Virginia Solar Pathways Project Training Session
Module IV: Policy, Regulatory, and Rates Overview

US DOE Award No. DE-EE0006914
Solar Pathways Project

Goal:
To Develop a Common Foundation of Technical & Regulatory Understanding
Policy and Regulatory Framework

- **Federal Energy Policy**
  - Federal Energy Regulatory Commission (FERC)
  - Environmental Protection Agency (EPA)
  - Tax incentives

- **State Energy Policy and Regulation**
  - State Public Utilities Commissions (State PUCs)
  - Renewable Portfolio Standards (RPSs)
  - Utility regulatory structure
  - Utility rate structure
  - State tax incentives
Federal Energy Policy

A Timeline
Federal Energy Policy – A Timeline

1887 – 1920s

Creation of State Public Utilities Commissions

- 1887 - MA is first state to form PUC.
- 1900 - 1920: 34 other states, including VA, form PUCs.

1920

Federal Water Power Act

1935

Federal Power Act

1970

EPA is established

1977

FPC is converted to FERC

1978

Public Utility Regulatory Policies Act (PURPA)
Federal Energy Policy – A Timeline, cont’d

1992

- Encouraged greater competition in wholesale markets
- “Open access” transmission system.

2005

**Energy Policy Act of 2005**
- 30% ITC for renewables through 2007 and expansion of PTC
- Renewables and efficiency goals for federal gov’t
- Mandatory reliability standards

2008

**Energy Improvement and Extension Act of 2008**
- Removal of $2,000 cap for residential solar ITC
- Extension of 30% ITC for solar through 2016

2009

**American Recovery and Reinvestment Act of 2009**
- Enhanced incentives for renewables, including cash grants and loan guarantees

2014

**EPA Clean Power Plan (proposed)**
- CO₂ limits for existing power plants.
The Intersection of Federal and State Policy

- **Goal**: Significant reduction in carbon emissions from existing power plants
- **Carbon emission goals differ by state**

**Timeline**

- **2013**
- **June 2014**: Draft rule issued
- **June 2015**: EPA issues final rule
- **2016**: State implementation plans submitted to EPA (in most cases)
- **2017**
- **2018**
- **2019**
- **2020**: States must begin meeting interim goal
- **2025**
- **2030**: States must meet final goal

**Summary**

- **2020**: States must begin meeting interim goal
- **2030**: States must meet final goal
In addition to FERC and US EPA, many other federal agencies regulate utilities. Below are only a few:

- US Army Corps of Engineers (USACE)
- US Fish and Wildlife Service (USFWS)
- Nuclear Regulatory Commission (NRC)
- Federal Trade Commission (FTC)
- Securities and Exchange Commission (SEC)
- Commodities Futures Trading Commission (CFTC)
- Internal Revenue Service (IRS)
State Public Utility Regulation
What does it mean to be “regulated”?

- **The Legal Basis For Regulation**: certain critical economic activities require government oversight to ensure reasonable prices for such activities are provided to the public.

- Utility regulation involves a set of mutual rights, obligations, and benefits that exist between the utility and its customers.

- It is a relational contract that balances the allocation of risks and benefits between the parties and serves as an administrative replacement for the market.

- The objective of the regulator is to preserve the balance between customers and utility investors.

- Policy changes requiring the outlay of costs affect the method by which regulators strike the balance.
The Regulatory Compact

**Customer Benefits**
- Just and reasonable rates; protection from monopoly pricing
- Access to and provision of a public and economic necessity
- Ability to participate in the ratemaking process

**Utility Responsibilities**
- Obligation to serve all demand
- Expenditures must be prudent
- Costs subject to expert and public review
- Investments must be “used and useful”
- All rate increases must be justified and approved
- Take on the risk of cost instability

**Utility Benefits**
- Protected service territory
- Recovery of legitimate costs
- Fair return on investment

The regulatory compact was designed for a financially healthy utility with reasonable cash flows to sustain construction and deliver the services it is obligated to supply under the regulatory bargain.
State Energy Policy

Wide Variations from State to State
Current Drivers in U.S. Solar Markets

- Rates
- Irradiance
- Incentives
- Mandates
State Policy Mandates Driving Renewables

Renewable Portfolio Standard Policies

www.dsireusa.org / March 2015

29 States + Washington
DC + 2 territories have a
Renewable Portfolio Standard
(8 states and 2 territories have renewable portfolio goals)

Renewable portfolio standard
Renewable portfolio goal
* Extra credit for solar or customer-sited renewables
† Includes non-renewable alternative resources
State Policy Mandates Driving Renewables – Solar and DG in Particular
State Tax Credits for Renewables

Source: www.dsireusa.org
January 2013
Energy Policy and Regulation in Virginia

Evolving (Two-Way Relationship)
Utility Regulation – VA SCC

Court of Record with Full Force of Law

- Decisions have the force of law and can only be appealed to the VA Supreme Court

Composition

- Comprised of three commissioners elected by the General Assembly for six-year staggered terms.

Current Commission:

- Mark Christie *
- James Dimitri
- Judith Jadgmann

* Current chairman. The chair rotates annually among the three members on February 1.
Utility Regulation – VA SCC

Regulates all recovery of and return on utility expenditures

- Holds exclusive authority to approve power plants and large transmission infrastructure investments
- Regulates rates, terms, and conditions of utility service

Approval from SCC is required to

- Build or add major generation upgrade
- Build or add major transmission upgrade
- Seek cost recovery for generation or transmission projects
- Modify rates or rate structures
- Modify terms and conditions of service
- Retire a Power Plant

Integrated Resource Planning

- 25-year study period
- 15-year planning period
Utilities must receive approval from the VA SCC to build **any** generation facility, no matter how small.

<table>
<thead>
<tr>
<th>DVP must provide:</th>
<th>SCC finding required:</th>
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<tbody>
<tr>
<td>❑ Engineering studies to support plant design, plant type, and site selected;</td>
<td>❑ Need and public interest</td>
</tr>
<tr>
<td>❑ Studies showing availability and adequacy of selected fuel;</td>
<td>❑ Costs are reasonable and prudent</td>
</tr>
<tr>
<td>❑ Support for assumptions re: plant performance, operating costs;</td>
<td>❑ Will not lead to unreasonable increases in rates</td>
</tr>
<tr>
<td>❑ Economic studies comparing selected alternative with other options;</td>
<td>❑ Will not have adverse impact on reliability</td>
</tr>
<tr>
<td>❑ Load and capacity forecast information supporting proposed in-service date;</td>
<td>❑ Environmental impacts were considered and conditions are required to minimize adverse impacts.</td>
</tr>
<tr>
<td>❑ Detailed cost estimate, including construction, interconnection, and financing</td>
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Process for Major Regulatory Proceeding

All major regulatory proceedings at the Virginia SCC follow the same basic process.

Discovery

Company files application and testimony with the Commission

Intervenors file testimony

Staff files testimony

Company files rebuttal testimony

Hearing begins

Final Order

Commission issues procedural order [schedule of case events]
“Small Renewable Projects” under Virginia Law

Definition – An electric generation facility with:
- a rated capacity ≤ 100 MW for solar, wind, falling water, wave motion, tides, or geothermal power; or
- a rated capacity of ≤ 20 MW for biomass, energy from waste, or municipal solid waste.

Statutory Treatment
- deemed to be in the public interest
- shall be liberally construed by the Commission when considered for approval
- approval decision within 9 months.
### Tiers for Renewables Projects in Virginia

<table>
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<tr>
<th>Tier</th>
<th>Requirements</th>
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<tbody>
<tr>
<td>≤ 5 MW</td>
<td>- Requires only a letter to VA SCC&lt;br&gt;- Comply with all other legal requirements</td>
</tr>
<tr>
<td>≤ 100 MW and &gt; 5 MW</td>
<td>- Streamlined process&lt;br&gt;- Still requires submission of extensive information&lt;br&gt;- Filing of testimony not required</td>
</tr>
<tr>
<td>&gt; 100 MW</td>
<td>- Full Regulatory Process</td>
</tr>
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Utility required to obtain CPCN for each separate installation, regardless of project size.
SB 1349 (Wagner) – Base Rate Stability Legislation
- Prompted by risk of significant ratepayer impacts from EPA’s proposed Clean Power Plan
- Freezes base rates for five years
- 500 MW of utility-scale solar declared in the public interest
- Energy assistance and weatherization programs for elderly, low-income, and disabled customers
- More frequent utility resource planning and SCC approval to close power plants

HB 2237 (Yancey) – Utility-Scale Solar
- 500 MW of utility-scale solar is in public interest
- Right to recover costs for solar facilities ≥ 1 MW that utilize goods or services sourced from VA businesses

HB 2267 (Hugo) – Virginia Solar Energy Development Authority
- Establishes VA Solar Energy Development Authority to support development of solar energy industry, projects, and financing
- Authority to be comprised of 11 non-legislative citizen members and led by VA DMME

HB 1950/ SB 1395 – Net Metering
- Doubles non-residential net metering cap from 500 kW to 1 MW.
Current Policy and Rate Structure in Virginia

Policies

- Voluntary renewable energy goal of 15% by 2025
- No state tax incentives for solar
- DG pilot programs to assess distribution system benefits of solar and alternatives to net metering
- EPA 111(d) compliance options

Rate Structure

- Primarily volumetric based rates with minimal fixed charge for residential and small commercial customers
- Net metering capped at 1% of peak load forecast for previous year. Currently, the Company still has approximately 95% of capacity available for net metering under the 1% cap.
- Standby charge for residential systems above 10kW
Current Policy and Rate Structure in North Carolina

**Policies**

- Mandatory renewable portfolio (RPS) of 12.5% by 2021 with solar carve out
- 35% state tax credit for purchased or leased renewable distributed generation systems through December 31, 2015 (safe harbor beyond sunset date for substantially completed projects, per 2015 legislation)
- EPA 111(d) compliance options

**Rate Structure**

- Primarily volumetric based rates with minimal fixed charge
- Significant solar development from 3rd parties selling to DVP under long term fixed price avoided cost contracts with access to PJM
- Little net metering compared to Virginia
Electric Utility Rates and Cost Recovery
Electric Utility Rate Design

- **Role of Rates**
  - Means by which the utility collects revenues and covers its allowed cost of service (including its fair return)
  - Induce particular behaviors of customers (e.g. time of use rates)

- **Attributes of a Sound Rate Design**
  - Rates should be fair, reasonable and not discriminatory
    - Based on Cost
    - Equitable – “Equals treated equally”
    - Rates should be stable - Gradualism
    - Rates should be easily understood

- **Rate Setting**
  - Rates are generally based on cost of service – including a return on investment
  - Rates are established in proceedings before, and approved by, state public utilities commissions.
From Revenue Requirement to Rate Design

The Ratemaking Formula

Revenue Requirement = Cost to Provide Service x Allowed Rate of Return

Rate Design

- Provides for collection of revenue requirement.
- Converts the revenue requirements to specific rates.

Rate Structure Examples

Residential =
Basic Service Charge + Volumetric Energy Charge (kWh)

Commercial & Industrial =
Basic Service Charge + Demand Charge (kW) + Energy Charge (kWh)
## Typical DVP Residential Customer Bill – May 1, 2015

<table>
<thead>
<tr>
<th>Bill Component</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Distribution</td>
<td>$28.17</td>
</tr>
<tr>
<td>Transmission</td>
<td>$ 9.43</td>
</tr>
<tr>
<td>Generation</td>
<td>$ 47.74</td>
</tr>
<tr>
<td>Fuel</td>
<td>$24.06</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$109.40</strong></td>
</tr>
</tbody>
</table>

### Typical Residential Bill

- **Generation**: 44%
- **Transmission**: 22%
- **Distribution**: 26%
- **Fuel**: 8%

![Pie chart showing the distribution of bill components]
Dominion Virginia Power: Residential Rates

Residential Rate Comparison, Typical Monthly Bills, 1,000 kWh

As of April 2015, Dominion’s typical residential bill is 20.1% below the national average, and 30.3% below the East Coast average.

* DVP bill: Rates effective April 1, 2015. Includes interim fuel factor reduction and four generation rider adjustments.

Dominion Virginia Power: Industrial Rates

Industrial Rate Comparison, average rate per kilowatt-hour, 1,000 kW demand and 650,000 kWh usage

As of April 2015, Dominion’s typical industrial rate is 23.6% below the Southeast Peer Group average, 39.6% below the national average, and 54.5% below the East Coast average.

Solar

Opportunities and Challenges
Questions?