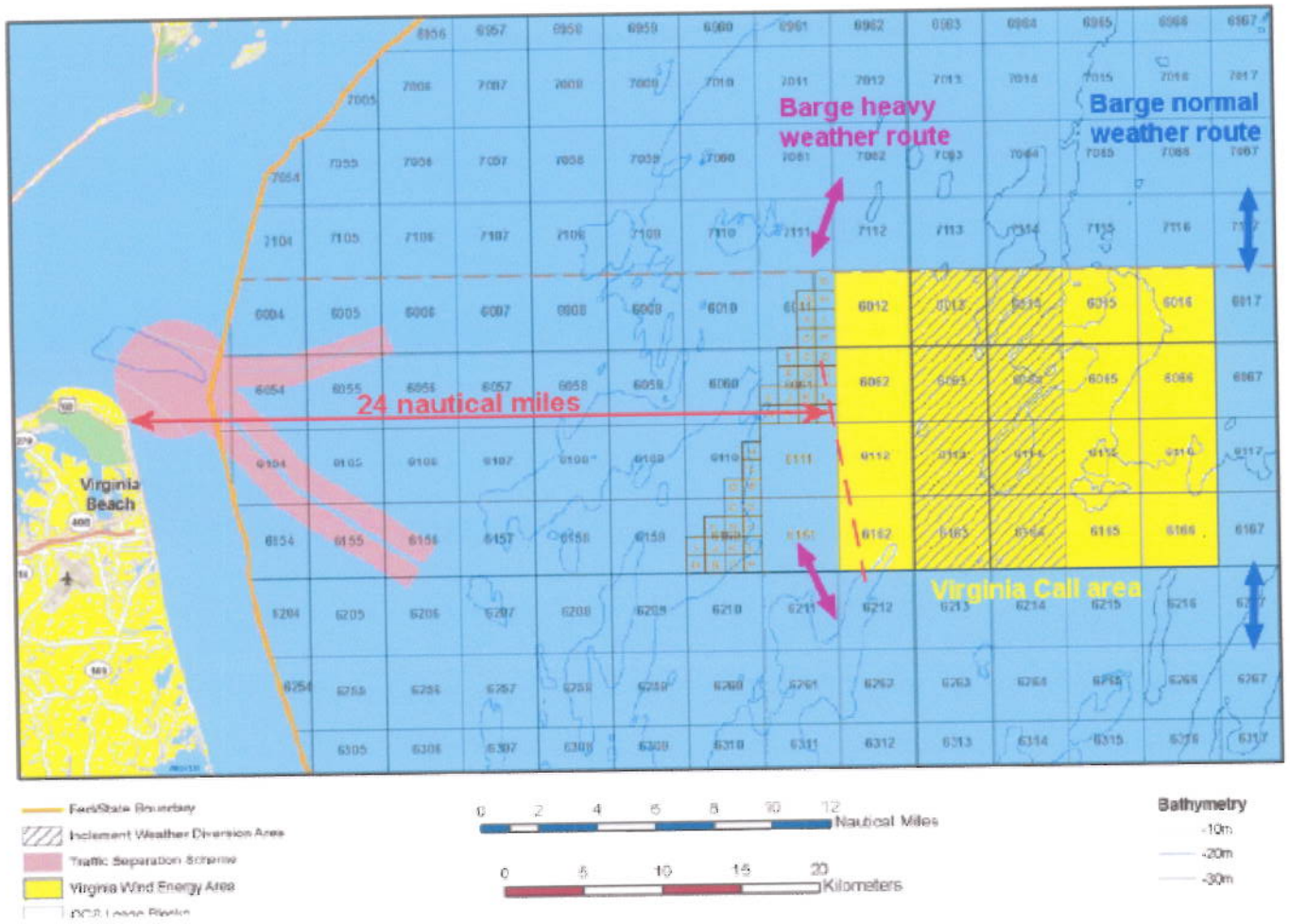
BIOMASS CONVERSIONS
Project Overview

- Background
  - Altavista, Hopewell and Southampton are 63 MW coal-fired power stations
  - Operating at low capacity factors (Altavista-cold reserve) due to high dispatch cost
  - Post-conversion, will be 51 MW each
- Waste wood supply is adequate & sustainable
- Estimated conversion cost of $150 million
- Significant Benefits
  - Strong customer value at a significantly lower cost than building an equivalent capacity of new greenfield biomass facilities
  - Environmental benefits
  - Economic growth engine
- Status
  - Application filed June 2011
  - VA SCC Hearing Jan. 10 - 12, 2012



Proposed Virginia Offshore Wind Call for Information and Nominations Area

- Total blocks available: 20 blocks approximately
- Total potential area: 165 sq nautical miles
- Average distance to shore: 20 miles
- Average depth of water: > 30m (100 ft)



Call for Information and Nomination

Dominion

- Comment Period: 45 days

- Information required to be submitted for call
  - Area of interest for a possible lease;
  - Description of objectives and the facilities used to achieve those objectives
  - Schedule of proposed activities, including those leading to commercial operations
  - Data and information concerning renewable energy and environmental conditions
    - Energy data
    - Natural and cultural resource data
  - Documentation demonstrating qualifications to hold a lease;
  - Overview of offshore transmission systems;
  - Potential for BOEMRE to request additional information.

Renewable Energy and Energy Efficiency Options for Virginia Customers

- ❑ Energy Efficiency
- ❑ Community Solar Power Program (Proposed)
- ❑ Dominion Green Power Program
- ❑ Net Energy Metering
- ❑ Schedule 19 – Avoided Cost Tariff

Energy Efficiency: DSM and Peak Shaving Programs for Customers in Virginia

- Existing Approved Programs
  - Residential
    - Residential Lighting
    - Smart Cooling Rewards
    - Home Energy Improvement
  - Business
    - HVAC Rewards
    - Lighting Rewards

- Proposed Programs - Sept. 2011 (Hearing March 2012)
  - Residential
    - Residential Lighting Phase II
    - Residential Bundle - includes Home Energy Check Up, Residential Duct Testing & Sealing, Residential Heat Pump Tune-Up, Residential Heat Pump Upgrade
  - Business
    - Commercial Energy Audit
    - Commercial Duct Testing & Sealing
    - Commercial Refrigeration
    - Commercial Distributed Generation Program
  - VA SCC Docket No. PUE-2011-00093 http://www.scc.virginia.gov/

Solar Distributed Generation

Community Solar Power Program

- Company-owned solar distributed generation (DG) installations on leased roof space
  - Petition filed with VA SCC in October 2011
  - Total of 30 MW – individual systems will range between 500 kW and 2 MW
  - Purpose is to assess benefits to the distribution system of targeted solar DG installations
  - If approved, installations to be completed 2013 – 2015
  - At least four installation must be in community settings

- Special tariff to facilitate customer-owned solar DG as an alternative to net metering
  - Petition to be filed by 2Q 2012
  - Tariff will allow for purchase a total of up to 3 MW
  - Eligible participants will be residential and small commercial customers
  - Company will purchase energy and renewable attributes at a price per kWh

- 2011 enabling legislation
  - HB1686 passed during the 2011 General Assembly promoting solar energy through distributed generation

Dominion Green Power Program

- Voluntary program available to Dominion Virginia Power customers to purchase renewable energy certificates (RECs) through their utility bill.

- Customer options available:
  - Residential (Rider G)
  - Commercial/Industrial (Rider G)
  - Large Federal (Rider G-MS)
  - Commonwealth of Virginia (Rider G-COV)
  - County/Municipal (Rider G-CM)

GreenPower℠

http://www.dom.com/dominion-virginia-power/customer-service/energy-conservation/green-power.jsp

- RECs are purchased from a mix of sources (wind, biomass, solar).

- Two participation options:
  - *100% Option:* Customer purchases RECs equal to 100% of their monthly electricity use.
  - *Block Option:* Customer purchases RECs in any $2 fixed increment.

- Dominion does not make a profit from this program.

Net Energy Metering

- On site renewable generation connected to electric grid through the customer meter
- System Capacity Limit
  - Residential Customers – 20 KW (standby charge for systems >10 KW)
  - Commercial Customers – 500 KW

- How it works
  - Energy primarily used on-site to offset customer's usage
  - Any excess generation is credited at the full retail rate and rolled forward to the next billing month
  - At the end of the billing year, any remaining excess generation can be sold back to DVP at the PJM LMP provided that the customer entered into a power purchase agreement with DVP
  - Customer-generators own all renewable energy credits (RECs), and have a one-time option at the time a power purchase agreement is entered to sell the RECs to the utility based on DVP's Rider G price

Schedule 19

- Dominion Virginia Power will purchase power produced by qualifying facilities (QFs) up to 20 MW in capacity at Dominion's avoided cost in accordance with the Public Utility Regulatory Policies Act (PURPA)

- SCC Approved Schedule 19 details how this rate is calculated:

http://www.dom.com/dominion-virginia-power/customer-service/rates-and-tariffs/pdf/sched19.pdf

- QFs are divided into two size groups:
  - Energy only at a fixed price without regard to time of day the energy is delivered
  - Energy and capacity where the energy price varies depending on the time of day
  - QFs over 10kW must choose energy and capacity