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

DOER
Massachusetts Department of Energy Resources

SMART
MASSACHUSETTS SOLAR PROGRAM

COMMONWEALTH OF MASSACHUSETTS

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

Solar Massachusetts Renewable Target (SMART) Program Summary

October 31, 2018

Purpose of Presentation and Links to Program Resources

- This presentation is designed to provide stakeholders with easily digestible information on the current design and status of the SMART Program, but should not necessarily be relied upon by stakeholders when making financial decisions. DOER strongly recommends that stakeholders consult the official resources listed below.
- For the official program rules, procedures, and eligibility criteria, stakeholders should consult the Department of Energy Resources' (DOER) SMART regulation (225 CMR 20.00), which was promulgated on August 25, 2017 and can be accessed at:
  - https://www.mass.gov/files/documents/2017/10/16/225cmr20.pdf
- Additionally, the SMART regulation is supplemented by several Guidelines published by DOER, which clarify how elements of the regulation will be enforced and can be found at:
  - masmartsolar.com (Solar Program Administrator's SMART Website)
  - Development of the SMART Program Webpage
- The SMART Program will be fully in effect on **November 26, 2018.** Information on this DPU proceeding can be found at:
  - http://web1.env.state.ma.us/DPU/Fileroom/dockets/bynumber (type in 17-140 and click go)
- Program updates will continue to be provided by DOER as the program progresses. Status updates and more information on the program can be found at the following two webpages:
  - masmartsolar.com (Solar Program Administrator's SMART Website)
  - Development of the SMART Program Webpage
- Interested stakeholders can sign up for email updates from DOER at:
  - https://www.mass.gov/forms/subscribe-to-doer-email-lists (select "Solar PV list include SREC Contacts")
- Questions on the program should be directed to one of the following:
  - DOER.SMART@state.ma.us
  - MA.SMART@clearesult.com

SREC II Transition

- Pursuant to its authority under both the RPS Class I and SMART regulations, DOER has established **November 26, 2018** as the transition date from the SREC II Program to the SMART Program
- This date will mark the opening of the SMART Program with respect to the intake of Statement of Qualification Applications from prospective applicants
- This date also marks the end of the SREC II Program, and triggers a number of requirements for facilities seeking qualification under the SREC II Program

SREC II Extension Status

- Facilities with capacities less than or equal to 25 kW DC that are interconnected before **November 26, 2018** are eligible to qualify under SREC II with an SREC Factor of 0.8
- Current SREC Factors for facilities larger than 25 kW DC:

Market Sector	Mechanically Complete by 3/31/2018	Mechanically Complete After 3/31/2018
A (> 25 kW DC)	0.7	0.65
B	0.6	0.55
C	0.55	0.5
Managed Growth	0.5	0.45

- More details can be found in DOER's SREC Factor Guideline at: https://www.mass.gov/files/documents/2017/03/zu/225-cmr-14-solar-guideline.pdf

SREC II Transition

November 26, 2018

- SREC II Ends
  - Systems sized 25 kW DC or less
    - Must be operational on or before November 26, 2018 in order to qualify
    - Must submit an application to DOER by February 15, 2019
    - Application must include documentation that they were authorized to interconnect on or before November 26, 2018
  - Systems larger than 25 kW DC
    - Must submit an application to DOER and be mechanically complete by November 26, 2018
    - Must submit proof of mechanical completion to DOER.SREC@mass.gov by December 10, 2018
    - Acceptable documentation includes
      - Certificate of Completion signed by wiring inspector
      - Evidence that a wiring inspection has been scheduled soon after November 26, 2018
      - An affidavit signed by the Engineer of Record

Key Differences Between SREC II and SMART

- SMART regulation requires that installers submit applications on behalf of customers and include such services in the contract with their customer (see 225 CMR 20.06(1)(b)1.):

  > "Contract service must include responsibility for the Statement of Qualification Application process including submittal of authorization to interconnect, securing required permits and engineering approvals, installation of the project, scheduling and participation in all required inspections, and providing warranty services, as required."

- Application fee required at submittal
  - The EDCs continue to finalize application fee, which will be announced soon
- Two part application process
  - Preliminary Application (pre-interconnection)
    - To reserve a facility's position in Capacity Block
  - Claim (post-interconnection)
    - To enroll a facility in tariff in order to begin receiving incentive payments
- All applications for facilities sized 25 kW AC or less must include a signed Customer Disclosure Form
  - Different forms for direct owned vs. third-party owned
- All recipients of credits from a Community Shared Solar facility must also sign a Customer Disclosure Form

Key Differences Between SREC II and SMART (continued)

- EDCs will own production meters and will be responsible for collecting data and reporting to NEPOOL GIS (no more PTS reporting requirements)
  - Owner of PV system responsible for paying for meter via the interconnection process
  - Installers must leave open socket for utility owned production meter when designing systems
- EDCs own all Renewable Energy Certificates (RECs) for the duration of the tariff term
  - Customer must sign a REC assignment form acknowledging the EDCs ownership of the RECs before enrolling in tariff
- Taxation of incentive payments
  - EDCs will issue a 1099 to all recipients of incentive payments annually
  - W-9 required as part of application submission

Basic Features of SMART Program

- 1,600 MW AC declining block tariff program that provides fixed Base Compensation Rates to qualified generators
- Base Compensation Rates decline as Capacity Blocks are filled
- Applies to all investor owned electric distribution companies
- The amount of time a facility may receive compensation under the tariff is based on facility's AC rated capacity
  - 10-year term for facilities less than or equal to 25 kW AC
  - 20-year term for facilities larger than 25 kW AC
- Compensation structure differentiated between behind-the-meter and standalone facilities
- Four types of Compensation Rate Adders are available to eligible facilities:
  - Location Based Adders
  - Off-taker Based Adders
  - Energy Storage Adder
  - Solar Tracking Adder
- Maximum project size of 5 MW AC per parcel

Additional Program Features

- Initial Base Compensation Rates were established using the results of a competitive procurement for larger projects (> 1 MW) and were announced on January 11, 2018
- Base Compensation Rates are based on a facility's electric distribution company and Capacity Block
- Eligible projects may elect to receive compensation for energy through one of three mechanisms:
  - Net metering (via Net Metering Tariffs)
  - Qualifying facility tariff (via QF Tariffs)
  - Alternative on-bill crediting mechanism (via SMART Tariffs)
- Alternative on-bill crediting mechanism is a new energy compensation option that is designed to be an alternative to virtual net metering
- Alternative on-bill credit is not available to facilities with on-site load

Additional Program Features

- Program design steers projects towards optimal locations by providing Location Based Adders and Greenfield Subtractors
  - A Greenfield Subtractor will be applied to the Base 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

Solar Program Administrator

- CLEAResult was announced as the Solar Program Administrator on November 13, 2017
- CLEAResult has partnered with Clean Power Research and will utilize its PowerClerk platform to accept applications
- CLEAResult will be responsible for:
  - Reviewing applications and managing block reservations
  - Calculating total compensation rates
  - Making recommendations to DOER and electric distribution companies on project eligibility
  - Creating the public interface for SMART program, through its website and application portal
- CLEAResult's SMART Program website is now live:

  https://masmartsolar.com

Factors that Establish a Solar Tariff Generation Unit's Total Compensation Rate

- Electric Distribution Company Service Territory
  - Base Compensation Rates are differentiated by electric distribution company service territory
- Capacity Block
  - Base Compensation Rates are differentiated by Capacity Block, which are established for each service territory and may be subscribed faster in one service territory than another
- Facility's AC Rated Capacity
  - Base Compensation Rates are also differentiated by system size
- Compensation Rate Adder Eligibility
  - Depending on its rate capacity, a facility may be eligible to receive one or more Compensation Rate Adders
- Greenfield Subtractor Applicability
  - If a facility falls under Category 2 or Category 3 Land Use, it will be subject to a Greenfield Subtractor (see slides 14-17)
- Behind-the-Meter Facility vs. Standalone Facility
  - While being classified as Behind-the-Meter vs. Standalone does not change the total compensation rate for which a facility is eligible under the tariff, the actual incentive payment is calculated differently depending on whether the facility serves an on-site load or exports 100% of its output to the electric grid

Capacity Block Sizes

Total Capacity Available per Capacity Block (MW AC)									
Distribution Company	**Block 1**	**Block 2**	**Block 3**	**Block 4**	**Block 5**	**Block 6**	**Block 7**	**Block 8**	**Total**
Fitchburg Gas & Electric d/b/a Unitil	3.9	3.9	3.9	3.9	Not Applicable				15.8
Massachusetts Electric d/b/a National Grid	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	720.2
Nantucket Electric d/b/a National Grid	3.0	3.0	Not Applicable						6.0
NSTAR d/b/a Eversource Energy	91.5	91.5	91.5	91.5	91.5	91.5	91.5	91.5	732.1
WMECO d/b/a Eversource Energy	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	125.9
Total Capacity	**204.2**	**204.2**	**201.2**	**201.2**	**197.3**	**197.3**	**197.3**	**197.3**	**1600.0**

- Capacity available in each service territory was determined by multiplying 1,600 MW by each distribution company's percentage share of total statewide distribution load in 2016
- Unitil and Nantucket Electric have each elected to have fewer than eight blocks, as permitted by regulation
- Each block has a minimum of 20% and a maximum of 35% of capacity set-aside for projects <=25 kW AC
- Capacity selected under the initial competitive procurement is deducted from the capacity available under Block 1 for each distribution company
- More information can be found in DOER's Guideline on Capacity Blocks, Base Compensation Rates, and Compensation Rate Adders

Competitive Procurement Results

- Bids for approximately 100 MW of projects were jointly solicited by the distribution companies in November 2017
- Each company solicited an amount of capacity proportional to their load share
- Results of the procurement were announced on January 11, 2018
- Results were used to establish the Base Compensation Rates for Block 1 in each service territory

	Massachusetts Electric d/b/a National Grid	Nantucket Electric d/b/a National Grid	NSTAR d/b/a Eversource Energy	WMECO d/b/a Eversource Energy	Fitchburg Gas & Electric d/b/a Unitil
MW Solicited	45.0	2.0	46.0	8.0	4.0
MW Received	53.3	0.0	2.0	13.0	0.0
MW Selected	43.5	0.0	2.0	7.7	0.0
Clearing Price ($/kWh)	$0.16933	N/A	$0.17000	$0.14890	N/A
Mean Price ($/kWh)	$0.15563	N/A	$0.17000	$0.14288	N/A
Block 1 Base Compensation Rate for 1-5 MW Facilities ($/kWh)	$0.15563	$0.17000	$0.17000	$0.14288	$0.15563

Block 1 Base Compensation Rates

Electric Distribution Company	Generation Unit Capacity	Term Length	Block 1 Compensation Rate
Fitchburg Gas & Electric d/b/a Unitil **Massachusetts Electric d/b/a National Grid**	Low income less than or equal to 25 kW AC	10-year	$0.35795
	Less than or equal to 25 kW AC	10-year	$0.31126
	Greater than 25 kW AC to 250 kW AC	20-year	$0.23345
	Greater than 250 kW AC to 500 kW AC	20-year	$0.19454
	Greater than 500 kW AC to 1,000 kW AC	20-year	$0.17119
	Greater than 1,000 kW AC to 5,000 kW AC	20-year	$0.15563
Nantucket Electric d/b/a National Grid **NSTAR Electric d/b/a Eversource Energy**	Low income less than or equal to 25 kW AC	10-year	$0.39100
	Less than or equal to 25 kW AC	10-year	$0.34000
	Greater than 25 kW AC to 250 kW AC	20-year	$0.25500
	Greater than 250 kW AC to 500 kW AC	20-year	$0.21250
	Greater than 500 kW AC to 1,000 kW AC	20-year	$0.18700
	Greater than 1,000 kW AC to 5,000 kW AC	20-year	$0.17000
WMECO d/b/a Eversource Energy	Low income less than or equal to 25 kW AC	10-year	$0.32862
	Less than or equal to 25 kW AC	10-year	$0.28576
	Greater than 25 kW AC to 250 kW AC	20-year	$0.21432
	Greater than 250 kW AC to 500 kW AC	20-year	$0.17860
	Greater than 500 kW AC to 1,000 kW AC	20-year	$0.15717
	Greater than 1,000 kW AC to 5,000 kW AC	20-year	$0.14288

- Base Compensation Rates in Massachusetts Electric, NSTAR Electric, and WMECO decline 4% per Capacity Block over eight blocks
- Base Compensation Rates in Fitchburg Gas & Electric decline 8.8% per Capacity Block over four blocks
- Base Compensation Rates in Nantucket Electric decline by 16% per Capacity Block over two blocks
- More information can be found in DOER's Guideline on Capacity Blocks, Base Compensation Rates, and Compensation Rate Adders

Compensation Rate Adders

- There are four categories of Compensation Rate Adders
  - Location Based Adders
  - Off-taker Based Adders
  - Energy Storage Adder
  - Solar Tracking Adder
- Systems larger than 25 kW AC may qualify for one adder from each category
- Systems less than or equal to 25 kW AC may only qualify for the Energy Storage adder
- More details on the eligibility criteria for certain adders can found in the following DOER Guidelines
  - *Definition of Agricultural Solar Tariff Generation Units Guideline*
  - *Definition of Brownfield Guideline*
  - *Energy Storage Adder Guideline*
  - *Low Income Generation Units Guideline*
  - *SQ and Capacity Block Reservation Guideline*
- These Guidelines are published at:
  https://www.mass.gov/service-details/development-of-the-solar-massachusetts-renewable-target-smart-program

Adder Values

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

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

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

Solar Tracking Adder	
Type	**Adder Value ($/kWh)**
Solar Tracking	$0.01

- Adder values will decline by 4% as adder tranches are filled
- The first adder tranche is 80 MW for each adder
- Subsequent tranche sizes will be established by DOER
- More information on adder values and future tranche sizes can be found in DOER's Guideline on Capacity Blocks, Base Compensation Rates, and Compensation Rate Adders

Capacity Block and Adder Progression

Capacity Blocks

- Assigned on rolling basis
- If a project covers two Capacity Blocks, a unique prorated rate will be assigned
- Capacity that becomes available will be added to current open block

Adder Tranches

- Assigned on rolling basis
- First adder tranche of 80 MW secured based on PV size of project
- If project covers two Adder Tranches, project will fall into tranche with majority of eligible capacity
  - e.g. 600 kW left in Tranche 2, 1 MW project applies and fully qualifies in Tranche 2, Tranche 3 is reduced by 400 kW”

Land Use Categories

- All systems are categorized according to land use
  - Category 1: No Greenfield Subtractor
  - Category 2: Greenfield Subtractor of $0.0005/acre impacted
  - Category 3: Greenfield Subtractor of $0.001/acre impacted
- Area impacted determined by the square footage of the PV panels
- Category is determined based on multiple factors such as, but not necessarily limited to the following:
  - Is the system located on Land in Agricultural Use?
  - What is the size of the system?
  - Is the system ground mounted?
  - What is the existing condition of the land?
  - What is the zoning of the land?
- More information can be found in DOER's *Guideline on Land Use and Siting*, which can be downloaded at:

  https://www.mass.gov/service-details/development-of-the-solar-massachusetts-renewable-target-smart-program

Category 1 Land Use

- No Greenfield Subtractor applies to Category 1 Land Use facilities
- Facilities located on Land in Agricultural Use or on Prime Agricultural Farmland can only be classified as Category 1 if they one or more of the following:
  - An Agricultural Solar Tariff Generation Unit
  - A Building Mounted Solar Tariff Generation Unit
  - Are sized to meet no greater than 200% of annual operation load of a farming operation
- Land in Agricultural Use is defined as:

  All land as defined under M.G.L. c. 61A, §§ 1 and 2, enrolled in a program established pursuant to M.G.L. c. 61A, and land that had been enrolled in a program established pursuant to M.G.L. c. 61A within the past five years.
- Prime Agricultural Farmland is defined as:

  Those soils identified by the United States Department of Agriculture Natural Resources Conservation Service to be prime farmlands pursuant to 7 CFR § 657.5(a).
- Facilities located on land that is not determined to be Land in Agricultural Use or Prime Agricultural Farmland can be classified as Category 1 if they meet one or more of the following criteria:
  - Have a capacity of less than or equal to 500 kW AC
  - Are a Building Mounted Solar Tariff Generation Unit
  - Are sited on a Brownfield
  - Are sited on an Eligible Landfill
  - Are sited on land that has been previously developed, as defined by the Department
  - Are sited on land that complies with local zoning that explicitly addresses solar

Category 2 Land Use

- Facilities are classified as Category 2 Land Use if they are sited on land that that has not been previously developed and is zoned for commercial and industrial development
- Category 2 Land Use facilities are subject to a Greenfield Subtractor of $0.0005/acre impacted

Category 3 Land Use

- Facilities that do not meet the criteria to qualify as Category 1 or Category 2 Land Use shall be designated as Category 3 Land Use
- Category 3 Land Use facilities are subject to a Greenfield Subtractor of $0.001/acre impacted
- Only applicable to facilities with capacities larger than 500 kW AC and less than or equal to 5 MW AC
- Facilities located on Land in Agricultural Use or Prime Agricultural Farmland that do not meet the criteria to qualify as Category 1 Agricultural Land Use will be categorized as Category 3 Land Use

Incentive Payments

- The Incentive Payment Effective Date will be set in final Statement of Qualification
  - Incentive Payment Effective Date reflects first day production is eligible to receive incentive payments and generate Class I RECS
  - Is generally the same as a project's Commercial Operation Date
- Incentive payments will begin to be paid within three billing cycles of claim approval
- Incentive payments made on a monthly basis, via check or electronic funds transfer
  - Applicant chooses whether to receive check or ACH
- Incentive payments have a 90-day lifespan
  - If recipient of incentive payments changes, information for the new recipient must be provided expeditiously to avoid loss of incentive payments
- Behind-the-Meter Systems
  - Must have confirmation that EDC meter is installed before claim can be approved

Incentive Payments: Standalone vs. Behind-the-Meter

- **Standalone facilities:** Any facility with no associated load other than parasitic or station load
  - Net Metered, Alternative On-bill Credit, and Non-net Metered Solar Tariff Generation Units
  - Incentive payment varies over life of project and is equal to all-in compensation rate (i.e. base + adders) *minus* the value of the energy
- **Behind-the-Meter Facilities:** Any facility that does not meet the definition of standalone
  - Incentive payment value is fixed for the duration of the tariff term and is determined at the time a project is interconnected
  - Facilities may or may not be eligible for net metering, but net metering eligibility has no impact on calculating the total compensation rate and the SMART incentive payment

Energy Compensation and Incentive Compensation for Standalone Facilities

- The total compensation to all SMART facilities is intended to account for *energy* and for *incentive* compensation
- The method of calculating the incentive payment depends on whether a system is classified as Behind-the-Meter or Standalone
- The Value of Energy depends on the type of energy compensation the facility is receiving and will be either a bill credit or direct payment
  - Net Metered Generation Unit
    - The value of the bill credit determined by the system's net metering eligibility pursuant to MGL c. 164 § 138 and 220 CMR 18.00
  - Alternative On-bill Credit Generation Unit
    - The value of the bill credit set at basic service
  - Non-net Metered Generation Unit
    - The value of the direct compensation subject to the utility company's Qualifying Facility Tariff
- Energy compensation + incentive payment always equals the total compensation rate for which a system is qualified under SMART

Alternative On-Bill Credit

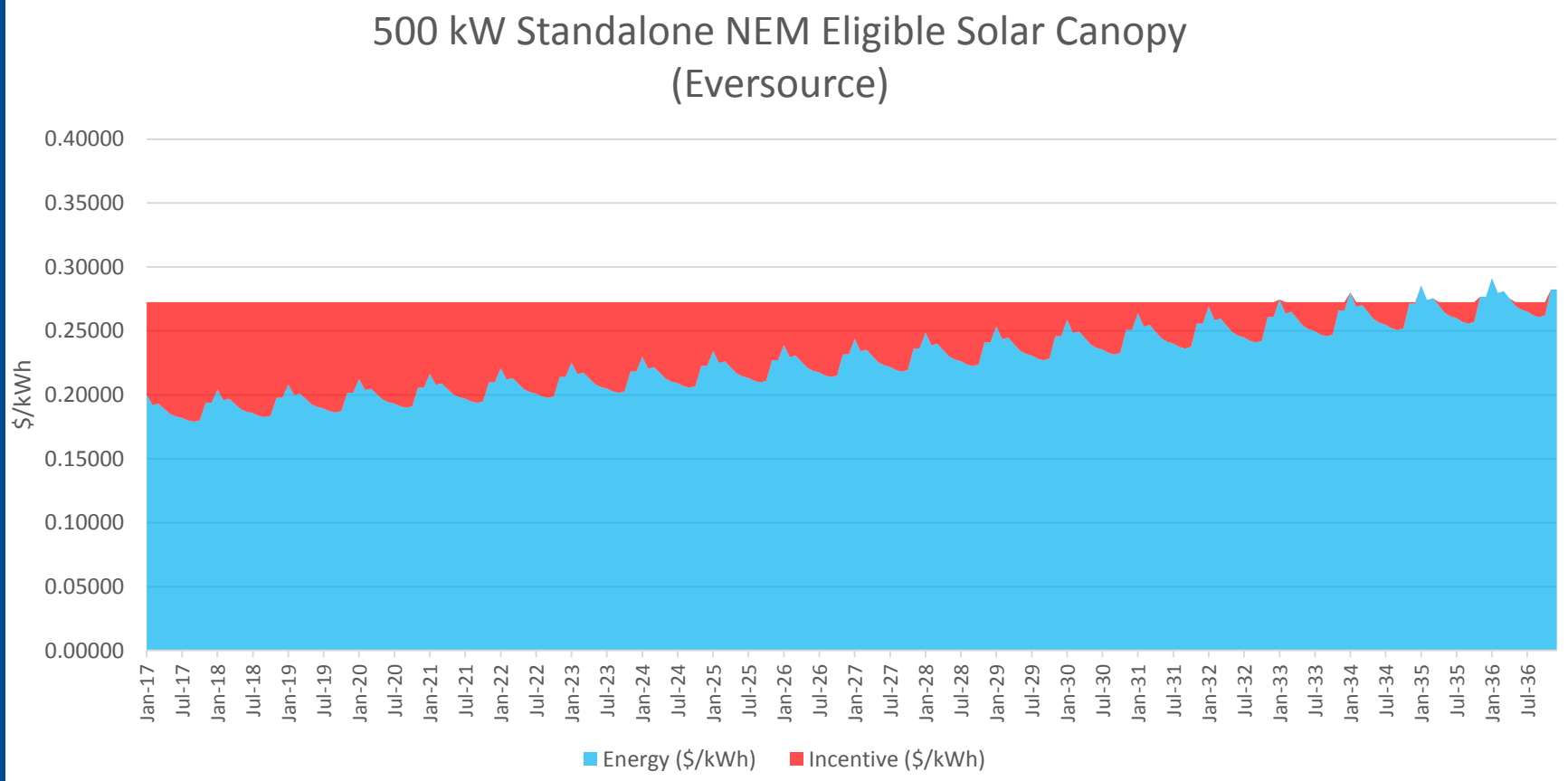
- Alternative On-bill Credit
  - Approved by DPU
  - Value of bill credit set at basic service rate of the generator
  - Only available to Standalone Solar Tariff Generation Units (i.e. not available to Behind-the-Meter Solar Tariff Generation Units)
  - No limit on the number of credits that can be transferred to customers
  - Credits can be transferred across ISO-NE load zones, but not across utility service territories
  - Credits must be allocated to customer bill within three billing periods
    - EDCs must start tracking delays and misallocations
  - Payment Credit/Transfer form can be updated twice a year until process is automated
  - EDCs expected to take steps toward automation of process

Standalone Incentive Calculation

$$Standalone\ Solar\ Tariff\ Generation\ Unit\ Incentive\ Payment = (Base\ Compensation\ Rate + Compensation\ Rate\ Adders - Greenfield\ Subtractor) * kWh - Value\ of\ Energy\ Generated$$

- **Example:**
  - A 500 kW net metered Canopy Solar Tariff Generation Unit facility qualifies under Eversource Block 1 and is eligible to receive a $0.21250/kWh all-in compensation rate
  - Canopy Solar Tariff Generation Unit Adder is $0.06/kWh
  - Greenfield Subtractor is $0.00/kWh
  - Net metering credit value is approximately $0.20/kWh
  - Incentive payment will fluctuate with change in net metering credit value
  - Total compensation value will always be $0.27250/kWh for entire 20-year tariff term

Standalone Generator Example



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

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Energy Compensation and Incentive Compensation for Behind-the-Meter Facilities

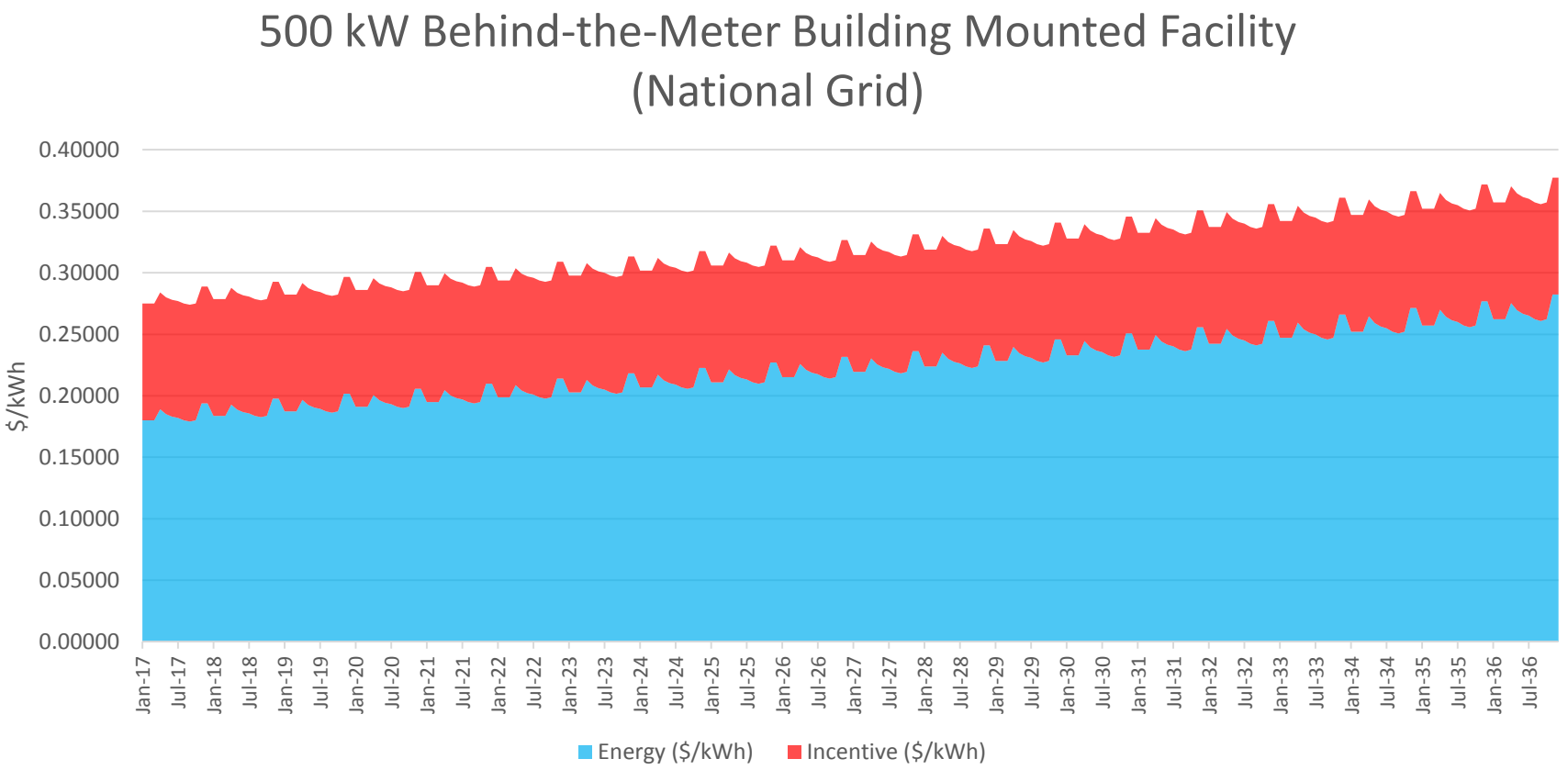
- The total compensation to all SMART facilities is intended to account for *energy* and for *incentive* compensation
- The method of calculating the incentive payment depends on whether a system is classified as Behind-the-Meter or Standalone
- The Value of Energy approximates the avoided costs of electricity from a kWh of on-site load offset by a solar facility and is equal to the sum of the following:
  - Current volumetric distribution rate
  - Current volumetric transmission rate
  - Current volumetric transition rate
  - Three-year average Basic Service Rate
- These values are based on the distribution company service territory and the rate class of the End-use Customer's meter (e.g. Massachusetts Electric customer on an R-1 residential rate)
- The value of the incentive payment the facility is eligible to receive is calculated by subtracting the Value of Energy from the total compensation rate to which it is entitled under the tariff
- This resulting incentive payment value is fixed for the duration of the tariff term of the facility and does not fluctuate as electricity prices change as it does for Standalone Facilities
- Because of this structure, Behind-the-Meter facilities will not necessarily always receive the total compensation rate for which a system is qualified under SMART, but may receive more or less depending on 1) the future retail price of electricity, and 2) the amount of electricity exported by the facility to the grid (i.e. facilities that export more electricity may receive less total compensation because their avoided electricity costs will be lower than if the electricity was consumed behind-the-meter)
- More information on how to calculate an estimated Value of Energy and SMART incentive payment value can be found in DOER's *Value of Energy Guideline and Calculator* for Behind-the-Meter facilities, which is available at:
  - masmartsolar.com (Solar Program Administrator's SMART Website)
  - Development of the SMART Program Webpage

Behind-the-Meter Incentive Calculation

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

- **Example:**
  - A 500 kW facility qualifies under National Grid Block 1 at a $0.255/kWh compensation rate and is eligible for a $0.02/kWh Building Mounted Adder for a total compensation rate of $0.275/kWh
  - Project is interconnected behind a meter on the G-1 rate class
  - The Value of Energy (i.e. volumetric distribution + transmission + transition + 3-year average basic service) for this particular rate class is determined to be $0.18/kWh
  - The incentive rate would be set at $0.095/kWh ($0.275/kWh minus $0.18/kWh) and would remain in effect for 20 years, regardless of what happens to electric rates over that timeframe

Behind-the-Meter Generator Example



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

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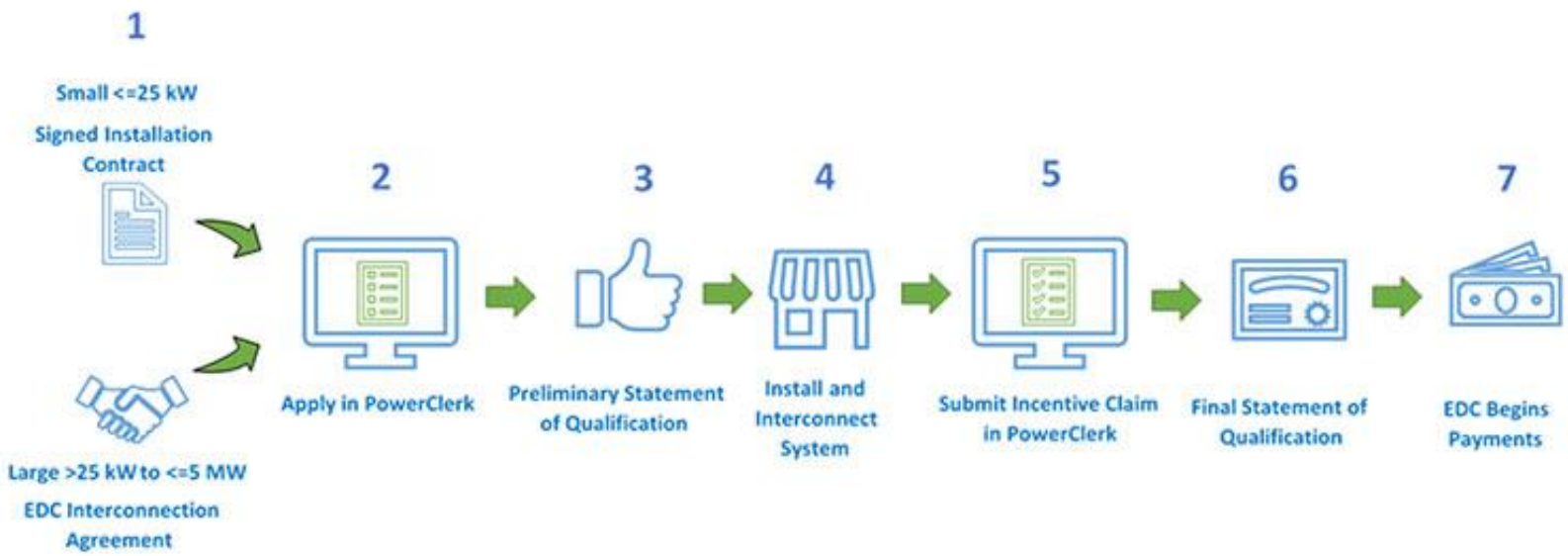
SMART Program Participant Costs

- Application Fee
  - Paid one time upon initial application
  - Must be paid again if applying for supplemental adder eligibility following issuance of Preliminary Statement of Qualification or Final Statement of Qualification:
    - Energy Storage Adder
    - Off-taker Based Adder
- SMART Production Meter(s)
  - Paid for during interconnection application
    - Process may be slightly different for early stage program applicants that already went through the interconnection process before the start of the program
  - Total meter costs paid for by interconnecting customer
  - May be multiple meters if paired with energy storage depending on configuration

Application Process



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Application Process

SMART Application

1. Submit application for Preliminary Statement of Qualification to CLEAResult
2. CLEAResult reviews application
    a) If corrections are needed - Applicant has 10 business to cure
    b) If not cured in a satisfactory way, Application rejected
3. CLEAResult advises DOER on approval of application
4. DOER issues the Preliminary Statement of Qualification
    a) Capacity Block and Base Compensation Rate assigned
    b) 12-month Initial Reservation Period starts
5. If necessary, submit paperwork to obtain Extended Reservation Period
6. Solar Tariff Generation Unit becomes operational
7. Submit application for Claim and final Statement of Qualification
8. CLEAResult advises DOER on approval of application
9. DOER issues the Final Statement of Qualification
    a) CLEAResult notifies EDC of final approval and Applicant is enrolled in tariff

SMART Initial Application Period

November 26, 2018

- SMART Application Portal Opens
  - 12:00 PM ET the portal will open and the initial application period will begin, which will last for five business days
  - All applications received through 11:59 PM ET on November 30, 2018 will be considered as having been submitted at the same time for the purposes of determining placement in a Capacity Block
    - Applications for facilities less than or equal to 25 kW AC will be reviewed and placed into Capacity Blocks in the order that their contract was executed
    - Applications for facilities greater than 25 kW AC will be reviewed and placed into Capacity Blocks in the order that their Interconnection Services Agreement was executed
  - All applications received on or after 12:00 AM ET December 1, 2018 will be reviewed and placed into Capacity Blocks on a first come, first served basis

Preliminary Statement of Qualification Application Requirements and Process

Required documentation submitted with initial application

- 25 kW AC and less
  - Turnkey Contract with Installer
  - Customer Disclosure Form
  - Low-income utility rate if applicable
- Over 25 kW AC
  - Fully executed ISA
  - Site Control
  - Non-ministerial permits
  - Other documentation as necessary if applying for certain adders

Cure period is to correct administrative errors, not to provide extra time to procure required documentation

- If missing documentation provided during the cure period is dated after the original submission date, application will be rejected, and applicant will be required to reapply
  - For example, if an unexecuted ISA is submitted and flagged as an issue that needs to be cured, it is not permissible to subsequently submit an executed version with an execution date after the application submission date. If this were to occur, the application would be rejected.

Adder eligibility

- Some adders have required documentation at preliminary application
- Determination of ineligibility for an Adder does not disqualify eligibility for Base Rate

Qualifying for Location Based Adders

Applicants must provide documentation showing proof of eligibility at the time of submitting the SQA for a Reservation

Location Based Adder	Required Documentation
Building Mounted	Site plan
Floating Solar	Pre-determination letter
Brownfield	Pre-determination letter
Landfill	Post-closure use permit
Canopy	Site plan
Agricultural	Pre-determination letter

Further information on eligibility criteria and the process for obtaining a pre-determination letter can be found in the following Guidelines:

- Definition of Agricultural Solar Tariff Generation Units
- Definition of Brownfield

Applicants seeking a pre-determination letter in order to obtain a Floating Solar adder should contact the Department directly

Qualifying for Off-taker Based Adders

- All schedule Z forms must be submitted at the time of commercial operation
- Projects seeking an off-taker based adder may apply for the adder at any point during its Reservation Period;
- Facilities seeking a Public Entity adder must also provide proof of locational eligibility at the time they initially submit an SQA

Off-taker Based Adder	Required Documentation
Community Shared Solar	Schedule Z/ Credit Allocation Form; executed Customer Disclosure Form for each participant
Low Income Property	Pre-determination letter; and/or Schedule Z/ Credit Allocation Form
Low Income Community Shared Solar	Schedule Z/ Credit Allocation Form; executed Customer Disclosure Form for each participant
Public Entity	Schedule Z/ Credit Allocation Form; proof land is publicly owned

Further information can be found in the following Guidelines:

- Low Income Generation Units Guideline
- Statement of Qualification Reservation Period Guideline

SMART Application Webinar

- On **October 24, 2018**, DOER, CLEAResult, and the EDCs hosted a webinar on the SMART Statement of Qualification Application process
- A recording of the webinar can be found here
- Questions on the webinar should be directed to DOER.SMART@mass.gov or MA.SMART@clearesult.com

Claim Application Requirements and Process

1. By Reservation Period Deadline, Applicant must file Claim or file for one of the following Reservation Period Extensions
    a) Up to 6 month extension for a fee of $25/kW AC
    b) Up to 6 month extension for legal challenge to an issued permit
    c) Indefinite extension if Applicant demonstrates facility is mechanically complete by submitting signed Certificate of Completion
    d) Good Cause extension - May only seek after obtaining extension for a fee
2. Solar Tariff Generation Unit is issued Authorization to Interconnect by distribution company
3. Applicant submits Claim application via application portal
4. Applicant updates system information with final as-built system specs
    a) Equipment, size, ownership information all finalized at this point
5. Submit any required information for final Adder eligibliity
    a) e.g. Schedule Z / Payment Credit Transfer Forms, CSS Customer Disclosure Forms, etc.
6. CLEAResult reviews Claim for eligibility
7. CLEAResult recommends to DOER that final SQ be issued
8. DOER reviews and issues final SQ
9. CLEAResult notifies distribution company, and STGU is enrolled in that Company's tariff

Qualification Considerations – Claim Application

Size of Solar Tariff Generation Unit

- Final as built AC size may not exceed AC capacity reserved
- Final as built AC size may be less than AC capacity reserved
- Final as built DC size may exceed DC capacity reserved, so long as AC size is not increased

Tax Documentation

- Tax forms and payment information must be provided for incentive payment recipient during the Claim application process

Energy Storage Adder

- Applicants may apply for the Energy Storage Adder at any time
  - If applying for the Energy Storage adder during the Reservation Period or after the system is operational, the available adder rate will apply
- Energy Storage Adder is 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 is 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 with capacities equal to or less than 25 kW AC will also be able to receive a storage adder

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 percent and shall be incentivized for no more than 100 percent 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.

Energy Storage Adder

- Final Guideline published in September 2018
- In addition to regulatory requirements, Guideline contains operational requirements
  - Standalone Systems

    Option #1: The Energy Storage System may fulfill the operational requirements by dispatching the Energy Storage System during the summer peak hours and winter peak hours. Energy Storage System Owners may choose when to cycle during any hours included during this window.

    Option #2: The Energy Storage System may fulfill the operational requirement through registration in the ISO-NE wholesale market or a retail-level program aimed at reducing ratepayer costs, if deemed satisfactory to the Department.
  - Behind-the-meter Systems

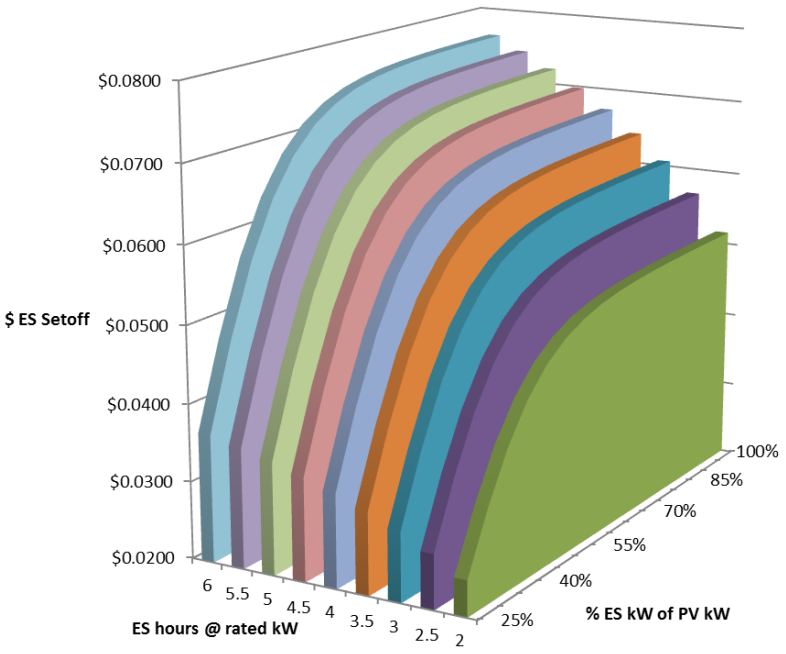
    Demonstrate that the Energy Storage System reduces on-site customer peak demand or increases self-consumption of on-site generated solar energy.
- Compliance with requirements demonstrated with 15 minute interval data submitted to DOER after first year of operation

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



Massachusetts Department of Energy Resources

SMART MASSACHUSETTS SOLAR PROGRAM

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 Energy Storage Systems that are part of the first adder tranche based on size & duration

SMART Factor/Cost Recovery

- SMART Factor
  - Separate line item on customer bill
  - Volumetric charge that facilitates EDC recovery of programmatic costs
  - Initially structured as a bypassable charge, but will transition to a non-bypassable charge at some point in 2019 or 2020
  - EDCs must consult with DOER on how the charge will appear on customer's bills as part of their November 1, 2018 SMART Factor filings

400 MW Review

- DOER will conduct a review of the program when 400 MW of preliminary Statements of Qualification have been issued
- Following first week of the SMART Application, CLEAResult will post data regarding how many applications have been submitted
- DOER expects initial review of applications to take several weeks, and expects that the first Statements of Qualification will begin to be issued within a month of initial launch (depending on application volume)
- DOER may amend the SMART Regulation and/or Guidelines as part of its review

MLP Solar Program

- DOER has collaborated with representatives from the Municipal Light Districts to develop an incentive program
- Incentive program will mainly serve to incentivize residential installations
- Incentives will be in the form of rebates for facilities less than or equal to 25 kW DC
- Similar structure to the Commonwealth Solar Rebate Program
- Class I RECs from participating facilities will be transferred to the MLP
- DOER expects to issue a Program Opportunity Notice for MLPs and will be posting more information about the program shortly

Other Issues

- The DPU is still considering several issues related to solar and energy storage in DPU 17-146
- At issue in this proceeding are:
  - The continued eligibility of an otherwise eligible net metering facility to net meter when paired with Energy Storage
  - Capacity rights for certain Solar Tariff Generation Units and net metering facilities
- Until a final determination is made in 17-146, *neither* EDCs nor Solar Tariff Generation Unit Owners may claim the right to bid capacity into the Forward Capacity Market

Summary of Important Dates and Actions

Date(s)	Action
October 11, 2018 - October 19, 2018	In person SMART transition stakeholder meetings held throughout Commonwealth
October 16, 2018	EDCs jointly file revised model tariff with DPU
October 24, 2018	SMART Statement of Qualification Application webinar
November 1, 2018	EDCs individually file SMART Factor cost recovery filings with DPU
November 26, 2018	SMART Application Launches at 12 PM ET / Final Eligibility Date for SREC II
November 30, 2018	Initial SMART application period ends at 11:59 PM ET
Approx. December 1, 2018	MLP solar rebate program opens and begins accepting applications
December 10, 2018	Documents demonstrating mechanical completion due for SREC II systems larger than 25 kW DC
February 15, 2019	SREC II applications systems equal to or smaller than 25 kW DC due
TBD	DPU order approving revised joint model tariff
TBD	EDCs file company specific SMART tariffs
TBD	DPU approves company specific SMART tariffs
TBD	DPU issues order on 17-146

Resources

- DOER website https://www.mass.gov/service-details/development-of-the-solar-massachusetts-renewable- target-smart-program
  - ➢ Customer Disclosure Forms
    - Small System Direct Ownership
    - Small System Third Party Ownership
    - Community Shared Solar
  - ➢ Guidelines
    - Statement of Qualification Reservation Period
    - Definition of Agricultural Solar Tariff Generation Units Guideline
    - Land Use and Siting
    - Definition of Brownfield Guideline
    - Low Income Generation Units Guideline
    - Energy Storage
  - ➢ Behind the Meter Value of Energy Calculator
    https://www.mass.gov/doc/smart-btm-value-of-energy-calculator-0
- CLEAResult website http://masmartsolar.com/
  - ➢ FAQ
  - ➢ Application Document Requirements
- SMART Program Regulation (225 CMR 20.00) https://www.mass.gov/files/documents/2017/10/16/225cmr20.pdf
- SMART Model Tariff (Enter 17-140) https://eeaonline.eea.state.ma.us/DPU/Fileroom
- Email with Questions:
  DOER.SMART@mass.gov
  MA.SMART@clearesult.com