

## OVERVIEW OF RENEWABLE ENERGY POLICIES

	<b>Goals Articulated in Statute</b>	<b>Beginning/End Date</b>	<b>Statutory Size Limit</b>	<b>Participation</b>	<b>Benefit/Cost Equity</b>
<b>Net Energy Billing</b>	Promote installation of small renewable generation facilities to serve customers' own electricity needs <sup>1</sup>	Established by rule at the PUC in the 1980's, no end date	1.8 MW MPS ( 2% peak capacity) 2.78 MW BHE (1% peak capacity) 16.6 MW CMP (1% peak capacity) Hitting these "caps" will trigger a PUC review	1.2 MW MPS (1.1 %) 0.1 MW BHE (0.04%) 5.4 MW CMP (0.32%)	Statewide
<b>Solar and Wind Rebates</b>	"This bill seeks to advance solar usage through Maine...Mainers will have the opportunity to take advantage of a cleaner and safer energy source." <sup>2</sup>	Solar rebate first enacted in 2005; wind added in 2008; programs repealed in 2009	Limited by funding at .005c/kWh	Between 2005 and 2013, 2,368 total projects installed	Transmission and sub-transmission customers exempt
<b>Feed-In tariff</b>	"This is a very reasonable bill – balancing the need for energy self-sufficiency, avoiding costly large-scale generation and transmission system expansion, responsible and efficiency investment in renewable energy generation, ratepayer protections and job creation." <sup>3</sup>	No end date specified	None proposed	N/A	Statewide
<b>Community-Based Renewable Energy</b>	To encourage the sustainable development of community-based renewable energy in Maine.	Bill passed in 2009, authority is repealed in 2015	50 MW statewide	Program is fully subscribed	BHE ratepayers paying higher costs than CMP customers
<b>Ocean Energy Long-Term Contracts</b>	Act envisions technology demonstration projects that provide direct economic benefits of research, testing & development occurring in ME, lay a foundation for ME to be global leader in offshore wind and tidal technology development, and develop ME's indigenous natural resources <sup>4</sup>	Bill passed in 2010, generation must be constructed and operating with 5 years of contract signing	25 MW Ocean 5 MW Tidal	25 MW Ocean RFP pending 5 MW Tidal awarded to ORPC	Transmission and sub-transmission customers may be exempt
<b>RPS, Class I</b>	To ensure an adequate and reliable supply of electricity for ME residents and to encourage the use of renewable, efficient and indigenous resources – it is the policy of this State to encourage generation of electricity from renewable and efficient sources and to diversify electricity production on which residents of ME rely	1% increase in RPS requirement from 2008 until 2017.	10% increase from 2008 – 2017	Primarily ME Biomass	Statewide
<b>RPS, Class II</b>		1999, ongoing	30% renewable energy	Primarily ME Hydro	Statewide
<b>General LTC</b>	Share of new renewable capacity resources...increase by 10% by 2017; reduce electric prices and price volatility; reduce GHG emissions from the electricity generation sector; and to develop new capacity resources...to mitigate the effects of capacity resource mandates	2005, ongoing	May not exceed the amount necessary to ensure the reliability, to meet the energy efficiency program budget allocations articulated in the triennial plan or to lower customer costs	Verso contract (RECs only)  Rollins contract	Verso - CMP  Rollins – 80% CMP, 20% BHE

<sup>1</sup> Maine Public Utilities Commission Report on Net Energy Billing Presented to the Utilities and Energy Committee January 15, 2009

<sup>2</sup> Sponsor's testimony, April 24, 2013

<sup>3</sup> Sponsor's testimony, April 24, 2013

<sup>4</sup> For a complete description of goals, please see P.L. 2009, chapter 615

**RENEWABLE ENERGY POLICY BENEFITS**

	<u>Supply Cost Reductions</u>			<u>T&amp;D Cost Reductions</u>		<u>Economic Development</u>		<u>Environmental</u>
	<b>Capacity</b> - lowering prices in the forward capacity market (FCM) or reducing the load for which capacity must be purchased <b>Locational marginal price</b> – bidding zero into the energy market or reducing load					Any investment in Maine will have a multiplier effect.		
	Capacity	LMP Suppression	Hedge/ Volatility	Line Losses	Avoided Construction	Investment	Market Transformation	Air Quality & GHG Emissions
<b>Net Energy Billing</b>	Minimal because of scale of programs	Yes - Greater for resources that are coincident with peak load	Yes – generation used onsite not subject to market prices	<b>Yes – electricity used onsite not subject to line losses</b>	<b>Yes – if located in congested area, however no requirement to target congested areas.</b>	Local investment	No effect on manufacturing price, but increases accessibility in ME to products related to these technologies	Yes – to the extent these policies displace electricity generation with higher ghg or particulate emissions. With more time it may be possible to estimate decreased ghg emissions due to each policy.
<b>Solar and Wind Rebates</b>								
<b>Feed-In Tariff</b>								
<b>Community-Based Renewable Energy</b>	No	ISO-NE estimates a price reduction in the year of 2016 of \$.60/MWh for each new GW of onshore wind <sup>1</sup>	Decreased volatility, but not necessarily below market prices	Depends on proximity to consumption	To extent facilities are located in areas that would otherwise need support, could be some reduction in costs. Additional costs could arise due to increased cycling or loading created by intermittency of resources.	No		
<b>Ocean Energy LTC</b>	Under current ISO & FERC rules, resources are unlikely to clear in the FCM. If do clear, small impact.		Depends on proximity to consumption. No requirement to be close to consumption.	Modest impact if resources are located to reduce need to bring power from the grid to nearby locations	<b>Clear directives for substantial economic development in Maine</b>	<b>Policy designed for emerging technology</b>		
<b>RPS, Class I</b>	On-shore wind, with adequate transmission resources could lower prices in FCM. Other resources may or may not qualify in the FCM.		Hedges against price volatility from changes in natural gas prices <sup>5</sup>	If resources are located closer to load than the resources they displace, could decrease T&D need. Generally, though, these resources are located close to load centers.	Increase GSP by \$1,140 million (2%) and 11,000 jobs if the RPS in ME and New England motivate new renewable investment <sup>6</sup>	Yes		
<b>RPS, Class II</b>	No	No	No	No	No	No	No	
<b>General LTC</b>	<b>Because of the size of these contracts, has the greatest effect on capacity</b>	Contracts for energy will generally have a price-suppression effect	<b>Decreases volatility w/ the most benefit b/c of size of projects and no price premium</b>	Depends on proximity to consumption. No requirement to be close to consumption.	If resources are located closer to load than the resources they displace, could decrease T&D need	Has potential for development in ME, but not required	Yes	Depends on resource

<sup>5</sup> MPUC RPS Report 2011 – Review of RPS Requirements and Compliance in Maine Prepared by London Economics International LCC for the Maine Public Utilities Commission, Jan. 30, 2012, pg.56, citing ISO-NE Planning Advisory Committee, 2011 Economic Study Update, Sept. 21, 2011

<sup>6</sup>MPUC RPS Report 2011 – Review of RPS Requirements and Compliance in Maine Prepared by London Economics International LCC for the Maine Public Utilities Commission, Jan. 30, 2012, pg.15

## RENEWABLE ENERGY POLICY COSTS

	Public/ Ratepayer	Economic Loss Multiplier and Business Climate	Generation Fleet Costs	Integration Costs	Competitive Market Effects	Environmental
	\$/MWh of renewable energy generated	Economic loss due to dollars being spent on electricity prices or generation rather than elsewhere and businesses not moving to the State due to high electricity prices	Effect of intermittent resources on efficiency of grid generation	Includes transmission reserves and balancing needs	Less competitive space for electricity suppliers	Local environmental impacts such as visual and air quality impacts, etc.
<b>Net Energy Billing</b>	\$58.09	Yes – to the extent these policies increase electricity prices. In 2012 Maine’s electric prices were the 12 <sup>th</sup> highest in the country, potentially creating a barrier to attracting new businesses that are electricity intensive.	Minimal (facilities 660 kW in size or less)	Minimal (facilities 660 kW in size or less)	Yes	Minimal (facilities 660 kW in size or less)
<b>Solar and Wind Rebates</b>	\$15.10 <sup>7</sup>		Minimal (facilities 100 kW in size or less)	Minimal (facilities 100 kW in size or less)	Yes	Minimal (facilities 100 kW in size or less)
<b>Feed-in Tariff</b>	<b>\$225-\$260</b>		Yes, depends on scale	Yes, depends on scale	Yes	Minimal (facilities 500 kW in size or less)
<b>Community-based Renewable Energy</b>	\$54.33 current \$64.00 approved		Yes	Yes	Yes	Visual and other impacts associated with up to 3 grid scale wind turbines
<b>Ocean energy LTC</b>	<b>Offshore Wind</b> \$230 with annual 2.25% increase (proposed term sheet) <b>Tidal</b> \$215-\$313 (approved term sheet)		Yes	Yes	Yes	Unknown
<b>RPS, Class I</b>	\$10.00 <sup>8</sup>	Costs to Maine from the renewable portfolio standard on the residential sector would reduce Gross State Product by \$13.4 million and result in job losses of 129 jobs. <sup>9</sup>	There is a likely diminution of the overall efficiency of the generation fleet – primarily due to other units not being dispatched at optimum levels	If RPS supports generation that is remote from load centers or major transmission facilities, and if the characteristics of the resource may create stability issues (some types of intermittent resources might), costs are associated w/ integrating those resources into the system	No	Some air quality impact associated with biomass combustion (majority of ME Class I RPS satisfied by Maine biomass facilities)
<b>RPS, Class II</b>	\$0.18	No	No	No	No	N/A
<b>General LTC</b>	Rollins \$13.44 Verso \$0.00	Depends – policy goal is to reduce electricity prices	See comments on RPS, Class I resources	See comments on RPS, Class I resources	<b>Represents most MWh for longest duration within market</b>	<b>Visual impact associated with up to 40 grid scale wind turbines</b>

<sup>7</sup> This does not factor in any federal tax credits

<sup>8</sup>The extent to which Maine’s RPS directly causes renewable energy generation is unclear

<sup>9</sup>MPUC RPS Report 2011 – Review of RPS Requirements and Compliance in Maine Prepared by London Economics International LCC for the Maine Public Utilities Commission, Jan. 30, 2012, pg.15