



Bureau of  
Energy Resources,  
United States  
Department of State



National  
Association of  
Regulatory  
Utility  
Commissioners

# Addressing distributed generation resources in Vermont

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Vermont Public Service Board  
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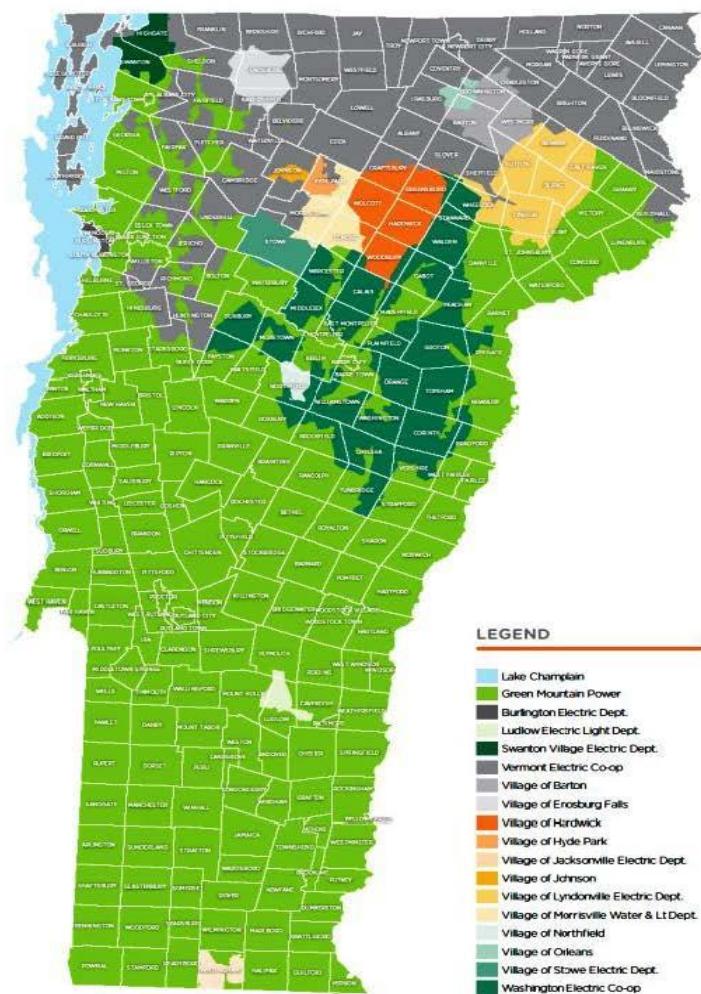


# OVERVIEW

- Vermont: A little information about a little state
- Distributed generation in Vermont
- Rapid growth in net metering in Vermont
- Educating electricity consumers about net metering options



Vermont Electric Utilities Service Territory Map, 2012





## Distributed Generation in Vermont

Vermont's interest in distributed generation is driven by facts and policy

- **Fact:** Vermont now imports approximately 70%-80% of its electricity.
- **Policy:** The Vermont Energy Plan sets a goal of meeting 90% of Vermont's energy needs (electric, heating, transportation) from renewable sources by 2050.
- **Fact:** Vermont is currently at approximately 20% renewable
- **Policy:** Vermont's goal is to reduce 1990 greenhouse gas levels by 50% by 2028; by 75% by 2050, if possible



## Distributed generation in Vermont

- VT has a history of success with using electric energy efficiency and distributed generation to avoid or defer distribution and transmission infrastructure upgrades
- **§ 202a. State energy policy**

It is the general policy of the state of Vermont:

  - (1) To assure, to the greatest extent practicable, that Vermont can meet its energy service needs in a manner that is adequate, reliable, secure and sustainable; that assures affordability and encourages the state's economic vitality, the efficient use of energy resources and cost effective demand side management; and that is environmentally sound.
  - (2) To identify and evaluate on an ongoing basis, resources that will meet Vermont's energy service needs in accordance with the principles of least cost integrated planning; including efficiency, conservation and load management alternatives, wise use of renewable resources and environmentally sound energy supply. (Added 1981, No. 236 (Adj. Sess.), § 4; amended 1983, No. 170 (Adj. Sess.), § 13, eff. April 19, 1984; 1991, No. 259 (Adj. Sess.), § 1.)



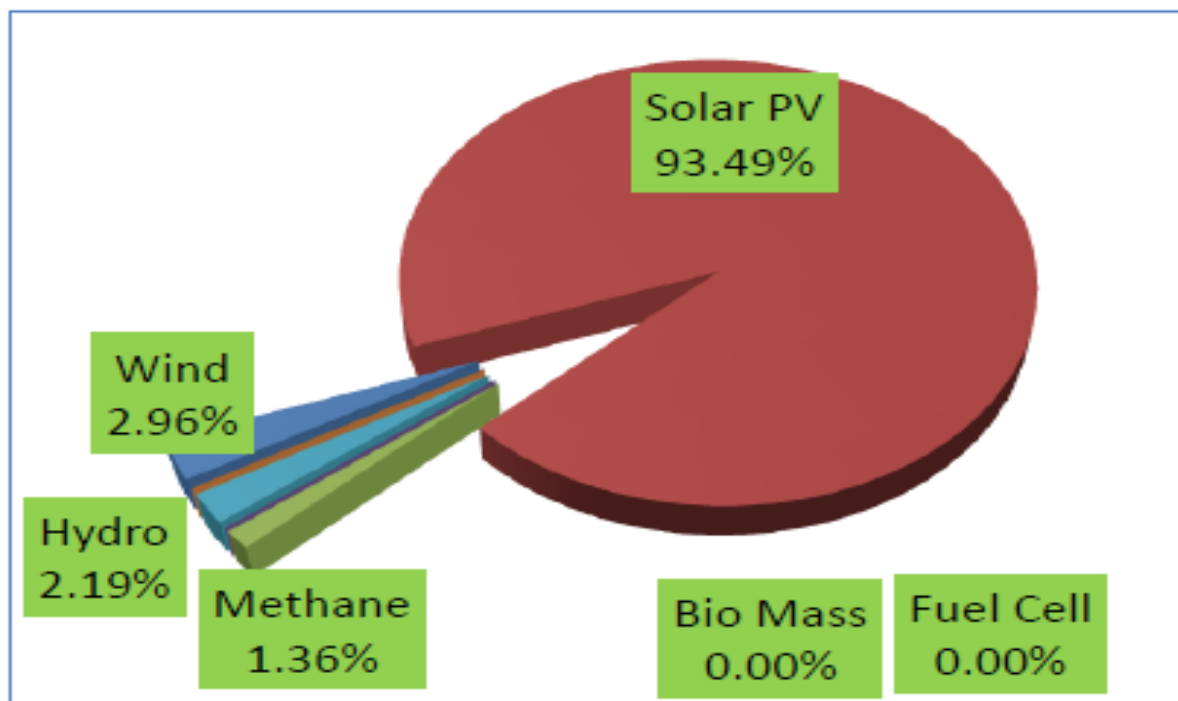
## Rapid growth in net metering in Vermont





## Rapid growth in net metering in Vermont

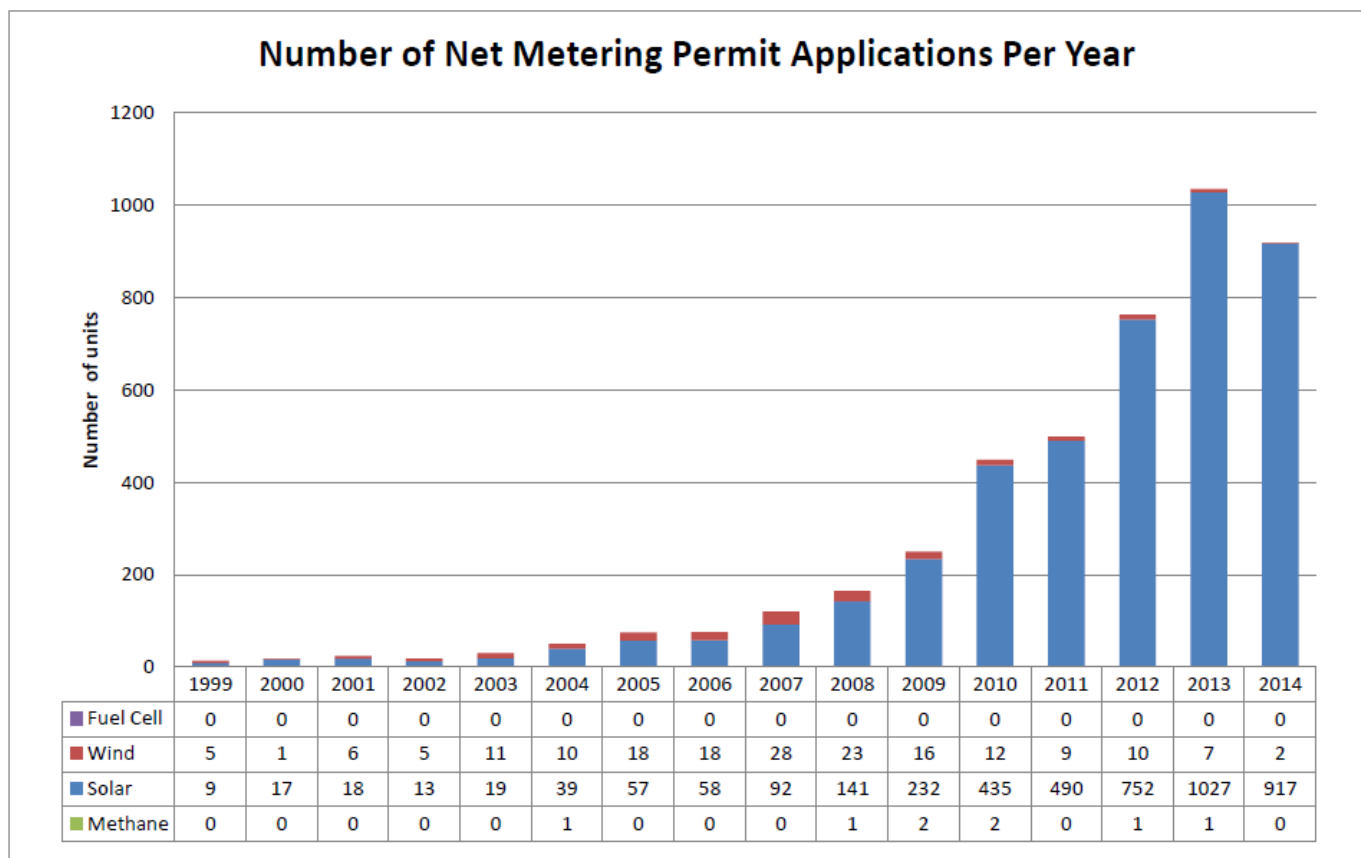
**Net Metered Permit-Applied Capacity by Type**







## Rapid growth in net metering in Vermont



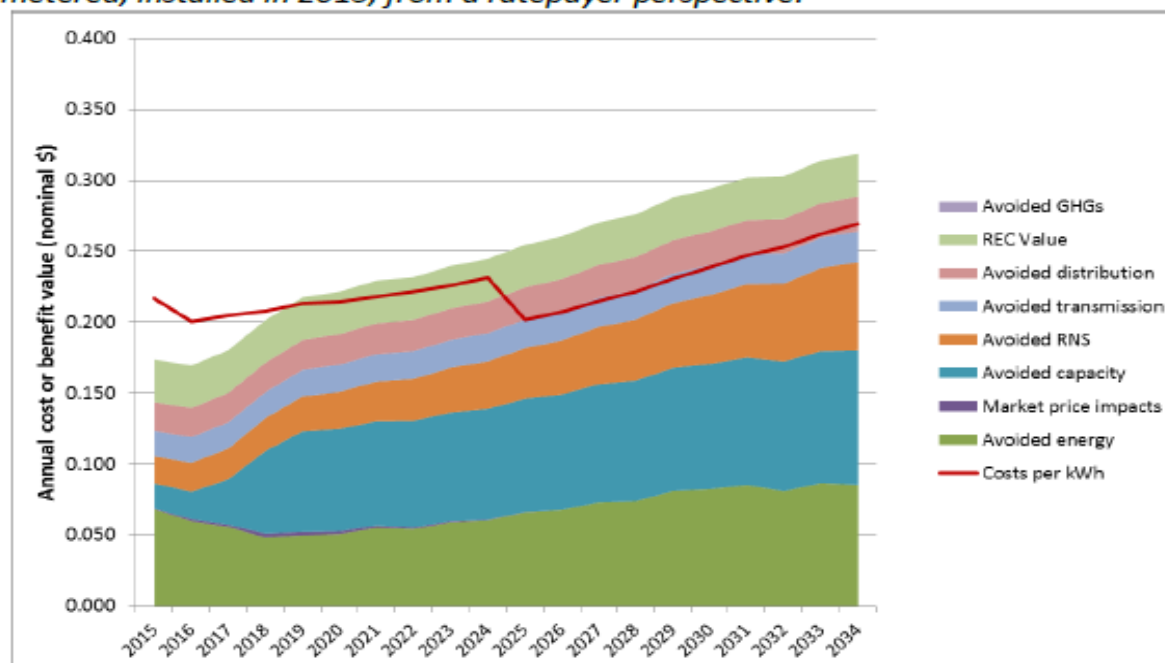
**Exhibit 1.** Number of net metering applications & registrations annually. (Data as of 9/26/14.)





## Rapid growth of net metering in Vermont

**Exhibit 18.** *Per-kWh costs (red line) and benefits (colored areas) for a 100kW fixed solar PV system, group net metered, installed in 2015, from a ratepayer perspective.*



**Exhibit 19.** *Levelized cost, benefit, and net benefit of a 100kW fixed solar PV system, group net metered, installed in 2015 to other ratepayers or society. Units are \$ per kWh generated.*

	Cost	Benefit	Net Benefit
Ratepayer	\$0.226	\$0.237	\$0.011
Statewide/Society	\$0.227	\$0.256	\$0.028



**Use of a shared energy generation, transmission, and distribution infrastructure can be a societally least-cost way to meet energy service demand.**

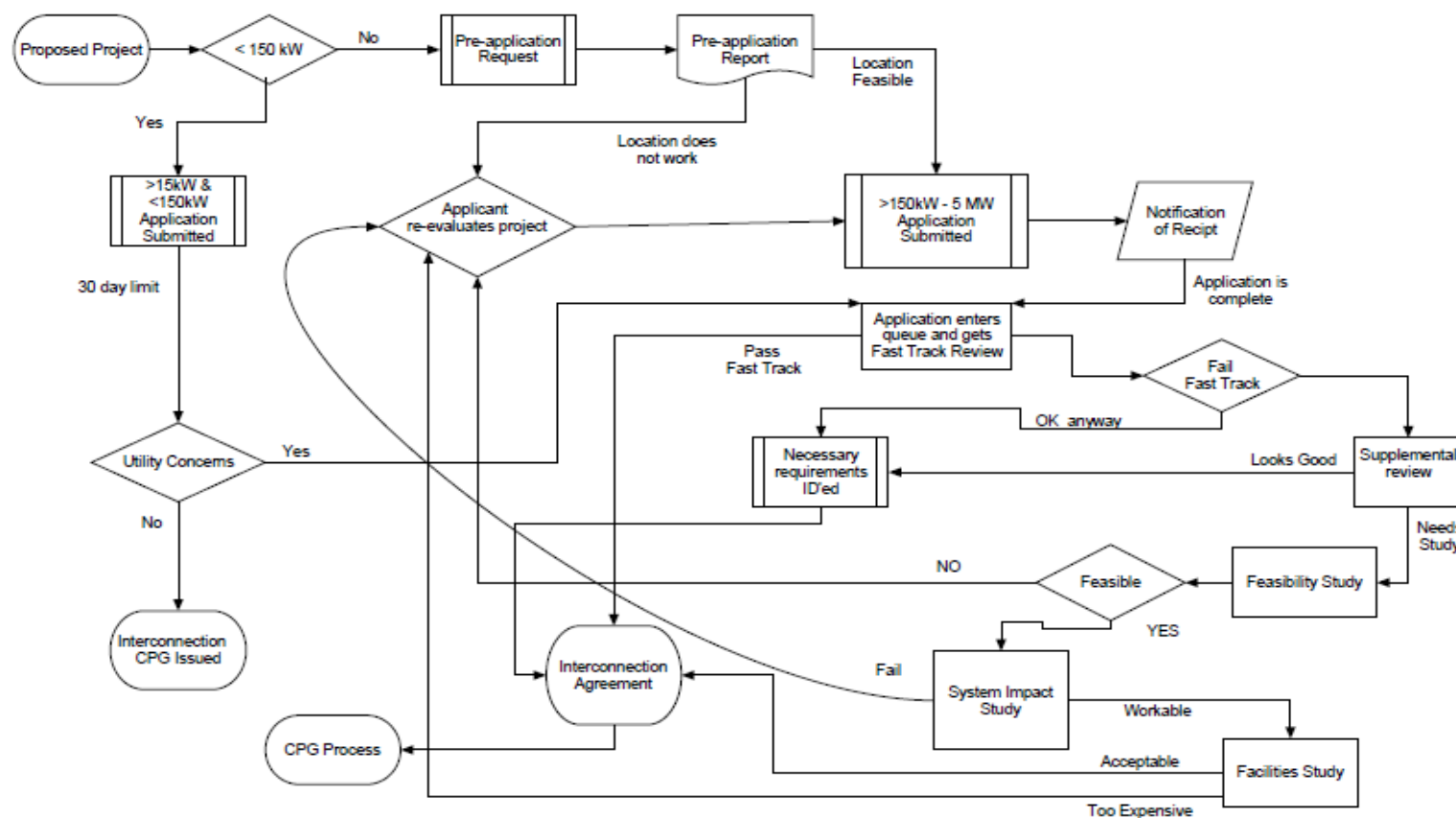


## Challenges

- Characteristics of Vermont Distribution Systems
- Integration of emerging technologies
- Developing a mutual understanding of technical issues and solutions
- Managing expectations
- Availability of technical resources to process a high volume of requests
- Timely exchange of technical information to facilitate an efficient process



## Current Proposal to revise Vermont's regulatory review process for interconnections



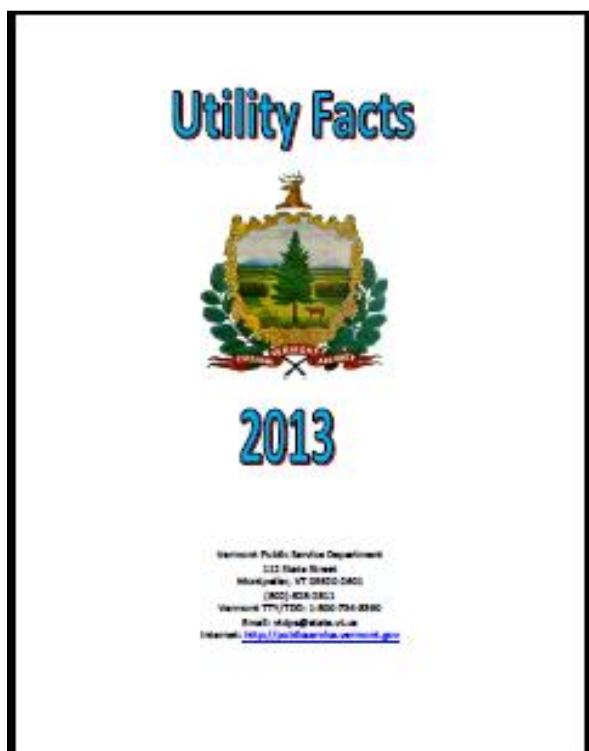


- It is a benefit to all when distributed generation is interconnected safely and does not negatively affect the system.
- It is important to have a standardized and easy way to administer interconnection process
- Due to the diverse topology of Vermont distribution systems, interconnection requirements can vary greatly based on generation size and technology, and the location of the interconnection
- Simplified and effective screening tools will expedite the interconnection requests
- Effective and timely communication between the utility and the project developer is critical to the overall success
- As we gain experience, the interconnection process will become more efficient



# Educating electricity consumers about utility issues

- Available at: <http://publicservice.vermont.gov/publications>





# Educating electricity consumers about net metering

Available at: [http://publicservice.vermont.gov/topics/renewable\\_energy/resources](http://publicservice.vermont.gov/topics/renewable_energy/resources)

## How to Go Solar in Vermont

A publication of the Northeast Vermont Development Association  
Created by Ben Lux, Ph.D., with support from Vermont Clean Energy  
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