Solar Siting Task Force Report

To the Vermont House and Senate Committees on Natural Resources and Energy, the House Committee on Commerce and Economic Development, and the Senate Committee on Finance

January 22, 2016

Overview

Charge

Act 56 of 2015, Section 26g, created the Solar Siting Task Force to study the design, siting, and regulatory review of solar electric generation facilities and provide a report in the form of proposed legislation with the rationale for each proposal.

Membership

The membership of the Solar Siting Task Force, per direction provided by Act 56, was:

Commissioner of Public Service or Designee: **Commissioner Christopher Recchia (Chair)**
Commissioner of Housing and Community Development or Designee: **Commissioner Noelle MacKay**
Secretary of Natural Resources or Designee: **Secretary Deb Markowitz**
Representative of the Vermont League of Cities and Towns: **Karen Horn**
Representative of the Vermont Planners Association: **Sharon Murray**
Representative of the Vermont Association of Planning and Development Agencies: **Adam Lougee**
Representative of Renewable Energy Vermont: **Andrew Raubvogel**
Representative of an electric distribution utility: **Robert Dostis**
Landscape architect: **Mitch Lefevre**
Vermont resident with public policy and environmental and energy expertise: **Sam Swanson (Vice Chair)**

Meetings

The Solar Siting Task Force met 10 times with a first meeting on July 28, 2015 and a final meeting on January 21, 2016. Meeting materials are available for review at http://solartaskforce.vermont.gov/announcements-meetings and http://solartaskforce.vermont.gov/materials.

Participants

The following individuals provided testimony to the Solar Siting Task Force, in order of appearance:

Dr. Asa Hopkins, Director of Planning and Energy Resource Development, Department of Public Service, on State Energy Goals, Portfolio Options, and Solar Land Use Implications

David Raphael, Landscape Architect and Planner, LandWorks, on Solar Aesthetics Guidance

Lou Borie and Jon Groveman, Natural Resources Board and **Jeannie Oliver**, Department of Public Service, providing an overview of Act 250 and 30 V.S.A. § 248

Sharon Murray, Vermont Planners Association, on Overview of 24 V.S.A. Chapter 117, State Land Use Goals and Energy

Peter Rothschild, New Haven Planning Commission, on Town Experience and Suggestions for Solar Development

Chad Farrell, Encore Redevelopment, on Developer Experience and Suggestions for Solar Development

Jeannine McCrumb - Charlotte Town Planner, **Ron Bouchard** - Shelburne Planning Commission, **Peter Rothschild** - New Haven Planning Commission, and **Mel Adams** - Randolph Town Manager – panel discussion providing town perspective

Tom Garden - Triland Partners, **Rod Viens** - GroSolar**, Luke Shullenberger** - Green Lantern Development, and **Nathanial Vandal** - Green Peak Solar – panel discussion providing developer perspective

Jim Sullivan - Bennington County Regional Commission, **Taylor Newton** - Northwest Regional Planning Commission, **Chris Sargent** - Two Rivers-Ottauquechee Regional Commission – providing an overview and update on the Regional Energy Planning Pilot

Jon Copans , Asa Hopkins, and Anne Margolis of the Department of Public Service – providing an overview of the Public Service Board's draft Net Metering Rule.

Diane Bothfeld - Agency of Agriculture, Food, and Markets Deputy Secretary – providing an update on Agricultural Soils and Solar Development

Presentations made to the Solar Siting Task Force are available at http://solartaskforce.vermont.gov/announcements-meetings.

Public Comment

The Solar Siting Task Force also heard from many stakeholders through verbal and written public comment. Thirty-five members of the public spoke over the course of the Solar Siting Task Force's meetings, and an additional 122 written public comments were received. Public comments provided to the Solar Siting Task Force are available at http://solartaskforce.vermont.gov/comments.

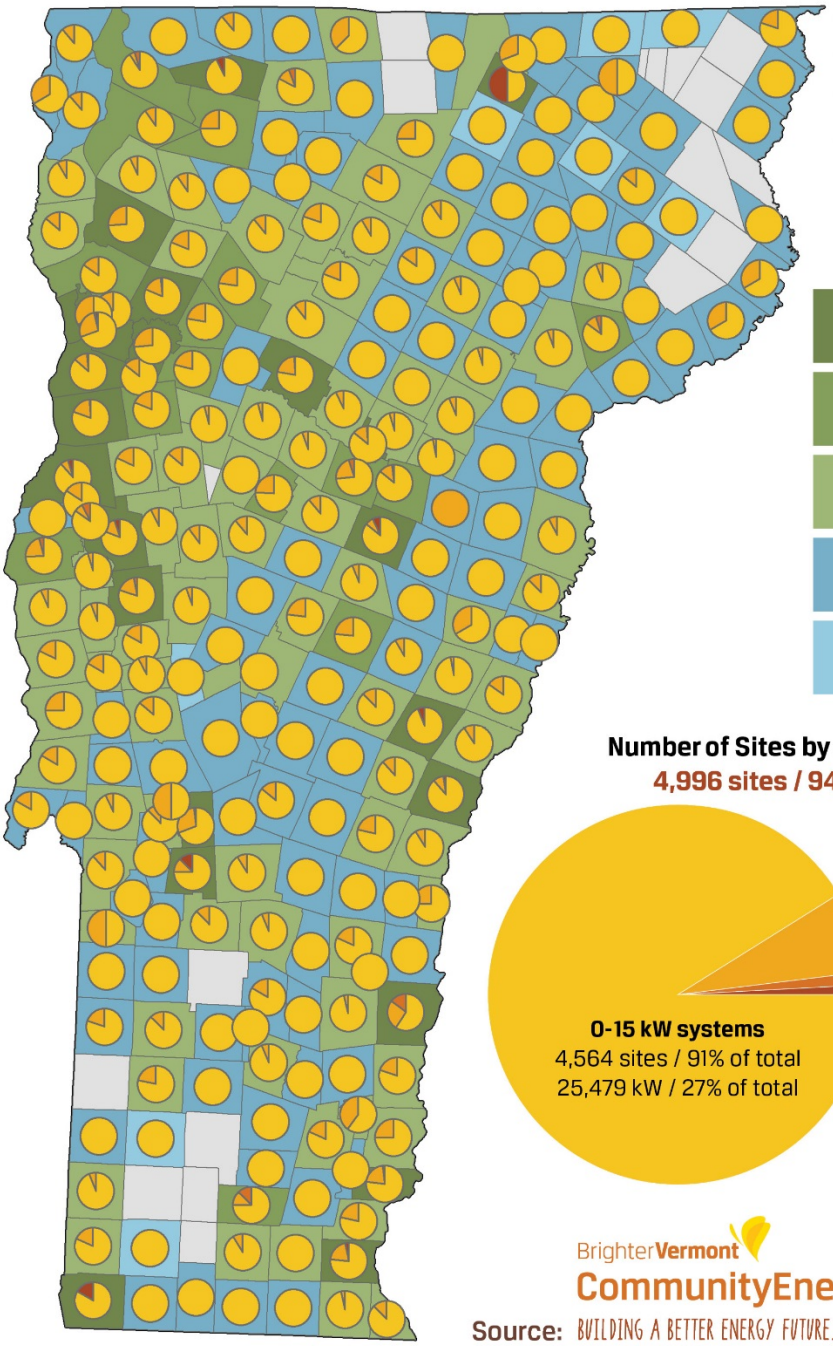
Current Trends in Solar Generation in Vermont

Vermont, like much of the rest of the U.S., has seen tremendous growth in solar photovoltaic (solar PV) electric generation since 2010. The Standard Offer program, net metering, and power purchase agreements (PPAs) directly with utilities are all serving as vehicles to enable growth in solar generation here in Vermont. As a measure of the current growth of solar development in Vermont, it took Green Mountain Power (GMP) from 2008 to 2014 to hit a net metering cap of 4% of peak load. Act 99 of 2014 raised the cap to 15%, and it took GMP less than two years to receive enough interconnection requests to hit the increased cap.

Exhibit 1. Total installed or applied for solar PV capacity of solar by town as of September 2015, and the relative number of projects by size within each town.

September 2015

All Solar PV by Town



Note: this map only depicts the location of generation sites and does not account for capacity factors, renewable energy credits sold, or ownership of systems.

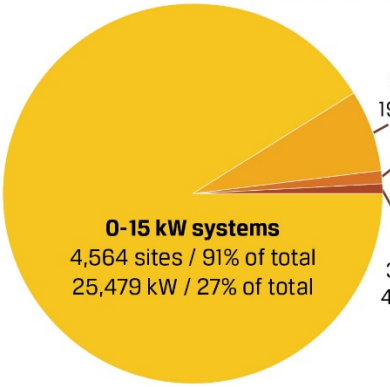
Many more solar projects—representing thousands of kilowatts— have been permitted but not yet built.

Legend

- 1,001 - 8,000 kW
- 501 - 1,000 kW
- 101 - 500 kW
- 6 - 100 kW
- 1 - 5 kW

Number of Sites by System Size

4,996 sites / 94,860 kW



0-15 kW systems
4,564 sites / 91% of total
25,479 kW / 27% of total

15-150 kW systems
346 sites / 7% of total
19,054 kW / 20% of total

150-500 kW systems
56 sites / 1% of total
8,734 kW / 9% of total

>500 kW systems
30 sites / 0.6% of total
41,593kW / 44% of total

BrighterVermont
CommunityEnergyDashboard

Source: BUILDING A BETTER ENERGY FUTURE. TODAY.

There are a number of factors that explain the rapid growth of solar in Vermont, but one primary driving force has been the steep decline in the cost of solar PV panels. As a measure of the rapid drop in the cost of solar, the avoided cost price cap for the Standard Offer program was $.24/kWh for solar projects in 2010. By 2015, the Standard Offer auction for solar projects resulted in a drop of over 50% to under $.11/kWh. This matches national trends in the pricing of larger-scale solar installations.

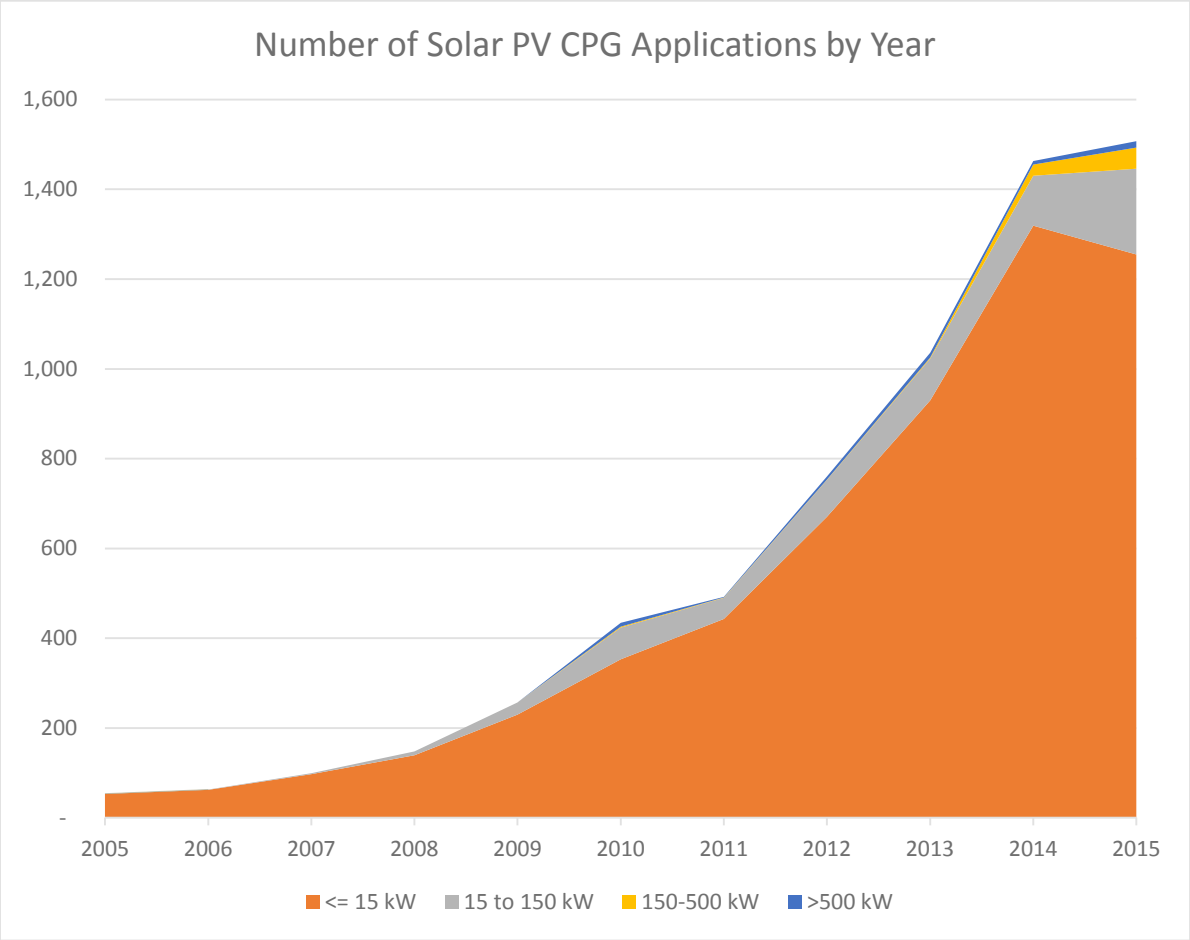
Exhibit 2. Standard Offer Program Solar PV Price Caps and Bid Price (Bid Process Debuted in 2013) by Year

Year	Avoided cost price cap ($/kWh)	Lowest Solar PV bid price ($/kWh)
2009	$0.300	-
2010	$0.240	-
2011	$0.240	-
2012	$0.271	-
2013	$0.257	$0.1340
2014	$0.257	$0.1187
2015	$0.155	$0.1096

Vermont's net metering program has also contributed to statewide growth in solar development. The cost to install net-metered-scale (1-500 kW) systems in Vermont has dropped 58% over the last eight years. As the price of solar panels has dropped, this program, which benefitted from a "solar adder" starting in 2008, has become increasingly attractive, both to developers and to program participants.

By all measures – the average size of systems, and the total capacity of systems installed – solar is on the rise. All told, growth in the solar sector has resulted in approximately 200 MW either permitted or in the permitting process in Vermont. Not surprisingly, employment in the solar sector is also on the rise. The *Vermont Clean Energy 2015 Industry Report* found that employment in the solar PV sector has increased 21.8% since 2013, with 1,889 solar PV jobs reported.

Exhibit 3. Number of Applications Received for Solar PV Systems, by Year*†



**Systems <500 kW are overwhelmingly net metered, while those > 500 kW are generally part of the Standard Offer program or have utility PPAs.*

†*Some projects < 15 kW applied for in December 2015 are not reflected in this chart.*

Looking ahead – 90% by 2050 and Tier 2 of the Renewable Energy Standard

The Legislature enacted a Renewable Energy Standard (RES) through Act 56 of 2015. The Distributed Generation (DG) tier of the RES requires Vermont utilities to retire renewable energy certificates (RECs) from new renewable generators of 5 MW or less interconnected to a Vermont utility. The requirements rise from 1% of their retail sales (in MWh) in 2017 to 10% in 2032. The pace of increase is 0.6% per year. At current levels of retail sales, 0.6% of new energy supplied per year would correspond to an increase in solar capacity of approximately 25-30 MW (if all of the DG requirement were met with solar, and depending on the systems' capacity factors). At about 7 acres per MW, this would mean between 175 and 210 acres per year would be utilized for solar. Approximately 8 MW per year of net metered systems under 15 kW have been installed in recent years; these are overwhelmingly located on buildings. If this continued, it would leave about 20 MW per year for ground mounting of larger systems, using about 140 acres per year. By 2032, meeting the DG tier of the RES with solar alone could require up to 500 MW.

On the longer time horizon envisioned by the 2016 Comprehensive Energy Plan (CEP), total solar PV deployment by 2050 could be in the range of 1,500 to 2,250 MW. The CEP discusses the land use implications of these targets, and concludes that between 8,000 and 13,000 acres may be necessary to meet these targets, assuming that land use remains approximately 7 acres per MW. [1] To place that figure in context, Vermont is approximately 6 million acres.

The CEP envisions an increasing pace of deployment as solar PV efficiencies improve and costs fall. Solar PV system expected lifetimes of about 25 years also means that most systems installed in the next few years may be retired by 2050, and would need to be replaced to hit these 2050 deployment targets. Overall, this would mean a pace of deployment starting at the levels envisioned by the RES and slowly accelerating, such that the average between now and 2050 would be between 50 and 75 MW per year.

Act 99 and Revision of the Net Metering Rule

In addition to raising the cap for the net metering program, Act 99 of 2014 initiated a process for the Public Service Board (PSB) to rewrite its rules governing the program with a date of January 1, 2017 for the new rule to take effect. That rulemaking process is underway. The PSB disseminated a draft proposal in December and stakeholders filed comments by January 13, 2016. The draft rule makes significant changes in the process for approving net metered projects and also adds differentiation the $/kwh received by projects depending on the treatment of RECs and siting considerations.

The Solar Siting Task Force was briefed on the PSB's draft rule, and the Department of Public Service (DPS) took into account the Solar Siting Task Force's deliberations as it crafted comments on the draft. The following section on incentives addresses most directly the critical nature of the net metering program and the potential for adjustments in the $/kwh to be received by different projects to have a meaningful impact on both the pace and location of future solar development in Vermont. Changes to the process depending on size and location of projects can also have significant impacts on siting.

Standard Offer Program

The Standard Offer program will make 7.5 MW of capacity available in 2016 and in each of the two subsequent years, then 10 MW per year available for 2019 through 2022. In its filing of December 9, 2015 regarding the 2016 capacity, the DPS proposed giving preferential treatment to approximately one-third (2.5 MW) of the capacity for projects sited in the built environment (including on parking lots), on brownfields, landfills, and other preferred classes of sites.

[1] Given the historic trend of increases in solar panel efficiency, there is a reasonable likelihood that the acreage per MW will continue to decrease over time.

Recommendations

The Solar Siting Task Force (Task Force) offers the following suite of recommendations, broken down into Planning, Incentives, Regulatory Process, and Aesthetics/Environment categories. Generally, each of these recommendations can stand on their own (i.e., this does not constitute an interdependent "package" of recommendations). However, the Task Force agrees unanimously that all of these recommendations are worthwhile and important, and that implementing them all will greatly improve the siting, design, and regulatory review of solar electric generation facilities. Members of the Task Force made additional recommendations on which consensus wasn't reached. Those recommendations can be reviewed at http://solartaskforce.vermont.gov/materials.

Planning

Effective planning has the potential to shape the municipal, regional and state energy future. The quality and degree of energy planning at the town and regional levels could be increased with resources and tools, such as an expansion of the regional energy planning work the Department of Public Service (DPS) has undertaken with Bennington, Two Rivers-Ottauquechee, and Northwest regional planning commissions.

The Task Force seeks to strengthen the contribution that town and regional planning will make to the siting of the solar generation contemplated in the state's Comprehensive Energy Plan. Accomplishing this requires both effective regional and local planning for solar generation and the effective consideration of the guidance such planning offers in the § 248 regulatory process that determines if and under what conditions a solar project application will be approved.

Findings

1. There is variability in the quality and degree of energy planning at the regional level.
2. Action is needed to improve the ability of regions and towns to contribute to the Public Service Board's (PSB's) decision-making for solar projects.
3. The Energy Generation Siting Policy Commission's 28 recommendations were well considered and should be revisited by the Senate and House Natural Resources and Energy Committees.

Objectives

1. Strengthen the capacity of regional planning commissions and municipal planning commissions to plan for solar facilities and provide that information to the PSB in a manner that will be meaningful in the § 248 Certificate of Public Good (CPG) process.

Recommendations

1. *Clarify and Enhance the Energy Planning Responsibilities of Regions and Municipalities under the Vermont Planning and Development Act (24 V.S.A., Chapter 117)*

State planning and development goals under ***24 V.S.A. § 4302*** specific to energy efficiency and renewable energy development – to be considered in the development of municipal, regional, and state agency plans – predate, and therefore do not reference or incorporate more recently enacted state renewable energy goals or comprehensive energy planning requirements under Title 30.

- Expand Role of Energy in the State's Planning and Development Goals: Current statutory language related to energy planning would benefit from revision to more specifically recognize and reference the State Comprehensive Energy Plan and current state energy goals, in a similar manner to that in which they were amended last year with respect to basin planning. ***24 V.S.A. § 4302(7)*** could be amended as: To encourage the efficient use of energy and the siting and development of renewable energy resources consistent with goals and recommendations developed in the State Comprehensive Energy Plan prepared under 30 V.S.A. § 202 and 202b.

- Make Certain Regional Energy Planning Duties Mandatory: Powers and duties related to energy planning that are currently *optional* for RPCs under ***24 V.S.A. § 4345 Optional powers and duties of regional planning commissions*** (specifically ***24 V.S.A. § 4345(1)*** and ***24 V.S.A. § 4345(6)***)could be made mandatory by moving them to ***24 V.S.A. § 4345a Duties of RPCs***.

- Expand RPC Energy Planning Responsibilities: Regional plans are required to include "energy elements." Current statutory language related to energy elements of regional plans would benefit from revision to acknowledge the comprehensive nature of energy planning the state is now doing, and the need for sufficient detail to guide energy development decisions. ***24 V.S.A. § 4348a(a)(3)*** could be amended as: An energy element, which may include an analysis of comprehensive energy resources, needs, scarcities, costs, and problems within the region, a statement of policy on the conservation of energy and the siting and development of distributed and utility-scale renewable energy resources, and a statement of policy on patterns and densities of land use and control devices likely to result in conservation of energy, and maps identifying potential areas for the development of renewable energy resources.

- Expand Municipal Energy Planning Responsibilities: Municipal plans are also required to include "energy elements." Current statutory language related to energy elements in town plans would benefit from revision to acknowledge the comprehensive nature of energy planning that the state is now doing, and the need for sufficient detail to guide energy

development decisions. ***24 V.S.A. § 4382 The plan for a municipality (9)*** could be amended as: An energy plan, including an analysis of comprehensive energy resources, needs, scarcities, costs and problems within the municipality, a statement of policy on the conservation of energy, including programs, such as thermal integrity standards for buildings, to implement that policy, a statement of policy on the siting and development of distributed and utility-scale renewable energy resources, a statement of policy on patterns and densities of land use likely to result in conservation of energy, and land-use suitability maps identifying potential areas for the development of renewable energy resources.

2. *Strengthen Regional Energy Planning*

Regional Planning Commissions (RPCs) have tools and expertise to analyze both comprehensive energy needs as well as potential energy resources and constraints for each of the 11 regions in the state. RPC energy plans have historically varied in terms of depth and specificity, both of which are necessary to help regions to develop meaningful goals, strategies, and recommendations that carry weight in the permitting process. Resources and training are necessary to help RPCs to carry out deep energy planning that involves their member communities.

- DPS-RPC Energy Planning Pilot: The DPS has partnered with three regional planning commissions (RPCs) — Bennington, Two Rivers-Ottauquechee, and Northwest — to advance a total energy approach to regional energy plans, consistent with the goals and approach embodied in the 2016 Comprehensive Energy Plan. This pilot program is underway, and will be complete in 2016. Each RPC, working with the Vermont Energy Investment Corporation, has modeled pathways to 90% renewable energy within its region, and will identify particular regional goals and actions on heat, transportation, and electric power. The updated plans will also include a mapping component, identifying promising areas for different kinds of renewable energy supply technologies. The DPS hopes the development and adoption of these revised plans will enable a bottom-up approach to energy planning that will complement the state-led CEP structure. The DPS has budgeted for support for an additional four RPCs to begin this work in 2016, taking advantage of the groundwork laid by the three pilot regions.

- Ongoing Support for RPC Energy Planning: The DPS hopes to be able to support this initial work by all the RPCs, but a contractual and funding mechanism for ongoing regional energy planning does not exist. This could be modeled, with funding support, on existing RPC contracts with the Vermont Agency of Transportation for regional transportation planning (under ***19 V.S.A. § 101***) and with the Agency of Natural Resources for basin planning (as enacted in 2015 under ***10 V.S.A. § 1253***).

- Make RPCs Parties by Right in the § 248 Process: One of the required duties of RPCs in ***24 V.S.A. § 4345a(14)*** is to appear before the PSB to aid them in making determinations. However, this duty does not come with a commensurate right to appear in those proceedings. This can be fixed by amending ***30 V.S.A. § 248(a)(4)(F)*** to read: The regional

planning commission for the region in which a facility is located shall have the right to appear as a party in any proceedings held under this subsection.

3. *Strengthen Municipal Energy Planning*

Town plan elements related to energy – including land use elements used in the § 248 process – have historically varied in terms of relevance and specificity, both of which are necessary to help towns to develop meaningful goals, strategies, and recommendations that carry weight in the permitting process. Resources and tools are necessary to help towns to carry out deep energy planning in coordination with and with assistance from their RPCs, which are carrying out this work on the regional level.

- Support for the Creation of Guidance and Tools for Local Energy Planning: Towns would benefit from information gleaned through the RPC energy planning work, such as individual town energy usage data and map layers of energy resources and constraints, which could be incorporated into comprehensive planning for land use and development at the local level. Other useful tools could include development of standard energy use modeling and resource mapping protocols, for towns that wish to undertake their own modeling and mapping exercises from scratch; and more detailed resource inventories and mapping to better identify and address potential land conservation and aesthetic impacts of solar facility development. With funding, other tools to universally benefit towns – such as model town energy plans and solar siting best practices – could be developed through the input of experts and stakeholders.

- Explore the Feasibility of Options for Municipal Review and Regulation of Small Solar Systems: At present, the vast majority of applications received by the PSB are for solar projects < 15 kW. These projects go through a "registration" process, where the PSB, DPS, and utility have 10 days to review the application, and the CPG is deemed issued on the 11th day if no issue arise. Municipalities do not receive notice of these applications, but may have an interest in them in terms of impacts on historic structures, flood hazard areas, rights-of-way, property boundaries, solar access, and other site-specific matters. The Task Force supports the idea of exploring options that allow for municipal administrative review of smaller systems, under the existing registration process or through limited local regulation (e.g., under ***24 V.S.A. § 4413 Limitations on Local Bylaws***), *as long as the process does not entail additional burdens or delays for these smaller systems as compared with the existing PSB registration process*.

4. *Develop Solar Siting Best Practices*

Best practices for solar facility siting and development, adapted for application within a Vermont context, would provide consistent, needed guidance for use in developing regional and municipal plans, and associated community standards, that are considered in § 248 proceedings, and for developers as they undertake site selection, project design, and impact mitigation.

- Initiate Solar Siting Best Practices Working Group: A working group of Vermont stakeholders, including representatives of state, regional, municipal, environmental, and industry interests, should be convened to develop a consensus-based set of guidelines for solar development best practices within a Vermont context.

Incentives

Aligning market signals with public policy objectives is one of the most effective ways to guide development. There is strong desire in the state for solar to be preferentially developed in already impacted areas, such as on buildings, parking lots, brownfields, landfills, and gravel pits. Solar is also generally desirable in locations where it provides the most value to the grid, and where there is a direct or tangible benefit to host communities and neighbors. Modest changes to existing incentive programs in the state offer a pathway toward achieving these goals.

Findings

1. Action is needed to incentivize the siting of ground-mounted solar projects to locations that may be preferred (from a policy perspective), in order to create viable alternatives to the siting of projects in open fields in rural areas away from load, sites which are often less expensive to develop and in close proximity to three-phase power lines.
2. Desirable siting of projects can be encouraged through both financial and regulatory incentives (such as conditional waivers of certain criteria or expedited review for appropriately sited and scaled projects).
3. Financial incentives to achieve desirable siting outcomes require careful consideration with respect to their interplay with other societal objectives, such as cost to ratepayers.
4. Incentives should encourage projects that help the State meet its renewable energy development and greenhouse gas reduction goals.

Objectives

1. Incentivize projects to locate in preferred locations, including: previously developed areas, close to load (where feasible), and in areas designated for such use by towns, especially where multiple state objectives can be met at the same time.
2. In statute, provide objectives for siting that can then be executed more specifically in relevant programs or rules. The use of specific thresholds, numbers, and siting requirements in statute does not allow for flexibility based on context, nor does it allow for timely or straightforward revision based on new information or lessons learned.

Recommendations

1. *Create Regulatory and Financial Incentives For Siting in Preferred Areas*

- Encourage Solar Projects to Locate in Locally Designated Areas: At present, there is no formal mechanism for communities to direct solar development within their boundaries to preferred areas. If communities take the initiative to plan for solar, there should be regulatory and financial incentives put in place to encourage projects to locate in those areas.

- Maximize Solar Development in Previously-Developed Locations and Close to Load: Vermont's renewable energy programs, such as Net Metering and Standard Offer, do not have program-based criteria for selecting solar sites. Modifications to these programs that incentivize maximum deployment of solar on existing structures, parking lots, brownfields, landfills, gravel pits, and other previously-developed areas, as well as close to load, should be prioritized. Regulatory processes for these types of projects should also be streamlined to the extent practicable.

2. *Incentivize Projects that Directly Benefit Neighbors*

- Create Incentives for Projects that Directly Benefit Local Communities: "Community solar" projects should directly benefit towns or neighborhoods in which they are sited, or the loads to which they are adjacent. Projects should receive financial or regulatory incentives if they can demonstrate benefits to local communities (serving local participants, loads, or providing other meaningful community benefits).

- Enable Portions of Large Projects to Benefit Neighbors and Host Communities: Current statutory language allowing portions of non-net metering projects to be net metered (30 V.S.A. § 8010) will expire at the end of 2016, and no equivalent provision exists in the draft proposed net metering rules to take effect in 2017. A mechanism should exist to enable project sponsors to allocate some portion of > 500 kW solar projects to neighbors and host towns, perhaps using the net metering program, but in a way that reflects economies of scale enjoyed by larger projects and require the consent of the interconnecting utility.

3. *Encourage Projects that Help Meet Other State Energy, Environmental, and Development Goals*

- Incentivize Projects with Superior Energy and Environmental Characteristics: In the siting of projects, we should account for their greenhouse gas benefits and potential offsets as well as other co-benefits. Projects that demonstrate contribution toward meeting the State's renewable energy and greenhouse gas goals should be especially encouraged.

- Incentivize Projects with Co-Benefits: Projects that are specifically designed to offer other public benefits – e.g., that are managed to enhance biodiversity or to integrate compatible agricultural, recreational, or other types of uses that provide public benefit – should be specifically encouraged.

Regulatory Process

Participation in some aspects of the § 248 process can be difficult for some stakeholders, especially those participating for the first time or who choose to represent themselves in contested cases. Efforts to improve the availability of information on cases, create process guidance, and remove barriers to participation would be welcomed by the public, towns, neighbors, state agencies, developers, and other stakeholders.

Findings

1. It can be difficult for members of the public seeking to participate in the § process for the first time to understand and effectively participate in that process. Regular participants in the §248 process can also experience difficulties navigating the regulatory system and obtaining timely information and decisions.
2. Intervention in a § 248 proceeding can be expensive, difficult, and/or time consuming particularly for pro se interveners.
3. A mechanism is needed to facilitate mediation of community and neighbor concerns with projects, outside of the formal contested case process.

Objectives

1. Enhance customer service and access to information at the PSB for those seeking to participate in the § 248 process.
2. Enable multiple mediation pathways for resolution of concerns between project developers and host towns/neighbors, with the goal of shortening and not lengthening the overall process.

Recommendations

1. Create Pathways for Mediation of Concerns with Projects

- Encourage Pre-Application Consultations: While there is an existing 45-day notice requirement to towns and neighbors for projects > 150 kW, there are no other formal avenues for developers, towns, and neighbors to constructively engage prior to an application being filed with the PSB. Additionally, there are no consultation requirements for projects < 150 kW. The PSB's draft net metering rule does attempt to address this need, by requiring a pre-application information session and consultation prior to application filing for all projects > 15 kW and < 500 kW. Projects > 150 kW must additionally respond to comments received at the information session and in response to the 45-day notice. The Task Force is encouraged by these recommendations and would like to see projects > 500 kW similarly engage with neighbors and communities prior to the 45-day notice. It may be worthwhile to further encourage these early discussions by offering > 500 kW projects a streamlined § 248 process (something akin to the current § 248(j) application process) when the project is supported by the host municipality.

- Create an Early Off-Ramp for Mediation of Concerns: The PSB should develop a process to assist in resolution of concerns between developers, towns, and neighbors in the early stages of the application process. This could involve exploring the ability of PSB staff (or outside mediators hired by the PSB) to play a mediation role up to the point a case becomes contested. The goal would be to shorten the overall process while satisfactorily resolving the concerns of towns and neighbors and avoiding the expense of litigation.

- Create a Mediation Process for Contested Cases: The PSB should also develop a process to assist in resolution of issues between developers, towns, and neighbors after a case becomes contested, perhaps through ordering third-party mediations. It could consider using process similar to 18 CFR 385.603 (the Federal Energy Regulatory Commission settlement process): after appointing a settlement officer, there would be a finite period of discussions between the developer and person requesting the settlement conference (perhaps scaled to the size or project or type of proceeding); the settlement officer would make a recommendation to the PSB on whether to extend the settlement period, accept the settlement proposal, or go to hearing.

2. *Provide § 248 Process Assistance to Developers and the Public*

    - Creation of Customer Assistance Roles at the PSB: The § 248 process, particularly for net metered projects, has evolved into a large permitting process that lacks the administrative support, routinized permitting systems, and communication with stakeholders that this scale of permitting usually requires in analogous programs. The Task Force encourages the PSB to undertake a comprehensive review of its permitting and customer service needs and the skill sets that are required, including reviewing permitting programs at the Agency of Natural Resources (ANR) that may provide a useful model. In the short term, addition of the appropriate number and type of staff commensurate with the scale of permitting that is taking place is vital. Other state permitting programs, for instance, might employ three to five individuals to accommodate this scale of program. Appropriate staff might include one or more permit program managers with broad program oversight, and one or more administrative staff. It is important to provide answers to both common, administrative-type questions as well as more detailed technical- or process-related questions. The PSB will need appropriate resources to accommodate these needs. The electronic filing system initiative underway at the PSB will be an integral tool toward achieving appropriate levels of customer service.

    - Development of Forms and Templates: Citizens, developers, and other participants in the § 248 process would benefit from forms for routine processes, such as intervention requests. These could be added to the PSB's *Citizen's Guide to the Vermont Public Service Board Section 248 Process*. In addition, the PSB should consider issuing guidance or templates on standard documents it requires from certain classes of CPG applicants (e.g., a form decommissioning letter of credit, where one is required).

3. *Participation of State Agencies in the § 248 Process*

Certain state agencies, particularly the Agency of Agriculture, Food & Markets (AAFM) and the Vermont Division for Historic Preservation (VDHP) are charged with advocating for the protection particular state resources (agricultural soils and historic resources, respectively) but are limited in their ability to participate, either by resources or perceived procedural hurdles.

- Party Status for AAFM: Make AAFM a "party by right" in the § 248 process, and be given the right to intervene under PSB Rule 2.209(A), *intervention as of right*. Additionally, in relevant rules, ensure that AAFM is on the notice list for all projects.
    - 30 V.S.A. § 248(a)(4)(F) could be added to read:
      The Vermont Agency of Agriculture, Food & Markets shall have the right to appear as a party in any proceedings held under this subsection. For solar projects, participation of the Vermont Agency of Agriculture, Food & Markets shall be limited to ground-mounted solar projects that impact agricultural soils.

- VDHP Notice and Developer Agreements: In relevant rules, ensure that the Division for Historic Preservation is on the notice list for all projects and that any agreement between developers and the DHP is included in the applicant's application or petition.

Aesthetics/Environment

In § 248, aesthetics is primarily reviewed in the context of criterion (b)(5), which requires that a project "….will not have an undue adverse effect on esthetics, historic sites, air and water purity, the natural environment, the use of natural resources, and the public health and safety…." [emphasis added]. The PSB uses the two-part Quechee test adopted by the former Environmental Board (now the Natural Resources Board) to determine the project's effect on aesthetics. The Quechee test can be summarized as follows:

Part One: Determine whether the project will have an adverse impact on aesthetics and the scenic and natural beauty of an area because it would not be in harmony with its surroundings. If yes, move to part two.

Part Two: Determine whether the adverse impact is undue, if any one of three questions is answered in the affirmative:
1) Does the project violate a clear, written community standard intended to preserve the aesthetics or scenic, natural beauty of the area?
2) Does the project offend the sensibilities of the average person?
3) Have the applicants failed to take generally available mitigating steps that a reasonable person would take to improve the harmony of the proposed project with its surroundings?

In the following language from a recent decision (*Petition of Rutland Renewable Energy, LLC*, Docket 8188, Order of 5/6/15 at 10, citations omitted), the PSB explains how it considers both the public views and also private concerns in its aesthetics review:

> [W]e conclude that our adaptation of the *Quechee* test to focus on the impacts experienced by the average public viewer is necessary for the lawful administration of Section 248 and the effective implementation of its policy goals.
>
> We recognize that, at times, projects that we find to promote the general good will have impacts on nearby landowners; this Project is one of those cases. It is not our practice to turn a blind eye to such impacts. Instead, we carefully consider ways to mitigate these impacts by imposing conditions that require the implementation of generally available mitigating steps that a reasonable person would undertake given the circumstances of each case.

In addition to criterion (b)(5) aesthetics review, the PSB can consider scenic resources through criterion (b)(1) (orderly development), to the extent scenic resources are identified in town and regional plans.

Aesthetics is by its very nature subjective. While the Quechee test attempts to lend some objectivity to the review, details of how the review is conducted, and what information feeds into the review, are not always clear. There is also need for improvement in the information collected for the purpose of aesthetics review, the ability for those potentially affected to be involved, and the assurance that aesthetic mitigation requirements (such as screening) remain effective over time.

Findings

1. There is need for plain-language guidance on the Quechee test for participants in the § 248 process, particularly with respect to the role and consideration of neighbors and town plans.
2. Site selection can constitute the most important element of meeting aesthetics goals. There is a need for guidance to be developed to signal to developers desirable and undesirable attributes of sites. The PSB should pay attention to that guidance to the extent it is incorporated in regional and town plans in its review of projects under criterion (b)(1).
3. Act 56 included provisions to improve the ability of towns to have meaningful input in the siting of solar projects. The Act granted automatic right to party status in § 248 proceedings to host-town selectboards and planning commissions, created statewide minimum setbacks for ground-mounted solar projects, and allowed municipalities to adopt solar screening bylaws that would be applied in the context of a § 248 proceeding. Towns have only just begun to take advantage of these provisions, so it is too soon to tell if they are achieving their purpose. However, members of the Task Force also have concerns about the scope, direction, and implementation of these statutory changes and their unintended consequences, possibly limiting the ability of municipalities to provide meaningful siting guidelines.
4. Certificate of Public Good conditions may require a greater degree of compliance oversight. Vegetated screening, for instance, must be properly maintained over the lifetime of the project.
5. The scenic resources of non-host towns can be affected by solar projects on their borders.
6. Currently, some applications for solar projects lack detail on some infrastructure components that may have aesthetic or environmental impacts.

Objectives

1. Ensure potentially affected towns receive notice of applications, and that the applications provide sufficient detail for thorough aesthetics review.
2. Provide guidance for towns and neighbors on the aesthetics review process.
3. Ensure aesthetic mitigation, if required, is successful.

Recommendations

1. *Improve Aesthetics Review Process, Transparency, and Compliance Provisions*

- Notification to Adjacent Towns: At present, projects that may affect the scenic resources of adjacent towns are not required to provide notice to those towns. Notification of projects within 500 feet of a town border to the adjacent municipal legislative body should be a requirement for all systems > 15 kW.

- Identification of Project Infrastructure, Soils, and Impacts on Site Plans: Applications for some projects, especially smaller net metering projects, do not always include identification of every piece of equipment that might have a bearing on aesthetics, environmental resources, or the presence of primary agricultural soils that may be impacted. Nor do they always adequately depict the full extent of project impacts or the limits of disturbance associated with the construction and operation of the project (such as access roads, underground or overhead electric service, and areas of vegetation or tree pruning to manage shade). Applicants for projects > 50 kW should be required to identify, on site plans: all visible infrastructure, including any proposed utility lines; the presence and total acreage of any primary agricultural soils in the project area; and all project impacts related to construction and operation, including new access roads and areas of one-time or ongoing tree/vegetative management for shade.

- Develop Aesthetics Guidance: Under the *Planning* section above, the Task Force recommended the creation of solar siting best practices by a stakeholder working group. The working group should specifically address guidance on aesthetics as it relates to site selection and design.

- Consider Improvements to Act 56 Setback and Screening Provisions and Implement as Appropriate: As discussed in the findings above, the setback and screening provisions in Act 56 require study to understand if and how they are working (or whether more time is needed to understand how the Act is working). Any results of such study should inform discussion of potential revisions to those provisions.

- Quechee Analysis Guidance: It is not always clear to project neighbors how their views are considered, or to towns how community standards are considered, in the Quechee

analysis. The PSB should develop a plain-language guide to the Quechee Analysis for use by all stakeholders, including a description and examples of the role of town plans and neighbors in the analysis.

- Aesthetics Mitigation Compliance: Ensuring ongoing compliance with the aesthetics mitigation requirements of Certificates of Public Good is essential. Therefore, a condition should be included in § 248 Certificates of Public Good for projects involving aesthetics mitigation that once a system is installed, a landscape architect or other appropriate expert shall certify that screening and other aesthetics mitigation components have been installed and maintained according to approved plans. Additionally, the condition should require submission of documentation that the plantings have been maintained, for a period of three years after installation, to all parties in the proceeding. The compliance proceedings language included in Section 5.115 of the PSB's proposed net metering rule provide a useful mechanism for the PSB to investigate potential violations of CPG conditions, either on its own volition or in response to a public complaint.

2. *Improving Water Quality Through Solar Transition*

- Support Development and Implementation of Multi-Agency Proposal: An opportunity exists to provide incentives for farmers and landowners to place solar on prior converted wetland soils. There is currently little incentive for farmers to stop the practice of cropping on prior converted wetland soils. AAFM and ANR are developing a proposal to incentivize the siting of solar generation on certain operating farms in locations that will improve water quality and provide a financial incentive to farmers to take these lands out of production with solar development. This proposal could be a win-win-win for the farm, for water quality, and for renewable energy generation. The Task Force encourages AAFM and ANR to continue their work toward development of a proposal for consideration by the Legislature.