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**MAINE PUBLIC UTILITIES  
COMMISSION**

**Report to the Legislature Regarding  
Market-Based Solar Policy Design  
Stakeholder Process Pursuant to  
Resolves 2015, ch. 37**

**January 30, 2016**



STATE OF MAINE  
PUBLIC UTILITIES COMMISSION

Mark A. Vannoy  
CHAIRMAN

Carlisle J. T. McLean  
R. Bruce Williamson  
COMMISSIONERS

Harry Lanphear  
ADMINISTRATIVE DIRECTOR

January 30, 2016

Honorable David C. Woodsome, Senate Chair  
Honorable Mark N. Dion, House Chair  
Energy, Utilities and Technology Committee  
100 State House Station  
Augusta, Maine 04333

**Re: Market-Based Solar Policy Design Stakeholder Process Report**

Dear Senator Woodsome and Representative Dion:

During its 2015 session, the Maine Legislature enacted L.D. 1263, *Resolve, To Create Sustainable Growth in Maine's Distributed Energy Sector That Uses Market Forces To Fairly Compensate Energy Producers* (Resolve). Resolves 2015, ch. 37. The Resolve required that the Commission convene a stakeholder group to develop an alternative to net energy billing and specified that, to the maximum extent possible, the recommendations from the stakeholder group must reflect a consensus among the stakeholders. The Resolve further directed the Commission to deliver a report to the Legislature that includes an overview of the stakeholder discussions; an overview of the new alternative solar policy developed; any areas where the stakeholders were unable to reach consensus and technical specifications, rules and policies that may be needed for implementation. The Resolve requires that the report be submitted by January 30, 2016. Attached is the Commission's report for the Committee's consideration.

If you have any questions, please do not hesitate to contact us.

Sincerely,

Mark A. Vannoy, Chairman

On behalf of the Chairman and  
Carlisle J. T. McLean, Commissioner  
R. Bruce Williamson, Commissioner

Attachment

cc: Energy, Utilities and Technology Committee Members  
Deirdre Schneider, Legislative Analyst

## I. OVERVIEW

As directed by legislative Resolve, the Maine Public Utilities Commission (Commission) convened a stakeholder group to examine options for market-based distributed solar promotion policy and alternatives to the current net energy billing (NEB) program. The Resolve sought stakeholder group recommendations that, to the maximum extent possible, reflect a consensus among the stakeholders.

As discussed in detail in this Report, the Commission convened a diverse group of stakeholders that exchanged a variety of views through numerous rounds of written comments and seven in-person work sessions. The process was productive and resulted in substantial agreement on many aspects of a solar promotional program. However, there was significant disagreement on several fundamental issues primarily with respect to the program that would replace NEB. Accordingly, the process did not produce consensus recommendations as contemplated by the Resolve.

This Report contains a description of the stakeholder process and a discussion of areas in which, in the Commission's view, there was substantial agreement and areas in which there was disagreement. For the most part, the Commission, in this Report, does not attempt to identify the positions of each individual stakeholder or describe their arguments in favor or opposed to particular issues. The Commission anticipates that all stakeholders will have the opportunity to present their specific viewpoints on these matters through the legislative process.

## II. LEGISLATIVE RESOLVE

During its 2015 session, the Maine Legislature enacted L.D. 1263, *Resolve, To Create Sustainable Growth in Maine's Distributed Energy Sector That Uses Market Forces To Fairly Compensate Energy Producers* (Resolve). Resolves 2015, ch. 37.<sup>1</sup> The Resolve states that the Legislature finds that net energy billing is a simple mechanism that has supported the development of distributed generation in Maine, but may not provide a suitable long-term foundation for distributed generation. The Resolve directed the Commission to convene a stakeholder group to examine options for distributed solar policy in Maine going forward. Specifically, the Legislature sought to develop an alternative to NEB that fairly and transparently allocates the costs and benefits of distributed generation to all customers, allows participation by all customers and creates a sustainable platform for future growth of distributed generation to the benefit of all ratepayers.

The Resolve required that the Commission convene a stakeholder group to develop an alternative to net energy billing. The Resolve specified that, to the

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<sup>1</sup> A copy of the Resolve is attached as Attachment A.

maximum extent possible, the recommendations from the stakeholder group must reflect a consensus among the stakeholders. The Resolve also stated that development of the alternative solar policy be guided by a white paper prepared for the Office of the Public Advocate (OPA) by Strategen Consulting entitled, "A Ratepayer Focused Strategy for Distributed Solar in Maine" (OPA White Paper). The complete white paper is available at:

<http://www.maine.gov/meopa/news/Maine%20VOS%20White%20Paper%20V2%202.pdf>

Section 1 of the Resolve provided that in developing the alternative, the Commission shall:

1. Ensure the policy proposal includes fixed, long-term compensation mechanisms for distributed generation that, when feasible, obtain the best price for ratepayers using market-based competition or capacity-based step downs, as described in the OPA White Paper and ensures the maximum level of compensation for a given technology does not exceed the ratepayer benefits as determined by a Commission evaluation of the specific benefits of that technology;
2. Develop at least three aggregate market size scenarios representing low, medium and high estimates of the total installed capacity that would be developed under existing rate structures if net energy billing were to continue through 2021;
3. Ensure the alternative provides opportunities for meaningful participation by all market segments identified in the OPA White Paper, including residential, commercial, industrial, community and wholesale or grid-scale solar distributed generation;
4. Include a method to aggregate, capture and monetize for ratepayers the benefits of distributed generation assets, including, but not limited to, benefits related to energy supply, capacity and renewable energy credits, in order to maximize revenues for aggregation to all ratepayers and identify the appropriate entity to initially serve as an aggregator, while providing for the opportunity for third-party aggregation at a future date; and
5. Develop a process and timeline for transition from current net energy billing policies to the alternative solar policy that address the following:
  - a. The continued availability of net energy billing pending an assessment of the alternative, or until such date as the Commission may recommend;

- b. Options for participation by existing net energy billing customers in the alternative; and
- c. Continuing opportunities for self-consumption by distributed generation customers once the alternative is fully implemented.

Section 2 of the Resolve directed the Commission to deliver a report to the Legislature that includes an overview of the stakeholder discussions; an overview of the new alternative solar policy developed; any areas where the stakeholders were unable to reach consensus; technical specifications, rules and policies that may be needed for implementation; a timeline for implementation; technical or legal barriers to implementation and any other recommendations. The Resolve requires that the report be submitted by January 30, 2016.

### **III. NET ENERGY BILLING PROGRAM**

Net energy billing is a common mechanism with several variations used by many states to promote the installation and use of small renewable generation facilities. Net energy billing is a metering and billing practice that allows a customer who has his/her own generating facility (e.g., solar panel or wind turbine) to be billed on the basis of “net energy” over a billing period. Net energy is the difference between the kWhs a customer consumes and the kWhs produced by the customer’s generating facility over the period. Thus, under NEB, any excess generation from a customer’s own generating facility may be used as an energy credit to offset that customer’s electricity usage at times when the customer’s facility is not generating enough to meet the customer’s electricity needs. Through this process, a NEB customer, in essence, receives the value of the full retail rate (approximately 13 cents/kWh) for any excess of generation above the customer’s usage. This results in a decrease in utility revenues that is ultimately paid for by all ratepayers.

Net energy billing was not initially required or explicitly authorized by statute and is primarily a function of Commission rule.<sup>2</sup> The Commission initially adopted a NEB in the early 1980s as part of the rules implementing the federal Public Utility Regulatory Policies Act (PURPA) and Maine’s Small Power Production and Cogeneration Act. These statutory provisions were intended to promote the development of non-utility renewable and cogeneration electric generation facilities referred to as qualifying facilities or QFs. The Commission initially adopted NEB rules as a means to reduce costs for very small generating facilities on a customer’s premises by avoiding the costs of a second meter and, instead, allowing the meter to run in both directions. Under these rules, a customer’s usage would be offset by generation within a billing period and any excess generation at the end of the month would be sold to the utility at its “avoided costs.” Net energy billing was limited to renewable facilities with an installed capacity of 100 kW or less.

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<sup>2</sup> In 2011, the Legislature enacted a statute that explicitly authorizes, but does not require, the Commission to adopt NEB rules, 35-A M.R.S section 3209-A.

In the late 1990s, the Legislature restructured Maine's electricity industry, requiring electric utilities to divest their generation assets and prohibited them from purchasing or selling generation related products and services. These services would instead be provided through a competitive market. As a result, the Commission amended the NEB rules to adopt an "annualized" NEB approach in which, rather than selling excess generation to utilities, customers that generate more than they use in a given month are provided "credits" that could then be used to offset usage over the following 12 months. At the end of the 12-month period, the credits expire. The Commission maintained the 100 kW capacity limit for eligible facilities.

The Commission's current net energy billing rules are a result of a major substantive rulemaking process in which the Legislature authorized changes in the rules that expanded NEB in two significant ways. First, the eligible facility limit was increased from 100 kW to 660 kW. Second, "shared ownership" NEB was authorized to allow several customers to net bill against the output of a jointly-owned generating facility.<sup>3</sup>

#### **IV. OPA WHITE PAPER**

The OPA White Paper contemplates the adoption of an overall program size or cap which would be broken down into the following distributed solar market segments: residential and small business; community solar; large commercial and industrial (C&I); and grid-scale. For all these segments, the OPA White Paper proposes that an aggregation entity or "Solar Standard Buyer" (SSB) would aggregate, purchase and monetize the value of all products from solar installations under the program, including energy, renewable energy credits (RECs), capacity value, and ancillary services. Centralizing procurement with the SSB would, according to the White Paper, allow for a more efficient aggregation and sale of the different attributes solar energy can provide. The underlying goal of this policy structure is to allow Maine ratepayers to capture the benefits of distributed solar energy while minimizing the costs and any inequities associated with the current program.

For residential and small business customers, the OPA White Paper proposes a firm contract price and a mechanism to lower contract prices over time based on pre-specified solar development trigger mechanisms. Under the OPA White Paper, there would also be programs for large C&I customers, community-based solar installations, and grid-scale projects. These programs would involve a competitive bid process in which the Commission would conduct reverse auctions for a specified level of installed

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<sup>3</sup> The Commission's net energy billing rules provide that if the cumulative capacity of net energy billing facilities reaches one percent of the utility's peak demand, the Commission will review net energy billing to determine whether it should continue or be modified. Ch. 313, section 3 (J).

capacity, where only the lowest project bids would be accepted. As with residential and small commercial contracts, the output of the facilities would be purchased by the SSB.

## **V. STAKEHOLDER PROCESS AND DISCUSSIONS**

On August 11, 2015, the Commission issued a Notice of Inquiry (NOI), Docket No. 2015-00218, initiating the stakeholder process and providing a preliminary schedule for stakeholder work sessions. The initial process proposal was modelled after the structures proposed in the OPA White Paper and designed to investigate different program elements and questions raised therein; however, the design was sufficiently fluid to accommodate stakeholder input and any refinements of the various program options identified by stakeholders. The NOI invited interested stakeholders to comment on the proposed schedule and expected discussion topics or any others that parties thought would be helpful or relevant to the Commission's efforts. The Commission also advised interested persons that if they wished to submit comments but not otherwise participate in the stakeholder process they could do so at any time throughout the proceeding. The NOI was sent to interested persons including members of the Energy, Utilities and Technology Committee and all individuals or entities that testified on LD 1263, the bill that resulted in the Resolve creating the stakeholder process. A large number of stakeholders participated throughout the process.

Work Session I was held on September 10, 2015 and focused on a discussion of the process, a presentation on the OPA White Paper, developing the NEB penetration scenarios required by the Resolve and related questions. Work Session II was held on September 23, 2015. Stakeholders discussed NEB penetrations and market segmentation. Work Session III was held on October 7, 2015 and focused on overall program size and market segment subdivisions as well as discussion of the grid-scale and large commercial and industrial market segment procurement mechanisms. During Work Session IV, held on October 22, 2015, there was further discussion of the grid-scale and large commercial and industrial procurement mechanisms as well as the community and residential and small commercial market procurement mechanisms. Upon the completion of Work Session IV, stakeholders generally agreed that an additional work session would be helpful. Commission Staff developed a revised schedule to reflect the progress of discussions at that time and to incorporate sufficient additional discussion time of relevant issues.

During Work Session V, held on November 16, 2015, there was further discussion of the program design for the community solar and residential/small commercial market segments and also of possible transitions away from NEB and the treatment of RECs. During Work Session VI, held on December 9, 2015, there were additional discussions of the residential and small commercial market segment and market-based step downs, transitioning from NEB, treatment of RECs and the financial model used by the OPA to estimate payments and revenues of the alternative. This meeting also included a public comment period. As stakeholders had not been able to

discuss all issues in the six meetings, an additional stakeholder meeting was scheduled. During Work Session VII, held on January 6, 2016, there was more discussion of the residential and small commercial market procurement mechanism including the stepdown mechanism and price levels, the transition from NEB, the structure, operations and responsibilities of the Standard Solar Buyer, a revised community solar market segment program, revisions to the OPA's financial model, what aspects of the alternative should be in statute and what should be left to a Commission rulemaking proceeding and remaining outstanding issues.

All sessions were hosted by the Commission at its offices at 101 Second Street in Hallowell. Detailed agendas were prepared and posted in the Docket the week before each stakeholder meeting. The agendas are attached as Attachment B. Commission Staff filed meeting summary memos after each stakeholder work session summarizing areas of apparent consensus, discussion topics and issues to be discussed at later meetings. These meeting summaries are attached as Attachment C. Stakeholders also had the opportunity to file comments after each stakeholder meeting and on Commission Staff summaries of areas of consensus and non-consensus with respect to the overall program size and market segment caps, grid-scale market segment procurement mechanisms, large C&I market segment procurement mechanism and the NEB scenarios through 2021. All comments are available in the Docket on the Commission's website at: [https://mpuc-  
cms.maine.gov/CQM.Public.WebUI/Common/CaseMaster.aspx?CaseNumber=2015-  
00218](https://mpuc.cms.maine.gov/CQM.Public.WebUI/Common/CaseMaster.aspx?CaseNumber=2015-00218)

A list of stakeholders who participated in these meetings is attached as Attachment D.

## **VI. SOLAR PROCURMENT MECHANISMS - ALTERNATIVE TO NET ENERGY BILLING**

### **1. OVERVIEW**

The stakeholders reached substantial agreement on a large number of important aspects of a market-based solar development policy and on some aspects of an alternative to NEB. As discussed above, the stakeholder group discussed a program for four distinct market segments: 1) grid-scale, 2) large C&I, 3) community solar and 4) residential and small commercial. There was substantial agreement about the structure of programs in the first three segments, but significant disagreement on major aspects of the residential and small commercial program. Thus, there was no stakeholder consensus on an overall solar program. It should be emphasized that NEB is primarily a residential and small commercial program, and that most of the substantial stakeholder disagreement involves the residential and small commercial procurement program which would serve as the alternative to NEB.

The stakeholder group discussions and a variety of the group's agreements involve very detailed matters that would not normally be included in legislation. The stakeholder group contemplates such issues would finally be determined through subsequent Commission rulemakings.

## 2. OVERALL PROGRAM SIZE

There was substantial agreement that the overall program size should be set at 255 MW, with the following breakdown of the various market segments:

<b>Segment</b>	<b>% of Market</b>	<b>Total MWs</b>
Residential & Small Business	49%	125
Community	17%	45
Large Commercial / Industrial	10%	25
Grid-scale	24%	60
Total		255

However, there were stakeholders that disagreed with the overall program size and with the allocations among market segments.

## 3. GRID-SCALE AUCTION MECHANISM

Under this market segment, the Commission would procure an average of 15 MW of solar capacity a year (up to a total of 60 MW) through biannual requests for proposals for solar projects of up to 5 MW in size. The mechanism would be similar to the Commission's existing long term contracting authority, with 20-year contracts for the entire output of a solar facility.

### a. Procurement Process

There was substantial agreement among the stakeholders on the following aspects of the procurement process:

- In each auction, a specified amount of capacity is available for developers to bid on;
- Bidders would specify a fixed 20 year price in a standardized, must take contract. The details of the standard contract would be worked out in a subsequent Commission rulemaking proceeding;

- To be eligible for a contract, bidders must demonstrate minimum viability requirements (e.g., site control, development experience, interconnection application), and pay an application fee;<sup>4</sup>
- Projects may interconnect at either the distribution or transmission level;
- The Commission selects projects in order of least-cost/highest value up to the allocation level and enters into contracts with winning bidders;
- No bid exceeding the per kWh price of the residential/small commercial segment step-down procurement price active at the time of the auction would be awarded a contract, even if it was the lowest bid;
- Any remaining unallocated capacity available would be rolled forward into the total capacity procurement in the next auction; and
- Regular auctions would be held every six months.

There was also substantial agreement that the program would procure the grid-scale capacity allocation (60 MW) over four program years (e.g., 2017-2020). The table below provides parameters for the first two program years, with the goal of procuring approximately half of the capacity allocation.

Total Allocation	60 MW
Auction Frequency	Every 6 months
Auction 1 – Q1 2017	6 MW
Auction 2 – Q3 2017	7 MW
Auction 3 – Q1 2018	8 MW
Auction 4 – Q3 2018	9 MW
Cumulative Total After Program Year 2	30 MW (50%)

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<sup>4</sup> The application fee would be set at an amount sufficient to ensure credible proposals, and to defray administrative costs associated with the procurement. As an initial starting point, the group discussed \$0.50 per kW.

The balance of the allocation would be determined in the remaining two years (*i.e.*, 2019 and 2020), subject to any modification to the auction mechanism based on experience in the first two years of the program.

b. Ensuring Competitive Proposals

The following mechanisms are intended to ensure that bids are competitive:

- Capping maximum project size at the lesser of 5 MW or half of the total auction cap. For example, if the total capacity available for auction were 6 MW, the maximum project size would be 3 MW. This would ensure at least two winning bidders, spreading programmatic risk.
- Requiring that each auction receive credible project bids from unaffiliated entities totaling at least three times the available capacity in order for contracts to be awarded. If an auction is deemed uncompetitive, no contracts would be awarded and the capacity allocation would be deferred to the next round with the threshold only pertaining to the original amount of MWs. A non-competitive auction would also trigger Commission review to identify potential changes to the auction process that would increase competition.
- Winning bidders, winning contract price(s), and related auction information (*e.g.* average price, number of bidders) are released to the public prior to the next auction round.

c. Developer Obligations

The stakeholders also agreed that there should be developer deposit and milestone requirements. The milestones that were discussed would include:

<b>Months From Award</b>	<b>Milestone</b>
1	<ul style="list-style-type: none"> <li>• Submit non-refundable deposit</li> </ul>
6	<ul style="list-style-type: none"> <li>• Financing in place</li> </ul>
12	<ul style="list-style-type: none"> <li>• All local and state permits obtained</li> <li>• Utility interconnection approval obtained</li> <li>• Engineering Procurement and Construction (EPC) contract in place</li> </ul>
18	<ul style="list-style-type: none"> <li>• Begin Construction</li> </ul>
24	<ul style="list-style-type: none"> <li>• Commercial operation</li> </ul>

d. Other Considerations

- Utilities may provide maps to assist developers in identifying suitable interconnection sites, though final determination of interconnection costs would be subject to existing utility interconnection processes; and
- The Commission may consider additional incentives or selection “points” for projects that provide benefits to the grid through avoided transmission or distribution investments, additional reliability/dispatchability through use of smart inverters or storage, and/or for projects built on brownfield sites. To the extent such “points” are desired, stakeholders understood a clear rubric would need to be spelled out so as not to create additional administrative burdens of individual project evaluation.

4. LARGE COMMERCIAL AND INDUSTRIAL PROCUREMENT MECHANISM

For this market segment, the general agreement was that the Commission would hold bi-annual reverse auctions for 20-year contracts for the full output of solar generation sited at the facilities of large commercial and industrial customers. The facilities could range in size from 250 kW up to 1 MW, with a total procurement of 25 MW. Upon commercial operation of the solar facility, these customers would receive a monthly bill credit equal to the delivered AC output (not the nameplate DC output) of the facility for the prior month times the contract price.

a. Procurement Mechanism

There was substantial stakeholder agreement on the following aspects of the program:

- In each auction, a specified amount of capacity is available for developers to bid on;
- Bidders specify a fixed price for a standardized must take contract of 20 years;
- Minimum facility size would be 250 kW (the cutoff for small business eligibility), maximum size would be 1 MW;
- To be eligible for a contract, bidders must demonstrate minimum viability requirements (e.g., signed customer consent to bid form, development experience, system details), and pay an application fee;
- The Commission selects projects based on cost and project characteristics, up to the allocation level and the Standard Solar Buyer enters into contracts with winning bidders; and
- Auctions would be held biannually, and could be scheduled so as to be staggered with the grid-scale and/or community solar procurements. The program would procure the Large C&I capacity allocation (25 MW) over four program years (e.g. 2017-2020). The table below provides a proposed annual allocation for each program year.

<b>Large Commercial &amp; Industrial</b>	
Total Allocation	<b>25 MW</b>
2017 Procurement	5 MW
2018 Procurement	6 MW
2019 Procurement	7 MW
2020 Procurement	7 MW

b. Ensuring Competitive Proposals

The following mechanisms are intended to ensure that bids are competitive:

- Capping project size at 1 MW. These allocations would result in biannual auction amounts of at least 3 MW, sufficient to support a minimum of two projects per auction;
- Requiring that each auction receive credible project bids from unaffiliated entities totally at least two times the available capacity in order for contracts to be awarded. If an auction is deemed uncompetitive, no contracts are awarded and the capacity allocation is deferred to the next round with the threshold only pertaining to the original amount of MWs. A non-competitive auction would also trigger Commission review to identify potential changes to the auction process that would increase competition; and
- Winning bidders, winning contract price(s), and related auction information (e.g., average price, number of bidders) are released to the public prior to the next auction round.

c. Customer Obligations

The stakeholders also agreed that, upon selection, there should be customer deposit and milestone requirements. The milestones that were discussed would include:

<b>Months From Award</b>	<b>Milestone</b>
1	<ul style="list-style-type: none"> <li>• Submit non-refundable deposit</li> </ul>
6	<ul style="list-style-type: none"> <li>• Financing in place</li> </ul>
9	<ul style="list-style-type: none"> <li>• All local and state permits obtained</li> <li>• Utility interconnection approval obtained</li> <li>• EPC contract in place</li> </ul>
12	<ul style="list-style-type: none"> <li>• Begin Construction</li> </ul>
18	<ul style="list-style-type: none"> <li>• Commercial operation</li> </ul>

d. Bill Crediting

There was also substantial stakeholder agreement on the following issues related to bill credits:

- The facility will be metered separately from the customer's load. Upon commercial operation, customers will receive a monthly bill credit equal to the output of the facility for the prior month times the contract price. All customer usage will continue to be metered, and billed based on the applicable rate schedule;
- A host customer may apply excess credits to other meters, even those at remote sites, provided they are on the same customer account; and
- Any credits in excess of the customer's total monthly bill will be retained for future months (i.e., a customer's monthly bill cannot be less than zero).

The initial proposal was that all unused credits would expire at a specified date each year. However, several stakeholders took the position that the ability to roll credits forward should continue for a longer period.

## 5. COMMUNITY SOLAR PROCUREMENT MECHANISM

There was substantial stakeholder agreement that the procurement mechanism for larger community solar mechanism should be similar to that for grid-scale facilities with auctions would be held every 6 months. The notable differences are lower barriers of entry (e.g., less stringent deposits) and the allocation of provisions and consumer protection measures associated with sharing the output of a developed solar facility among multiple customers. Smaller community solar projects (below 250 kW) would not participate in the auction process, and would receive the currently applicable contract price for residential and small commercial customers.

### a. Procurement Mechanism

The general understanding of a community solar project is that the developer would undertake customer aggregation for participation in a community solar project and provide proposals for consideration through the auction mechanism. Bill credits based on the proposal would be applied directly to individual customer bills as described in greater detail below.

There was substantial agreement on the following aspects of the program:

- In each auction, a specified amount of capacity would be available for developers to bid on;
- Bidders specify a fixed price for a standardized must take contract of 20 years;
- No minimum facility size. Maximum size would be 3 MW;
- To be eligible for a contract, bidders must demonstrate minimum viability requirements (e.g., site control, development experience, interconnection application, system details) and pay an application fee;
- The application fee and eligibility requirements would be relaxed for municipalities and non-profits.
- The Commission selects projects based on cost and project characteristics, up to the allocation level and the SSB would enter into contracts with winning bidders; and
- No single customer may be allocated more than 50% of a project's total installation size. There was a suggestion that each project allocate 50% of its capacity to residential customers, but it was unclear whether there was any significant agreement on this particular design element.

There was significant discussion regarding the desirability of a Commission certification/licensing process that would ensure developer viability and address consumer protection and disclosure issues. There was also discussion about how to specifically define a community solar project and a possible RFP approach where issues other than lowest cost could be considered. For example, one discussion centered on whether the benefits of brownfield development should be considered in proposal evaluations. Finally, there was discussion, but no agreement, on whether the auction approach for community solar projects (in particular, smaller projects) should be replaced by an alternative mechanism.

The mechanism would procure the community solar capacity allocation of 45 MW over four program years (e.g. 2017-2020), although it was recognized that additional time may be needed before beginning these auctions to account for additional complexities in program design (e.g., subscriber details). The auctions could be either combined or staggered with the grid-scale and C&I auctions to ease administrative

burden. The table below provides the discussed annual allocation for each program year, but the extent of stakeholder agreement is unclear.

<b>Community Solar</b>	
Total Allocation	45 MW
2017 Procurement	8 MW
2018 Procurement	10 MW
2019 Procurement	12 MW
2020 Procurement	15 MW

b. Ensuring Competitive Proposals

There was substantial stakeholder agreement on the following mechanisms which are intended to ensure that proposals are competitive:

- Capping project size at 3 MW. These allocations would result in semi-annual auction amounts of at least 4 MW being available;
- Requiring that each auction receive credible bids from unaffiliated entities totaling at least two times the available capacity in order for contracts to be awarded. If an auction is deemed uncompetitive, no contracts are awarded and the capacity allocation is deferred to the next round; and
- Winning bidders, winning contract price(s), and related auction information (e.g. average price, number of bidders) are released to the public prior to the next auction round.

The following milestones were proposed, although there was some discussion that this level of program specificity may be better addressed in a Commission rulemaking:

<b>Months From Award</b>	<b>Milestone</b>
1	<ul style="list-style-type: none"> <li>• Submit non-refundable deposit per kWh</li> </ul>
6	<ul style="list-style-type: none"> <li>• Financing in place</li> </ul>
12	<ul style="list-style-type: none"> <li>• All local and state permits obtained</li> <li>• Utility interconnection approval obtained</li> <li>• Engineering Procurement Construction (EPC) contract in place</li> </ul>
18	<ul style="list-style-type: none"> <li>• Begin Construction</li> </ul>
24	<ul style="list-style-type: none"> <li>• Commercial operation</li> </ul>

c. Bill Crediting

There was also substantial stakeholder agreement on the following issues related to bill credits:

Upon commercial operation, subscribers would receive a monthly bill credit equal to their share of the output of the facility for the prior month times the rate established. The bill credit rate for all participating customers for a given project must be the same;

- Customers should be limited to subscribing to only one project so as to avoid potential administrative problems on how to apply credits;
- Credits should remain in the same utility service territory (i.e., if the project is in CMP's service territory, only CMP customers may participate);
- All customer usage will continue to be metered, and billed based on the applicable rate schedule; and
- Any credits in excess of the customer's total monthly bill would be retained for future months (i.e., a customer's monthly bill cannot be less than zero).

There was no agreement on the proposal that all unused credits expire at a specified date each year. Some stakeholders proposed the ability to roll credits forward for a longer period.

## 6. RESIDENTIAL AND SMALL COMMERCIAL PROCUREMENT – ALTERNATIVE TO NET ENERGY BILLING

### a. General Program Design

The residential and small commercial procurement mechanism would serve as the alternative to NEB. Although there was substantial agreement among the stakeholders on many aspects of this program, there was significant disagreement on fundamental details of the program design and its operation, as well as the transition from NEB.

The stakeholders did reach substantial agreement on the overall design of a residential and small commercial program. Under that program, the customer would enter into a fixed price 20 year contract for the net output of a solar facility with the SSB at pre-determined price levels.<sup>5</sup> The payment would be based on a per kWh rate that would appear as a monthly bill credit on the customer's bill (similar to Maine's existing NEB structure). There was also discussion, but no agreement, on a fixed price approach in which the price escalates at a fixed rate over the term of the contract.

For this customer group, there would be a declining trigger mechanism based on installed solar capacity that would automatically decrease the level of compensation for new customers entering into contracts. The capacity-based stepdown approach reduces the contract price by a certain amount at each step. The number of MWs available at each step increases with each consecutive step. Once the capacity based step down mechanism is in place, preset adjustment mechanisms to the compensation rate are triggered if certain events happen (e.g., market installations are below a certain level, federal investment tax credit sunsets) to stimulate more installations.

The capacity-based stepdowns are intended to substitute for the market-based pricing mechanisms used for the other market segments in recognition that such mechanisms would be impractical for residential and small commercial customers. Like those market mechanisms, the stepdowns are intended to, over the five year period covered by the program, bring prices closer to cost and create incentives for installers to reduce installation costs.

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<sup>5</sup>CMP disagreed with the long-term contract approach, preferring that payment be based on current market value. If there is a contracting approach, CMP's position is that the term be shorter and that prices escalate over the contract term.

b. Purchase Price and Capacity Stepdowns

The stakeholders did not reach agreement on the fundamental issue of the initial purchase price under the program and on how those purchase prices would be reduced over time through the capacity stepdowns. Stakeholder positions on the initial purchase price ranged from 18.5 cents/kWh to the prevailing market price at the time the contract is entered, which may be in the range of 10 cent/kWh.

c. Customer Self Consumption

Under the OPA's original proposal, the output of the solar facilities would have been separately metered, and the SSB would purchase the entire output and all attributes associated with the facility (e.g., renewable energy credits, capacity value, etc.) referred to as the "buy-all, sell-all" approach. A number of stakeholders advocated that customers should retain the ability to self-consume their on-site generation. After lengthy discussion, there was substantial agreement that customers should be able to self-consume and that the SSB would purchase only the net amounts of electricity exported to the system.

d. Renewable Energy Credits

Under the OPA's original proposal, the SSB would purchase and monetize all attributes from the solar facilities, including the RECs. There was substantial discussion regarding whether customers should be able to retain the environmental attributes, in the form of RECs, associated with the solar facility output. The OPA presented a proposal in which all RECs would be purchased by the SSB, but those customers wishing to claim the environmental benefits would have the option to participate in the Maine Green Power program either through the current product offering or a to-be-developed premium Maine solar offering. There was substantial stakeholder agreement on this approach, but there were stakeholders that expressed some reservations.

e. Transition from NEB to the Alternative

The stakeholders did not reach agreement on the transition from NEB to the alternative. Some stakeholders advocated that customers continue to have the option of NEB under current rules for a time period of time while the alternative is available. Most stakeholders appeared to agree that that current NEB mechanism should at least be suspended so that the alternative can be reasonably evaluated.

f. Bill Crediting

As with the other industry segments, there was substantial agreement that customers would receive a monthly bill credit equal to the exports of the facility for the prior month times the contract price and that any credits in excess of the customer's total monthly bill will be retained for future months (i.e., a customer's monthly bill cannot be less than zero). As noted in the other market segments, there was disagreement regarding when these credits would expire.

7. STANDARD SOLAR BUYER

The purpose of the Standard Solar Buyer is to aggregate the output of the solar portfolio procured in each market segment and sell the various products into the applicable market to maximize the benefits of this portfolio of resources to ratepayers. The primary means of capturing these benefits would be sale of the energy, capacity, and environmental attributes into the applicable New England markets. Revenue from these sales would offset ratepayer costs associated with the payments made to solar developers and customers under the long term contracts associated with each procurement mechanism.

There was substantial agreement among the stakeholders that, at the outset of the program, the investor-owned T&D utilities should serve as the Standard Solar Buyer in their respective service territories. However, the stakeholders agreed that there should be a process by which the Commission may transfer the obligation to serve as Standard Solar Buyer to another entity at a future date, as well consideration of opportunities for third-parties to aggregate and sell a portfolio of distributed generation resources in same manner as the Standard Solar Buyer.

**VII. ESTIMATED INSTALLED SOLAR CAPACITY UNDER NET ENERGY BILLING**

Section 1(2) of the Resolve states that in developing an alternative to net energy billing, the Commission shall:

“Develop at least 3 aggregate market size scenarios representing low, medium and high estimates of the total installed capacity that would be developed under existing rate structures if net energy billing were to continue through 2021.”

The Commission used various approaches, including obtaining technical support from the National Renewable Energy Laboratory (NREL), to develop these market scenarios. Guided by the Commission’s initial sensitivities, stakeholders agreed that plausible medium and high estimates for 2021 would be 100 and 200 MW. Subsequently, NREL provided medium and high estimates that were 146 and 189, respectively. NREL’s low estimates were based on expiration of the solar investment tax credit, which was subsequently extended by Congress in December of 2015, and are therefore no longer valid.

Although not required by the Resolve, stakeholders expressed interest in also understanding the amount of grid-scale solar that might be developed in Maine by 2021. These projects would not be net metered and were not assumed to receive any subsidy from Maine ratepayers. Based upon various sources of information, the stakeholders agreed on the following future scenarios:

<b>Scenario</b>	<b>Total</b>	<b>NEB Eligible</b>	<b>Grid-scale</b>
LOW	50	50	0
MEDIUM	140	100	40
HIGH	270	200	70

As noted above, the Commission also sought and received support from the NREL through its Solar Technical Assistance program. NREL developed four net energy billing scenarios utilizing its dSolar model following the parameters of the Resolve. Variables adjusted in the scenarios were the installed PV cost trajectory, retail electricity prices, load growth, and whether the federal investment tax credit would be extended.<sup>6</sup> The NREL results were as follows:

<b>NREL Scenario</b>	<b>State-wide Installed Capacity of Distributed PV under NEB(MW dc)</b>					
	2016	2017	2018	2019	2020	2021
<b>High PV Adoption</b>	25	40	54	89	124	189
<b>Medium PV Adoption – ITC Extends</b>	24	38	52	76	101	146
<b>Medium PV Adoption – ITC Expires</b>	24	32	39	56	72	97
<b>Low PV Adoption</b>	20	23	25	30	34	40

<sup>6</sup> At the time, the 30% Investment Tax Credit for residential and commercial solar systems was set to expire December 31, 2016, after which it would be eliminated for residential systems and reduced to 10% for commercial systems.

The NREL estimates are generally consistent with the scenarios considered plausible by the stakeholders. Subsequently, Congress enacted an omnibus appropriations bill which extended the 30% investment tax credit for solar through 2018, with step downs to 10% by 2022. Therefore, the scenarios that assume expiration of the Investment Tax Credit at the end of 2016 are no longer applicable.

#### **VIII. TECHNICAL SPECIFICATIONS, RULES NEEDED TO IMPLEMENT THE ALTERNATIVE**

During the stakeholder meetings, a number of complex matters were identified as more appropriately determined through a Commission rulemaking proceeding. This is due to the timeframe stakeholders had to develop a solar promotion mechanism and an alternative to NEB, the complexity of many of the issues involved, and that such issues are generally determined through agency rulemaking rather than legislation. These issues include, but are not limited to, a mid-program review of the mechanism; developing a standard contract/agreement; project development milestones; issues related to customer bill credits (e.g., administrative issues related to standardization of credits, tracking credits, accounting issues and when credits would expire); various aspects of the community solar market segment procurement mechanism (including how to define applicants, reporting, enforcement and consumer protection requirements; structural auction details; a potential carve-out for low-income customer participation; issues related to the subscription rate thresholds, relaxed application fee and eligibility requirements for non-profits and municipalities and defining restrictions on co-location of facilities.

GOVERNOR'S  
VETO  
OVERRIDDEN

CHAPTER

37

JUNE 30, 2015

RESOLVES

## STATE OF MAINE

—

IN THE YEAR OF OUR LORD  
TWO THOUSAND AND FIFTEEN

—

H.P. 863 - L.D. 1263

**Resolve, To Create Sustainable Growth in Maine's Distributed Energy Sector  
That Uses Market Forces To Fairly Compensate Energy Producers**

**Preamble.** Whereas, the Legislature finds that net energy billing is a simple mechanism that has supported the development of distributed generation in Maine, but net energy billing may not provide a suitable long-term foundation for distributed generation; and

**Whereas,** the Legislature finds that it is in the public interest to develop an alternative to net energy billing that fairly and transparently allocates the costs and benefits of distributed generation to all customers, allows participation by all customers and creates a sustainable platform for future growth of distributed generation to the benefit of all ratepayers; and

**Whereas,** the Legislature finds that the policy structure described within the Office of the Public Advocate's white paper entitled "A Ratepayer Focused Strategy for Distributed Solar in Maine" merits further exploration; now, therefore, be it

**Sec. 1. Stakeholder discussions. Resolved:** That the Public Utilities Commission shall, using existing resources, convene a stakeholder group to develop an alternative to net energy billing, as defined in the Maine Revised Statutes, Title 35-A, section 3209-A. To the maximum extent possible, the recommendations from this group must reflect consensus among the stakeholders. In developing an alternative, the commission shall:

1. Ensure the alternative includes fixed, long-term compensation mechanisms for distributed generation that, when feasible, obtain the best price for ratepayers using market-based competition or capacity-based step downs, as described in the Office of the Public Advocate's white paper entitled "A Ratepayer Focused Strategy for Distributed Solar in Maine," and ensure the maximum level of compensation for a given technology does not exceed the ratepayer benefits as determined by a commission evaluation of the specific benefits of that technology;

2. Develop at least 3 aggregate market size scenarios representing low, medium and high estimates of the total installed capacity that would be developed under existing rate structures if net energy billing were to continue through 2021;

3. Ensure the alternative provides opportunities for meaningful participation by all market segments identified in the Office of the Public Advocate's white paper, including residential, commercial, industrial, community and wholesale or grid-scale solar distributed generation;

4. Include a method to aggregate, capture and monetize for ratepayers the benefits of distributed generation assets, including, but not limited to, benefits related to energy supply, capacity and renewable energy credits, in order to maximize revenues for aggregation to all ratepayers and identify the appropriate entity to initially serve as an aggregator, while providing for the opportunity for 3rd-party aggregation at a future date; and

5. Develop a process and timeline for transition from current net energy billing policies to the alternative that address the following:

A. The continued availability of net energy billing pending an assessment of the alternative, or until such date as the commission may recommend;

B. Options for participation by existing net energy billing customers in the alternative; and

C. Continuing opportunities for self-consumption by distributed generation customers once the alternative is fully implemented; and be it further

**Sec. 2. Report. Resolved:** That the Public Utilities Commission shall submit a report to the Joint Standing Committee on Energy, Utilities and Technology by January 30, 2016 that includes an overview of the stakeholder discussions; an overview of the alternative under section 1; any areas in which stakeholders were unable to reach consensus; technical specifications, rules or policies needed to carry out the alternative; a proposed timeline for implementation of the alternative; technical or legal barriers to implementation of the alternative; and any other recommendations. The committee may report out a bill to the Second Regular Session of the 127th Legislature related to the report.



STATE OF MAINE  
PUBLIC UTILITIES COMMISSION

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CHAIRMAN

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ADMINISTRATIVE DIRECTOR

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R. BRUCE WILLIAMSON  
COMMISSIONERS

**AGENDA**  
**MARKET-BASED SOLAR POLICY DESIGN STAKEHOLDER PROCESS**  
**Docket No. 2015-00218**

**WORK SESSION I**

**September 10, 2015**  
**10 A.M. – 3 P.M.**  
**WORSTER ROOM**

**I. SUMMARY**

Pursuant to the August 11, 2015 Notice of Inquiry in this Docket and the *Resolve, To Create Sustainable Growth in Maine's Distributed Energy Sector That Uses Market Forces To Fairly Compensate Energy Producers* (2015 Resolves Ch. 37) the Commission, provides a final Agenda for the work session scheduled on September 10, 2015. This Work Session I will be held in the Worster Room at the Commission's office at 101 Second Street in Hallowell, Maine beginning at 10:00 a.m.

**II. AGENDA**

- 10:00- 10:15 a.m. Welcome and Introductions
- 10:15 – 10:30 a.m. Discussion of Process and Schedule
- 10:30- 12:00 p.m. Presentation and Discussion of *A Ratepayer Focused Strategy for Distributed Solar in Maine* prepared for the Office of the Public Advocate by Strategen (MAC Paper)
- 12:00 – 1:00 p.m. Lunch Break
- 1:00 – 2:00 p.m. Discussion of MAC Paper (Continued, if Necessary)
- 2:00- 2:45 p.m. Net Energy Billing Projection Design
- 2:45- 3:00 p.m. Wrap-up & Next Steps

**The Work Session will be available by conference call at 877-455-0244 Participant Code: 2072871385. The presentations will be streamed live on the internet as well. Commission Staff will provide a link and instructions at the beginning of the meeting.**

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**AGENDA**  
**MARKET-BASED SOLAR POLICY DESIGN STAKEHOLDER PROCESS**  
**Docket No. 2015-00218**

**WORK SESSION II**  
**September 23, 2015**  
**10 A.M. – 3 P.M.**  
**WORSTER ROOM**

**I. SUMMARY**

Pursuant to the August 11, 2015 Notice of Inquiry in this Docket and the *Resolve, To Create Sustainable Growth in Maine's Distributed Energy Sector That Uses Market Forces To Fairly Compensate Energy Producers* (2015 Resolves Ch. 37) the Commission, provides a final Agenda for the work session scheduled on September 23, 2015. Work Session I was held on September 10, 2015 a recording of the session and associated materials are available on the Commission's web site. Work Session II will be held in the Worster Room at the Commission's office at 101 Second Street in Hallowell, Maine beginning at 10:00 a.m.

**II. AGENDA**

- 10:00- 11:00 a.m. Review of Draft Memo on Net Energy Billing Penetration Scenarios
- 11:00- 12:00 p.m. Discussion of Programmatic Cap Level (total solar penetration achieved under the proposed program)
- 12:00- 1:00 p.m. Break
- 1:00 – 2:45 p.m. Programmatic Cap (continued, if necessary) and Market Segmentation
- 2:45- 3:00 p.m. Wrap-up & Next Steps

**The Work Session will be available by conference call at 877-455-0244 Participant Code: 2072871385. The presentations, if any, will be streamed live on the internet as well. Additional information will be provided on the Commission's Calendar Page located here: <http://www.maine.gov/mpuc/news/calendar/index.shtml>**

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**AGENDA**  
**MARKET-BASED SOLAR POLICY DESIGN STAKEHOLDER PROCESS**  
**Docket No. 2015-00218**

**WORK SESSION III**  
**October 7, 2015**  
**10 A.M. – 3 P.M.**  
**WORSTER ROOM**

**I. SUMMARY**

Pursuant to the August 11, 2015 Notice of Inquiry in this Docket and the *Resolve, To Create Sustainable Growth in Maine's Distributed Energy Sector That Uses Market Forces To Fairly Compensate Energy Producers* (2015 Resolves Ch. 37) the Commission, provides a final Agenda for the work session scheduled on Wednesday, October 7, 2015. Work Session I was held on September 10, 2015 and Work Session II was held on September 23, 2015, a recording of the sessions and associated materials are available on the Commission's web site. Work Session III will be held in the Worster Room at the Commission's office at 101 Second Street in Hallowell, Maine beginning at 10:00 a.m.

**II. AGENDA**

- 10:00- 10:30 a.m. Review of Results of Work Session II & Progress Update
- 10:30- 12:00 p.m. Overall Program Size
- 12:00- 1:00 p.m. Break
- 1:00 – 2:00 p.m. Subdivision of Generator Classes
- 2:00- 2:45 p.m. Design of the Grid Scale Program and (time allowing introduction of Commercial & Industrial Class Reverse Auctions)
- 2:45- 3:00 pm Wrap-up & Next Steps

**The Work Session will be available by conference call at 877-455-0244 Participant Code: 2072871385. The presentations, if any, will be streamed live on the internet as well. Additional information will be provided on the Commission's Calendar Page located here: <http://www.maine.gov/mpuc/news/calendar/index.shtml>**

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**AGENDA**  
**MARKET-BASED SOLAR POLICY DESIGN STAKEHOLDER PROCESS**  
**Docket No. 2015-00218**

**WORK SESSION IV**  
October 22, 2015  
1 P.M. – 5 P.M.  
**WORSTER ROOM**

**I. SUMMARY**

Pursuant the August 11, 2015 Notice of Inquiry in this Docket and the *Resolve, To Create Sustainable Growth in Maine's Distributed Energy Sector That Uses Market Forces To Fairly Compensate Energy Producers* (2015 Resolves Ch. 37) the Commission, provides a final Agenda for the work session scheduled on Thursday, October 22, 2015. Work Session I was held on September 10, 2015, Work Session II was held on September 23, 2015, and Work Session III was held on October 7, 2015; a recording of the sessions and associated materials are available on the Commission's web site. Work Session IV will be held in the Worster Room at the Commission's office at 101 Second Street in Hallowell, Maine beginning at 1:00 p.m.

**II. AGENDA**

- 1:00- 1:15 p.m. Review of Results of Work Session III & Progress Update
- 1:15-1:45 p.m. Review updates on Grid Scale and C&I Segments
- 1:45- 3:00 p.m. Community Solar Segment
- 3:00- 4:45 p.m. Residential Solar Procurement Segment
- 4:45- 5:00 pm Wrap-up & Next Steps

**The Work Session will be available by conference call at 877-455-0244 Participant Code: 2072871385. The presentations, if any, will be streamed live on the internet as well. Additional information will be provided on the Commission's Calendar Page located here: <http://www.maine.gov/mpuc/news/calendar/index.shtml>**



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**AGENDA**  
**MARKET-BASED SOLAR POLICY DESIGN STAKEHOLDER PROCESS**  
**Docket No. 2015-00218**

**WORK SESSION V**  
**November 16, 2015**  
**10 A.M. – 4 P.M.**  
**WORSTER ROOM**

**I. SUMMARY**

Pursuant to the August 11, 2015 Notice of Inquiry in this Docket and the *Resolve, To Create Sustainable Growth in Maine's Distributed Energy Sector That Uses Market Forces To Fairly Compensate Energy Producers* (2015 Resolves Ch. 37) the Commission, provides a final Agenda for the work session scheduled on Monday, November 16, 2015. Work Session I was held on September 10, 2015, Work Session II was held on September 23, 2015, Work Session III was held on October 7, 2015, and Work Session IV was held on October 22, 2015; a recording of the sessions and associated materials are available on the Commission's web site. Work Session V will be held in the Worster Room at the Commission's office at 101 Second Street in Hallowell, Maine beginning at 10:00 a.m.

**II. AGENDA**

- 10:00- 10:15 a.m. Review of Results of Work Session IV & Progress Update
- 10:15- 10:30 a.m. Review of NREL Modeling Results
- 10:30- 12:00 p.m. Review of Community Solar Segment Program
- 12:00- 1:00 p.m. Lunch
- 1:00- 2:00 p.m. Exploration of Alternative Residential Solar Procurement Segment Methods
- 2:00- 3:00 p.m. Review of Residential Solar Procurement
- 3:00- 3:45 p.m. Outline of Solar Standard Buyer
- 3:45- 4:00 p.m. Wrap-up & Next Steps

The Work Session will be available by conference call at 877-455-0244 Participant Code: 2072871385. The presentations, if any, will be streamed live on the internet as well. Additional information will be provided on the Commission's Calendar Page located here: <http://www.maine.gov/mpuc/news/calendar/index.shtml>

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**AGENDA**  
**MARKET-BASED SOLAR POLICY DESIGN STAKEHOLDER PROCESS**  
**Docket No. 2015-00218**

**WORK SESSION VI**  
**10 A.M. – 4 P.M.**  
**December 9, 2015**  
**WORSTER ROOM**

**I. SUMMARY**

Pursuant to the August 11, 2015 Notice of Inquiry in this Docket and the *Resolve, To Create Sustainable Growth in Maine's Distributed Energy Sector That Uses Market Forces To Fairly Compensate Energy Producers* (2015 Resolves Ch. 37) the Commission provides a final Agenda for the work session scheduled on Wednesday, December 9, 2015. Work Session I was held on September 10, 2015, Work Session II was held on September 23, 2015, Work Session III was held on October 7, 2015, Work Session IV was held on October 22, 2015, and Work Session V was held on November 16, 2015; a recording of the sessions and associated materials are available on the Commission's web site. Work Session VI will be held in the Worster Room at the Commission's office at 101 Second Street in Hallowell, Maine beginning at 10:00 a.m.

**II. AGENDA**

- 10:00- 10:15 a.m. Review of Results of Work Session V & Progress Update
- 10:15- 12:00 p.m. Discussion of Residential and Small Business Solar Procurement Segment
- 12:00- 1:00 p.m. Lunch
- 1:00- 2:00 p.m. Discussion of Net Metering Transition
- 2:00- 3:00 p.m. Discussion of Renewable Energy Credit Treatment
- 3:00- 3:45 p.m. Introduce Standard Solar Buyer Outline and Draft Financial Model
- 3:45- 4:00 p.m. Wrap-up of Workshop Issues & Next Steps

The Work Session will be available by conference call at 877-455-0244 Participant Code: 2072871385. The presentations, if any, will be streamed live on the internet as well. Additional information will be provided on the Commission's Calendar Page located here: <http://www.maine.gov/mpuc/news/calendar/index.shtml>

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**AGENDA**  
**MARKET-BASED SOLAR POLICY DESIGN STAKEHOLDER PROCESS**  
**Docket No. 2015-00218**

**WORK SESSION VII**  
**10 A.M. – 4 P.M.**  
**January 6, 2016**  
**WORSTER ROOM**

**I. SUMMARY**

Pursuant to the August 11, 2015 Notice of Inquiry in this Docket and the *Resolve, To Create Sustainable Growth in Maine's Distributed Energy Sector That Uses Market Forces To Fairly Compensate Energy Producers* (2015 Resolves Ch. 37) the Commission provides a final Agenda for the work session scheduled for Wednesday, January 6, 2016. Work Session I was held on September 10, 2015, Work Session II was held on September 23, 2015, Work Session III was held on October 7, 2015, Work Session IV was held on October 22, 2015, Work Session V was held on November 16, 2015, and Work Session VI was held on December 9, 2015; a recording of the sessions and associated materials are available on the Commission's web site. Work Session VII will be held in the Worster Room at the Commission's office at 101 Second Street in Hallowell, Maine beginning at 10:00 a.m.

**II. AGENDA**

- 10:00- 10:15 a.m. Review of Results of Work Session VI & Progress Update
- 10:15- 12:00 p.m. Discussion of Standard Solar Buyer
- 12:00- 1:00 p.m. Lunch
- 1:00- 2:00 p.m. Revisions to Community Solar Segment
- 2:00- 2:30 p.m. Updated Financial Model
- 2:30- 3:45 p.m. Discussion of Remaining Outstanding Issues
- 3:45- 4:00 p.m. Wrap-up of Workshop Issues

**The Work Session will be available by conference call at 877-455-0244 Participant Code: 2072871385. The presentations, if any, will be streamed live on the internet as**

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well. Additional information will be provided on the Commission's Calendar Page located here: <http://www.maine.gov/mpuc/news/calendar/index.shtml>

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2015-218- Stakeholder Process Description

**To: Maine Distributed Solar Policy Stakeholder Group**

**From: PUC Staff**

**Date: September 10, 2015**

**Re: Maine Solar Policy Design Stakeholder Process**

**Work Session 1: Process Description**

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The goal of this stakeholder process is to develop a distributed solar policy proposal to bring to the Legislature in January 2016. The process will attempt to establish a consensus where possible on key components of the policy as articulated in the 2015 Solar Resolve. The process will be guided by the OPA's "Ratepayer Focused Strategy for Distributed Solar in Maine" but will retain the flexibility to adapt to input gained during this fall.

#### Basics

- Work Session structure is designed to encourage frank discussion on key topics, open exchange among stakeholders and to develop an understanding of the variety of issues to be addressed in this process.
- The process is designed to balance the need to move expeditiously while providing sufficient opportunities for input and feedback by offering multiple opportunities for comment by stakeholders.
- Where consensus is not achieved staff will endeavor to articulate the variety of input gained from the group and provide a recommendation on a path forward.
- Please respect opinions of the other participants.
- Due to time constraints and size of stakeholder group, staff may up set time limits for comments during work sessions. We will try to avoid this.
- Process is intended to be informal parties are encouraged to continue discussion outside of Work Sessions. Staff will be available for discussion and questions throughout the process. This is not an adjudicatory proceeding.

#### Process

- Beginning at the first Work Session we will present information to inform the conversation on the agenda topics. Today's topics are:
  - The stakeholder process itself
  - Presentation and discussion of the "Ratepayer Focused Strategy for Distributed Solar in Maine"
  - Gathering input on the approach to developing the net energy billing penetration scenarios
- Staff will facilitate discussion on the session's topics and will gather input and try to gain clarity on a direction on a presented issue.
- After the conclusion of each session stakeholders will have an opportunity to submit additional information, comments or ideas in writing on the topics addressed through the

2015-218- Stakeholder Process Description

Commission's CMS system. Comments will generally be due by the Wednesday following the session.

- After receiving comments a Process Memo will be produced summarizing input and articulating a (hopefully consensus) proposal for addressing those topics.
- At the beginning of the next session the Memo will be presented and further input gathered after which the Memorandum will be finalized and released through CMS.
- At the conclusion of the Work Session schedule Staff will produce a draft report containing guidance to the Legislature on a DG Solar Policy. The report will address the issues covered in the Process Memorandums, analysis of alternatives and endeavor to accurately reflect areas where consensus was not achieved.
- The Draft report will be circulated to the stakeholders for comment and if time allows a Work Session will be scheduled for discussion of the draft.
- A final report will be delivered to the Legislature by January 30, 2016.

DRAFT- FOR DISCUSSION PURPOSES

To: Maine Distributed Solar Policy Stakeholder Group

From: PUC Staff

Date: September 21, 2015

RE: DRAFT Discussion of the Solar PV Net Energy Billing Penetration Scenarios

The "Resolve To Create Sustainable Growth in Maine's Distributed Energy Sector That Uses Market Forces To Fairly Compensate Energy Producers" (H.P. 863 - L.D. 1263, 2015)(Solar Resolve) states, in part, that In developing an alternative [to net energy billing], the commission shall:

"Develop at least 3 aggregate market size scenarios representing low, medium and high estimates of the total installed capacity that would be developed under existing rate structures if net energy billing were to continue through 2021."

Solar Resolve §1(2)

The Commission solicited feedback from stakeholders on approaches that might be taken to develop these scenario estimates in the opening stakeholder process meeting conducted on September 10, 2015. Among the dialogue and subsequent written comments, stakeholders suggested:

- 1) That wholesale market scale PV penetration also be assessed even though it is not incentivized by net billing policy.
- 2) A plausible baseline approach would be to extrapolate the historic growth rate of PV penetration in Maine into the future using high, medium, and low extrapolation rates.
- 3) Another level of detail in the approach might be to incorporate different assumptions in projected installed PV costs, retail electricity prices, Federal tax credit extension, and economic activity, among other variables (e.g., discrete choice economic modeling).
- 4) The Commission should continue to pursue technical assistance from NREL so that their SolarDS model could be used to assess the scenarios.

Based on this input, Staff gathered and developed the following initial PV market penetration scenario approaches, the preliminary results of which are summarized below:

Net Billing Customers / Distributed Generation

PV in Maine	MW (in 2021)
2009-2014 Historic Average YaY% total PV Growth Extrapolation	209
2009-2014 Historic Average YaY% incremental PV Growth Extrapolation	118

2009-2014 Historic Declining Trend YoY% PV Growth Extrapolation	46
2009-2014 Polynomial Regression PV Growth Extrapolation	52
2009-2014 Exponential Regression PV Growth Extrapolation	206
Multiple Regression of Electricity Price and PV Install Cost on installed PV kW	37
ISO-NE 2015 Behind-the-Meter PV Forecast	24
EIA AEO 2015 NE End-Use Generator PV (ISO-NE CELT allocation to Maine ■)	77

Wholesale Market Scale Generation

<b>PV in Maine</b>	<b>MWJin 20211</b>
ISO-NE 2015 Solar PV in Markets Forecast	0
EIA AEO 2015 NE Electric Power Sector PV (ISO-NE CELT allocation to Maine)	3
ISO-NE Interconnection Queue PV	20
High Potential PV	100

These scenarios reflect the following approaches to estimate future levels of grid-scale and distributed installed PV MW. These initial scenarios total (distributed plus wholesale market scale PV generation) 24 to 309 MW for 2021. Using a 14% capacity factor to estimate generation levels, in terms of % of load (CELT forecast for 2021), these levels reflect a range of 0.3% to 3.3%.

Wholesale Market Generator Scale PV Penetration

*Low Penetration Scenario- 0 MW.* This level assumes no grid-scale PV generation installed in Maine by 2021. This level is consistent with the relatively low level (34 MW) of additional power-sector scale PV projected to be installed by 2021 in all of New England under EIA's AEO 2015 Reference Case. It is also consistent with ISO-NE's Solar PV in Markets 2015 Forecast of 0 MW in 2021.

*Medium Penetration Scenario- 20 MW.* This level is based on the ISO-NE interconnection queue, which reflects one 20 MW solar facility to be installed and operational in Maine by the end of 2016.

*High Penetration Scenario- 100 MW* This level assumes the 20 MW project gets built along with an additional 80 MW of grid-scale PV by 2021. The additional 80 MW is somewhat hypothetical at this point, given the scarcity of information about potential grid-scale PV in Maine in the near-future.

## Distributed (Net Energy Billing) PV Penetration

The market penetration scenarios of net-billed PV fall into 2 levels of increasing modeling sophistication, with a 3rd category that encompasses other externally developed forecasts and analyses.

### *1) Basic Historic Penetration Rate Extrapolation*

Year over year historic percentage increases in installed solar PV capacity may be extrapolated into the future. One approach would be to take the historic 2009-2014 average year over year percentage increase in total net billed PV capacity and apply that through 2021. Alternatively, another approach can take the average year over year percentage increase in the newly installed net billed PV capacity through 2021. Initial examination of the historic data suggests that the year over year increase in total net billed PV capacity follows a trend of decreasing magnitude, so another approach is to extrapolate this trend into the future and apply year over year percentage increases in solar PV that decline in magnitude at the same rate as 2009-2014.

Various regression forms may also be applied to the historic data to develop formulae that represents the relationship between the year and amount of net-billed PV kWh generation. Initial review of the data indicates polynomial and exponential regressions appear to best fit the historic trend (highest  $R^2$ ). These regression formulae can be applied to 2021 to estimate solar PV penetration.

### *2) Extrapolation of Historic Rate using Major Factors that Drive Penetration (Multiple Regression)*

A simple multiple regression was developed using available historic data on retail electricity prices, installed PV costs, and installed PV capacity under net billing. Using the multiple regression formula representing this historic relationship, future penetration scenarios can be developed using various assumptions about future installed PV costs and retail electricity prices. Baseline forecasts for retail electricity prices in Maine can be derived from the EIA 2015 AEO, and installed PV costs from LBNL.

### *3) Other Analyses and Forecasts*

The ISO-NE Distributed Generation Forecast Working Group has developed the 2015 Behind-the-Meter Solar PV Forecast. They predict 23.7 MW of behind-the-

meter generation to be installed in Maine by 2021 under existing policies. For the analysis, see <http://www.iso-ne.com/committees/planning/distributed-generation>

The EIA AEO 2015 also produces a Solar PV forecast for end-use generators for New England, a portion of which can be attributed to Maine. For example, allocation could be based upon the ISO-NE 2015 Behind-the-Meter Solar PV Forecast of PV capacities across the New England states, or could be based upon the ISO-NE 2015 CELT load forecast.

The Commission will also continue to pursue other information, analyses, and forecasts, including obtaining technical assistance from NREL and the use of their Solar Deployment System (SolarDS) model.

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DRAFT- FOR DISCUSSION PURPOSES

To: **Maine Distributed Solar Policy Stakeholder Group**

From: **PUC Staff**

Date: **October 6, 2015**

RE: **DRAFT Work Session II Meeting Summary**

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**I. Summary**

The second Work Session in the Solar Policy Design Stakeholder Process (Docket 2015-00218) was held on September 23, 2015. The session was attended by 17 stakeholders and interested parties in person as well as three stakeholder organizations by phone and Commission Staff. Summaries of the relevant discussion topics and decision points are below.

**II. Net Energy Billing Scenarios**

Staff presented its September 21, 2015 Memorandum on its proposed approach to addressing the Net Energy Billing Scenarios required by Section 1 of the Solar Resolve. After discussion of the Commission's research on available data and selection of possible assumptions the group decided to develop a consensus projection as a placeholder to allow for further development of analysis by the Commission as well as allowing the Commission time to utilize NREL's Solar OS model if possible. The Commission agreed to take on the task of undertaking more research and analytics to test the consensus placeholders as well as to continue to seek additional data sources such as NREL. The consensus net energy billing scenarios are as follows:

<b>Scenario</b>	<b>Total</b>	<b>NEB Eligible</b>	<b>Grid Scale</b>	<b>Unit</b>
LOW	50	50	0	MWDC
MEDIUM	140	100	40	MWDC
HIGH	270	200	70	MWDC

On October 6, 2015 the Commission held an initial scoping call with NREL regarding the use of the Solar OS model to forecast Net Energy Billing penetrations based on existing policy regimes under several assumptions. Staff will provide additional information on the details of NREL's work at the October 22 Work Session.

**III. Market Segmentation**

The market segmentation discussion centered around where to draw the distinction between the capacity-based step down and competitive procurement

segments of the program. The OPA began the discussion with a handout (attached to this memo in the Docket) addressing how other states defined the different market segments. Initial feedback to the segmentation issue identified that most residential size installations will be 15 kW and anything above 25 kW would be far larger than even the largest residential installation in Maine. After discussion it was determined that reducing the distinction at this stage to those who were part of the capacity-based step downs for residential and small business customers, and those who were subject to other methods of competitive procurement was most appropriate. The subdivision of class caps between residential, commercial and industrial customers would take place at a subsequent session.

Consideration was given to ensuring equal access to the program among customer classes with different levels of sophistication with energy market participation as well as whether the capacity measurement would be based on customer load or the installed capacity of the array. Feedback at the session and through subsequent comments agreed that 250 kW would be an appropriate demarcation between the step down and competitive procurement segments of the program.

#### IV. Additional Issues

The following issues were discussed but were tabled for later sessions to allow additional research and development of the basics of any proposed program:

- Customer system size limitations and addressing export over native load
- Tax implications of different program structures
- Customer class definition and eligibility requirements
- Use of DC or AC for capacity calculations

#### V. Programmatic Cap and Subdivision Issues

A significant number of comments received in between Work Session II and III addressed issues relating to the Programmatic Cap and Subdivision among classes. These comments will be used to frame the discussion the group has at Work Session III on October 7.

DRAFT- FOR DISCUSSION PURPOSES

**To: Maine Distributed Solar Policy Stakeholder Group**

**From: PUC Staff**

**Date: October 21, 2015**

**RE: DRAFT Work Session III Meeting Summary**

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**I. Summary**

The third Work Session in the Solar Policy Design Stakeholder Process (Docket 2015-00218) was held on October 7, 2015. The session was attended by 17 stakeholders and interested parties in person as well as some additional stakeholder organizations by phone and Commission Staff. Summaries of the relevant discussion topics and decision points are below.

**II. Net Energy Billing Scenarios**

Staff provided an update on its work to develop additional analyses to address the Net Energy Billing Scenarios required by Section 1 of the Solar Resolve. Staff reported on its initial seeping call with NREL to outline the project analysis that will utilize NREL's dSolar (also known as SolarDS) diffusion model. Staff also reported it continues to work on refining its multiple regression model of net billed distributed solar. Staff will provide additional updates on the NREL work at the October 22 Work Session.

**III. Programmatic Size and Segment Subdivision**

The programmatic cap discussion occurred in parallel with discussions on allocation of the overall program size to market segments. The Office of the Public Advocate (OPA) began the discussion with a handout (attached to this memo in the Docket) addressing what other statewide procurement targets were relative to the percent of retail sales. Based in part upon this information, the OPA proposed a program size of 225 MW, which, in energy terms, is equivalent to about 2.5% of retail sales. Stakeholders discussed how the information on other states was a helpful reference but that the program size should ultimately be based on what is best for Maine. Various stakeholders thought a 300 MW program size might be more appropriate, others expressed concerns about a 300 MW program size. After further discussion, stakeholders reached a consensus program size of 255 MW for the sake of moving forward with discussions. The breakdown of the overall program size into segments was set to be as follows:

<b>Segment</b>	<b>%of Market</b>	<b>Total MWs</b>
Residential & Small Business	49%	125
Community	14%	35
Large Commercial / Industrial	14%	35
Grid Scale	24%	60
Total		255

A potential concept of interest that was discussed is a mid-period program review mechanism. While the details of a mid-period review mechanism were to be addressed in subsequent comments and discussions, the general idea was that at some point into the program there would be an opportunity to assess the program's progress and potentially adjust the program size as appropriate. The OPA noted that the 255 MW program cap could be viewed as a floor with a mid-period review allowing for an increase in the program cap if beneficial to ratepayers.

#### **IV. Grid Scale Solar Competitive Auction Mechanism**

Discussions occurred on how to structure the grid scale procurement mechanism. The OPA began the discussion with a handout (attached to this memo in the Docket) addressing the frequency and structure of the competitive auctions. Discussions occurred around how to ensure the competitiveness, as well as the depth and diversity of bids. There was some discussion regarding not limiting interconnection of projects solely to the distribution system and concerns about the requirement that each auction receive total project bids of at least four times available capacity. Some concerns were expressed regarding the frequency of the auctions and there was some discussion that 18 months may not be long enough for construction of these projects. The resources and costs to administer the auction procurement mechanism were also discussed. Some noted that an application fee and deposit could help pay for the administration. It is possible that the Commission may require additional staff to administer the program.

#### **V. Large Commercial and Industrial Procurement Mechanism**

Discussions then occurred on how to structure the large commercial and industrial procurement mechanism. The OPA began the discussion with a handout (attached to this memo in the Docket) addressing the frequency and structure of the competitive auctions. Discussions occurred around how to ensure the competitiveness, as well as the depth and diversity of bids. There were some concerns expressed about the frequency of the auctions.

**VI. Additional Comments/Issues**

The following issues were mentioned but will be discussed at later sessions:

10 account issue

More discussion about possible mid-period review of program

DRAFT- FOR DISCUSSION PURPOSES

To: Maine Distributed Solar Policy Stakeholder Group

From: PUC Staff

Date: November 13, 2015

RE: DRAFT Work Session IV Meeting Summary

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I. Summary

The fourth Work Session in the Solar Policy Design Stakeholder Process (Docket 2015-00218) was held on October 22, 2015. The session was attended by 19 stakeholders and interested parties in person as well as 3 additional stakeholder organizations by phone and Commission Staff. Summaries of the relevant discussion topics and decision points are below.

II. Discussion Regarding October 7 Meeting

In discussing the Work Session III Meeting Summary it was noted that there was broad agreement for a standard form contract agreement at that meeting and that that should be noted in the meeting summaries. There was discussion that there would need to be some process to develop a standard agreement and this, and other issues, will likely be things that would need to be worked out in a future rulemaking proceeding. There was also discussion of the different views regarding the individual project caps for the proposed grid scale and commercial and industrial (C&I) programs. The Office of the Public Advocate (OPA) had proposed 3 MW for the grid scale, some thought that should be higher, others thought it should be lower. For the C&I program the OPA proposed 660kW and some thought that should be higher.

III. Grid Scale Solar Competitive Auction Mechanism

The OPA provided a revised proposal based on discussions at the October 7 meeting and filed comments (the OPA's handout is attached to this memo in the docket). There was discussion about whether this should be a single price auction rather than price as bid and that stakeholders might comment on this issue in their written comments. The proposal contained language that the Commission may consider additional incentives or selection points for projects that provide benefits to the grid through avoided transmission and distribution (T&D) investments, additional reliability/dispatchability through use of smart inverters or storage, and/or for projects built on brownfield sites. The Commission noted that this would require sophisticated analysis and the group continued to discuss balancing things like this with a streamlined process and doing auctions every six months. Some continued to raise the issue of

increasing or decreasing the individual project size cap. Others suggested having fewer larger projects and less frequent auctions (e.g., annual auction vs. every six months). There appeared to be some consensus around OPA's suggestion that project size be capped at 5 MW subject to any given auction cap being half of the overall procurement total. This design would ensure at least two winning bidders, spreading programmatic risk.

#### **IV. Large Commercial and Industrial Procurement Mechanism**

The OPA provided a revised proposal based on discussions at the October 7 meeting and filed comments (the OPA's handout is attached to this memo in the docket). The OPA increased the individual project size cap to 1 MW. There was discussion that there could be a single customer account with a number of meters provided they are all within the T&D territory (e.g., an island cooperative). There was some discussion about leaving the details regarding milestones for a future rulemaking proceeding. The C&I proposal also contained language that the Commission may consider additional incentives or selection points for projects that provide benefits to the grid through avoided T&D investments, additional reliability/dispatchability through use of smart inverters or storage, and/or for projects build on brownfield sites. It was again noted that this would require sophisticated analysis and could not be done within the six month auction timeframe. There seemed to be agreement to remove this language from the C&I program.

#### **V. Community Solar Procurement Mechanism**

The OPA provided a proposal (the OPA's handout is attached to this memo in the docket). Discussion occurred regarding who would enforce the customer protection guidelines and discourse requirements. While it was noted it may not be the Commission and that it might be the Attorney General (AG), Commission Staff noted that if the AG gets complaints about competitive electricity providers (CEPs) the office contacts the Commission. As such, it might be problematic if the Commission did not have jurisdiction. There was some discussion about whether there would be no limit on the number of customers who can participate or whether the Commission would determine a maximum number. Discussion occurred on what business form(s) a community solar project might take and that the program should not dictate business models. There was discussion about getting as much structure and standardization as possible regarding the credits (e.g., using the same criteria or measurement such as a fixed percent and fixed rate) and that this process would need to be automated. There was also some discussion about limiting people to subscribe to only one project as otherwise there could be a problem with applying credits. A question was raised about whether the utility would be holding cash for unused credits. Also discussed was that

credits should be limited to the offsetting load amount due to additional complexities of transacting excess credits. It was suggested credits should remain in the same utility service territory. There was also a suggestion to allow customers to roll credits forward for a longer period (e.g., 3-5 years).

Regarding community solar project development, there was discussion about the requirement that by the end of year one of operation, the installation must be at least 75% subscribed and that any unsubscribed portion will receive the locational marginal pricing (LMP) avoided energy value. There was some discussion that maybe before commercial operation the developer would need to demonstrate some number of subscribers and that maybe there would need to be a rulemaking proceeding on what community solar providers can and cannot do, like what exists now for CEPs (e.g., legitimate providers and consumer protections). In the written comments there was a suggestion to pay the LMP avoided energy value for any unsubscribed portion for any period which the portion remained unsubscribed starting at commercial operation. There was also some discussion around the need for some flexibility to extend timeframes for milestones for delays outside the developer's control. Some raised concerns about the auction process and proposed changes to the auction process or an alternative method (e.g., a first come first serve application process) in the written comments. Another stakeholder supported the use of uniform clearing prices in auctions noting that all U.S. wholesale energy markets use uniform clearing price auctions to procure new capacity, energy and operational reserves and commenting that the price as bid auction requires sophisticated participants who spend time and resources studying the market and that non-profits are not particularly well positioned to develop this bidding strategy.

## **VI. Residential Small Commercial Step Downs**

The OPA provided a proposal (the OPA's handout is attached to this memo in the docket). There was some discussion about whether the Commission's Value of Solar Study numbers would need to be updated and if so when (there was discussion that that could not be done in time to deliver the report required by this Resolve to the Legislature and maybe it be done once during the 5 year program). There was also some initial discussion about the starting price cap (some suggested higher, others lower) and step down triggers (suggestions to adjust the initial rate based on a reassessment of the value of solar instead of automatic stepdown triggers, stepdowns are too steep, alternatively could pay solar customers the value of solar over time with no stepdowns). Alternative program proposals were offered in the written comments, including indexing stepdowns to retail electricity rates.

**VII. Additional Comments/Issues**

Some expressed support in the written comments for continuing to give customers a choice of NEB or any alternative for a few years.

The following issue was mentioned but will be discussed at later sessions:

Possibility of non-stakeholder comment period before report is drafted.

DRAFT- FOR DISCUSSION PURPOSES

**To: Maine Distributed Solar Policy Stakeholder Group**

**From: PUC Staff**

**Date: December 7, 2015**

**RE: DRAFT Work Session V Meeting Summary**

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**I. Summary**

The fifth Work Session in the Solar Policy Design Stakeholder Process (Docket 2015-00218) was held on November 16, 2015. The session was attended by 30 stakeholders and interested parties in person as well as 3 additional stakeholder organizations by phone and Commission Staff. Summaries of the relevant discussion topics and decision points are below.

**II. Discussion Regarding October 22 Meeting**

No specific issues were raised in discussing the Work Session IV Meeting Summary.

**III. NREL Modeling Results**

Commission Staff presented the NREL modeling results and noted that they were generally consistent with the consensus numbers the group had reached regarding the projection of what solar growth would occur in Maine under the State's existing NEB policy. Commission Staff noted that the modeling results were also generally consistent with what the Commission sees from other sources.

**IV. Community Solar Procurement Mechanism**

The Public Advocate (PA) passed out a revised handout on the community solar segment (attached to this memo in the docket). He explained changes to the program based on the last meeting and written comments that appeared to be revisions having some consensus. Changes included removing the minimum project size, relaxing the application fee and eligibility requirements for non-profits and municipalities (additional details might be done in a rulemaking proceeding), and increasing the size of the community solar market segment from 35 to 45 MW with the capacity coming from the C&I market segment. A question was raised as to whether the PA could also reduce the residential/small business segment and the PA responded that he had not changed that because a number of stakeholders seemed to want a sizeable residential/small business segment. Additional revisions included changes to the subscription rate thresholds which might also be developed further in a rulemaking proceeding. Also included was recognition that a bill credit rate for all participating customers must be the

same for each project. He noted that one thing a number of commenters had suggested which he did not include was moving away from the auction mechanism, noting that this mechanism has been successful in other jurisdictions. He also explained that a customer's bill could net to zero under this program which cannot happen under net energy billing (NEB). There was discussion about the requirement that no one customer may be more than 50% of a project's total installation size and a suggestion that each project allocate 50% of its capacity to residential customers. There was also discussion about how to define the applicant, and the PA seeks feedback from stakeholders on this issue, although this issue might also be a topic for a rulemaking.

Commission Staff suggested modifications to the auction approach, including a certification/licensing process, wherein the Commission could ensure entities are valid and deal with consumer protection issues. The Commission Staff also suggested that proposals could be considered in an RFP, where other issues besides the lowest cost could be considered (e.g., viability of the whole proposal, benefits such as using a landfill). The cost metric might be a cap, maybe in relation to the gridscale and C&I cap. The PA was not opposed to a pre-certification requirement process but noted that changing the proscribed auction process to a more flexible RFP would raise a number of concerns, including avoiding the time and resource commitments of a full RFP and scoring on qualities that are unclear. There was also some discussion about a potential low income carve out (though it was noted this would add additional complexities) and more discussion about bill credits.

#### V. Residential Small Commercial Step Downs

Possible alternative proposals submitted in the written comments by ReVision Energy and The Alliance for Solar Choice (TASC) were discussed. There was a concern amongst stakeholders that the market could stall under the PA proposal and the PA said it was willing to work to address this issue and welcomed feedback. Another concern expressed by stakeholders is that customers should retain the ability to self-consume the energy produced (including retention of associated attributes such as REGs). Commission Staff expressed concern that the alternative proposals were not necessarily clear alternatives to NEB, but rather modified forms of NEB. It was also noted that the proposals need to work with settlement and ISO-NE processes.

#### VI. Additional Comments/Issues

The following issues were mentioned but will be discussed more in written comments and/or at a later session:

Treatment and realization of REC value- the PA filed a proposal which some stakeholders commented on in their written comments.

Potential for the utility to be a partner/provide capital/be an investor in community solar projects.

Residential market segment capacity step-down prices and sizes, designed with contingencies to prevent stall-out of market development -the PA filed a revised proposal which some stakeholders commented on in their written comments.

The PA also filed a proposal regarding a transition from NEB to the alternative solar policy which a number of stakeholders commented on in their written comments.

DRAFT- FOR DISCUSSION PURPOSES

**To: Maine Distributed Solar Policy Stakeholder Group**

**From: PUC Staff**

**Date: January 4, 2016**

**RE: DRAFT Work Session VI Meeting Summary**

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**I. Summary**

The sixth Work Session in the Solar Policy Design Stakeholder Process (Docket 2015-00218) was held on December 9, 2015. The session was attended by 23 stakeholders and interested parties in person and Commission Staff. Summaries of the relevant discussion topics and decision points are below.

**II. Discussion Regarding October 22 Meeting**

No specific issues were raised in discussing the Work Session V Meeting Summary.

**III. Residential and Small Business Solar Procurement Mechanism**

The Public Advocate (OPA) circulated a revised handout on the residential and small business solar segment (attached to this memo in the docket). He explained changes to the program based on the last meeting and written comments that appeared to be revisions having some consensus. The major revision was a shift from a sell-all generation / buy-all electricity with separate metering to a net export structure, allowing customers to retain the option for self-consumption. Other changes included flattening the pace of the contract price step-downs for each capacity block (in part by reducing the initial compensation level to 15 cents/kWh), tightening the adjustment mechanism such that the deviation from the NREL installation target is no more than 85%, and preserving the choice of existing net metered customers to remain net metered. A question was raised on how dropping the initial compensation level from 20 cents/kWh to 15 cents/kWh was justified, and the OPA responded that in addition to the reasons stated in the revised outline of the residential and small business segment, the intent was to reduce potential market stall-out and to hit a levelized price target over the capacity segments. The OPA also said the number is also a product of negotiation. A suggestion was made that the program might provide a mechanism for reassignment of credits to other customers, such as low-income customers or non-profits, thus providing a potential incentive for customers with solar to continue increasing energy efficiency by reductions in electricity consumption over time. Further changes to the adjustment mechanism were discussed and it was pointed out that any mechanism should not provide the incentive for potential participants to wait for a higher price, as it could exacerbate any market stall. The role of the Value of Solar study was also discussed, including how it has guided the compensation level. The desirability of updating the

study was also discussed and it was determined that it would not be feasible to do so in the near-term. It was also suggested that more time and process would be helpful to develop the program. Stakeholders found that enough consensus existed to schedule another final work session to work out further program details, including the form and function of the solar standard buyer.

Some stakeholder discussion occurred on how transitioning out of net metering would occur in the context of the revised residential and small business segment proposal, following up on the OPA's November 30th proposal. However, further comment was requested in written comments to follow the workshop.

#### IV. Renewable Energy Credit Treatment

Discussion occurred on the OPA's November 30th proposal on the treatment of renewable energy credits (RECs). The approach would use the existing Maine Green Power program to provide customers the option to purchase RECs, either RECs as currently provided or a new solar REC option, while the solar standard buyer would by the standard contractual terms of program participation obtain and be able to monetize the RECs produced by the participating solar facilities. Discussion occurred on whether program participation should allow customers to retain RECs produced by their own facility. Stakeholders generally found that a buyback of RECs through the Maine Green Power program was the same as retaining one's own RECs (similar to putting a dollar in a bank and withdrawing it later). Discussion occurred on how to present the choice of purchasing RECs or not to program participants, including information disclosure on RECs and environmental claims. Stakeholders appeared to reach consensus that customers should have to elect to purchase RECs or not (no default option). It was discussed that RECs in the grid scale market segment should be bundled in the contract with the solar standard buyer, while the commercial and industrial segment and the community segment should have the choice of using the Maine Green Power program option. Further comment on these and other issues relating to the treatment of RECs was requested in written comments.

#### V. OPA Financial Model

The workshop ended with a presentation and discussion on the OPA's financial model to estimate the payments and revenues of the proposed program. The OPA presented the model for full disclosure on its own approach to the cost benefit analysis, noting other stakeholders can adjust the model or use other approaches to cost-benefit analysis as they might desire.

#### VI. Additional Comments/Issues

The following issues were mentioned but will be discussed more in written comments and/or at a later session:

- When the decision point for a net metering transition should occur. This follows up on workshop discussions and the OPA's proposal regarding a transition from NEB to the alternative solar policy.
- Further written comment on the treatment of RECs.
- Form and functions of the Solar Standard Buyer.
- More discussion on price cap and stepdown triggers.
- Role of utility as a partner.

DRAFT - FOR DISCUSSION PURPOSES

To: Maine Distributed Solar Policy Stakeholder Group

From: PUC Staff

Date: January 8, 2016

RE: DRAFT Work Session VII Meeting Summary

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I. Summary

The seventh Work Session in the Solar Policy Design Stakeholder Process (Docket 2015-00218) was held on January 6, 2016. The session was attended by over 20 stakeholders and interested parties in person as well as 3 additional stakeholders by phone and Commission Staff. Summaries of the relevant discussion topics and decision points are below.

II. Discussion Regarding December 9 Meeting

No specific issues were raised for the Work Session VI Meeting Summary.

III. Standard Solar Buyer

The Public Advocate (OPA) presented its proposal for the form and function of the Standard Solar Buyer, which the OPA filed in the docket on December 23, 2015. The investor-owned transmission and distribution companies expressed agreement that they could serve as the Standard Solar Buyer. It was clarified that the Standard Solar Buyer Fund would be handled in a way similar to how the cost of new long-term contracts are allocated across Maine investor-owned utilities and passed through to ratepayers. Discussion occurred on how the Efficiency Maine Trust might provide its experience and/or have a role in monetizing values. It was reiterated that while the utilities would serve as the Standard Solar Buyer, the Commission would run the auction solicitations and assign the contracts to the utilities. The potential role and participation of consumer-owned utilities (COUs) and their customers in the program was discussed. The group discussed the possibility that COUs be given an option to participate, but that further discussion with the COUs would be warranted. Details on the mechanics of how RECs would be tracked and monetized were also briefly discussed. There appeared to be consensus on the obligations and role of the Standard Solar Buyer and the proposed aggregation mechanism to monetize energy exports.

IV. Community Solar Procurement Mechanism

The OPA filed revisions to the Community Solar Program on December 31, 2015. The revisions included program separation between large scale (>250 kW) and small scale (≤250 kW) segments, removal of certain non-profit / municipal preferences

in the large scale segment, and revisions to customer guidelines and disclosures. While consensus existed on these revisions, and some stakeholders were pleased that the OPA adopted a suggestion to incorporate a small-scale community solar segment, discussion occurred on how to define the restrictions on co-location of community solar facilities, including addressing the issue in a future rulemaking.

## **V. OPA Financial Model**

The OPA presented the revisions it had made to its financial model, as filed on January 4, 2016. Discussion occurred around how to treat forecasting uncertainty and the scope of the financial impacts to ratepayers that should be considered (e.g., direct and indirect bill impacts). The Commission stated it had not yet determined what approach(es) it would take in analyzing the costs and benefits of the program, although a comparison to the projections of the status quo (net metering) would be a component of the analysis.

## **VI. Additional Issues**

The following issues were identified as topics for discussion in the afternoon session:

- Clarification on what aspects of the Residential and Small Business Segment have consensus, including the step-down mechanism, the price levels, and the adjustment mechanism.

- The duration of time that credits under this program could be banked.

- How to transition from existing net metering program.

- The treatment of RECs.

- CMP's proposal to move 30 MW in the total program from the residential segment to the grid-scale segment.

- Emera Maine's proposal to have utility participation in solar facility development.

- Auction adders for certain qualitative factors, particularly brownfield development.

- Tax treatment of program.

- TASC's proposal to increase the total program size from 255 to 300 MW.

- A mechanism, such as a mid-period review, that could handle reallocation of MWs between segments if certain segments are being subscribed more than others.

Not all of these issues were discussed due to time limitations. However, the degree of agreement was clarified around the following issues.

Placing a preference in the auction segments for brownfield development was extensively discussed, but no consensus was reached. Not all stakeholders necessarily wanted to provide preferential treatment for brownfield development, and the specific mechanism (e.g., whether to provide a specific price adder or to provide a general policy goal and the extent to which to place it in statute or address it in a Commission rulemaking) could not be agreed upon.

Full agreement on the structure of the Residential / Small Commercial Segment was not reached. However, extensive discussion outlined the scope of agreement among stakeholders and the degree of continuing concerns.

Regarding the basic structure of this market segment, the use of a step-down mechanism was widely accepted by stakeholders. However, CMP prefers the use of an auction mechanism for this market segment. CMP did express that if its proposal for an auction mechanism was rejected, it could accept the step-down mechanism.

Assuming a step-down mechanism is utilized, stakeholders could not reach consensus on the prices to be paid. On one end of the spectrum, some stakeholders have proposed the flat fixed price start at 18 cents/kWh (Natural Resources Council of Maine) to 18.5 cents/kWh (ReVision Energy), while on the other end of the spectrum, CMP proposed the flat fixed price be at market rates (at a level that can be reasonably forecasted to be monetized in the energy, capacity, and REC markets) or at least that the step-down mechanism cross into this price level over the course of the program. CMP also expressed concern with the twenty-year term of the proposed flat fixed price contract, as it frontloads payments, increasing short-term rate impacts and increasing risk that affects the concomitant contract financial security levels. CMP would prefer shorter contract terms to mitigate this risk. Other stakeholders desired retention of a twenty-year term. Further discussion suggested an alternative solution to mitigate the risk of the twenty year contract would be have an escalating fixed price contract, in which the prices were predetermined, but escalating every year by a predetermined amount or percentage.

While consensus existed that some adjustment mechanism would be appropriate to address potential market stall, no consensus was reached on the structure of the adjustment mechanism.

Also discussed was the process on how to implement the details (e.g., prices and step-down rates) of the program, whether it be in statute or by Commission rule as directed by statute. No clear agreement arose, and it appeared further discussion would need to occur.

Full agreement on how to transition from existing net metering to the proposed alternative program was not reached. However, after discussion most stakeholders agreed that significant concerns existed in continuing net metering in parallel with the alternative program and how the two programs could be compared if run parallel. With the exception of The Alliance for Solar Choice, who advocates for continued availability of net metering in parallel with the alternative program for the period of time until program review, it appeared that stakeholders agreed that the transition to net metering would involve suspension of net metering at the outset of the alternative program, with a subsequent period of review, perhaps after two years, that would assess whether the alternative program was working adequately and by implication whether net metering should be reinstated or not.

Individuals and Entities That Participated in the Solar Stakeholder Discussions  
Pursuant to P.L. 2015, ch. 37

Senator David Woodsome  
Representative Sara Gideon  
Representative Larry Dunphy  
Representative Martin Grohman  
Representative Nathan Wadsworth  
Office of the Public Advocate  
Governor's Energy Office  
Efficiency Maine Trust  
Sierra Club  
Maine Renewable Energy Association  
Natural Resources Council of Maine  
Union of Concerned Scientists  
Conservation Law Foundation  
Industrial Energy Consumers Group  
Maine Independent Colleges Association  
The Alliance for Solar Choice (TASC)  
ReVision Energy  
IGS Solar  
GridSolar  
Gouldsboro Solar  
Dirigo Solar  
Clean Energy Collective  
3Degress Group, Inc.  
Direct Energy  
Sun Run  
IBEW 1253

Growsmart Maine

Maine Association of Building Efficiency Professionals Committee on Renewables

Central Maine Power

Emera Maine

Kennebunk Light and Power

Island Institute

Edison Electric Institute

Municipal Street Lighting Group

ISO-NE

Acadia Center

University of Maine

Maine Council of Churches

Portland Climate Action

James Labrecque

Shenna Bellows

Jonathan Fulford

Thomas Donnelly

Brooks Winner