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MAINE SCHOOL OF LAW
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Payments by consumers funded by above market prices (rates) for projects
  – Blended into the rate base (often with cap on rate impact)

Payments by governments funded by taxpayers
  – Publicly funded R&D
  – Tax credits and accelerated depreciation
  – Cash grants (e.g., U.S. Department of Energy 30% grant)
  – Loan guarantees
  – Subsidies to producer inputs (e.g., transport infrastructure, fuel production)

Statutory limitations on liability (nuclear)
Rationales for Subsidies [Hunt]

• Whether subsidies are worth it depends on benefits
  – Reduction of project costs through R&D and learning – by - doing
  – Avoidance of hidden costs related to health and environmental damages

• Subsidies are worth it if the benefits more than offset the costs of the subsidies
  – Subsidy costs range from $1.10 to $1.50 per dollar of subsidy depending on the revenue source used

  Ballard and Fullerton (1992)

• So benefits achieved should range from 1.1 to 1.5 times subsidy amounts
Reduction of project costs through R&D and learning curve effects [Hunt]

- An immature industry has relatively high costs to begin with and therefore cannot compete on its own in the marketplace against mature industries.

- Subsidies for R&D and for the actual building out of projects lower costs over time.

- As increasing numbers of generating units are built (e.g., wind turbines), costs fall because of “learning – by – doing”.

- As the industry matures, costs fall and the industry can begin to compete on its own.

- Subsidies early in the industry’s development yield cost savings in the longer term.
Yes, Subsidies Can Be Worth It [Hunt]

Factors influencing net social benefits from (wind) subsidies include:

- Continued learning effects with wind expansion (esp. offshore)
- Careful siting
- Health and environmental costs not fully accounted for
  - Coal and oil/gas turbine hidden costs
  - Methane leakage (CO2 emissions as high as coal)--shale
  - Water pollution issues with hydraulic fracturing--shale
  - Other health and environmental costs of “fracking”--shale
- Enhancing energy security through long – run electricity price stability under fixed price PPA
- Fuel mix diversification to avoid over-reliance on natural gas
- Storage and transmission developments and costs
Oil and gas lead in historical average of annual subsidies. SOURCE: Nancy Pfund and Ben Healey. “What Would Jefferson Do?”
“The first 15 years, the [“What Would Jefferson Do?”] report says, are critical to developing new technologies. It finds that oil and gas subsidies, including tax breaks and government spending, were about five times as much as aid to renewables during their first 15 years of development; nuclear received 10 times as much support.

Federal support during the first 15 years works out to $3.3 billion annually for nuclear energy and $1.8 billion annually for oil and gas, but an average of only $400 million a year in inflation-adjusted dollars for renewables.”
<table>
<thead>
<tr>
<th>State</th>
<th>Coal (Trillion Btu)</th>
<th>Coal (%)</th>
<th>Natural Gas (Trillion Btu)</th>
<th>Natural Gas (%)</th>
<th>Petroleum (Trillion Btu)</th>
<th>Petroleum (%)</th>
<th>Retail Electricity Sales</th>
<th>Electricity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maine</td>
<td>1.3</td>
<td>0%</td>
<td>70.5</td>
<td>24%</td>
<td>177.4</td>
<td>61%</td>
<td>39.4</td>
<td>14%</td>
</tr>
<tr>
<td>Connecticut</td>
<td>9.3</td>
<td>1%</td>
<td>236.3</td>
<td>36%</td>
<td>315.5</td>
<td>48%</td>
<td>100.8</td>
<td>15%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>24.0</td>
<td>2%</td>
<td>430.9</td>
<td>36%</td>
<td>555.5</td>
<td>46%</td>
<td>188.7</td>
<td>16%</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>14.2</td>
<td>5%</td>
<td>74.4</td>
<td>28%</td>
<td>142.9</td>
<td>53%</td>
<td>37.1</td>
<td>14%</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>0.0</td>
<td>0%</td>
<td>98.4</td>
<td>48%</td>
<td>80.3</td>
<td>39%</td>
<td>26.3</td>
<td>13%</td>
</tr>
<tr>
<td>Vermont</td>
<td>0.0</td>
<td>0%</td>
<td>8.3</td>
<td>8%</td>
<td>76.0</td>
<td>74%</td>
<td>18.8</td>
<td>18%</td>
</tr>
</tbody>
</table>

Source: U.S. Energy Information Administration
Total Amount Spent on Energy in Maine, 2012
$7,000,900,000  (Source: Maine Development Foundation)
Federal Business Energy Investment Tax Credit

In general, credits are available for eligible systems placed in service on or before December 31, 2016:

- **Applicable Sectors**: Commercial, Industrial, Investor-Owned Utility, Municipal Utilities, Cooperative Utilities, Agricultural
- **Incentive Amount**: 30% for solar, fuel cells, small wind; 10% for geothermal, microturbines and CHP
Maximum Incentive:
Fuel cells: $1,500 per 0.5 kW
Microturbines: $200 per kW
Small wind turbines placed in service after 12/31/08: no limit
All other eligible technologies: no limit

Eligible System Size:
Small wind turbines: 100 kW or less
Fuel cells: 0.5 kW or greater
Microturbines: 2 MW or less
CHP: 50 MW or less

http://programs.dsireusa.org/system/program/detail/658
## Revision Energy Commercial Variable Assumptions: Solar Energy Comparisons by State

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Maine</th>
<th>New Hampshire</th>
<th>Vermont</th>
<th>Massachusetts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Supply Price</td>
<td>$0.065 per kWh</td>
<td>$0.0923 per kWh</td>
<td>$0.09123 per kWh</td>
<td>$0.1108 per kWh</td>
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<tr>
<td>T&amp;D Price</td>
<td>$0.00452 per kWh</td>
<td>$0.01195 per kWh</td>
<td>$0.00 per kWh</td>
<td>$0.0217 per kWh</td>
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<tr>
<td>Value of RECs</td>
<td>$60 per REC</td>
<td>$60 per REC</td>
<td>$60 per REC</td>
<td>$200 per REC</td>
</tr>
<tr>
<td>State Tax Rate</td>
<td>8.93%</td>
<td>8.50%</td>
<td>8.5%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Feed-in Tariff Credit</td>
<td>$0.00 per kWh</td>
<td>$0.00 per kWh</td>
<td>$0.06 per kWh</td>
<td>$0.00 per kWh</td>
</tr>
<tr>
<td>Taxable Rebates/Grants</td>
<td>$0.00</td>
<td>Lesser of $0.80 per</td>
<td>Lesser of $0.40 per</td>
<td>Lesser of $0.40 per</td>
</tr>
<tr>
<td></td>
<td></td>
<td>watt, 50% cost of</td>
<td>watt and $4,000</td>
<td>watt and $2,250.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>construction and $50,00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Non-Taxable Rebates/Grants</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
</tbody>
</table>
Over time...from Revision/NRCM
Commercial Analysis

Cumulative Net Cash Flow

Years: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

- Maine
- New Hampshire
- Vermont
- Massachusetts
## Revision Energy Residential Variable Assumptions:
### Solar Energy Comparisons by State

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Maine</th>
<th>New Hampshire</th>
<th>Vermont</th>
<th>Massachusetts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Supply Price</td>
<td>$0.06892 per kWh</td>
<td>$0.0923 per kWh</td>
<td>$0.14669 per kWh</td>
<td>$0.10265 per kWh</td>
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<tr>
<td>T&amp;D Price</td>
<td>$0.05994 per kWh</td>
<td>$0.06679 per kWh</td>
<td>$0.00000 per kWh</td>
<td>$0.08317 per kWh</td>
</tr>
<tr>
<td>Value of RECs</td>
<td>$0 per REC</td>
<td>$0 per REC</td>
<td>$0 per REC</td>
<td>$200 per REC</td>
</tr>
<tr>
<td>State Tax Rate</td>
<td>8.0% (N/A)</td>
<td>0.0% (N/A)</td>
<td>6.8% (N/A)</td>
<td>5.3% (N/A)</td>
</tr>
<tr>
<td>Feed-in Tariff Credit</td>
<td>$0.00 per kWh</td>
<td>$0.00 per kWh</td>
<td>$0.06 per kWh</td>
<td>$0.00 per kWh</td>
</tr>
<tr>
<td>Taxable Rebates/Grants</td>
<td>$0</td>
<td>Lesser of $0.75 per watt, 50% cost of construction and $3,750</td>
<td>Lesser of $0.45 per watt and $4,500</td>
<td>Lesser of $0.40 per watt and $4,000.</td>
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<tr>
<td>Other Non-Taxable Rebates/Grants</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
</tbody>
</table>
Over time...from Revision/NRCM Residential Analysis

Cumulative Net Cash Flow

- Maine
- New Hampshire
- Vermont
- Massachusetts
- Maine w/ Rebate
Alternative Energy and Turbines

Although this is the smallest technology cluster in Maine, with just 948 jobs in 2012, it is one of the fastest growing with job gains of 11.9% from 2007 to 2012, and it is the most specialized with an impressive five times the national level of employment concentration. It also is one of the highest paying technology clusters in the state, with average annual wages of $74,091. The national growth prospects for this industry are strong and Maine appears to be well-positioned for growth. Both national and state policies and incentives are critical for the growth of this industry in Maine.

From Executive Summary, page viii  
<table>
<thead>
<tr>
<th>Technology Cluster</th>
<th>Change in Employment, 2007–2012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maine</td>
</tr>
<tr>
<td>Total, all industries</td>
<td>(3.2%)</td>
</tr>
<tr>
<td>Technology Clusters</td>
<td>(5.1%)</td>
</tr>
<tr>
<td>Agriculture, Aquaculture, Fisheries and Food Production</td>
<td>1.8%</td>
</tr>
<tr>
<td>Alternative Energy and Turbines</td>
<td>11.9%</td>
</tr>
<tr>
<td>Biopharmaceuticals</td>
<td>5.6%</td>
</tr>
<tr>
<td>Boatbuilding and Related Industries *</td>
<td>(22.0%)</td>
</tr>
<tr>
<td>Defense*</td>
<td>(4.6%)</td>
</tr>
<tr>
<td>Electronics and Semiconductors</td>
<td>(23.7%)</td>
</tr>
<tr>
<td>Engineering and Other Scientific/Technical Services</td>
<td>10.4%</td>
</tr>
<tr>
<td>Environmental Services</td>
<td>3.4%</td>
</tr>
<tr>
<td>Finance and Business Support Services</td>
<td>2.3%</td>
</tr>
<tr>
<td>Forestry-related Products</td>
<td>(18.6%)</td>
</tr>
<tr>
<td>Information Technology Services</td>
<td>(11.1%)</td>
</tr>
<tr>
<td>Materials for Textiles, Apparel, Leather and Footwear</td>
<td>(18.2%)</td>
</tr>
<tr>
<td>Medical Devices</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

*The base year of 2006 was used for this cluster to account for data discrepancies in 2007 and 2008.

Source: IMPLAN QCEW.
## Table 7. Projected Employment and Output Growth for Maine's Thirteen Technology Clusters, Average Annual Growth, 2012-2022

<table>
<thead>
<tr>
<th>Technology Cluster</th>
<th>Projected Employment</th>
<th>Projected Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Private Sector</td>
<td>1.0%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Total Maine – all industries</td>
<td>1.0%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Agriculture, Aquaculture, Fisheries and Food Production</td>
<td>(0.6%)</td>
<td>1.5%</td>
</tr>
<tr>
<td>Alternative Energy and Turbines</td>
<td>4.7%</td>
<td>8.4%</td>
</tr>
<tr>
<td>Biopharmaceuticals</td>
<td>1.8%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Boatbuilding and Related Industries</td>
<td>(1.0%)</td>
<td>1.5%</td>
</tr>
<tr>
<td>Defense</td>
<td>(0.7%)</td>
<td>1.5%</td>
</tr>
<tr>
<td>Electronics and Semiconductors</td>
<td>(1.3%)</td>
<td>4.6%</td>
</tr>
<tr>
<td>Engineering and Other Scientific/Technical Services</td>
<td>2.2%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Environmental Services</td>
<td>2.6%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Finance and Business Support Services</td>
<td>0.9%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Forestry-related Products</td>
<td>(0.6%)</td>
<td>1.9%</td>
</tr>
<tr>
<td>Information Technology Services</td>
<td>3.3%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Materials for Textiles, Apparel, Leather and Footwear</td>
<td>(3.3%)</td>
<td>(0.8%)</td>
</tr>
<tr>
<td>Medical Devices</td>
<td>(0.3%)</td>
<td>4.2%</td>
</tr>
</tbody>
</table>

Source: BLS, IBIS World and Battelle.
Incentives for Renewables and Efficiency: Samples by State and by Type

“DSIRE's [Database of State Incentives for Renewables & Efficiency] summary maps provide a geographical overview of financial incentives and regulatory policies that promote renewable energy and energy efficiency in the U.S. The map is populated in real-time based on the content of the database. Users can select a Program Type and a Technology to see which states have a certain policy or incentive for a particular technology. You can also follow the link below to see DSIRE's more detailed manually-updated summary maps.”

http://programs.dsireusa.org/system/program/maps
Maine programs are largely Efficiency Maine, net metering and the RPS…Examples of what neighboring States are doing other than efficiency and RPS follow…..
NEW HAMPSHIRE INCENTIVES

**Residential Small Renewable Electrical Generation Systems Rebate:** This program offers rebates to qualifying homeowners who install photovoltaic (PV) or wind turbine electrical generation systems 10kW or smaller. Rebate levels are $.75 per watt of panel rated power up to $3,750, or 50% of the total facility cost, whichever is less.

**Residential Solar Water Heating Rebate Program:** This program offers rebates ranging from $1,500 to $1,900, depending on system size, for qualified solar water heating and space heating systems on primary residences in New Hampshire.

**Residential Bulk-Fed Wood-Pellet Central Boilers and Furnace Rebate Program:** The program offers rebates of 30% of the system and installation cost, or $6,000, whichever is less, for New Hampshire residents who invest in high-efficiency (80% or greater), bulk-fuel fed, wood-pellet central heating boilers and furnaces that become operational on or after May 1, 2012.

**Commercial & Industrial Solar Incentive Program:** The current program offers rebates for solar electric and thermal systems that are 100 kW D/C (or equivalent) or smaller in size within New Hampshire. The incentive levels for solar electric systems are $0.80 per Watt D/C, up to $50,000, and for solar thermal systems the incentive level is $0.07 per thousand-Btu per year ($0.12 per thousand-Btu/year for systems of fifteen collectors or fewer in size), up to $50,000. This program is open to non-profits, businesses, public entities, and other non-residential entities.

SEE generally [http://programs.dsireusa.org/system/program?state=NH](http://programs.dsireusa.org/system/program?state=NH)
This program offers a rebate payment of 30% of the heating appliance(s) and installation cost, up to a maximum of $50,000, for investments in non-residential bulk-fuel fed wood pellet boilers and furnaces of 2.5 million BTU or less, that become operational, serving designed intent and installer-certified on or after December 18, 2013. Additionally, a rebate of 30% up to $5,000 is available for thermal storage tanks and related components. This program is open to businesses, non-profit organizations, educational institutions, governmental or municipal entities, or multi-family residences of 4 units or greater, that do not qualify for a rebate under the residential wood pellet rebate program.

New Hampshire Tax Exemptions

• New Hampshire allows cities and towns to offer an exemption from residential property taxes in the amount of the assessed value of a solar energy system, wind energy system, or wood-fired central heating system used on the property. A solar energy system is defined as a photovoltaic (PV) system or a system that "utilizes solar energy to heat or cool the interior of a building or to heat water for use in a building" and that includes one or more collectors and a storage container. Stoves and fireplaces do not qualify. Cities and towns may adopt an exemption provision separately for each energy source. As of September 2014, 98 cities and towns in New Hampshire have adopted a property tax exemption for one or more of these energy sources. http://programs.dsireusa.org/system/program/detail/60

• Renewable Energy Property Tax Exemption: RSA 72:61-72 permits cities and towns to offer exemptions from local property taxes for certain renewable energy installations. These include solar systems (thermal and photovoltaic), wind turbines, and central wood-fired heating systems. Woodstoves and fireplaces are not included. The goal of the exemption is to create a tax neutral policy within a municipality that neither increases an individual's property tax, nor decreases the municipality's property tax revenues.....
• By implementing it as a tax neutral policy, NH homeowners do not have a disincentive of higher property taxes for installing a renewable energy system, and since there is no net reduction in municipal tax revenues, other taxpayers in a municipality are not affected.

• Below is a basic example of how the exemption might work:
  
  $200,000 \text{ Assessed value of the property} +$20,000 \text{ Ad valorem value of the renewable energy system} = $220,000 \text{ New assessed value of the property} - $20,000 \text{ Portion of assessed value exempt from property taxes} = $200,000 \text{ New assessed value of the property w/ the renewable energy exemption}

Rhode Island Residential Renewable Energy System Tax Credit

25% of the cost of the system
Maximum Incentive:
Solar PV: Maximum credit of $15,000
Solar Hot Water: Maximum credit of $7,000
Active Solar Heating: Maximum credit of $15,000
Wind: Maximum credit of $15,000
Geothermal: Maximum credit of $7,000

Rhode Island also allows cities and towns to exempt, by ordinance, renewable energy systems from property taxation.

http://programs.dsireusa.org/system/program?state=RI

Connecticut municipalities are authorized, but not required, to offer a property tax exemption lasting up to 15 years for qualifying cogeneration systems installed on or after July 1, 2007 (see Conn. Gen. Stat. § 12-81 (63)). Municipalities that adopt an ordinance to provide such an exemption may require a payment in lieu of taxes from the property owner.

Connecticut provides a property tax exemption for "Class I" renewable energy systems and hydropower facilities that generate electricity for private residential use. The exemption is available for systems installed on or after October 1, 2007, that serve farms, single-family homes or multi-family dwellings limited to four units. In addition, "any passive or active solar water or space heating system or geothermal energy resource" is exempt from property taxes, regardless of the type of facility the system serves.

Beginning in October 2014, commercial and industrial systems (meeting the same technology requirements as above) are also eligible for the property tax exemption. The exemption is available for properties installed on or after January 1, 2014, and the nameplate capacity cannot exceed the load for the location where the system is installed. Before October 2014, municipalities can choose to offer such an exemption.

http://programs.dsireusa.org/system/program?state=CT
In May 2009, Vermont enacted legislation requiring all Vermont retail electricity providers to purchase electricity generated by eligible renewable energy facilities through the *Sustainably Priced Energy Enterprise Development (SPEED)* Program via long-term contracts with fixed standard offer rates. This policy, commonly known as a "feed-in tariff," is intended to provide a reasonable return on investment to renewable energy facility developers, thereby spurring deployment of renewable energy.

Eligible renewable energy facilities are certain qualifying SPEED resources (including solar, wind, biomass, landfill gas, farm methane derived from agricultural operations and energy crops, and hydropower facilities) up to 2.2 megawatts (MW) in capacity that are commissioned on or after September 30, 2009. SPEED projects must apply for and be granted a "Certificate of Public Good." Projects 150 kW and less may apply for the "Certificate of Public Good for Net Metered Systems." Eligible wood biomass resources may only receive the standard offer if the plant's system efficiency is 50% or greater.
In 2013, the Vermont Public Service Board (PSB) established a new market-based pricing mechanism per S.B. 214 (Act 170). Beginning in 2013, contracts are awarded through a Request for Proposal (RFP) process, with RFPs released annually on April 1. The PSB set avoided-cost rates to be used as annual per-kWh cost caps for contracts. Contracts will be selected competitively based on the proposed $/kWh structure. The full avoided-cost schedule is available in the RFP and here. The RFPs will be capped at 5 MW capacity each year from 2013-2015, 7.5 MW each year from 2016-2018, and 10 MW each year in 2019 and 2020. Five hundred kW of this cap is reserved for utilities each year from 2013 to 2015; 1.125 MW is reserved in 2016-2018, and 2 MW is research each year in 2019 and 2020.

The long-term contracts are 10 to 25 years for solar and 10 to 20 years for all other technologies. As a condition of the standard offer, the renewable energy credits (RECs) generated are transferred to the retail electric provider that purchases the power from the renewable energy facility, except in the case of a facility using methane from agricultural operations. In that case, the plant owner retains ownership of the RECs and may sell them if desired. Retail electric providers and owners of renewable energy facilities may enter into voluntary contracts with different terms than the standard offer contract terms at their discretion. The PSB is required to establish standard offer contract and pricing for existing hydroelectric plants by January 15, 2013. (The capacity of existing hydro will not count toward the cumulative program cap.)

Legislation enacted in May 2012 (S.B. 214 / Act 170) increased the Standard Offer Program to 127.5 MW.
VT State Residential Renewable Energy Tax Credit

30%
Maximum Incentive:
Solar-electric systems placed in service after 2008: no maximum
Solar water heaters placed in service after 2008: no maximum
Wind turbines placed in service after 2008: no maximum
Geothermal heat pumps placed in service after 2008: no maximum
Fuel cells: $500 per 0.5 kW
http://programs.dsireusa.org/system/program/detail/1235
Vermont State Investment Tax Credit

Vermont offers an investment tax credit for installations of renewable energy equipment on business properties. The credit is equal to 24% of the "Vermont-property portion" of the federal business energy tax credit. For solar, small wind, and fuel cells this constitutes a 7.2% state-level credit for systems placed in service on or before 12/31/2016. After this date, solar (except hybrid solar lighting) technologies are eligible for a 2.4% credit. For microturbines, and combined heat and power systems, the credit is a 2.4% state-level tax credit for systems placed in service on or before 12/31/2016. The geothermal tax credit is 2.4% indefinitely.* Any unused tax credit may be carried forward for 5 years.

Commercial, Industrial, Agricultural

Incentive Amount:
7.2% for solar, fuel cells and small wind placed in service on or before 12/31/2016.
2.4% for solar (except hybrid solar lighting) placed in service on or after 12/31/2016. 2.4% for geothermal 2.4% for microturbines and CHP placed in service on or before 12/31/2016.

Maximum Incentive: No maximum specified.

Eligible System Size:
Small wind: up to 100 kW
Fuel cells: 0.5 kW or greater
Microturbines: 2 MW or less
CHP: 50 MW or less
Marine and Hydrokinetic: 150 kW or greater

http://programs.dsireusa.org/system/program/detail/3428
Vermont Local Option - Property Tax Exemption

Vermont allows municipalities the option of offering an exemption from the municipal real and personal property taxes for certain renewable energy systems (Note: state property taxes would still apply). Eligible systems include, but are not limited to "windmills, facilities for the collection of solar energy or the conversion of organic matter to methane, net-metered systems ... and all component parts thereof including land upon which the facility is located, not to exceed one-half acre." Adoption of this exemption varies by municipality, but the exemption generally applies to the total value of the qualifying renewable energy system and can be applied to residential, commercial, and industrial real and personal property.

Note: Solar PV systems of 10 kW or less are already currently exempt from municipal property taxes under 32 V.S.A. § 8701

http://programs.dsireusa.org/system/program/detail/45
Vermont Renewable Energy Systems Sales Tax Exemption

Vermont's sales tax exemption for renewable-energy systems, originally enacted as part of the Miscellaneous Tax Reduction Act of 1999 (H. 0548), initially applied only to net-metered systems. The exemption now generally applies to systems up to 500 kilowatts (kW) in capacity that generate electricity using eligible "renewable energy" resources (as defined under 30 V.S.A. § 8002), to micro-combined heat and power (CHP) systems up to 20 kW, and to solar water-heating systems. The exemption is available for grid-tied systems and off-grid systems alike. Vermont's sales tax rate is 6%.

"Renewable energy" is defined under 30 V.S.A. § 8002 as "energy produced using a technology that relies on a resource that is being consumed at a harvest rate at or below its natural regeneration rate." Biogas from sewage-treatment plants and landfills, and anaerobic digestion of agricultural products, byproducts, and wastes are explicitly included. (The term "renewable energy" explicitly excludes solid waste that is not agricultural or silvicultural, as well as nuclear fuel, coal, oil, propane and natural gas.)

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Massachusetts

Excise Tax Deduction for Solar- or Wind-Powered Systems

In Massachusetts, businesses may deduct from net income, for state excise tax purposes, expenditures paid or incurred from the installation of any "solar or wind powered climatic control unit and any solar or wind powered water heating unit or any other type unit or system powered thereby," including labor expenditures. The installation must be located in Massachusetts and used exclusively in the business or trade of the business. Certain criteria must be met, see the Massachusetts Department of Revenue guidance for more information.

Furthermore, a system or unit that qualifies for this deduction will not be taxed under the tangible property measure of the state's corporate excise tax. This exemption is effective for the length of the equipment's depreciation period.

Renewable Energy Property Tax Exemption

Massachusetts law provides that solar-energy systems and wind-energy systems used as a primary or auxiliary power system for the purpose of heating or otherwise supplying the energy needs of taxable property are exempt from local property tax for a 20-year period. Hydropower facilities are also exempt from local property tax for a 20-year period if a system owner enters into an agreement with the city or town to make a payment (in lieu of taxes) of at least 5% of its gross income in the preceding calendar year. This incentive applies only to the value added to a property by an eligible system, according to the Massachusetts Department of Energy Resources (DOER). It does not constitute an exemption for the full amount of the property tax bill.
Residential Renewable Energy Income Tax Credit
Massachusetts allows a 15% credit -- up to $1,000 -- against the state income tax for the net expenditure* of a renewable-energy system (including installation costs) installed on an individual’s primary residence. If the credit amount is greater than a resident's income tax liability, the excess credit amount may be carried forward to the next succeeding year for up to three years. Eligible technologies include solar water and space heating, photovoltaics (PV), and wind-energy systems. The original use of the system must begin with the taxpayer, and the system should “reasonably be expected to remain in operation for at least five years.”
The credit is available to any owner or tenant of residential property. For a newly constructed home, the credit is available to the original owner/occupant. Joint owners of a residential property shall share any credit available to the property under this subsection in the same proportion as their ownership interest. Any excess credit amount may be carried over to the next 1-3 taxable years.

Residential Central Wood Pellet Heating Program
The Massachusetts Clean Energy Center offers rebates for installing central wood pellet heating systems in residential buildings of one to four units. Rebates will be given until June 30, 2015 or when funding runs out, whichever occurs first.
Project sites must be located in a utility territory that contributes to the Renewable Energy Trust Fund (National Grid, NSTAR, WMECO, Unitil, and municipal light plants that have agreed to pay into the fund). Project sites must also be occupied year-round. Rebates are provided for 45% of qualifying project costs, up to $10,000. A thermal storage adder is also available for the lesser of 100% of thermal storage system installation costs or $2,000.
Commonwealth Solar Hot Water Residential Program:

Base rebate: $75 X number of collectors X SRCC rating (Category D, Mildly Cloudy Day)

Additional $200/system for systems with parts manufactured in Massachusetts

Additional $500/system for metering installation

Additional $500/system for participants that have also installed solar PV on the same facility

Adder for moderate home value/moderate income of twice the base rebate.

Adder for natural disaster relief of twice the base rebate.

$4,500 per building or 40% of total installed costs (whichever is less)

Since February 2011, the Massachusetts Clean Energy Center (MassCEC) has provided rebates for the installation of residential solar hot water systems through the Commonwealth Solar Hot Water Program. Commonwealth Solar Hot Water rebates are available to electricity customers served by the following Massachusetts investor-owned electric utilities: Fitchburg Gas and Electric Light (Unitil), National Grid, NSTAR Electric, and Western Massachusetts Electric. In addition, customers of certain municipal lighting plants (MLP) including Ashburnham, Templeton, Holden, Holyoke, and Russell utilities are eligible. Only residents that live in territories that contribute to the MassCEC Renewable Energy Trust Fund are eligible for the rebate. In July 2012, the program was extended through 2016. The amount of funding currently remaining can be seen here.

The system must be installed at a residential building with 1 to 4 units, and the building must be occupied year-round. Any fuel may be used as a backup to the solar water heater. Pool heaters do not qualify for this rebate; however, space heating and combo systems do qualify. Third party-owned systems are also eligible.
Residential Ground-Source Heat Pump Program
Massachusetts offers rebates of up to $12,500 for the installation of high-efficiency ground-source heat pumps (GSHPs) in residential buildings of one to four units. Rebates will be given until June 30, 2015 or when funding runs out, whichever occurs first.

Residential Air-Source Heat Pump Program
Massachusetts offers rebates of up to $3,750 for the installation of high-efficiency, cold-climate air-source heat pumps (ASHPs) in residential buildings of one to four units. Heat pumps must be installed between November 25, 2014 and February 28, 2015 to qualify for a rebate. Ductless Systems: $750-$2,250 Central or Multi-Head Systems: $750-$3,750

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