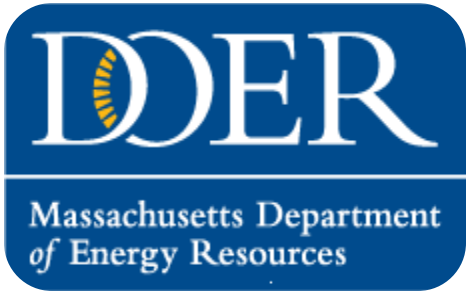
Creating A Clean, Affordable, and Resilient Energy Future For the Commonwealth



COMMONWEALTH OF MASSACHUSETTS

Charles D. Baker, Governor
Karyn E. Polito, Lt. Governor
Matthew A. Beaton, Secretary
Judith Judson, Commissioner

Final Solar Incentive Program Design

January 31, 2017

Boston, MA

Solar Massachusetts Renewable Target (SMART)
Final Program Design

Purpose of Today's Meeting

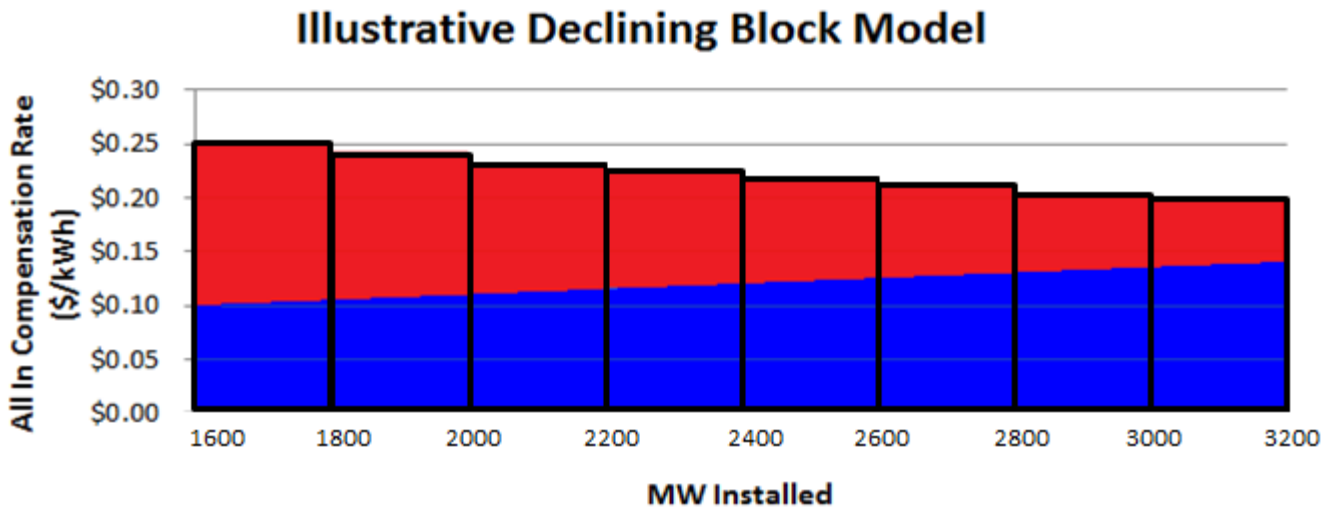
- DOER has convened stakeholders to provide an update on the design of the next solar incentive program and the transition process for SREC II
- The following proposal reflects DOER's expectations of what the final program will look like
- DOER's intent is to file an emergency regulation that incorporates all of the details contained within this presentation
- All aspects of this proposal are still subject to change as the draft emergency regulation goes through the internal review process

DOER Solar Stakeholder Process

- Presented straw proposal to nearly 400 stakeholders on September 23rd
- Over 130 sets of comments totaling 600+ pages were received on proposal by October 28th deadline
- DOER established stakeholder engagement process at the beginning of October
- Established six working groups:
  1. Metering, Billing, and Crediting
  2. Application Review and Block Management
  3. Adders and Eligibility Criteria
  4. Land Use & Siting
  5. Energy Storage
  6. Program Design & DPU Process
- Held nearly 40 working group meetings since mid-October in addition to meetings with individual organizations or groups of organizations
- Over 100 different representatives have participated in the meetings

Basic Features of New Program

- 1,600 MW AC declining block program
- Applies to all electric distribution companies
- Same compensation rates across state
- 10 or 20-year fixed price term depending on project capacity (10-year for small, 20-year for large)
- Compensation structure differentiated between sized-to-load and standalone systems
- Base compensation rates set according to project size
- Adders based on location, and those that provide unique benefits, including community solar, low-income, public, and energy storage projects
- Base compensation rates decline by set percentages in each block following Block 1
- Maximum project size of 5 MW per parcel

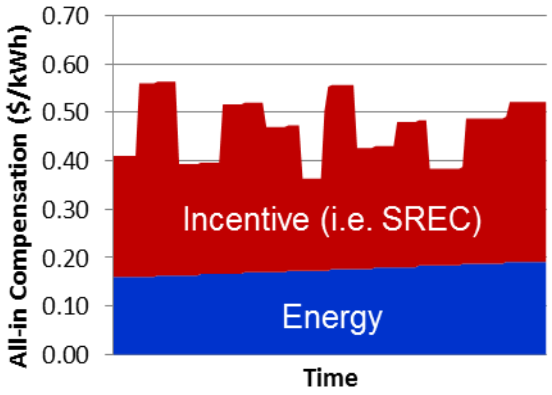


SRECs vs. SMART

SREC

- SRECs are a tradable commodity with a value that fluctuates based on market conditions:
  - Long-term revenue uncertainty leads to higher financing costs,
  - A large portion of the program costs are going to a 3rd party to pay for financing,
  - Total program costs and ratepayer impacts are difficult to predict.
- SRECs are an additional revenue stream independent of the value of the energy.

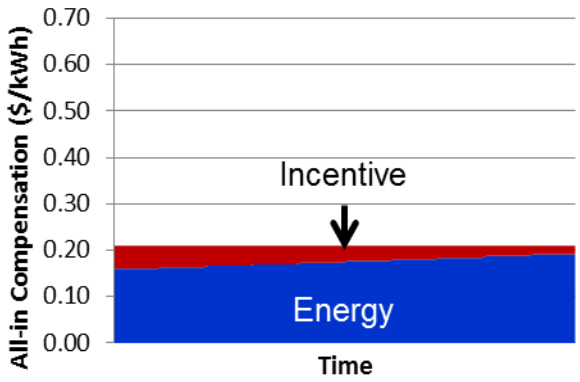
Example of the incentive level in a SREC program



Declining Block Program

- This program provides long-term revenue certainty (10-20 years) which reduces financing risks and in turn, lowers soft costs
  - Total program costs can be predicted with certainty.
  - Incentive declines with the declining cost of solar.
- A solar facility receives a single compensation rate that accounts for both the energy and the incentive.
  - The resulting value of the incentive is the net difference between the all in rate and the value of the energy.

Example of the incentive level in the new program



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DOER
Massachusetts Department of Energy Resources

Additional Program Features

- Initial compensation rates will be set via a competitive procurement for larger projects (> 1 MW)
  - Procurement will determine capacity based compensation for projects > 1 MW
  - Indices will be used to set capacity based compensation for projects <= 1 MW
- Projects eligible for the incentive may elect to receive compensation for energy through one of three mechanisms:
  - Net metering
  - Qualifying via additional on-bill crediting mechanism
  - Buy-all, sell-all rate for standalone facilities that do not seek qualification under net metering or additional
- Additional on-bill crediting mechanism is a new option that is intended to be an additional option to net metering

Additional Program Features

- Standalone and Behind-the-Meter systems will have their incentives calculated using different methodologies
- New program will do more to steer projects towards optimal locations by providing location based incentives
  - Greenfield "subtractor" will be applied to the compensation rate of any facility sited on open space that does not meet the criteria to receive the full incentive
- Energy storage will be compensated via variable adder that is based on the ratio of storage capacity to solar capacity as well as the duration of the storage
  - Minimum performance standards will apply to ensure grid benefits are realized

Project Categories

- Incentive values primarily based on project size:
  - Rates set based on index following initial procurement
    - Less than 25 kW AC (Low Income)
    - Less than 25 kW AC
    - 25 – 250 kW AC
    - 250 – 500 kW AC
    - 500 kW AC – 1,000 kW AC
  - Competitively Set Rates for Block 1, with fixed percentage declines thereafter
    - 1,000 – 2,000 kW AC
    - 2,000 – 5,000 kW AC
- Adders for different project types:
  - Location Based:
    - Brownfields
    - Building Mounted
    - Landfills
    - Solar Canopies
  - Off-taker Based:
    - Community Shared Solar (CSS)
    - Low Income CSS
    - Low Income Property
    - Public
  - Solar + Storage

- Unlike SREC II, adders can be combined together from different categories to encourage optimal siting of projects and further policy goals
- All capacity based rates and adders will decrease by 4% per block

Initial Competitive Procurement

- Program will commence with a competitive procurement seeking 100 MW of projects larger than 1 MW each
- Bids will be exclusively for the capacity based compensation rate that a project wishes to receive and will not be inclusive of adders
- DOER will establish two ceiling prices:
  - A $0.15/kWh price for projects sized between 1 and 2 MW; and
  - A $0.14/kWh price for projects sized larger than 2 MW
- Projects will be ranked within each subcategory from lowest to highest price
- After project ranking has been determined, a clearing price for each subcategory will be established, which shall be equal to the highest requested capacity based compensation rate requested among the selected proposals
- All projects selected shall receive a compensation rate equal to the clearing price
- Indices will be used to establish the capacity based compensation rates for all other project size categories in Block 1 and will be based on the clearing price for projects sized between 1 and 2 MW
- Projects larger than 1 MW not selected through the procurement process will immediately fall under Block 2, for which the capacity based compensation rate shall be 4% less than the clearing price
- Compensation provided to projects selected via the RFP process shall be proportionally paid for by the distribution companies according to their respective percentage shares of the overall program capacity, regardless of the service territory in which the projects are located

Capacity Based Compensation Indices for Solar Generation Units equal to or less than 1 MW AC

Capacity Based Compensation Rates (kW AC)		
Generation Unit Capacity	**Capacity Based Rate Factor (% of Clearing Price)**	**Term Length**
Low income less than or equal to 25 kW AC[1]	230%	10-year
Less than or equal to 25 kW AC	200%	10-year
Greater than 25 kW AC to 250 kW AC	150%	20-year
Greater than 250 kW AC to 500 kW AC	125%	20-year
Greater than 500 kW AC to 1,000 kW AC	110%	20-year
Greater than 1,000 kW AC to 2,000 kW AC	100%	20-year
Greater than 2,000 kW AC to 5,000 kW AC	TBD	20-year

1. Must be an R-2 customer to qualify

Example: How Indices will be Used to set Rates for Different Project Types

- If clearing price of competitive procurement is $0.15/kWh the following will be the Capacity Based Compensation Rates for Block 1

Capacity Based Compensation Rates (kW AC)			
Generation Unit Capacity	**Capacity Based Rate Factor (% of Clearing Price)**	**Capacity Based Rate ($/kWh)**	**Term Length**
Low income less than or equal to 25 kW AC	230%	$0.3450	10-year
Less than or equal to 25 kW AC	200%	$0.3000	10-year
Greater than 25 kW AC to 250 kW AC	150%	$0.2250	20-year
Greater than 250 kW AC to 500 kW AC	125%	$0.1875	20-year
Greater than 500 kW AC to 1,000 kW AC	110%	$0.1650	20-year
Greater than 1,000 kW AC to 2,000 kW AC	100%	$0.1500	20-year
Greater than 2,000 kW AC to 5,000 kW AC	TBD	<=$0.1400	20-year

Adder Values

All adder values will decline by 4% per capacity block

Location Based Adders	
Type	**Adder Value ($/kWh)**
Building Mounted	$0.02
Brownfield	$0.03
Landfill	$0.04
Solar Canopy	$0.06

Off-taker Based Adders	
Type	**Adder Value ($/kWh)**
Public Entity	$0.02
Community Shared Solar (CSS)	$0.05
Low Income Property Owner	$0.03
Low Income CSS[1]	$0.06

Solar + Energy Storage	
Type	**Adder Value ($/kWh)**
Storage + PV	Variable

1. Must be at least 50% R-2 customers

Standalone vs. Behind-the-Meter

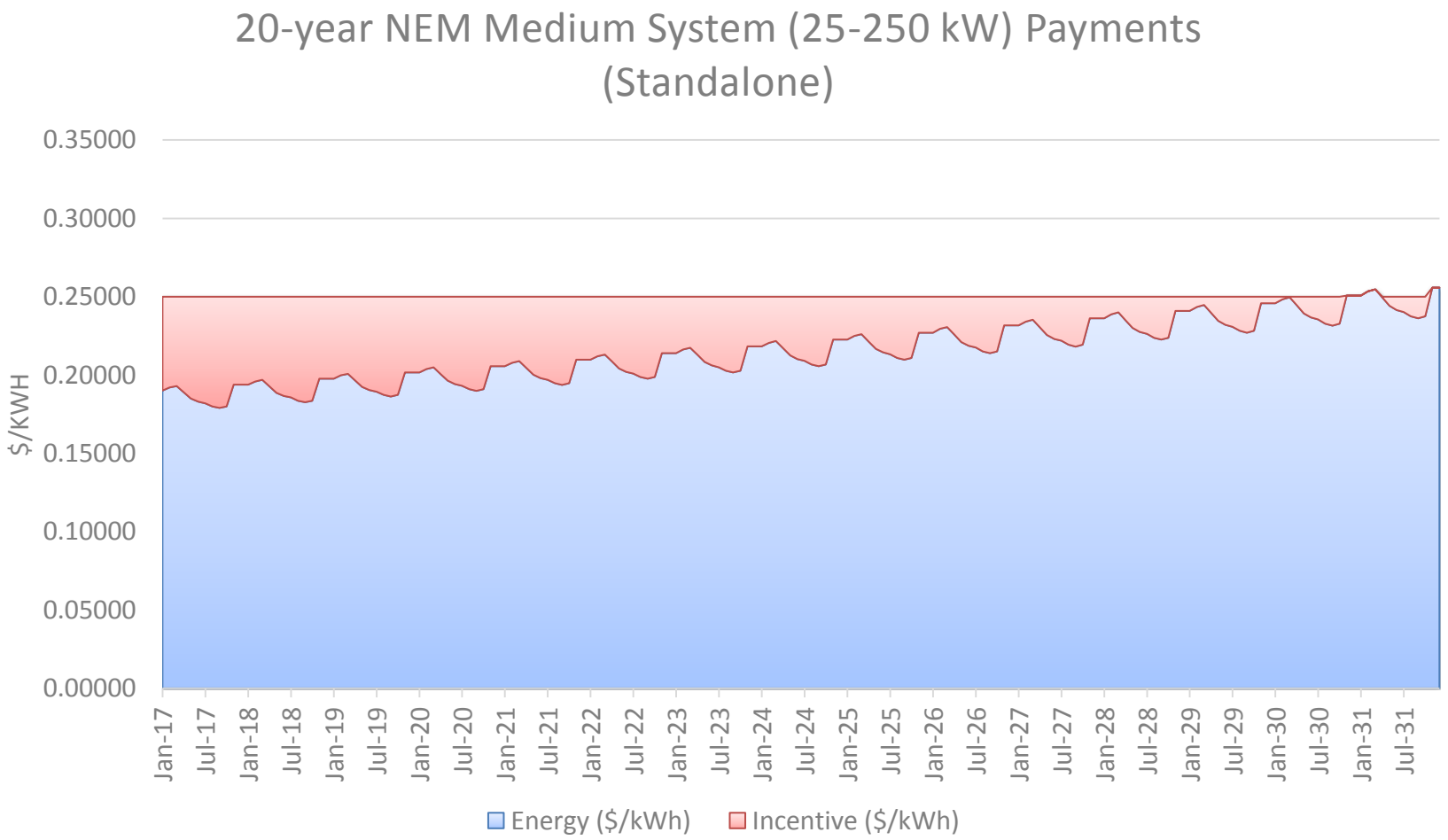
- Standalone facilities will be defined as facilities with no associated load other than parasitic or station load
- A standalone facility that is net metered or approved under a similar DPU structure will have its incentive calculated by subtracting the value of the energy it generates from its all-in compensation rate established under the incentive program
- A standalone facility that is not net metered or approved under a similar DPU structure will receive a single payment from the utility equal to its all-in compensation rate, which will provide bundled compensation for energy, capacity, and incentive
- This will result in the value of the incentive changing over time as energy value increases or decreases
- Behind-the-meter facilities will be any facility that does not meet the definition of standalone
- A behind-the-meter facility will have a fixed incentive payment value that is determined at the time it is interconnected

Behind-the-Meter Incentive Calculation

$$\begin{aligned} &Behind\ the\ Meter\ Solar\ Tariff\ Generation\ Unit\ Compensation\ Rate \\ &= (Capacity\ Based\ Rate + Adders) \\ &- (Three\ year\ average\ of\ Volumetric\ Delivery\ Rates \\ &+ Three\ year\ average\ of\ Basic\ Service\ Rate) \end{aligned}$$

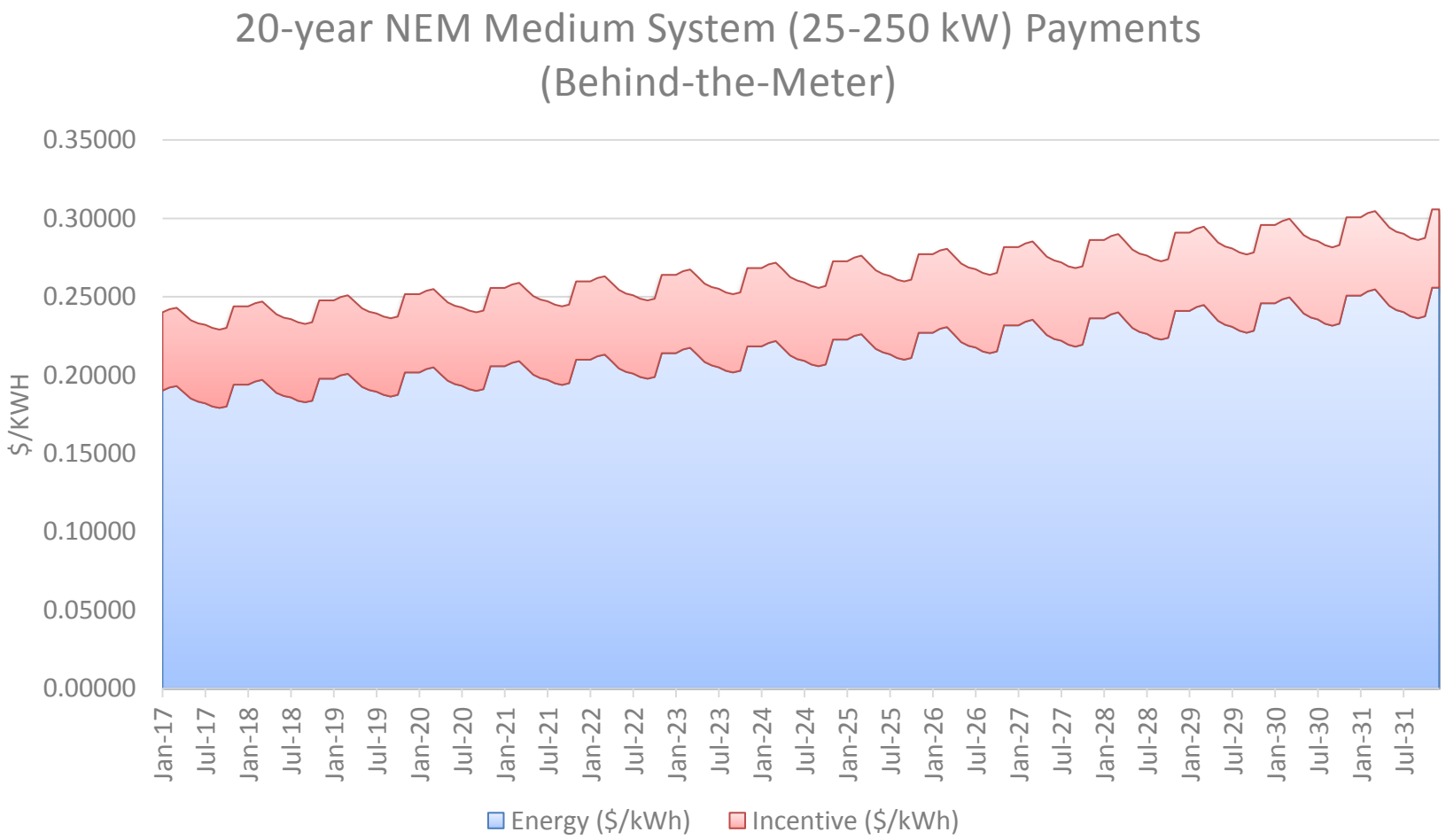
- **Example:**
  - A 10 kW facility qualifies under Block 1 at a $0.30/kWh all-in compensation rate
  - Project is interconnected behind a meter on the R-1 rate class
  - The volumetric distribution + transmission + transition + 3-year average basic service rate for this particular rate class is $0.18/kWh
  - The incentive rate would be set at $0.12/kWh and would remain in effect for 10 years, regardless of what happens to energy values

Standalone Generator Example



Note: Graph is illustrative of how payments would be determined and does not reflect projected values

Behind-the-Meter Generator Example



Note: Graph is illustrative of how payments would be determined and does not reflect projected values

Capacity Block Allotments

- Blocks will be divided proportionally using distribution load data:

Distribution Company	2015 Distribution Load (MWh)	% Share of Distribution Load
Mass Electric	21,750,244	45.3%
Nantucket	176,717	0.4%
NSTAR (Eversource)	21,896,222	45.6%
WMECO (Eversource)	3,708,396	7.7%
Unitil	476,026	1.0%
Total	48,007,605	100.0%

- Initial competitive procurement will be for a total of 100 MW and will be divided proportionally amongst the distribution companies
- National Grid, NSTAR, and WMECO will have 8 blocks, with a 4% decrease between blocks
- Unitil and Nantucket could have less blocks, for example, 4 blocks with a 8% decrease in between blocks, or 2 blocks, with a 16% decrease between blocks
- All blocks will have a minimum of 20% reserved for projects <=25 kW AC
- Could also consider maximum amounts for certain project types

Illustrative Block Capacity Allotments

Capacity Available to All Project Sizes

Distribution Company	Competitive Procurement	Block 1 (only projects <1 MW)	Block 2	Block 3	Block 4	Block 5	Block 6	Block 7	Block 8	Total
Massachusetts Electric	45.3	27.2	72.5	72.5	72.5	72.5	72.5	72.5	72.5	580
Nantucket Electric	0.4	2.2	2.2	N/A	N/A	N/A	N/A	N/A	N/A	4.8
NSTAR	45.6	27.4	73	73	73	73	73	73	73	584
WMECO	7.7	4.7	12.4	12.4	12.4	12.4	12.4	12.4	12.4	99.2
Unitil	1	2.95	2.95	2.95	2.95	N/A	N/A	N/A	N/A	12.8
										1280.8

Minimum Capacity Available to Projects <=25kW

Distribution Company	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6	Block 7	Block 8	Total
Massachusetts Electric	18.1	18.1	18.1	18.1	18.1	18.1	18.1	18.1	144.8
Nantucket Electric	0.4	0.4	N/A	N/A	N/A	N/A	N/A	N/A	0.8
NSTAR	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2	145.6
WMECO	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	24.8
Unitil	0.8	0.8	0.8	0.8	N/A	N/A	N/A	N/A	3.2
									319.2

Solar Program Administrator

- The solar program administrator will be responsible for:
  - Reviewing applications, qualifying facilities, and managing block reservations
  - Determining the total amount to be paid/credited to the facility owner and off-takers every month
  - Issuing incentive payments to owners on behalf of the distribution companies
  - Acting as NEPOOL GIS independent verifier for all eligible systems
- The administrator would contract with the distribution companies, but DOER would have oversight
- Aim to issue the RFP for the administrator shortly after DOER files emergency regulation
  - There will be a single entity selected, which may have subcontractors for separate tasks
- Proposed RFP schedule (subject to change):
  - DOER files emergency regulation
  - Distribution companies jointly issue an RFP within 60 business days of filing
  - Solicitation stays open for 30 business days
  - Distribution companies make recommendation within 15 business days
  - DOER makes final selection within 10 business days
  - Administrator must be capable of executing all required responsibilities within a defined time period following days of final selection by DOER

Land Use

- Original proposal on land use and siting criteria would have precluded significant portions of the state from receiving incentives for ground mounted projects
- Also relied heavily on GIS data layers
- Revised proposal provides exclusions from incentives for far fewer areas
- Under revised proposal, ground mounted projects that are larger than 500 kW, not sited on a brownfield or landfill, and are on land that has not been previously developed, will be subject to a $/kWh subtractor that changes based on the number of acres impacted
- All ground mounted projects will also be subject to a set of performance standards developed in consultation with the Department of Agricultural Resources

Project Type	Ground Mounted and not C&I Zoned	Ground Mounted, C&I Zoned, and NOT Previously Developed	Ground Mounted, C&I Zoned, and Previously Developed	Rooftop	Brownfields	Landfill	Parking Lot Canopy
Compensation Rate ($/kWh)	X - $0.001/acre	X - $0.0005/acre	X	X + $0.02	X + $0.03	X + $0.04	X + $0.06

Land Use Categories

Category	Description	Incentive Level
Category 1	• All ground-mounted projects greater than 500 kW AC and less than or equal to five (5) MW AC that are zoned for commercial/industrial use or specifically for solar/power generation, but have been previously developed • All projects on brownfields, landfills, rooftops, canopies, and all other ground-mounted projects not sited on brownfields or landfills that are equal to or less than 500 kW AC, including: ➢ Low Income Projects ➢ Community Solar Projects ➢ Projects serving Municipal/Governmental Entities • Non-canopy projects on Land in Agricultural Use or on Prime Agricultural Farmland Soils sized to meet no greater than 200% of annual operation load	Base Incentive + Applicable Adder(s)
Category 2	• All ground-mounted projects greater than 500 kW AC and less than or equal to five (5) MW AC that are not sited on brownfields or landfills and are zoned for commercial/industrial use or specifically for solar/power generation, which have not been previously developed, including: ➢ Low Income Projects ➢ Community Solar Projects ➢ Projects serving Municipal/Governmental Entities	Base Incentive – Half Greenfield Subtractor + Applicable Adder(s)
Category 3	• Ground-mounted projects greater than 500 kW AC and less than or equal to five (5) MW AC that are not sited on brownfields or landfills and are not zoned for commercial/industrial use ➢ Low Income Projects ➢ Community Solar Projects ➢ Projects serving Municipal/Governmental Entities	Base Incentive – Full Greenfield Subtractor + Applicable Adder(s)
Category 4	• Ground-mounted projects not meeting the Category 1, 2, or 3 criteria • Projects on permanently protected open space that do not meet the criteria of category 4 • Projects sited on Wetland Resource Areas (not including Buffer Zones), as defined in the Massachusetts Wetland Protection Act, except as authorized by regulatory bodies • Historical/Archaeological Sites listed on the National/State Register of Historic Places, except as authorized by regulatory bodies	No Incentive

[1] Full Greenfield Subtractor = $0.001/kWh per acre of land impacted
[2] Half Greenfield Subtractor = $0.0005/kWh per acre of land impacted

Land Use Performance Standards

- No stripping of soils
- For conventional ground mounted systems, ballasts or screw-type pilings that do not require footings or other permanent penetration of soils for mounting are required
- For agricultural integrated systems using canopies, any soil penetrations that may be required for providing system foundations necessary for structural loading shall do so with minimal soils disturbance, with any displaced soils to be temporary and recovered and returned after the penetration is completed.
- Absolute minimum soils/site disturbance; any soil penetrations that may be required for providing system trenching necessary for electrical routing shall be done with minimal soils disturbance, with any displaced soils to be temporary and recovered and returned after the penetration and trenching is completed
- No concrete or asphalt in the mounting area
- Address existing soil and water resource concerns that may be impacted
- Limited use of geotextile fabrics
- Where not practical to also use the area for agricultural production, maintain vegetative cover to prevent soil erosion, etc.

Additional On-bill Crediting Option

- The vast majority of solar facilities today are compensated for energy via net metering
- The stakeholder meetings convened by DOER involved extensive discussion regarding developing another option for solar generators
- This option would function in a manner similar to net metering, but would only be available to participants in the new incentive program
- Would not be part of DOER regulation, but would be established via a DPU approved process that would be filed by the distribution companies in conjunction or in parallel with the filing for the incentive program
- Compensation rate for exported energy would likely be set at basic service rate

Benefits of Additional On-bill Credit

- Single rate for all facilities
- Allows for credits to be transferred to off-takers without net metering
- No cap
- No “single parcel” rule
- No 10 MW public entity cap
- Cap on number of credits that can be transferred to a off-taker (based on off-taker’s kWh consumption)
- Potential for fewer limitations on the number of times off-takers can be changed or re-allocated within a year
- Opportunity for streamlining administrative aspects of credit transfers
  - Potential for software solutions to be implemented by to make transferring credits easier

System Type Definitions

- Definitions for Landfills, Brownfields, Building Mounted, and Low Income Properties will remain largely unchanged from SREC II
- Definitions for Solar Canopies and Community Shared Solar will be slightly modified
- New definitions will be added for:
  - Low Income Residential
  - Low Income Community Shared Solar
  - Public Facilities
  - Energy Storage

Solar Canopies

- Solar Canopy definition from 225 CMR 14.02 will be modified slightly as follows:
  - Solar Canopy Generation Unit. A solar photovoltaic Generation Unit with at least 100% of the nameplate capacity of the solar modules used for generating power installed on top of a parking surface, pedestrian walkway, agricultural land, or canal in a manner that maintains the function of the area beneath the canopy.
- New definition allows for canopies to be installed on agricultural land and over canals in response to inquiries received during the implementation of the SREC II program and recent listening sessions.
- Eligibility of canopies sited on agricultural land will be determined in consultation with Massachusetts Department of Agricultural Resources.

Community Shared Solar

- Definition of Community Shared Solar Generation Unit will be modified slightly as follows:
  - Community Shared Solar Generation Unit. A solar photovoltaic Generation Unit that provides energy or energy credits to three or more utility accountholders. No more than two participants may receive net metering credits in excess of those produced annually by 25 kW of nameplate AC capacity, and the combined share of said participants' capacity shall not exceed 50% of the total capacity of the Generation Unit, except in the case of Generation Units smaller than 100 kW AC.
- Changes to definition allow for retail electricity supply contracts to be used as an alternative delivery mechanism to net metering and clarifies that participant share requirements do not apply to Generation Units smaller than 100 kW AC.

Low Income

- DOER intends to maintain SREC II criteria and Guideline for qualifying facilities that serve low income properties
- New program will provide additional support for projects directly serving low income residents in two ways:
  - Projects <=25 kW that serve R-2 utility customers will be eligible for a higher incentive rate
  - Community Shared Solar projects with at least 50% of off-takers on an R-2 rate will receive a higher level incentive than normal CSS projects

Public Facilities

- The definition of Public Entity Generation Unit will be established as follows:
  - Public Entity Generation Unit. A solar photovoltaic Generation Unit sited on property owned by a Municipality or Other Governmental Entity that is either:

    (a) owned or operated by a Municipality or Other Governmental Entity; or

    (b) has assigned 100% of its output to Municipalities or Other Governmental Entities.
- Definition tracks closely with the definition of a Net Metering Facility of a Municipality or Other Governmental Entity from net metering regulation, but differs in that it requires facilities to be sited on property owned by a Municipality or Other Governmental Entity

Energy Storage

- Original straw proposal distinguished between Standalone and Behind-the-Meter Energy Storage facilities
- DOER now intends to have a single adder category for all energy storage
- Adder will be variable and will be primarily based on the ratio of the storage capacity to solar capacity, as well as the duration of the storage
- Base adder of $0.045/kWh will be a component of a formula designed to provide more value to higher capacity and longer duration storage
- Adder will decrease by 4% per block
- Facilities smaller than 25 kW will also be able to receive a storage adder
- Possibility for projects receiving energy storage adder to also generate Alternative Energy Certificates (AECs) that will be transferred to the distribution companies to be used towards APS compliance if DOER amends APS regulation to include storage

Energy Storage Adder Benefits

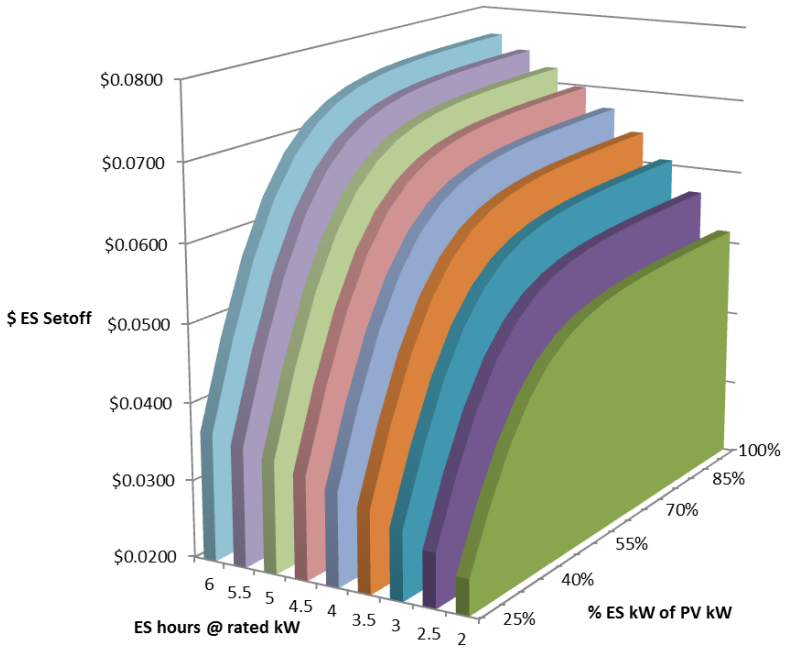
- Pairing solar with storage provides many benefits to the electric grid:
  - Improves power quality support (e.g. cloud induced voltage flicker support)
  - Allows for rapid ramping to reduce intermittency of solar
  - Allows for energy generation to be shifted to reduce peak demand
  - Reduces strain on distribution system during times of minimum load and high PV output
- Adder is structured to realize these benefits in ways that are consistent with DOER's *State of Charge* report
- Adder provides greater value to projects with higher storage capacity and longer duration

Energy Storage Adder Formula

$$Energy\ Storage\ Adder = \left[\frac{\left(\frac{ESkW}{PVkW}\right)}{\left(\left(\frac{ESkW}{PVkW}\right) + \exp\left(0.7 - \left(8 * \left(\frac{ESkW}{PVkW}\right)\right)\right)\right)}\right] * \left[0.8 + \left(0.5 * \ln\left(\frac{ESkWh}{ESkW}\right)\right)\right] * Base\ Adder$$

Where ESkW represents the nominal rated power of the energy storage system and ESkWh represents the nominal rated useful energy of the energy storage system

Formula Outputs



Energy Storage Adder Matrix

	Storage Hours @ Rated Capacity								
	Minimum								Maximum
Storage kW as % of Solar	2	2.5	3	3.5	4	4.5	5	5.5	6
25%	$0.0247	$0.0271	$0.0291	$0.0307	$0.0321	$0.0334	$0.0345	$0.0356	$0.0365
30%	$0.0321	$0.0352	$0.0377	$0.0399	$0.0418	$0.0434	$0.0449	$0.0462	$0.0474
35%	$0.0382	$0.0419	$0.0450	$0.0476	$0.0498	$0.0517	$0.0535	$0.0551	$0.0565
40%	$0.0428	$0.0470	$0.0504	$0.0533	$0.0558	$0.0579	$0.0599	$0.0617	$0.0633
45%	$0.0460	$0.0504	$0.0541	$0.0572	$0.0599	$0.0622	$0.0643	$0.0663	$0.0680
50%	$0.0481	$0.0527	$0.0565	$0.0598	$0.0626	$0.0650	$0.0673	$0.0692	$0.0711
55%	$0.0494	$0.0542	$0.0581	$0.0614	$0.0643	$0.0668	$0.0691	$0.0712	$0.0730
60%	$0.0502	$0.0551	$0.0591	$0.0625	$0.0654	$0.0680	$0.0703	$0.0724	$0.0743
65%	$0.0507	$0.0557	$0.0597	$0.0631	$0.0661	$0.0687	$0.0710	$0.0731	$0.0750
70%	$0.0511	$0.0560	$0.0601	$0.0635	$0.0665	$0.0691	$0.0715	$0.0736	$0.0755
75%	$0.0513	$0.0562	$0.0603	$0.0638	$0.0667	$0.0694	$0.0717	$0.0739	$0.0758
80%	$0.0514	$0.0564	$0.0605	$0.0639	$0.0669	$0.0696	$0.0719	$0.0740	$0.0760
85%	$0.0515	$0.0565	$0.0606	$0.0640	$0.0670	$0.0697	$0.0720	$0.0742	$0.0761
90%	$0.0515	$0.0565	$0.0606	$0.0641	$0.0671	$0.0697	$0.0721	$0.0742	$0.0762
95%	$0.0515	$0.0566	$0.0607	$0.0641	$0.0671	$0.0698	$0.0721	$0.0743	$0.0762
100%	$0.0516	$0.0566	$0.0607	$0.0641	$0.0671	$0.0698	$0.0722	$0.0743	$0.0763

Reflects value for year 1 projects based on size & duration

Energy Storage Requirements

- Minimum and Maximum Nominal Rated Power: The nominal rated power capacity of the Energy Storage System paired with a solar photovoltaic Generation Unit must be at least 25 per cent and shall be incentivized for no more than 100 per cent of the rated capacity, as measured in direct current, of the solar photovoltaic Generation Unit.
- Minimum and Maximum Nominal Useful Energy: The nominal useful energy capacity of the Energy Storage System paired with the solar photovoltaic Generation Unit must be at least two hours and shall be incentivized for no more than six hours.
- Minimum Efficiency Requirement: The Energy Storage System paired with the solar photovoltaic Generation Unit must have at least a 65% round trip efficiency in normal operation.
- Data Provision Requirements: The Owner of the Energy Storage System must provide historical 15-minute interval performance data to the Solar Program Administrator for the first year of operation and upon request for the first five years of operation.
- Operational Requirements: The Energy Storage System must discharge at least 52 complete cycle equivalents per year and must remain functional and operational in order for the solar photovoltaic Generation Unit to continue to be eligible for the Energy Storage Adder.

Qualification Process

- All projects will be required to submit an application to the Solar Program Administrator
- Projects may submit an application before interconnection and reserve a position within a block, but will be required to provide additional documentation:
  - A project <=25 kW must submit its executed turnkey contract between the installer and customer
  - A project >25 kW must submit:
    - Its executed interconnection service agreement (ISA)
    - Proof of site control
    - All non-ministerial permits
- In order to remain qualified and begin receiving compensation, a project must submit a copy of its authorization to interconnect by the end of its block reservation period

Block Reservations and Management

- Other than the initial competitive procurement for projects larger than 1 MW, block reservations will be provided on a first-come, first-served basis
- Incomplete applications will be given an opportunity to hold their position in the queue for a defined period of time until deficiencies are resolved
- Initial reservation periods assigned to non-operational projects will be 12 months, but may be extended for the following reasons:
  - Indefinite extension for mechanical completion
  - 6-month extension for pending legal challenges
  - One-time 6-month extension for a fee
  - Exceptions for good cause
- If a project does not meet its required deadlines, its reserved capacity will be added to the block that is currently open
- Projects that trigger the move to a new block will receive a blended rate, proportional to the amount of capacity that falls under each block

Example: 1 MW project has 500 kW under Block 1 at a rate of $0.20/kWh and 500 kW under Block 2 at a rate of $0.19/kWh. Its all-in compensation rate would be set at $0.195/kWh.

Metering and Reporting

- Metering
  - Two separate meters
    - Utility customer meter
    - Production meter
  - Distribution company will own production meter and will report both production and utility meter data to program administrator on a monthly basis
  - Technical requirements for meters still need to be refined, but would likely mirror existing standards
  - Process will be established to ensure that production meter data can be accessed by the system owner
  - System owner may own redundant production meter if they choose to do so
  - Data Acquisition System (DAS) may be required for all systems

Billing/Crediting

- The program administrator will collect all metered data from the distribution company and use it to calculate:
  1. The amount of incentive payments owed to the system owner; and
  2. Any credits that need to be applied to off-takers' bills
- The program administrator will invoice the distribution companies and make incentive payments to system owners
- The program administrator will also notify the distribution company of any credits that need to be applied to off-taker accounts

Class I REC Ownership

- The ownership rights to Class I RECs generated by a facility will be automatically transferred to distribution company
- Each distribution company will be required to establish and maintain a generator account at the NEPOOL GIS and register individual facilities as assets within that account
- Distribution companies shall retain the asset ownership and rights to all Class I RECs associated with a facility for as long as the facility is eligible to receive payment for the RECs under the program
- Following a project's eligibility period, ownership rights to assets and the RECs will revert to the owner of the facility

DOER Regulation vs. DPU Proceeding

- Implementing new program requires DOER rulemaking and DPU proceeding:
  - DOER regulation will contain:
    - Program eligibility criteria
    - Incentive values
    - Block sizes
    - Program qualification procedures
    - Metering requirements
  - DPU proceeding will require approval for:
    - Cost recovery for distribution companies
    - Approval of additional on-bill crediting mechanism
- Process is loosely modeled on net metering (e.g. rates are specified in statute/regulation, cost recovery mechanism is approved by DPU)

Municipal Light Plants (MLPs)

- DOER has had several meetings with MLP operators and their associations since releasing its straw proposal in September
- Several productive meetings have led to an interest in working with the administration to create a framework for voluntary MLP solar program
- DOER will provide more information as soon as it becomes available

Implementation Process

- DOER plans to file an emergency regulation as quickly as possible
- Rulemaking to make the emergency regulation permanent must conclude within 90 days
  - Public hearing(s) and comment period will occur within this window
- Three processes would need to take place following the filing of the regulation and would be developed in parallel with the rulemaking:
  1. Distribution companies jointly issue RFP for Solar Program Administrator
  2. Distribution companies jointly issue RFP for 100 MW of facilities larger than 1 MW
  3. Distribution companies jointly file for approval of program and cost recovery with Department of Public Utilities
- Filing at DPU will trigger the start of a proceeding there, the schedule for which will be established by the DPU and will likely take a minimum of six months
- Upon DPU approval of program structure at the DPU, the program will become effective

Anticipated Timeline

- January 2017
  - DOER releases final program design
- March 2017
  - DOER files emergency regulation
  - Public hearing and comment period on regulation
- May 2017
  - DOER promulgates final regulation
- June 2017
  - Distribution companies file with DPU, issue RFP for Block 1 procurement, and issue RFP for Solar Program Administrator
- August 2017
  - Competitive procurement results announced, compensation rates established
  - Solar Program Administrator selected
- December 2017
  - DPU approves distribution company filing
- January 2018
  - Program goes into effect

Note: Timeline is illustrative. All dates are subject to change.

SREC II Transition

- The deadline for SREC II eligible projects larger than 25 kW DC seeking an extension through May 8, 2017 has now passed
- This has created a situation where nearly all commercial solar development has been halted
- Additionally, the declining block program is unlikely to be in place before next year, creating at least a 7-12 month gap between programs for this market sector
- In order to ensure an orderly transition to the next program, DOER plans to grant extensions for good cause to any facility that has not already secured an extension
- These extensions would extend the construction deadline for all facilities to the start date of the next program, mirroring the extension provided to projects less than or equal to 25 kW DC

SREC II Transition Mechanics

- All projects that are currently qualified, but have not yet secured a construction deadline extension, no longer meet the eligibility criteria to qualify, and consequently will be rejected this week
- In order to secure an extension for good cause, project owners will need to resubmit applications and provide a copy of a form requesting an extension, which DOER will provide on its website
- All extensions for good cause will be granted at a further reduced SREC Factor
- DOER will amend the SREC Factor Guideline to reflect this change and will accept comments on the revised Guideline through February 17, 2017
- Once DOER publishes the final Guideline, project owners will be able to resubmit their applications and secure an extension at the reduced rate

Proposed SREC Factors for Projects Seeking Additional Extension

Market Sector	SREC Factor
A	0.7
B	0.6
C	0.55
Managed Growth	0.5

Note: Values are subject to change following public comment period

Next Steps

- This presentation and the audio recording of the meeting will be posted to DOER's website by tomorrow
- There will be no formal comment period on the proposal provided today
- Comments on the SREC II Guideline are due to DOER.SREC@state.ma.us by February 17th
- DOER will review these comments and post the final Guideline as soon as possible thereafter
- DOER is actively working to complete the draft of the emergency regulation and finalize the internal review and approval process
- DOER hopes to file an emergency regulation with the Secretary of the Commonwealth in early March
- Dates for public hearing(s) and the deadline for the written comment period will be announced at the time the regulation is filed