



Overview of Vermont Market for Renewable Energy Projects

Mary Jo Krolewski, Utilities Analyst Vermont Public Service Board

September 3, 2012





Overview

- Vermont jurisdiction and responsibilities
- Vermont electric industry and regional market
- Vermont regulatory review process
- Vermont renewable energy programs
 - Net Metering
 - Standard-Offer or Feed-In Tariff (FIT) Program





Public Service Board Jurisdiction

- Board regulates all electric distribution utilities, and all are vertically integrated
 utilities own very little generation
- There is no retail choice in Vermont
 - customers cannot choose their supplier
- Vermont has one electric transmission utility
 - Board has some jurisdiction over this utility
 - Federal Energy Regulatory Commission (FERC) has jurisdiction over its rates





Vermont Electric System

- ~ 650,000 people; 350,000 electric customers
- 9,200 square miles (small, rural state)
- 18 electric distribution utilities, including:
 - 1 investor-owned utility
 - 15 municipally-owned utilities
 - 2 cooperatively-owned utilities





Vermont Electric System



Notes:

~ 1,100 MW of peak load

System A is market purchase of energy by Vermont Utilities.

System B is energy produced by Vermont renewable facilities where the RECs have been sold to third parties who claim the environmental attributes.





Vermont Electric System

Vermont Electric Energy (millions of MWh)







New England Regional Market

- Independent System
 Operator of New England
- Responsible for:
 - Ensuring regional reliability
 - Administering electricity markets
- Regulated by Federal Energy Regulatory Commission







New England Regional Market

- New England has:
 - 14 million people; 6.5 million electricity customers
 - 350+ generators/power plants
 - 8,000 miles of transmission lines
 - 32,000 MW of total supply
- Vermont is approximately 5 percent of the region's electricity consumption





Regulation of Electricity Markets

- All generators larger than 5 MW must participate in electricity markets
 - Under 5 MW, generators can act as load reducers
- ISO-NE administers markets
- Any changes to markets must be approved by FERC
 - Stakeholders, including state regulators, may participate in FERC proceeding





Vermont Utilities Power Procurement

- Issuing requests for proposals, negotiating and executing purchased power contracts
- Purchasing power in regional competitive day-ahead or spot energy markets, or long-term forward capacity market
- Selling excess power through bilateral contracts or in regional markets
- Procuring any necessary transmission services (requirements depend upon contract terms)
- Obtaining any necessary advance regulatory approvals
- Continually managing power portfolio





Regulatory Review Process

- Before issuing a certificate of public good, Vermont Public Service Board must find that the facility:
 - Will not interfere with the orderly development of the region (due consideration of local planning bodies)
 - Is required to meet present or future demand for service
 - Will not adversely affect system stability and reliability
 - Will result in an economic benefit to the state and its residents
 - Will not have an undue adverse effect on aesthetics, historic sites, air and water purity, the natural environment, and public health and safety
 - Is consistent with company's integrated resource plan
 - Complies with the State Energy Office Electric Plan
 - Does not impact "Outstanding Resource Waters"
 - Can be served economically by existing or planned transmission facilities without undue adverse impact on utilities or customers





Regulatory Review Process

- Applicant submits sufficient evidence to demonstrate compliance with criteria
 - Public hearing and Site Visit
 - Evidentiary hearing
- Dockets may include a settlement or a fully litigated case
 - Ratepayer advocate and environmental agencies typically automatic party to any case
 - Intervenors may include environmental, industrial, and public interest groups





Simplified review process in Vermont

- Facilities "of limited size and scope"
 - Interested parties provided notice and opportunity for comment
 - No need for public or evidentiary hearing
- Facilities with a capacity of 2.2 MW or less
 Certain criteria are waived
- Facilities with a capacity of 150 kW or less
 - Simplified application and review process





Net Metering

- Net metering law (30 V.S.A. § 219a) enacted in 1998
- Allows customers to offset their use of utility-supplied power with power generated on the customer side of meter
- In 2011, Vermont expanded program:
 - Size limit from 250 kW to 500 kW
 - Registration process for small residential systems
 - Increased net metering capacity to 4% of VT peak load
 - Created a PV adder to allow customers to receive 20 cents per kWh





Net metering in Vermont

System Rated Output - kW AC 1999 2000 2008 2009 2010 2003 2004 2005 2006 2007 2002 2003 2009 2010 Hydro Fuel Cell Methane Solar PV Wind Cumulative Total 5058 10923

Approved Net Metering kW Capacity by Year and Technology





Vermont Renewable Programs

- Sustainably Priced Energy Development (SPEED) Program was enacted in June 2005 in 30 V.S.A. § 8005 and § 8001.
- The goal of the SPEED program is to promote the development of in-state energy sources which use renewable fuels (SPEED resources) to ensure that to the greatest extent possible the economic benefits of these new energy sources flow to the Vermont economy in general and to the rate paying citizens of the state in particular.





Vermont Renewable Programs

- SPEED Goal: 20% of total statewide electric retail sales during year commencing January 1, 2017 must be generated by SPEED resources that constitute new renewable energy.
- Total Renewables Goal: 55% of each retail electricity provider's annual electric sales during the year beginning January 1, 2017, increasing by an additional 4% each third January thereafter, until reaching 75% on January 1, 2032, must consist of total renewable energy.





Vermont Standard Offer (FIT) Program

- In May of 2009, 30 V.S.A. § 8005 was significantly amended to create the feed-in tariff Standard-Offer Program
- Obligates a utilities to purchase electricity from an eligible generator at a specified price for a specified period of time.
- Price is established to encourage development of renewable resources rather than to meet utility's resource needs at least cost





Vermont Standard-Offer (FIT) Program

- 50 MW program cap
- 2.2 MW project cap
- Six technologies eligible
- Cost-based prices
- Standard-Offer Contract
- Administered by statewide entity, not utilities
- Guaranteed rate recovery for utilities
- Requires rapid deployment





Calculating cost-based prices

- Cost-based, fixed price required by statute
- Difficult to obtain reliable data on project cost
- Significant variations in parties' assumptions
- Very little granularity and differentiation
- Art as well as science

 As with any rate design, large degree of judgment is required





Implementation of FIT Program

- October 2009 Board begins implementation of the program
- 200 MW of resources apply the first day – Majority of applications for solar
- Clarifications/Refinements to program
- 2011 review of prices
- Permitting of FIT projects





Current Prices Under FIT Program

- LEVELIZED PRICE (\$/kWh)
 - SOLAR PV
 HYDRO
 LANDFILL GAS
 FARM METHANE
 WIND OVER 100kW
 0.118
 - WIND 100kW OR LESS 0.253
 - BIOMASS 0.125





Changes to FIT Program in 2012

- Increasing the available capacity of the program
- Allocating available program capacity among different technology categories
- Requiring the development of prices based on an avoided cost methodology
- Allowing market-based pricing methodology such as
 a reverse auction or other procurement tool
- Modifying the requirements to enter into the standard-offer program
- Expand program capacity for projects in transmission constrained areas





Pricing Options Under Consideration

- Auctions require numerous participants to produce favorable results
- RFPs can provide more successful results if there is an *expectation* of strong competition among participants







More Information

- Vermont Statutes Title 30: Public Service – <u>http://www.leg.state.vt.us/statutesMain.cfm</u>
- Board Orders for Standard-Offer program

 <u>http://vermontspeed.com/board-orders/</u>
- Board Rues on SPEED and Interconnection
 - <u>http://psb.vermont.gov/statutesrulesandguidelines/</u> <u>currentrules</u>





Contact Information

Mary Jo Krolewski, Utilities Analyst

Vermont Public Service Board 112 State Street Montpelier, VT 05620 www.psb.vermont.gov

+1-802-828-2358 mary-jo.krolewski@state.vt.us