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**Cape Cod Cranberry
Grower's
Association
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**Solar Massachusetts Renewable Target
(SMART) Program Summary**

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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 proposed to be made 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

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](#)

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 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: 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 determined by the final SMART Tariff, currently proposed 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

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](#)

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

Floating Solar Tariff Generation Units

- Allowed with approval of the installation on the body of water by local Conservation Commission and/or MassDEP
- Floating Solar allowed on water bodies utilized for water treatment, agricultural or industrial activities
- Floating Solar NOT allowed in wetland resource areas and natural waterbodies such as salt ponds, freshwater lakes and great ponds, as defined in M.G.L. c. 91

Floating Solar Tariff Generation Units

- Ratio of Floating Solar Tariff Generation Unit divided by the total surface area of the water body shall not exceed 50%
- Racking system made of materials tested for water quality impact
- Design should minimize potential interaction with native species
- Questions on possible eligible bodies of water should be made to DOER and MassDEP

Agricultural Solar Tariff Generation Units

- Dual use design allows the continued agricultural use of the land the SMART project is installed upon
- The [Guideline Regarding the Definition of Agricultural Solar Tariff Generation Units](#) details a raised structure, with minimum design components
- UMass Amherst provides support and information for agricultural plan and crop development
- Requires annual reporting to DOER and MDAR of agricultural productivity of the land

Agricultural Solar Tariff Generation Units

- Panel Height fixed tilt: at least 8 ft.
- Panel Height tracking: at least 10ft.
- Panels shall cast no more than 50% shading of baseline field conditions
- System size maximum: 2 MW AC in the first two Capacity Blocks. DOER and MDAR will evaluate adjusting size maximum for subsequent Blocks
- Can seek a written waiver from DOER and MDAR for approval of alternate design
- Waiver request must demonstrate why alternate design continues to support active agricultural activities

Agricultural Solar Tariff Generation Unit Waiver Process

- If the proposed project design does not meet the design specifications in the Guideline Regarding the Definition of Agricultural Solar Tariff Generation Unit, Applicant may submit a waiver request to DOER
- DOER will review in coordination with MDAR
- Waiver Request should include information on the following:
 - Plan Development
 - Justification for waiver request
 - Design elements of project
 - Panel Height
 - Direct Sunlight Reduction
 - Growing Season/Time of Day Considerations
 - Other

Links to Program Resources

- 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](#)
- At this time, the SMART Program is not fully in effect as the Department of Public Utilities still has an open proceeding to review the model tariff that was jointly filed by the electric distribution companies in September 2017. Information on the status of this 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 moves closer towards full implementation. 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](#)
- UMass Amherst Clean Energy Extension
 - <https://ag.umass.edu/clean-energy/fact-sheets/dual-use-agriculture-solar-photovoltaics>
- 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