

**Vermont Group Net Metering:
Information & Guidelines for 150 kW (AC)
Community Solar Projects**



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Disclaimer

The contents of this report are for informational purposes only and should not substitute for professional legal advice. Readers should contact a licensed attorney in the relevant jurisdiction, for counsel with respect to any particular questions, or issues concerning developing a community-owned group net metering project. The opinions expressed herein are the opinions of the individual authors and may not reflect the opinions of Vermont Law School.

Introduction

Group net metering programs allow individual customers within one utility service territory to form a group, construct and operate a renewable energy project, as well as distribute net metering credits to the participants. This Guide provides information and tools to help assist with the development of community-owned solar facilities up to 150 Kilowatts (kW) through Vermont’s group net metering program. Our model focuses on solar arrays 150 kW and smaller for two reasons. First, solar arrays greater than 150 kW in Vermont are subject to more costly and time-consuming requirements. Second, solar arrays account for the majority of installed net metering capacity in Vermont (93.5%).¹

Community solar provides several important benefits. It dramatically increases access to renewable energy. Individuals who traditionally were unable to go solar (i.e. renters, property owners with inadequate solar resources, individuals who cannot afford upfront solar installation costs) can now go solar. Additionally, it brings economy of scale to project pricing by dividing installation costs among multiple participants. Further, it provides flexibility by allowing participants to transfer their “solar shares” to a new home or rental. Finally, it supports the local economy by creating jobs and financial savings for the community.

The community solar model advocated in this Guide maximizes the economic and environmental benefits of solar energy development. This is accomplished by allowing direct ownership of the community solar array by its participants, retaining full ownership of the environmental attributes² (i.e. RECs) generated by the solar array, and creating partnerships between community solar groups and solar installers.

¹ Vermont Public Service Department. *Evaluation of Net Metering in Vermont Conducted Pursuant to Act 99 of 2014* (2014).

² “Environmental attributes” are defined as “the characteristics of a plant that enable the energy it produces to qualify as renewable energy and include any and all benefits of the plant to the environment such as avoided emissions or other impacts to air, water, or soil that may occur through the plant’s displacement of a nonrenewable energy source” 30 V.S.A. § 8002[6]. These environmental attributes are monetized as renewable energy credits (REC).

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Executive Summary

Vermont Law School's Energy Clinic created this guide to help Vermonters develop community-owned solar facilities under 150 kW (AC) through Vermont's group net metering program. This guide explains the laws and regulations governing group net metering in Vermont and provides step-by-step advice on how to develop a community solar project. Although our Guide is based on rules for group net-metered systems located in the Green Mountain Power service territory, many provisions are applicable to other utility service territories in Vermont.

Part one of this guide provides step-by-step instructions on how to establish a group net metering project, such as information about forming a net metering group, finding a site for a solar array, financing the project, and establishing group governance.

Part two explains Vermont's current net metering laws and regulations as well as discusses the future of net metering at the state and federal level.

The Appendix provides additional tools and resources, including: a list of abbreviations used in this report, contact information for Vermont utilities, a Certificate of Public Good (CPG) application, model operating and land lease agreements, an explanation of different entity models available to net metering groups, and a summary of renewable energy credits (RECs) and why they are important to community solar projects.

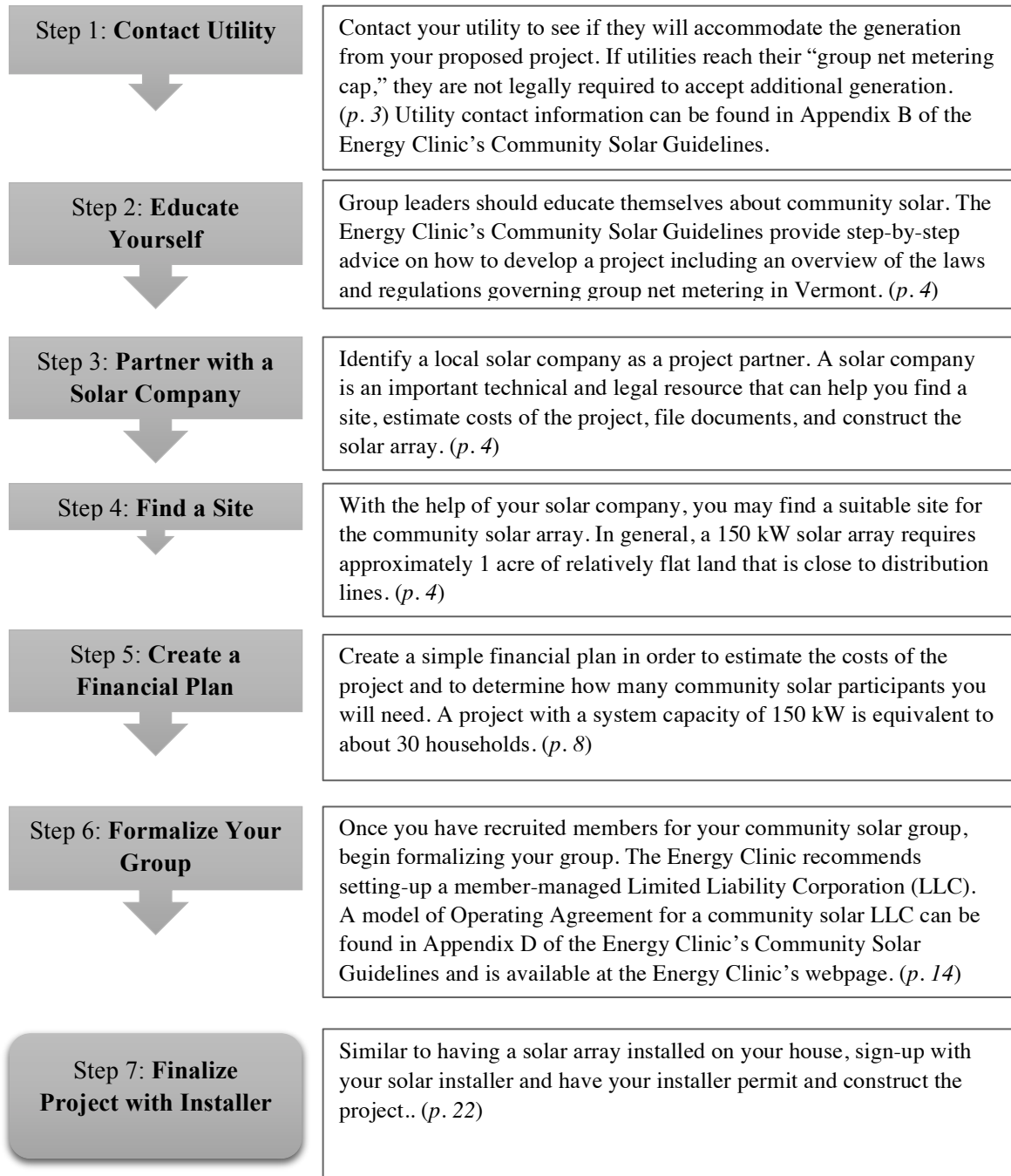
1. Establishing a Project

Introduction

Individual customers who are ready to form a net metering group must be cognizant of the legal, financial, logistical, and organizational constraints that lie ahead. This chapter details the various considerations involved in establishing a community-owned solar array between 15 kW and 150 kW (AC) that participants should heed in order to obtain a Certificate of Public Good (CPG). Each net metering group will face unique circumstances that will require specialized solutions within regulatory and financial constraints.

The net metering group must determine whether the host utility is obligated to accept the net metering project. The next step is to find a site that conforms to the standards set forth in 30 V.S.A. Section 248a. This Chapter details the requirements that a site must satisfy. Further, it discusses the various financing mechanisms available to net metering participants. The appropriate mechanism for participating group will depend largely on group construction. Once the net metering group secures a site and financing for the solar array, group governance must be established. This chapter describes the organizational requirements group must meet in order to obtain a CPG and concludes with an overview of the CPG application process.

Overview to Community Solar Ownership



1.1 Contact the Service Utility

Prospective net metering participants should contact the utility within their service territory to determine if the utility is obliged to accommodate the generation from their project. Vermont law requires that utilities make 15% of their peak cumulative capacity eligible for group net metering systems. Once utilities reach the cap, they are not legally required to accept additional generation.

3/9/16											
	Solar		Wind		Methane		Hydro		ALL		% PEAK
	Count	Capacity	Count	Capacity	Count	Capacity	Count	Capacity	Total Cap	PEAK	
Barton	12	64	2	19	0	0	0	0	83	3040	2.73%
BED	119	4188	4	15	1	248	0	0	4451	67000	6.64%
Enosburg	17	109	0	0	0	0	0	0	109	5740	1.90%
CVPS	888	7054	63	344	2	84	4	446	7928	7928	13.88%
GMP	4476	100897	48	940	5	405	12	2806	105049	766200	14.75%
Hardwick	83	1087	9	79	0	0	0	0	1166	6930	16.82%
Hyde Park	29	342	1	10	0	0	0	0	351	2530	13.88%
Jacksonville	4	166	3	11	0	0	0	0	176	1180	14.95%
Johnson	3	22	0	0	0	0	0	0	22	2800	0.79%
Ludlow	1	10	0	0	0	0	0	0	10	12400	0.08%
Lyndonville	55	350	2	99	0	0	0	0	449	13480	3.33%
Morrisville	48	721	4	38	0	0	0	0	759	9170	8.28%
Northfield	22	137	0	0	0	0	0	0	137	5330	2.56%
Orleans	3	21	0	0	0	0	0	0	21	3570	0.59%
Stowe	42	349	0	0	1	20	0	0	369	18680	1.98%
Swanton	17	591	0	0	0	0	0	0	591	10430	5.67%
VEC	753	10932	45	332	1	62	0	0	11326	83170	13.62%
WEC	258	1964	8	70	0	0	0	0	2035	16010	12.71%
TOTAL	6830	129006	189	1956	10	819	16	3253	135033	1027660	13.14%

For example, the only Vermont utility in this table that is not required to provide service for net metering system is Hardwick since it has reached the 15% program cap. However, it is notable that the peak percentage listed in this table may not be current.³ Thus, we recommend readers of this guide contact utility directly to ascertain whether utility is accepting and processing applications at this time. It is notable that GMP reached its net metering cap for solar power in November 2015 and sought approval from the PSB to offer customers connecting net

³ Net metering group participants can check the percentage of the utility's peak load in the Department of Public Service website, http://publicservice.vermont.gov/renewable_energy/net_metering (last visited April. 25, 2016).

metering systems above its cap.⁴ However, there was no response from the PSB. We expect that the current program cap will be raised upon adoption of a revised net metering program by the Vermont Public Service Board, which is expected to occur on or before January 1st, 2017. Net metering participants can find the contact information for each Vermont utility in Appendix B.

1.2 Educate Yourself about Group Net Metering Program

Group leaders including community solar members should educate themselves about group net metering program. The Energy Clinic's Community Solar Guidelines provide step-by-step advice on how to establish a community solar project as well as an overview of the laws and regulations governing group net metering in Vermont. An online version of the Community Solar Guidelines can be found at Vermont Law School's energy clinic website.⁵

1.3 Partner with a Solar Company

Group leaders in community solar project should contact and identify a local solar company as a project partner early on in the process. A solar company will be an important technical and legal resource that can help net metering group find a site, estimate costs of the project, file document, and construct the solar array.

1.4 Find a Site

Finding a site that conforms to the standards set forth in 30 V.S.A. Section 248a is the top priority. 30 V.S.A. Section 248a governs the siting and construction of new electric facilities. When evaluating a new solar facility, the Public Service Board (PSB) will waive the majority of the requirements found in Section 248a. However, four requirements cannot be waived: *Orderly*

⁴ *Petition of Green Mountain Power for Approval to Offer Net Metering to Customer Above the Statutory Cap Pursuant to 30 V.S.A. § 219a(h)(1)*, State of Vermont Public Service Board (November 2015), <http://www.greenmountainpower.com/upload/photos/426Petition.pdf> (last visited April. 25, 2016)
See also Mike Polhamus, *State's Largest Utility Seeks to Raise Net Metering Capacity* (Nov. 18, 2015), <http://vtdigger.org/2015/11/18/states-largest-utility-seeks-to-raise-its-net-metering-capacity/> (last visited April. 25, 2016)

⁵ See <http://www.vermontlaw.edu/academics/clinics-and-externships/energy-clinic> (last visited April. 19, 2016)

*Development, Stability and Reliability, Environmental Considerations, and Outstanding Resource Waters.*⁶

1.4.1. Orderly Development/ Comprehensive Planning

Solar Installer and other parties building community solar projects should review the relevant town and regional plans of their county and municipality to ensure their project is consistent with these plans. In order to obtain a CPG, potential projects must not “unduly interfere with the orderly development of the region.”⁷ After the net metering group submits the CPG application, the PSB will take into consideration the “recommendations of the municipal and regional planning commissions, the recommendation of the municipal legislative bodies, and the land conservation measures contained in the plan of any affected municipality” to inform their decision.⁸

1.4.2. Stability and Reliability/Interconnection Requirements

In order to optimize distributed generation as a grid resource, renewable facilities should connect to three-phase power lines when possible. Single-phase and three-phase power lines are the most common method for electrical transmission in Vermont. Three-phase power distribution lines transfer electricity over long distances, while single-phase power generally enters homes and businesses to power appliances. Three-phase power lines can handle a higher electricity load, making them a key piece of the electricity infrastructure needed for the integration of renewable facilities. While proximity to three-phase power distribution lines⁹ greatly improves the chances of interconnection, many single-phase power distribution lines can accommodate the

⁶ PSB Rule 5.108(B).

⁷ VT. STAT. ANN. tit. 30, § 248 (West).

⁸ *Id.*

⁹ For an interactive map of Green Mountain Power’s three-phase distribution system, *see*: http://www.greenmountainpower.com/innovative/solar_capital/3-phase-service-in-vermont/ (last visited April. 10, 2016).

capacity added by a 150 kW system without disrupting grid stability and reliability. The solar company installing the group system should communicate directly with the utility regarding interconnection requirements.

1.4.3. Environmental Considerations/Outstanding Water Resources

When siting the project, net metering participants should be attentive to the proximity of bodies of water, wetlands, deer wintering areas, threatened or endangered species, and any other applicable sensitive environmental factors. The Agency of Natural Resources' (ANR) website contains a map of many of these environmental resources.¹⁰ When selecting a site and designing the solar array, the organizers of a community solar project should consult ANR's map and avoid impacting environmental resources when possible. Impacts to these resources can delay the permitting process or cause the proposed community solar array not to receive a permit. The solar company **may be** able to assist in identifying suitable sites for the solar array.

1.4.4. Optimal Siting and the "Quechee Test"

Net metering participants must evaluate potential sites for their proximity to distribution lines with available capacity for accommodating a system between 15 kW and 150 kW, and potential aesthetic impacts. Proximity to distribution lines restricts the number of potential sites for a solar array. Most of Vermont's electricity distribution system runs along the highway system. This means any potential project will most likely be visible from the road, and those who find the view unpleasant will have grounds for complaints.

In order to address complaints about the aesthetics of the array, the PSB usually applies the two-step "Quechee Test" to weigh the public's aesthetic concerns against the potential

¹⁰ See <http://biofinder.vt.gov/biofindermap.htm> (last visited April. 10, 2016).

benefits of the project.¹¹ The first step of the test examines five criteria to determine if the project will have an adverse aesthetic impact on the surrounding area:¹²

1. The nature of the project's surroundings.
2. Whether the project's design is compatible with its surroundings.
3. Whether the colors and materials selected for the project are suitable to the surroundings.
4. From where is the project visible.
5. The impacts on open space.

The Board applies the greatest scrutiny to the first two criteria. Therefore, solar installer should design the proposed array with consideration to the system's surroundings. Net metering participants should be attentive to the quality of landscaping because it could be an effective means of mitigation.

If the Board determines that the project has an adverse impact on the surrounding area, then in the second step, it tests whether the adverse impact will be "undue."¹³ Here, the Board will consider three criteria:

1. Would the project violate a clear, written community standard intended to preserve the aesthetic or scenic, natural beauty of the area?
2. Would the project offend the sensibilities of the average person?

¹¹ *In re Lakes Corporation*, 154 Vt. 543, 550 (1990). 30 V.S.A. Section 219a only requires that systems exceeding 150 kW (AC) be subject to the "Quechee Test"; however, this report includes a review of that Test in order to provide understanding of how the Board evaluates the aesthetic impacts of solar arrays. While systems under 150 kW (AC) are not explicitly subject to the Test, the Environmental Information section of the CPG application does require applicants "describe the visible and aesthetic impact of the project and why it will not have an undue effect on aesthetics and the scenic and natural beauty of the area."

¹² Chelsealm, *Adverse Aesthetic Impacts: Act 250's Criterion 8 Upheld in Quechee Lakes*, VT. LAW SCH. LAND USE CLINIC, (May. 13, 2011), <http://openspacevt.wordpress.com/2011/05/13/act-250-and-adverse-aesthetic-impacts-criterion-8-upheld-in-quechee-lakes/> (last visited April. 10, 2016).

¹³ The revised net metering rule describes how the Queechee test is applied. P.19-22, <http://psb.vermont.gov/sites/psb/files/docketsandprojects/electric/Rule51002016/Draft5%201003%207%202016JM.pdf> (last visited April. 10, 2016).

3. Has the applicant failed to take generally available mitigating steps that a reasonable person would take to improve the harmony of the proposed project with its surroundings?

The second step of the “Quechee Test,” demonstrates the importance of considering the region’s planning devices, such as the town and county comprehensive plans. When determining an optimal site, groups should consider the three prongs of the second step of the “Quechee Test.” Prospective net metering participants should be prepared to mitigate any adverse aesthetic effects of their projects. Early evaluation of the site based on the test will provide insurance against potential future complaints against the proposed project to the PSB.

Once a site has been found, the net metering group must work out the legal and financial relationship with the landowner. The VLS Energy Clinic has developed a model land lease agreement executed by the landowner, the agent for the group’s LLC, and the solar company. Under our model land lease agreement, the landowner receives a share of the net metering credits generated by the project as compensation for the lease. If the landowner has any mortgages remaining on his property, then the LLC and the financial institutions should execute a subordination, non-disturbance and attornment (SNDA) agreement in order to establish a contractual process in the event of a foreclosure upon the landowner’s property.¹⁴ Vermont Law School’s model land lease, attached as Exhibit E, contains an SNDA agreement. However, groups should consult an attorney experienced in Vermont real estate transactions for more information on Vermont property law.

1.5 Financing

Financing and monetary incentives are critical issues for Vermont residents and small businesses seeking to participate in community-owned group net metering. The costs of material

¹⁴ Morton P. Fisher, Jr., Richard H. Goldman, REAL PROPERTY, PROBATE, AND TRUST JOURNAL 355-398 (1995).

for solar arrays have decreased tremendously in recent years.¹⁵ However, installation and maintenance still require a significant financial commitment. In addition, the solar company can help develop a simple financial plan by estimating costs for the project, and a net metering group can further estimate how many community participants they approximately need to invest in the project.

This section clarifies the financing options for prospective net metering participants based on the state and the national tax climate as of January 2015. The October 1, 2014 PSD report on the status of net metering in Vermont encourages net metering participants to take advantage of the current federal tax incentive structure to build well-sited distributed net metered generators, including solar PV. How a group chooses to finance the solar array depends on how the group chooses to organize. This report encourages net metering groups to organize in a way that maximizes returns from federal investment tax credits. A net metering group allows individuals, businesses, nonprofits, and municipalities to join together to govern and finance a solar facility.

This section identifies the tax credits that are available to residential and commercial customers through the federal tax system, and articulates three avenues through which prospective net metering groups may finance their project. It also discusses state-supported incentives programs and loans, tax-exempt financing options as substitutes or supplements to personal loan programs of credit unions and banks.

¹⁵ By some estimates, prices for household solar photovoltaic systems fell by almost 30 percent from 2010 to 2013, <http://blog.ucsusa.org/cost-of-installing-solar-panels-635> (last visited April. 10, 2016).

1.5.1. Federal Tax Incentives

Net metering participants should take advantage of the federal investment tax credits to help offset a significant portion of the installation costs.¹⁶ Under the Internal Revenue Code, a 30% federal Investment Tax Credit (ITC) is available to both residential and commercial solar Photovoltaic (PV) systems.

Claiming the Commercial Investment Tax Credit

1) Commercial Energy Investment Tax Credit (ITC):

Qualified community solar projects are entitled to a tax credit – 30% of its investment cost.¹⁷ Section 48 of the Internal Revenue Code creates a 30% investment tax credit for solar photovoltaic (PV) investment in the commercial, industrial, investor-owned utility, cooperative utilities, and agricultural sectors.¹⁸ This tax benefit covers expenditures for “energy property” as defined in §48(a)(3), which includes solar facilities - and is not subject to a maximum credit limit. Any unused credits may be carried forward to be used in future years.¹⁹ State rebates and grants are not calculated into the 30% ITC, unless they are considered taxable income.²⁰ Hence, subsidized energy financing expenditures through a federal, state, or local program designed to produce or conserve energy cannot be earned back through the credit.

2) The Modified Accelerated Cost Recovery System (MACRS):

¹⁶ Jason Coughlin et al., *A Guide to Community Shared Solar: Utility, Private, and Nonprofit Project Development* 38, U.S. DEPARTMENT OF ENERGY (2012). (Citing Financing Non-Residential Photovoltaic Projects: Options and Implications, Lawrence Berkeley National Laboratory, Jan 2009), <http://eetd.lbl.gov/ea/emp/reports/lbnl-1410e.pdf> (last visited April. 10, 2016).

¹⁷ The Internal Revenue Service, *Private Letter Ruling on the Eligibility of an Individual Panel Owner in an Offsite, Net-metered Community-Shared Solar Project to Claim the Section 25D Tax Credit*, Clean Energy States Alliance, <http://www.cesa.org/assets/2015-Files/IRS-Community-Shared-Solar-PLR.pdf> (last visited April. 25, 2016) See also Wilson Ring, *IRS Backs Investor in Westside Solar Farm* (Sep. 2, 2015), The Rutland Herald, <http://www.rutlandherald.com/article/20150902/NEWS03/709029895/1001/NEWS> (last visited April. 18, 2016)

¹⁸ 26 U.S.C. § 48(a)(3)(A)

¹⁹ Mark Bolinger, *An Analysis of the Costs, Benefits, and Implications of Different Approaches to Capturing the Value of Renewable Energy Tax Incentives* (May 2014), http://eetd.lbl.gov/sites/all/files/lbnl-6610e_0.pdf. (last visited April. 10, 2016).

²⁰ If the incentive is considered taxable income, then it does not need to be subtracted from the cost basis. *Id.* at 43.

The MACRS allows businesses to recover energy investments through a method of depreciation for the declining value of qualified PV assets at an accelerated rate on their tax returns.²¹ Qualified businesses can depreciate their PV assets,²² in the form of a tax deduction, over a five-year period. The owner of the PV array could then offset other sources of passive income “with losses generated by accelerated depreciation deductions under [MACRS].”²³

Utilizing the commercial ITC to develop a community solar project generally requires an intricate partnership with a tax-motivated investor through tax equity financing. Although there are different variations²⁴ of this arrangement, the overriding principle remains the same: the group invites a tax equity investor to monetize the investment tax credit, while the tax equity investor provides the start-up capital and fills the role of debt-based financing.

Although this is a plausible means to utilize the ITC, it is by no means simple, and comes with its own unique set of costs. Mark Bolinger of the Lawrence Berkeley National Laboratory claims that the magnitude of the net benefit conferred by tax equity funding “is diminished by the fact that tax equity is currently twice as expensive (on a comparable after-tax basis) as the project-level term debt that might otherwise be used in its place.”²⁵ Thus, if tax equity investors are brought into the equation to monetize the tax benefits, community groups who want to

²¹ 26 U.S.C. § 168(e)(3)(B)(vi) under the MACRS, which refers to the property described in 26 USC §48(a)(3)(A)

²² 26 U.S.C. § 167, a depreciation deduction allowance for assets generally applies to a property used in trade or business or income-producing activity (investment use) defined in section 167(a)(1), (2), https://www.irs.gov/publications/p946/ch01.html#en_US_2013_publink1000107298 (last visited April. 19, 2016)

²³ Mark Bolinger, *An Analysis of the Costs, Benefits, and Implications of Different Approaches to Capturing the Value of Renewable Energy Tax Incentives* (May 2014), P. 39, http://eetd.lbl.gov/sites/all/files/lbnl-6610e_0.pdf (last visited April. 10, 2016).

²⁴ *Sale-Leaseback structure*: where the community sells the completed systems in their entirety to a tax equity investor, and the investor then leases the system back to the community. *Partnership Flip structure*: where the community and the tax equity investor partner together to finance and own the project and share in both its risks and rewards. The community may regain 100% ownership of the assets at reasonable cost after all the tax benefits have been used by the tax investor. *Inverted Lease structure*: where first, the community and tax equity investor jointly fund a “master tenant,” who will be 99% under the tax equity investor’s control. Next, the community and master tenant fund an “owner/lessor”, who is 51% owned by the community, to own and lease the systems to the tenant. This method allows the community to keep half the depreciation tax benefits.

²⁵ Mark Bolinger, *An Analysis Of the Costs, Benefits, And Implications Of Different Approaches To Capturing The Value of Renewable Energy Tax Incentives*, 1 (May 2014).

develop a group net metering solar array will essentially “forfeit one-third or more of the economic value of a project’s tax benefits.”²⁶

Moreover, we suggest that community solar participants look towards self-financing their group net metered project from their own savings or through financing with your local bank or credit union in order to avoid reduction in customer benefits and the complicated nature of tax equity financing.

Claiming the Residential Investment Tax Credit

The simplest way for individual customers who are not businesses to finance their share of the solar array is through personal investment supplemented by the federal 30% Residential Investment Tax Credit. Among other renewable energy expenditures, this tax benefit covers expenditures for “solar electric property” defined in § 25D(d)(2) and is not subject to a maximum credit limit. This method requires individual customers to rely on their own savings, traditional loans from lending institutions, and/or government subsidized loan programs to fund their projects, while capturing the 30% tax credit against their own household income²⁷. Net-metered projects appear to be able to claim the residential ITC, granted the following requirements are met:

1. The installed capacity is off-site, or not directly located on the taxpayer’s home.

²⁶ *Id.*

²⁷ In 2013, the IRS issued guidance that confirmed residential tax benefits can be used for solar projects not located at or on the owner’s residence. This guidance does not necessarily cover all project arrangements. Further IRS guidance would be helpful. Please consult a tax attorney regarding your eligibility for federal tax incentives, <http://www.irs.gov/pub/irs-irbs/irb13-47.pdf> (Notice 2013-70), P. 531. *See also*, <http://www.energycleantechcounsel.com/2013/11/07/irs-opens-the-door-to-expanded-use-of-residential-section-25d-credit-in-offsite-solar-and-other-renewables-projects/> (last visited April. 10, 2016).

2. The taxpayer's net metering contract specifies that the taxpayer owns the energy transmitted by the solar panels to the utility grid until drawn from the grid at his residence.
3. The installed system is not used to generate significantly more²⁸ power than is consumed by that taxpayer at his or her home.

The 30% Residential ITC may be applied directly to the taxpayer's federal income taxes. The rebate amount of 30% will remain until December 31, 2019, which is the last day a community solar array should begin construction of the project in order to obtain the full 30% tax credit. The rebate amount will decrease to 26% in 2020, 22% in 2021, and continue at 10% in the following years. The designation of whether an installed system is commercial or residential will depend on the entity filing the application.

The challenges of financing a community-owned solar array system through loans and the residential ITC lie in each net metering participant securing their own financing, and forming an association or an agreement that will determine group governance structure and accountability for managing the solar array.²⁹

1.5.2. State Tax Benefits and Programs

Group net metering participants will be able to take advantage of Vermont's tax benefits towards the use of their solar energy generation facility. Any systems over 50 kW will be assessed a uniform \$4/kW tax.³⁰ With regards to municipal tax, Vermont gives discretion to each

²⁸ The IRS did not quantify "significantly more" in its Guidance Notice.

²⁹ In the past, community solar groups have formed limited liability companies (LLC) to meet this need. For instance, the Boardman Hill Community Solar project participants organized an LLC (Boardman Hill Solar Farm, LLC) to undertake financial, administrative, and management responsibilities for the group's solar project. (PDF version of Boardman Hill Solar Farm power point presentation on file with IEE)

³⁰ 32 V.S.A. 3481

municipality to waive the property taxes for PV facilities and any land, not to exceed one-half acre, on which it is built.³¹

Regarding the personal debt equity, some lending institutions, such as the Vermont State Employees Credit Union,³² offer specialized loan options for solar projects.³³

1.6 Establishing Group Governance and Group Procedures

Act 99 and Rule 5.100 require that applicants establish certain group governance procedures before the Board awards a CPG. Formation of a legal entity may be useful for group governance and managerial purposes, but prospective net metering participants should ensure that the ownership interest in the facility remains with the participants, rather than being transferred to the legal entity. Regardless of the legal structure of the group, the CPG application must contain the following:³⁴

- A process for adding and removing meters; allocation of excess generation;
- A dispute resolution process;
- A designated process for communicating with the host utility, including a designated communicator; and
- An explanation of the ownership of the renewable energy credits produced by the group system.

³¹ See <http://www.leg.state.vt.us/reports/2012ExternalReports/274975.pdf> (last visited April. 10, 2016).

³² VERMONT STATE EMPLOYEES CREDIT UNION, <https://www.vsecu.com/articles/invest-in-solar> (last visited April. 10, 2016).

³³ The Clean Energy Development Fund (CEDF), a subsidized state loan program, offers low-interest loans (at a fixed rate of 4%) for renewable energy technologies. Individuals, sole proprietorships, partnerships, limited liability corporations, corporations, non-profit corporations, Subchapter S corporations, municipalities, and foreign corporations with Vermont subsidiaries or affiliates are all eligible for the CEDF loan program; however, the loan amount must be at least \$50,000, and cannot exceed \$250,000. Given the high minimum amount requirement, this loan option may only be feasible for community groups that have consolidated their loans.

³⁴ 2014 Vermont Public Service Board Certificate of Public Good.

This section describes the choices that must be made for each process and the different entity structures available to the group to administer the group system. Groups should utilize this section to evaluate the fit of the following entity structures based on their unique circumstances and group composition.

When a group forms, the individual participants own the array and manage the operations of the LLC. The formation process operates smoother if the core group is comprised of people with prior relationships with one another. That group could be a local town energy committee, a church fellowship, a local rotary club, a neighborhood, political committee, or softball league. Having a core group of individuals and businesses willing and able to help the group reach critical mass and fully subscribe the solar array on a timely basis expedites the process and lead to a well- functioning member-managed team.

Community solar arrays are federal and state securities laws. We have structured our model LLC Operating agreement to minimize these concerns by giving the participants direct ownership and control over the operations of the solar array. The Vermont State Department of Financial Regulation published an Order illustrating a securities exemption for Community Solar Projects. This exemption, known as the Vermont Solar Utility No-Action Exemption (The “SUN Exemption”) provides a test for determining whether Community Solar Projects will need to register with the Department of Financial Regulation.³⁵ As background, under the Vermont Uniform Securities Act a “security” is defined to include an “investment contract,” a term whose definition has gathered a bit of attention.³⁶ In the United States Supreme Court case, *S.E.C. v. W.J. Howey*, the Court clarified the definition finding that an investment contract is “a contract, transaction or scheme whereby a person invests his money in a common enterprise and is led to

³⁵ See State of Vermont Department of Financial Regulation, Securities Division, Order No. 14-023-S.

³⁶ See VT. STAT. ANN. tit. 9, § 5102 (West).

expect profits solely from the efforts of the promoter or a third party.”³⁷ Vermont has, in effect, accepted this *Howey Test* as evidenced by their incorporating its terms into their definition of a security:

[The term security also] includes an investment in a common enterprise with the expectation of profits to be derived primarily from the efforts of a person other than the investor and a ‘common enterprise’ means an enterprise in which the fortunes of the investor are interwoven with those of either the person offering the investment, a third party, or other investors.³⁸

Applying this definition, the Vermont Department of Financial Regulation developed the following test for determining if any particular investment contract will be considered a security, thereby requiring registration under the Vermont Uniform Securities Act:

- (i) There must be an “investment”;
- (ii) In a “common enterprise”;
- (iii) With the “expectations of profits”;
- (iv) That are “derived primarily from the efforts of a person other than the investor.”³⁹

Only by meeting each of these four prongs will an investment contract be deemed a security. We firmly believe that the structure of our model operating agreement in the Community Solar Project will not meet these four prongs of the *Howey Test* because it gives LLC members direct ownership interest over panels and direct control over the management and operations of the project. What this means is that participants of Community Solar Projects following our guidelines should not need to register the

³⁷ S.E.C. v. W.J. Howey Co., 328 U.S. 298-99 (1946).

³⁸ VT. STAT. ANN. tit. 9, § 51021(West).

³⁹ State of Vermont Department of Financial Regulation, Securities Division, Order No. 14-023-S at 2.

security offering. For more information on securities regulations, net metering group should consult an attorney.

1.6.1. Management Structure

Because of the management obligations listed above, and the obligations that come with operating and decommissioning the system, net metering groups are advised to consider forming a legal association like a limited liability company (LLC), consumers' cooperative, or multilateral licensing agreement⁴⁰ for the purpose of group governance and project management. We recommend that the group form a member managed LLC, because it provides a number of legal and structural benefits for a group net-metered project. Our LLC Operating Agreement--attached to this report as Appendix D--details the organizational structure and business rules for a typical group net-metered project. For tax purposes, groups should ensure that any corporate form they create should not possess ownership interest in the solar facility. The IRS has not provided clarification on whether residents may still claim the 30% Residential ITC, if they convey the proprietary interests to the group business organization like an LLC. However, §25D does allow cooperative housing corporations to claim the 30% residential ITC on solar electric property expenditures.⁴¹ In Appendix F, the available options for organization structures to net metering groups are discussed.

1.6.2. Meter Management

The group must develop methods for adding and removing meters included in the group system, and determining credit allocation. Groups may add or remove meters only after written

⁴⁰ Michael Dworkin, Dan Ingold, Ralph Meima, Carey Rosser, Jonathan Voegelé, Mary Westervelt, VERMONT'S CLEAN ENERGY DEVELOPMENT FUND (ARRA) AND POWERSMITH FARM, VERMONT GROUP NET METERING INFORMATION AND GUIDELINES, 14 (Dec. 2010).

⁴¹ 26 U.S.C.A. § 25D (West).

notice to the host utility. The Energy Clinic’s sample LLC Operating Agreement--attached to this report as Appendix D--has a provision that manages the addition and subtraction of meters.

The group must also provide guidance on how the utility will “allocate any credits among the meters included in the system.”⁴² We recommend that groups install a production meter. A production meter credits the group at the utility’s residential rate, regardless of whether certain net metering participants are generally billed at the time-of-use or demand rates. This can define the amount of credit the group will receive.

Then, the community solar group must choose how to allocate the kWh production credit amongst its members. It can allocate kWh credits on a percentage basis or choose to allocate credits in some other manner. For example, a group can choose to allocate credits “such that the bill of one member or account is first offset, with any additional kWh credits applied to the next group member(s) or account(s) in an order selected by the participants or group.”⁴³ How the group determines kWh allocation depends on the makeup of the group. Installing a production meter at the facility and distributing the production of the system on a fixed percentage basis allows each participant to be credited most accurately for his or her capital investment in the project. This allocation can only be changed on written notice to the electric company from the group’s designated communicator.

1.6.3. Construction and Management of the Array

Our model agreements envision the group selecting a qualified local solar company to construct and turn over to the individual members an operational solar array. The developer of the turnkey system would be responsible for all permitting, and would execute contracts with individual group members. The contract between the developer and individual group members

⁴² Vt. PSB Rule 5.106(A).

⁴³ Vt. PSB Rule 5.105 (e).

would detail the technical specifications of the array, including any warranties, and a schedule of deposits and payments that would culminate in construction of the array when minimum levels of contractual commitments were reached.

According to the process detailed in our model LLC operating agreement, ongoing management and maintenance would be handled by the LLC and funded by annual operating expense charges billed by the treasurer of the LLC.

We expect the annual operating expenses to be modest. Some expenses the group should think about include lawn care, insurance costs, and component replacement. Component replacement will generally be limited to the solar inverters. The lifespan of inverters is typically 10 to 15 years, and groups should expect to replace these components at least once during the length of the agreement. Warranties on inverters usually cover the first 10 to 12 years of operation.

1.6.4. Dispute Resolution

Each group must have “a binding process for the resolution of any disputes within the group system relating to net metering that does not rely on the serving utility, the Public Service Board or the Public Service Department.”⁴⁴ This process does not include disputes between the electric company and individual group members regarding billing, payment, or disconnection. The Energy Clinic’s model LLC Operating Agreement--attached to this report as Appendix D--contains an example of a binding arbitration clause.

1.6.5. Communication with the Utility

Each group must also designate a person who will be responsible for all communication with the service utility, except for communications related to billing, payment, and

⁴⁴ Vt. PSB Rule 5.106(A)(4).

disconnection. All communications regarding billing, payment, and disconnection will be sent directly from the utility to the individual consumer.

1.6.6. Excess Generation Distribution

Groups must establish a process for the allocation of excess generation. At times, mostly during the spring and summer, the group solar array may produce more electricity than the group can consume. 5.104(A)(3) states: “[i]f, at the end of a billing period, the electricity generated by the customer or group exceeds the electricity supplied by the electric company, the electric company shall calculate a monetary credit to the customer pursuant to the billing procedures set forth in Section 5.105.” The monetary credit generated by the excess generation will be applied to the customer’s bill during months where the customer’s energy usage exceeds energy production. Groups should be aware that any accumulated credit must be used within twelve months of the original month the credit was earned or such amount will revert to the utility without compensation.⁴⁵ Groups can easily establish a process for the allocation of excess generation by using a fixed percentage calculation to determine the distribution of electricity production.

1.6.7. Distribution of Renewable Energy Credits

A Renewable Energy Credit (REC) is the property right to all of the environmental attributes of a unit of electricity produced by a renewable source. The environmental attributes include the renewable characteristic of that electricity and all environmental benefits, including the avoided emissions and impacts to air, water, or soil from the displacement of other non-renewable energy generation.

⁴⁵ Vt. PSB Rule 5.104(A)(4).

RECs can be transferred to the utility company or retained by the community solar project. RECs retained can either be retired or sold to another party. If RECs are sold to another party or transferred to the utility for compliance with a renewable energy standard, the community solar members can no longer claim to be consuming solar energy or to be benefitting the environment as these rights are exclusive and are disclaimed when transferred to the utility or sold to another party.⁴⁶ Only by retaining and retiring (not reselling) the RECs can the members of a community solar array legally consume solar energy and make claims that their electricity is “clean”, “green”, “renewable”, etc. This guide therefore recommends that all RECs be retained and retired by the community solar project.

When filing a permit application (CPG application) in Vermont, the filer must declare “whether the customer retains ownership of the environmental attributes of any electricity generated by the net metering system or transfers ownership of those attributes to the interconnecting electric company.”⁴⁷ We recommend all community solar groups “retain” their RECs rather than transferring them to the utility so that the group members can consume solar energy and make the claim that their power is clean, green, and renewable.

This guide recommends that any agreement establishing a group net metering system require that the customer retain and retire the RECs, rather than transferring them to another entity as part of a financing tool. Selling the RECs strips the solar array’s electricity of the characteristics that qualify it as renewable, solar electricity. If the RECs are sold, the community solar members will consume non-renewable energy, also referred to as the “residual mix”, which consists of coal, oil, nuclear, and natural gas generated electricity and virtually no renewable energy. Community solar groups can retire the RECs by simply choosing not to sell them. The

⁴⁶ 16 C.F.R. § 260.15(d).

⁴⁷ 30. V.S.A. 219a(b)(3) .

Energy Clinic's LLC Operating Agreement--attached to this report as Appendix D--includes a sample clause that can ensure the group members retain the RECs and therefore that the community solar array truly provides solar electricity to its members.

1.6.8. Other Considerations

Individual group members should also be aware of the provisions in the net metering tariff of their local utility. For instance, each electric meter can only participate in one group. Individual customers who have home PV systems may also participate in a group net-metered project; however, any monthly excess generation from their individual system will be swept into the net metering group's account. Then, the utility distributes the excess generation amongst group members according the group's excess generation procedure.⁴⁸

1.7 Certificate of Public Good Application

Obtaining a Certificate of Public Good (CPG) is a mandatory step in completing a net metering project. The net metering group must apply for the CPG after they confirm the host utility has capacity for their system and establishes the necessary governance and procedures. CPG application forms are located on the website of host utilities or the website of the PSB⁴⁹, or attached to this report as Appendix C.

The group must send a copy of the application to the following parties: the PSB; the Vermont Department of Public Service; the host utility; the local planning commission; the local legislative body (typically the Select Board); the Planning Division of the Agency of Natural

⁴⁸ GREEN MOUNTAIN POWER'S NET METERING TARIFF, http://www.greenmountainpower.com/upload/photos/307Self_Generation_and_Net_Metering_2013_10_14.pdf (last visited April. 10, 2016).

⁴⁹ PSB, <http://psb.vermont.gov/sites/psb/files/forms/2014revisedNMAApplicationForm-1.pdf> (last visited April. 10, 2016).

Resources; and all adjoining landowners. Additionally, groups must submit a list of all the parties notified with the application.⁵⁰

A group's submission of an application triggers a thirty-day period for comments and hearing requests regarding the proposed project. If any party requests a hearing, they must show that the application "raises a significant issue regarding one or more of the substantive criteria pursuant to 30 V.S.A. §248."⁵¹ Once the CPG is issued, construction on the solar array can begin. Under the Energy Clinic's model operating agreement, obtaining the CPG would be taken care of by the solar installer retained by the group.

⁵⁰ *Vermont Public Service Board Certificate of Public Good Application* (2014).

⁵¹ VT. STAT. ANN. tit. 30, § 248 (West).

2. Overview of Group Net Metering

Introduction

When establishing a community net metering group, participants should be attentive to Vermont's net metering laws and the state and federal financial incentives available to net metered customers. Projects that finalize construction prior to January 1, 2017 may take full advantage of a simple application process and generous financial incentives. Both the legal and financial landscape of net metering could change dramatically by 2017.

Subsection A provides an overview of group net metering law in Vermont, including:

- 30 V.S.A. Section 219 which governs Vermont's net metering program;
- 30 V.S.A. Section 248a, which governs siting procedures for electric generation facilities;
- Public Service Board Rule 5.100, which implements 30 V.S.A. Section 219;
- Public Service Board Rule 5.500, which establishes interconnection requirements;
- and
- Obtaining a Certificate of Public Good (CPG).

Subsection B discusses the future of net metering at the state and federal level. In addition to the changes Act 99 made to Vermont's net metering program, the Act also requires that the Public Service Board develop a new net metering program that will commence on January 1, 2017. At the federal level, the tax incentives that currently support the installation of renewable energy will remain at the current rate until December 2019.

2.1 Net Metering Law in Vermont

2.1.1 30 V.S.A. Section 219a and Act 99

In 2013, the Vermont Legislature amended 30 V.S.A. Section 219a, Vermont's net metering statute, with the passage of Act 99. This Act makes a number of changes to Vermont's net metering law which are relevant to those interested in participating in a group net metering system. These changes include:

- An increase in the threshold of net metering participation that utilities must allow from 4% of peak capacity to 15% of peak capacity;
- A reduction in the solar credit for systems over 15 kW to 19 cents, down from 20 cents;
- New guidelines for the ownership and transfer of the environmental attributes of generation.
- Authorization for a number of pilot projects for qualifying utilities, including special provisions for landfill solar development.
- Authorization for utilities whose power supply portfolio is 90 percent renewable to establish an alternative net metering program, and electric cooperatives to develop pilot net metering projects.⁵²

In 2017, the state legislature will repeal the current 30 V.S.A. Section 219a and replace it with "a statute that provides policy direction to the Public Service Board for a revisited net metering program that would be governed by Board rules."⁵³ This timeframe provides an incentive for net metering participants to initiate the group approval process before January 2017. All systems in place by December 2016 will be governed according to 30 V.S.A. Section

⁵² Vt. H.B. 702, *Statement of Purpose* (2014).

⁵³ *Id.*

219a. Repeal of this section will not affect systems that obtained a Certificate of Public Good (CPG) under the terms of this law.

2.1.2 30 V.S.A. Section 248a

30 V.S.A. Section 248 governs the siting and construction of new electric facilities. Before construction can begin on any new electric generation facility, the solar installer must obtain a Certificate of Public Good (CPG). Act 99 dramatically simplified the application process for any solar installation sized between 15 kW (AC) and 150 kW (AC). When evaluating a proposed solar facility under 150 kW (AC), the PSB will generally waive all but four of the requirements found in Section 248: (1) Orderly Development, (2) Stability and Reliability, (3) Environmental Considerations, and (4) Outstanding Resource Waters. The required elements will be discussed in greater detail in the “Find a Site” section in Part Two of this report.

2.1.3 Public Service Board Rule 5.100 Group System Requirements

The Vermont legislature, through Section 219, delegated the responsibility to implement the state’s group net metering program to the PSB, which in turn, has promulgated Rule 5.100 to achieve those ends. Rule 5.100 provides “the standards and procedures governing application for, and issuance of revocation of, a Certificate of Public Good for net metering systems under 30 V.S.A. 219a, 219b and 248. This rule also incorporates the technical specifications related to interconnection requirements and safety standards for net metering systems.”⁵⁴ Rule 5.100 also provides billing guidelines and schedules for the consumer and utility.

2.1.4 Public Service Board Rule 5.500 Interconnection Procedures

Rule 5.500 establishes the interconnection standards for the solar facility. The contractor hired to install the system will generally ensure that the solar facility meets all interconnection

⁵⁴ Vt. PSB 5.101

requirements. However, net metering participants should familiarize themselves with these guidelines because the Board requires a separate interconnection application to be filed along with the CPG. The rule explains the process for contacting the host utility, guidelines and fees for the interconnection application, the details of the fast track program, and feasibility and grid impact study requirements.

2.1.5 Certificate of Public Good

Pursuant to 30 V.S.A. Section 248, every new electric generation facility must obtain a Certificate of Public Good (CPG) before initiating construction. The PSB has a fairly simple application process for projects between sized 15 kW and 150 kW. The application for a CPG for a project in this range is on the PSB's website⁵⁵ and is attached to this report as Appendix C. After a group submits the application form to the Board, utilities, state agencies, and other citizens have a thirty-day period to comment or request hearings on the project. Once the net metering group obtains a CPG, the group will work exclusively with the host utility and the solar installer to complete the project.

2.2 The Future of Net Metering

2.2.1 State Program

In 2017, Vermont will repeal 30 V.S.A. Section 219a and replace it with “a statute that provides policy direction to the PSB for a revisited net metering program that would be governed by Board rules.”⁵⁶ Prior to being repealed, Act 99 requires that the PSB, through the Department of Public Service, deliver recommendations to the legislature regarding net metering

⁵⁵ A CPG application for a system under 150 kW can be found at:
<http://psb.vermont.gov/utilityindustries/electric/backgroundinfo/netmetering>

⁵⁶ Vt. H.B. 702. *Statement of Purpose* (2014)

deployment, renewable energy credit (REC) ownership and transfer, and the feasibility of an RPS. The first required report was published on October 1, 2014. In this report, titled *Evaluation of Net Metering in Vermont Conducted Pursuant to Act 99 of 2014* (2014), the Public Service Department (PSD) acknowledged that the environment in which distributed generation has developed could be coming to an end. Thus, a new net metering program will commence on January 1, 2017.

2.2.2 Federal Program

The current federal Commercial Energy Investment Tax Credit (ITC) for solar technologies is 30%.⁵⁷ The Commercial ITC is available to commercial, industrial, investor-owned utility, cooperative utilities, and agricultural investors in solar energy. Notably, the rebate amount of 30% will remain until December 31, 2019, which is the last day a community solar array should begin construction of the project in order to obtain the full 30% tax credit.

The federal investment tax credit will slightly decline to 26% in 2020, 22% in 2021, and remain at 10% in the following years. The table below shows the value of the ITC for each technology by year.⁵⁸

⁵⁷ 26 U.S.C. § 48.

⁵⁸ Business Energy Investment Tax Credit (ITC), Database of State Incentives for Renewable Energy, <http://programs.dsireusa.org/system/program/detail/658> (Last visited April. 10, 2016)

Technology	12/31/16	12/31/17	12/31/18	12/31/19	12/31/20	12/31/21	12/31/22	Future Years
PV, Solar Water Heating, Solar Space Heating/Cooling, Solar Process Heat	30%	30%	30%	30%	26%	22%	10%	10%
Hybrid Solar Lighting, Fuel Cells, Small Wind	30%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Geothermal Heat Pumps, Microturbines, Combine Heat and Power Systems	10%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Geothermal Electric	10%	10%	10%	10%	10%	10%	10%	10%
Large Wind	30%	24%	18%	12%	N/A	N/A	N/A	N/A

The Residential Renewable Energy Tax Credit applies to residential investors. A taxpayer may claim a credit of 30% of qualified expenditures (e.g. labor costs for onsite preparation, system installation, and wiring to interconnect a system to the home) for a solar energy system placed in service within December 31, 2019.⁵⁹ The residential renewable energy tax credit will gradually decline to 26% in 2020, and 21% in 2021.

Beside the difference of the customer status claiming either one of these programs, another difference between commercial and residential tax credit is that commercial investors may claim the commercial ITC when the construction of the solar array begins, while residential investor may claim tax credits when the installation is completed and operational.

⁵⁹ 26 U.S.C. § 25D.

3. Conclusion

Vermont's net metering program will undergo significant changes beginning in 2017 with the adoption of a revised net metering program beginning January, 1st 2017. The new net metering program is currently in the process of being developed by the Vermont Public Service Board (PSB), which is engaged in a rulemaking process (rule 5.100). Readers of this guide can obtain a copy of the latest draft of the proposed net metering rules and may be able to submit comments on the new net metering rules to the PSB by visiting the PSB's website and navigating to the "rule 5.100" webpage.

Full ownership of a group net-metered solar array is critical to those who wish to retain the maximum economic and environmental benefits from the generation of their own renewable energy. Many financing models offered by third-party developers may ease the upfront financial cost of owning a PV system. However, this sometimes comes at significant long-term economic loss, and is often paired with the loss of the environmental attributes, that allow the system to qualify as renewable. When owners retain the environmental attributes, including the RECs, they maximize the usage of the environmental benefits of their solar array, and reduce their own carbon footprint and Vermont's.

This guide provides a framework for groups to build on that maximizes the present legal and financial benefits available to community solar. Groups can use the guide to determine how it will be managed, where the project will be located, and how the project will be financed. Every community-owned group's net-metered project will bear unique circumstances, and needs to seek unique financial and regulatory compliance solutions. This guide is a starting point, we hope that your group may optimize its resources to develop a durable and successful community group net-metered solar project.