A Suite of Solar Solutions

Models, Templates, Resources and Guidance

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Solar: A Good Investment for Vermonters

Solar can:

- Save money.
- Reduce exposure to volatility of market rates for electricity; buffering from rate increases.
- Provide a local, renewable power supply
- Help do our part to reduce the state's contribution to climate change

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Solar Is a Great Investment, Period.
No Better Time Than NOW… but challenges

- The federal 30 percent Investment Tax Credit is set to expire at the end of 2016.
- Vermont's "solar adder" incentive is significant; requiring utilities to pay .19-.20 cents/ kWh for solar power fed back to the grid – often about a 4-5 cent/kWh benefit. This will also change at the end of 2016.
- Net metering caps – and siting

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COMMUNITY SOLAR:

A solution for schools and municipalities or anyone who can't go solar on their own property for one reason or another (about 70 percent of Vermonters…)

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How Does It Work?
Net Metering and Group Net Metering

- Net metering allows a utility customer to generate electricity from a renewable energy system and feed that into the electric grid. Your utility is like a battery…
- Group net metering allows renewable customers to form a group with multiple customers (or multiple meters) in the same utility territory. This is ideal for people who can't go solar on their own home or business, as it provides the opportunity to partner with other entities in the same utility service territory.

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Important Planning Considerations

- **Size thresholds:** 15 kW or less = registration process. 150 kW or less = easier permitting. Net metered projects allowed up to 500 kW max. Up to 5 MW (utility approved) on capped landfills.
- **Tax credits:** Work to structure your project to secure the 30 percent tax credit (residential or commercial). How to harness this benefit is a particular consideration for non-taxable entities.
- **Renewable Energy Certificates:** RECs are the tradable environmental "attributes" of electricity generated from renewable resources (1 REC = 1 MWh), and can be bought and sold separately from the electricity itself. NOTE: Only the owner of the RECs associated with the system can claim to be using solar power generated by the system or claim to be reducing its carbon footprint.
- **Siting.** Where will the project best integrate into the landscape; find needed access to transmission etc

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Three Basic Models

1. Third party ownership/partnership

I.E. a solar "Power Purchase Agreement" or a lease agreement; an approach often used by munis and schools

2. Direct ownership

Often by creating an LLC

3. Utility ownership

Vermont Electric Coop and

GMP are undertaking projects

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Putney Community Solar - CEC
Third Party Ownership Model

- 144 kW project – 576 fixed panels and 24 inverters.
- Member Owned – Serving 49 owners in nine counties in GMP territory.
- 180,000 kWh annual production
- This ownership structure allows renters, people with poorly sighted properties and individuals of all income levels to go solar.
- It's a model that can be used in other utility districts too.

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Waltham Community Solar Array – SunCommon
Third Party Partnership Model

- Customers buy a membership share in a “community solar array” (CSA).
- Developer works with the customer to match the share size to the amount of energy a home needs.
- No upfront cost to become a CSA member. Like similar developer-offered models customers start saving right out of the gate.
- SunCommon is offering new CSAs all the time.

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School and Municipal Solar
Third Party Partnership Model

With a Power Purchase Agreement, there is now a 100 kW solar project online helping to power the school and muni buildings

Characteristics and Benefits

Third Party Ownership/Partnership Model

- Communities or customers receive a financial benefit – though often less than an ownership model.
- There is little risk to the community or customer.
- It can be easier administratively, as the developer often manages the process – permitting, installation, operation, maintenance and insurance.
- It's often more expedient, taking less time to move from idea to project commissioning.

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Boardman Hill Solar Farm

Ownership Model

- A member-owned, LLC-managed 150 kW array serving 28 households and 2 businesses;
- Competitive cost for panel owners($2.87/installed watt). Often other options cost more. Price differential paid, in part, by sweat equity.
- Partnered with a farm to host the array. The farmer benefits in payment of electricity produced from the system for significant energy needs; a prorated cost all LLC panel owners share. A win/win for all.
- Panel owners used state and federal incentives. Some paid cash for the remainder; some worked with local lenders to help affordably finance the system and mitigate the need for significant upfront capital.
- Panel owners retained the RECs to ensure it was “green” and to ensure the project counted towards VT energy goals.

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Ten Stones Community Solar Collective

Ownership Model

- A 24 kW community solar project serving 5 households and more in a Charlotte co-housing project, where the land is communally owned.
- The utility – Green Mountain Power – manages the billing – making it easier for homeowners.

"We haven't paid an electric bill in a year and a half. If the system pays off in 10-12 years, that's great. But it's just the right thing to do."

Rebecca Foster, project leader.

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Characteristics and Benefits
(Community) Ownership Models

- Custom, creative and more complicated but often a more financially rewarding approach
  - Allows for great customer/member input in shaping management, REC-retainment and other issues.
  - Opportunity to shape best siting of projects.
  - Opportunity to potentially harness economies of scale (i.e. Solarize program)

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Utility Ownership/Partnership Model

- This approach is a utility owned and/or operated project and open to voluntary customer participation.
- GMP's Rutland project offered 3 kW agreements to 50 customers with no money down.
  - Less money than original GMP bill
  - RECs retained
- Vermont Electric Coop will soon offer "Coop Community Solar," not as prolific an opportunity…

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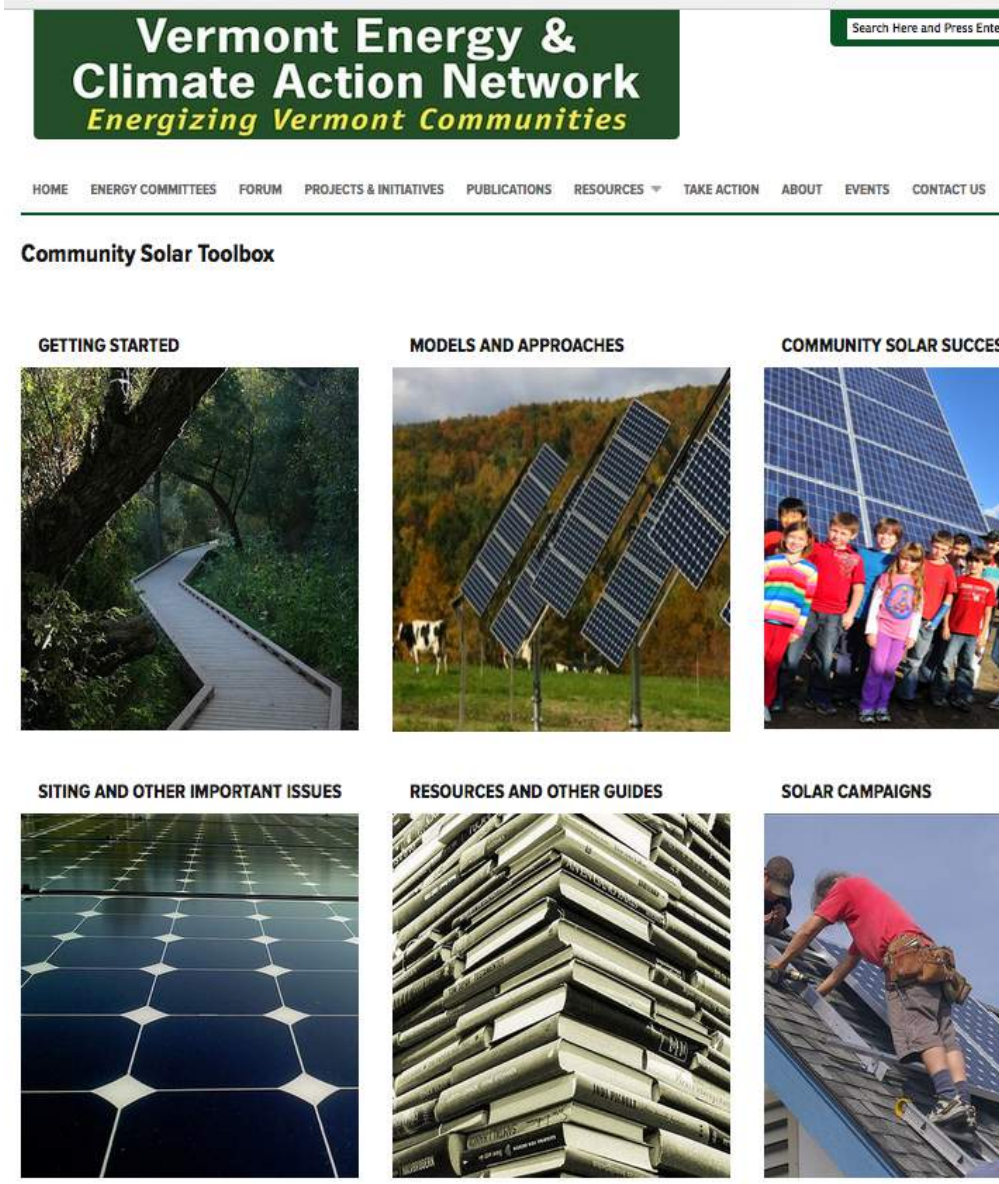
Many Different Approaches:
VECAN's Solar Guide Resources

- Example Request for Info/ Request for Proposals
- GNM Agreement Template
  - *A Template Contract for Munis and schools (VLCT-led resource)*
- Model Land Lease Agreement
- Example "Member Operating Agreement"
- Siting and project guidance
- Case studies/success stories



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For Municipalities and Schools:
VLCT's Model Solar Contract Template

- **Example Standardized Contract.** Demand for standardized contracts for solar group net metering arrangements between a municipality or school and a private project owner. Goal: A contract that stakeholders will *use*.
- **One Size Fits Most.** Not the only way to structure a project, but a common model.
- **Fair and Reasonable.** Mutually acceptable to all stakeholder groups.
- **Commercially Viable.**
  - Straightforward and Understandable
  - Fair to Municipalities and Schools
  - Commercially Viable for Developers and Owners
  - Financeable/Bankable
  - Comply with VT Law and Tax Requirements
- **Stakeholder Input and Approval.** Process underway, engaging municipalities and Schools, Project Owners and Developers, Banks, Tax Equity Financers, NGOs etc.

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Tips for Siting Solar
Guidance and Good Practice

- Guidance and overview of key issues to consider and permits required
- Tips for "Good Neighbor" approach for interested citizens and developers.

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Siting Conversation in the State – and the State House

- Robust conversation about how projects in Vermont are being sited – Solar Siting Task Force
- Some ideas in the hopper:
  - Incentivize development on built surfaces
  - Increase role of local, regional planning – and potentially weight of plans in PSB process
  - Required decommissioning and more
- Important opportunity to weigh in:
  - In local and regional planning arenas
  - In state-level policymaking arena/public sphere (op-eds, LTEs, legislator communication)

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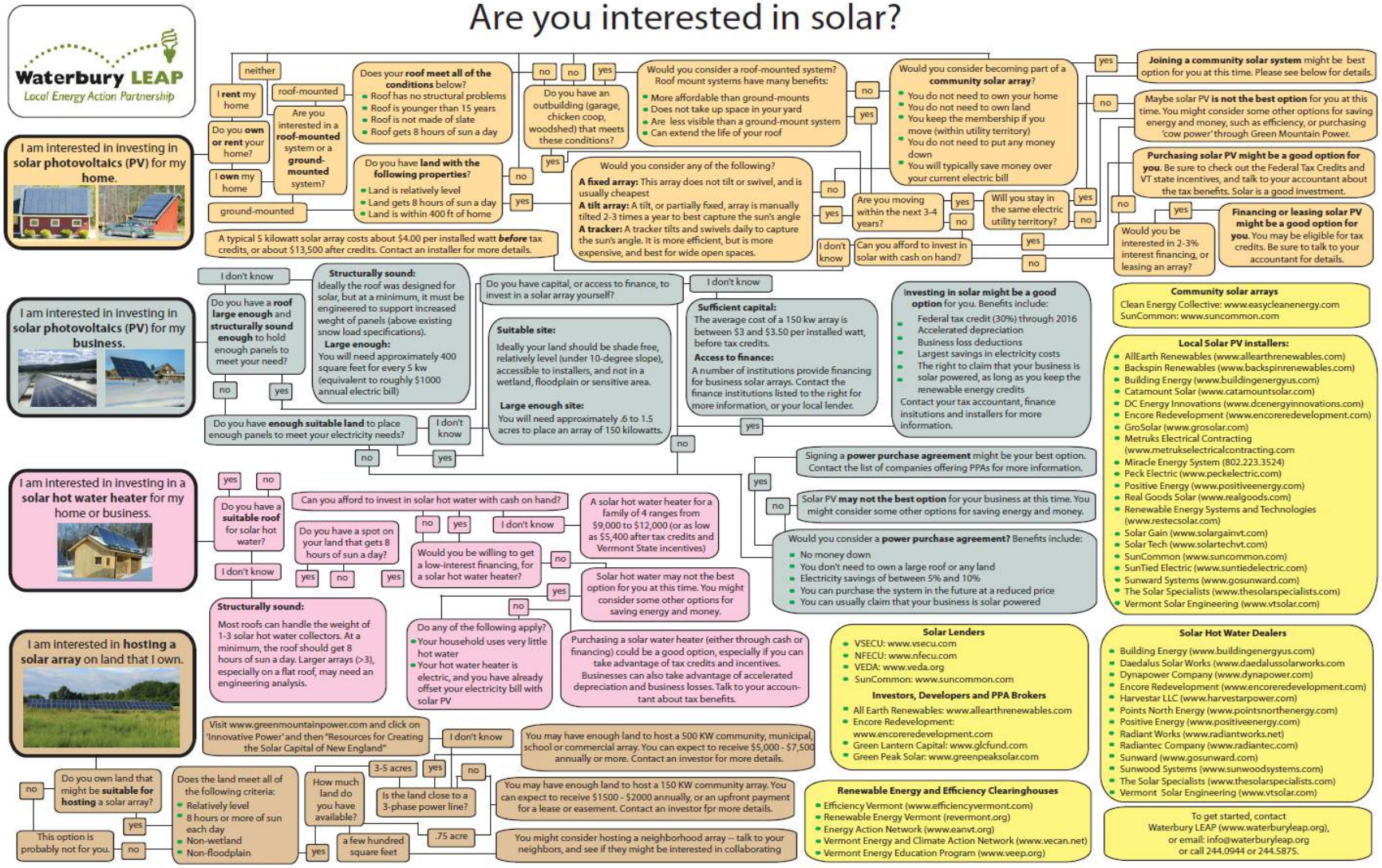
A Solar Planning Tree



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FOR QUESTIONS or MORE INFORMATION

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THANK YOU!

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