

NET ENERGY BILLING RENEWABLE ENERGY MEETINGS SUMMARY PACKET

Policy Decisions

- Should the net-energy billing (NEB) program be expanded?
- Should it expand its compensation options for onsite generation?
- Should it incentivize for more than onsite consumption but for electricity for sale to the grid?
- Should there be a distinction between the generation that NEB incentivizes and that a feed-in tariff incentivizes (if one was to be adopted)?

Policy Options

- Increase capacity limit (currently at 660kW)
- Remove expiration of credits
- Allow transfer of credits
- Remove meter limit
- Remove ownership requirement

Policy Considerations

- Speed of growth of program
- Increase of cross-subsidizing
- Administrative requirements on T&Ds
- Consumer protections
- Economic development
- Increased distributed generation

Information Presented

What are the benefits and costs of net-energy billing and how does it compare to other renewable energy policies in Maine?

See the table distributed today

What is the lost revenue to utilities due to the current NEB program?

CMP - \$425,000

BHE - \$65,000

MPS - \$47,000

Because of the fact that solar is coincident with peak electricity demand and high supply cost on the spot or day-ahead market, does the lost revenue to utilities result in a cost to ratepayers?

The answer to this question depends upon the specifics of any one NEB program including the proportion of solar and wind projects, the value of credits and whether or not credits are carried forward indefinitely. A detailed analysis of Maine's NEB program would need to be done to determine the answer to this question.

What is the current participation the NEB program by size and type of facility?

The majority of the projects are solar projects that are 0-4 kW.

Off the 1200+ projects, 4 of them are above 500kW

Please see the chart of page 3 for a bar graph of projects by size and type.

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What types of NEB policies do other states in the northeast have?

The capacity limits vary depending on user, residential is as low as 25kW, government users are as high as 10MW. The policy on credits varies from annual expiration to being carried forward indefinitely. Please see:

Page 4 for a summary table of northeastern state's capacity and credit policies

Page 5 for a detailed table on capacity policies

Page 6 for a detailed table on credit policies

Are there other states that have NEB and feed-in tariff programs (FIT)?

Yes, there are 6 states that have both a NEB and FIT program. Vermont is the only state in the northeast that has both types of programs.

Is there a distinction between the types of generation that are eligible for NEB and FIT in those six states?

In all states the MW capacity limit is greater for the FIT program than for the NEB program, except in one case where there is a higher cap specifically for commercial-sized NEB. Vermont explicitly states that a facility may not participate in both programs. Most states have a total NEB program cap that is related to peak load and a total FIT program cap this is specified by a MW total. Please see the tables on page 8 for a summary comparison of NEB and FIT programs and page 9 for a more detailed comparison.

Other documents included in this packet:

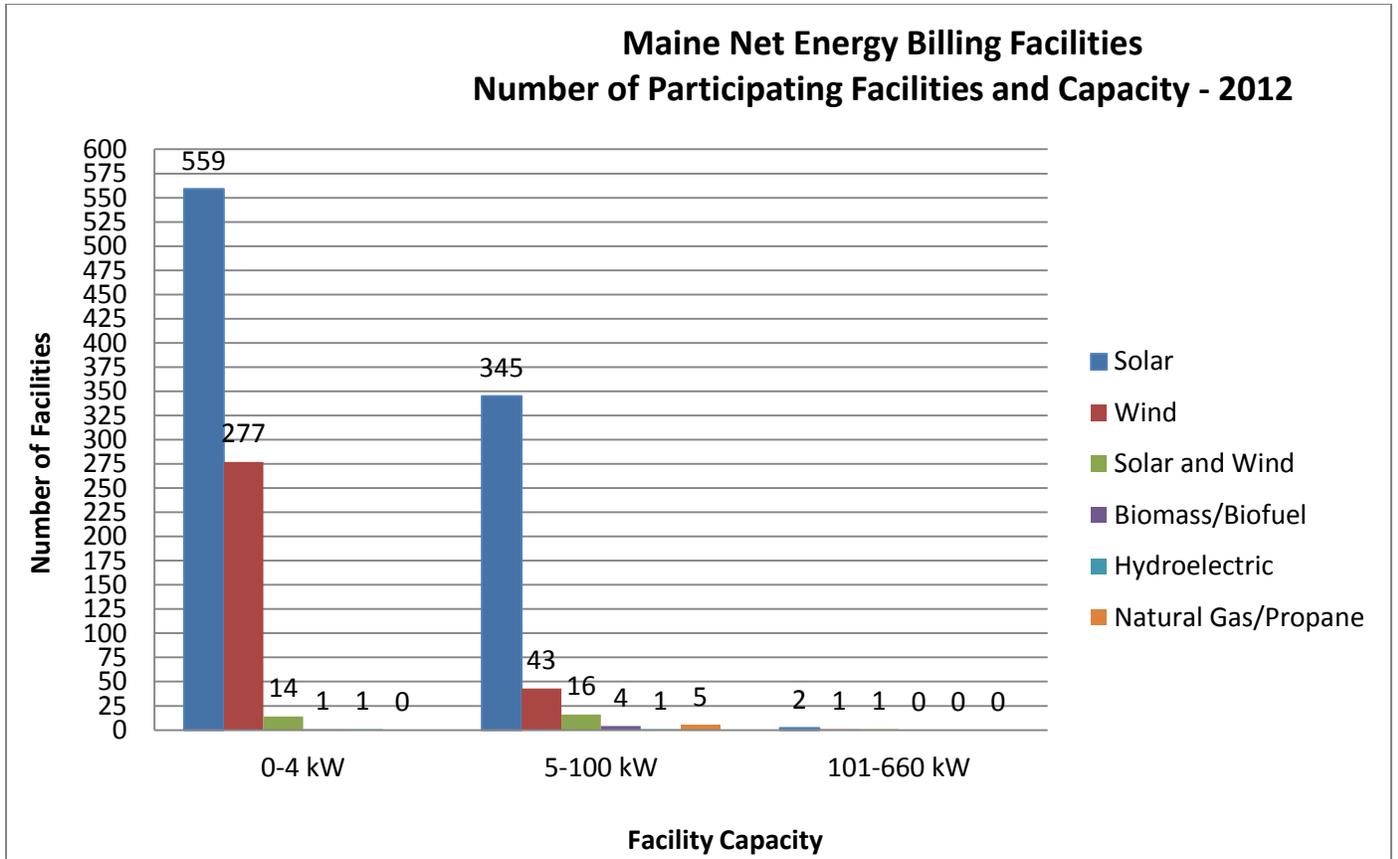
Committee discussion document from October 21, 2013

Committee discussion document from Nov. 14, 2013

Testimony summary on the 3 net-energy billing bills

List of studies examining the costs and benefits of distributed generation and net-metering

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NORTHEAST STATE'S NEB CAPACITY AND CREDIT SUMMARY TABLE

State	Capacity limit	Credit value
New Jersey	No limit; but designed for onsite use	Reconciled at avoided cost of wholesale power
Rhode Island	5 MW for onsite use	Can get credits for up to 25% more than consumption
Connecticut	2 MW	Some credits are carried forward; some are reconciled at avoided cost
Maine proposed	1MW or 2 MW	Credits carried forward indefinitely
New Hampshire	1 MW	Some credits are carried forward indefinitely; some are reconciled at avoided cost
Maine current	660 kW	Credits carried forward for one year, no compensation afterwards
Vermont	500kW (2.2MW for military)	Credits carried forward for one year, no compensation afterwards
Massachusetts	60 kW (10MW for gov't)	Credits are carried forward indefinitely
New York	25 kW res, 2MW comm	Some credits carried forward indefinitely; some reconciled at avoided cost

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NORTHEAST STATE'S NEB CAPACITY DETAIL TABLE

State	System Capacity Limit
Connecticut (Conn. Gen. Stat. §§16-243h and 16-244u)	<ul style="list-style-type: none"> ➤ 2 MW
Maine (PUC Rules Ch. 313 §3)	<ul style="list-style-type: none"> ➤ 660 kW (customers of investor-owned utilities) ➤ 100 kW (customers of consumer-owned utilities), unless the utility allows facilities with a greater capacity, up to 660 kW
Massachusetts (M.G.L. ch. 164 §1G; 220 CMR 18.04)	<ul style="list-style-type: none"> ➤ 60 kW (Class I systems) ➤ 1 MW (Class II systems) ➤ 2 MW (Class III systems) ➤ 10 MW (municipalities or other governmental entities)
New Hampshire (NH Statutes §§362-A:1-a and 362-A:9; NH Admin. Rules, PUC 900)	<ul style="list-style-type: none"> ➤ 1 MW
New Jersey (NJ Statutes §48:3-87; NJ Admin. Code 14:8-4.1 et seq.)	<ul style="list-style-type: none"> ➤ No capacity limit specified, but system must be sized so that energy production does not exceed customer's annual on-site energy consumption
New York (Laws of NY, Public Service, Article 4 §§66-j and 66-l; NY PSC Order Case 08- E-1305 et al.)	<p><u>Solar:</u></p> <ul style="list-style-type: none"> ➤ Residential: 25 kW ➤ Non-Residential: 2 MW <p><u>Wind:</u></p> <ul style="list-style-type: none"> ➤ Residential: 25 kW ➤ Farm-Based: 500 kW ➤ Non-Residential: 2 MW <p><u>Fuel Cells:</u></p> <ul style="list-style-type: none"> ➤ Residential: 10 kW ➤ Non-Residential: 1.5 MW <p><u>Biogas:</u></p> <ul style="list-style-type: none"> ➤ 1 MW (farm-based only) <p><u>Micro-CHP:</u></p> <ul style="list-style-type: none"> ➤ 10 kW (residential only)
Pennsylvania (73 P.S. §1648.1 et seq.; 52 Pa. Code Chapter 75)	<ul style="list-style-type: none"> ➤ Residential: 50 kW ➤ Non-Residential: 3 MW ➤ Microgrids or emergency systems: 5 MW
Rhode Island (RI Gen. Laws §39-26-4)	<ul style="list-style-type: none"> ➤ 5 MW (systems must be "reasonably designed" to generate only up to 100% of annual electricity consumption)
Vermont (30 V.S.A. § 219a)	<ul style="list-style-type: none"> ➤ 2.2 MW (military systems) ➤ 20 kW (micro-CHP) ➤ 500 kW (all other systems)

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NORTHEAST STATE'S NEB CREDIT DETAIL TABLE

State	Rate/Credit/Value of Net Energy Billing
<p>Connecticut (Conn. Gen. Stat. §§16-243h and 16-244u)</p>	<ul style="list-style-type: none"> ➤ Credited to the next monthly billing period at the rate of 1kWh for 1 kWh produced ➤ Credits earned are carried over until the end of the annualized period, after which customer is compensated for any excess kWh generated at the avoided cost of wholesale power ➤ Virtual net metering (municipal customers only): virtual net metering credits (retail cost per kWh) are credited to the next monthly billing period, and credits are carried forward until the end of the calendar year, after which customer is compensated at the rate the electric distribution company pays for power procured to supply standard service
<p>Maine (PUC Rules Ch. 313 §3)</p>	<ul style="list-style-type: none"> ➤ Customer receives a credit for every kWh that is equal to the value of the retail electricity supply, transmission and distribution costs and stranded costs; credits are applied to the next monthly billing period for a 12-month period ➤ At end of 12-month period, any accumulated unused kWh credits are eliminated; customer receives no compensation for unused credits
<p>Massachusetts (M.G.L. ch. 164 §1G; 220 CMR 18.04)</p>	<ul style="list-style-type: none"> ➤ For Class I wind, solar, and agricultural facilities, Class II facilities, and facilities of a municipality or other governmental entity, each net metering credit is equal to the product of the: <ul style="list-style-type: none"> (a) excess kWhs, by time-of-use if applicable; and (b) sum of the following charges applicable to the rate class under which the customer takes service: <ol style="list-style-type: none"> 1. the default service kWh charge (in the ISO-NE load zone where the customer is located); 2. the distribution kWh charge; 3. the transmission kWh charge; and 4. the transition kWh charge ➤ For Class I facilities other than wind, agricultural or solar, each net metering credit is calculated as the product of the: <ul style="list-style-type: none"> (a) excess kWhs, by time-of-use if applicable; and (b) average monthly clearing price at the ISO-NE ➤ For a Neighborhood facility or a Class III facility other than a facility of a municipality or other governmental entity, each net metering credit is equal to the product of: <ul style="list-style-type: none"> (a) excess kWhs, by time-of-use if applicable; and (b) sum of the following charges applicable to the rate class under which the customer takes service: <ol style="list-style-type: none"> 1. the default service kWh charge (in the ISO-NE load zone where the customer is located); 2. the transmission kWh charge; and 3. the transition kWh charge ➤ Credits are carried forward from billing period to billing period
<p>New Hampshire (NH Statutes §§362-A:1-a and 362-A:9; NH Admin. Rules, PUC 900)</p>	<ul style="list-style-type: none"> ➤ Facilities ≤ 100 kW: kWh credits are carried forward indefinitely to customer's next bill ➤ Facilities > 100 kW: Customer pays all applicable charges on all kWhs supplied to the customer, less a credit on default service charges equal to the metered energy generated ➤ For default service customers, if the surplus electricity production exceeds 600 kWh, the customer may elect to receive payment at the utility's avoided-cost rate for any excess credit remaining at the end of an annual period

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State	Rate/Credit/Value of Net Energy Billing
<p>New Jersey (NJ Statutes §48:3-87; NJ Admin. Code 14:8-4.1 et seq.)</p>	<ul style="list-style-type: none"> ➤ Three options available: <ol style="list-style-type: none"> 1. Customer receives month-to-month credit for net energy at the full retail rate and is compensated for remaining net energy at the avoided-cost of wholesale power at the end of an annualized period. 2. Customer is compensated for all net energy on a real-time basis according to the PJM (regional transmission organization). power pool real-time locational marginal pricing rate, adjusted for losses by the respective zone in the PJM 3. Customer may enter into a bilateral agreement with their electric supplier or service provider for the sale and purchase of net energy; real-time crediting is permitted, subject to the applicable PJM rules
<p>New York (Laws of NY, Public Service, Article 4 §§66-j and 66-l; NY PSC Order Case 08-E-1305 et al.)</p>	<ul style="list-style-type: none"> ➤ Generally credited to customer's next bill at retail rate (except at avoided-cost rate for micro-CHP and fuel cells) ➤ Annual net energy compensation for non-residential wind and solar carried forward indefinitely ➤ Excess for residential photovoltaics and wind and farm-based biogas is reconciled annually at avoided-cost rate ➤ Excess for micro-hydro, non-residential wind and solar, and residential micro-CHP and fuel cells carries over indefinitely
<p>Pennsylvania (73 P.S. §1648.1 et seq.; 52 Pa. Code Chapter 75)</p>	<ul style="list-style-type: none"> ➤ Credited at the full retail rate, which includes generation, transmission and distribution charges, for each kWh produced ➤ Excess kWhs are carried forward and credited against the customer's usage in subsequent billing periods at the full retail rate; any excess kWhs continue to accumulate until the end of the year ➤ At the end of each year, customer receives compensation for remaining net energy at "price-to-compare" (includes the generation and transmission components, but not the distribution component, of a utility's retail rate) ➤ If a small commercial, commercial or industrial customer's self-generation results in a 10% or more reduction in the customer's purchase of electricity through the transmission and distribution network for an annualized period when compared to the prior annualized period, the customer is responsible for its share of stranded costs to prevent interclass or intraclass cost shifting
<p>Rhode Island (RI Gen. Laws §39-26-4)</p>	<ul style="list-style-type: none"> ➤ Net metering credits are calculated by multiplying the total kWh consumed and generated by the sum of the utility's standard offer service kWh charge for the applicable rate class and distribution, transmission and transition kWh charges ➤ Excess kWh are paid by renewable net metering credits for the excess electricity generated beyond the customer's usage, up to an additional 25% of the customer's consumption during the billing period
<p>Vermont (30 V.S.A. § 219a)</p>	<ul style="list-style-type: none"> ➤ Monetary credits are calculated by multiplying the excess kWh generated during the billing period by the kWh rate paid by the customer for electricity supplied by the company, and the credit is applied to any remaining charges for that billing period. ➤ Any remaining balance of the credit is carried forward to the next billing period ➤ Any unused accumulated credits are granted to utility at end of 12-month billing cycle, without any compensation to the customer

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SUMMARY COMPARISON OF NEB AND FIT PROGRAMS

Sorted by feed-in tariff capacity cap

	Feed-in tariff Capacity Cap	Net metering Capacity Cap	Feed-in tariff Program Cap	Net-metering Program Cap
Maine – current CBRE	10 MW	660kW (100kW for COUs)	50 MW	1-2% peak load review
Rhode Island	5MW	5 MW (only to meet onsite needs)	40 MW	3% peak load
Hawaii	5 MW	100kW (50 kW for 1 utility)	10 MW or 60 MW	15% per circuit distribution threshold
California	3 MW	1 MW (except gov't @ 5MW)	750 MW	5% peak load
Vermont	2.2 MW	500kW (except 2MW military)	127.5 MW	4% peak load
Oregon	500 k	25kW (res) 2	25 MW	No cap (except for co-ops)
Maine - proposed	500kW	1 MW or 2 MW	No cap	1-2% peak load review
Washington	75kW	100kW	No cap	.25% of peak load

Sorted by NEB program capacity cap

	Feed-in tariff Capacity Cap	Net metering Capacity Cap	Feed-in tariff Program Cap	Net-metering Program Cap
Rhode Island	5 MW	5 MW (only to meet onsite needs)	40 MW	3% peak load
Maine - proposed	500kW	1 MW or 2 MW	No cap	1-2% peak load review
California	3 MW	1 MW (except gov't @ 5MW)	750 MW	5% peak load
Maine – current CBRE	10 MW	660kW (100kW for COUs)	50 MW	1-2% peak load review
Vermont	2.2 MW	500kW (except 2MW military)	127.5 MW	4% peak load
Hawaii	5 MW	100kW (50 kW for 1 utility)	10MW or 60 MW	15% per circuit distribution threshold
Washington	75kW	100kW	No cap	.25% of peak load
Oregon	500 kW	25kW (res) 2 MW (comm)	25 MW	No cap (except for co-ops)

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DETAILED NEB AND FIT TABLE COMPARISON

	Feed-In Tariff		Net Metering	
	Project Size Caps	Program Caps/Targets	Project Size Caps	Aggregate Capacity Limit
California (Updated 10/9/2013)	Up to 3 MW	750 MW Additional 250 MW from bioenergy (biogas and biomass) projects that begin after 6/1/2013	1 MW 5 MW for systems operating under the bill credit transfer program (Public Utilities Code 2830); must be owned/ operated by or on property under the control of a local government or university	5% of aggregate customer peak demand Statewide limit of 500 MW for fuel cells
Hawaii (Updated 8/06/2012)	Up to 5 MW, though cap varies by technology and island	Oahu – 60 MW Big Island – 10 MW Maui, Lanai and Molokai (combined) – 10 MW	100 kW for HECO, MECO and HELCO customers 50 kW for KIUC customers	15% per circuit distribution threshold for distributed generation penetration
Oregon (Updated 5/14/2013)	Up to 500 kW	25 MW New applications will not be accepted after March 31, 2015, or 25 MW cap is reached, whichever is earlier	2 MW for non-residential PGE and PacifiCorp customers 25 kW for residential PGE and PacifiCorp customers 25 kW for municipal utility, co-op and people’s utility district customers	No limit specified for PGE and PacifiCorp 0.5% of utility’s historic single-hour peak load for municipal utilities, co-ops and people’s utility district customers
Rhode Island (Updated 7/26/2012)	Up to 5 MW	40 MW Program expires at the end of 2014	5 MW (systems must be “reasonably designed” to generate only up to 100% of annual electricity consumption)	3% of peak load 2 MW reserved for systems under 50 kW