Creating A Cleaner Energy Future For the Commonwealth

Massachusetts Department of Energy Resources

Massachusetts Solar Market

RPS Solar Carve-Out II
Final Policy Design

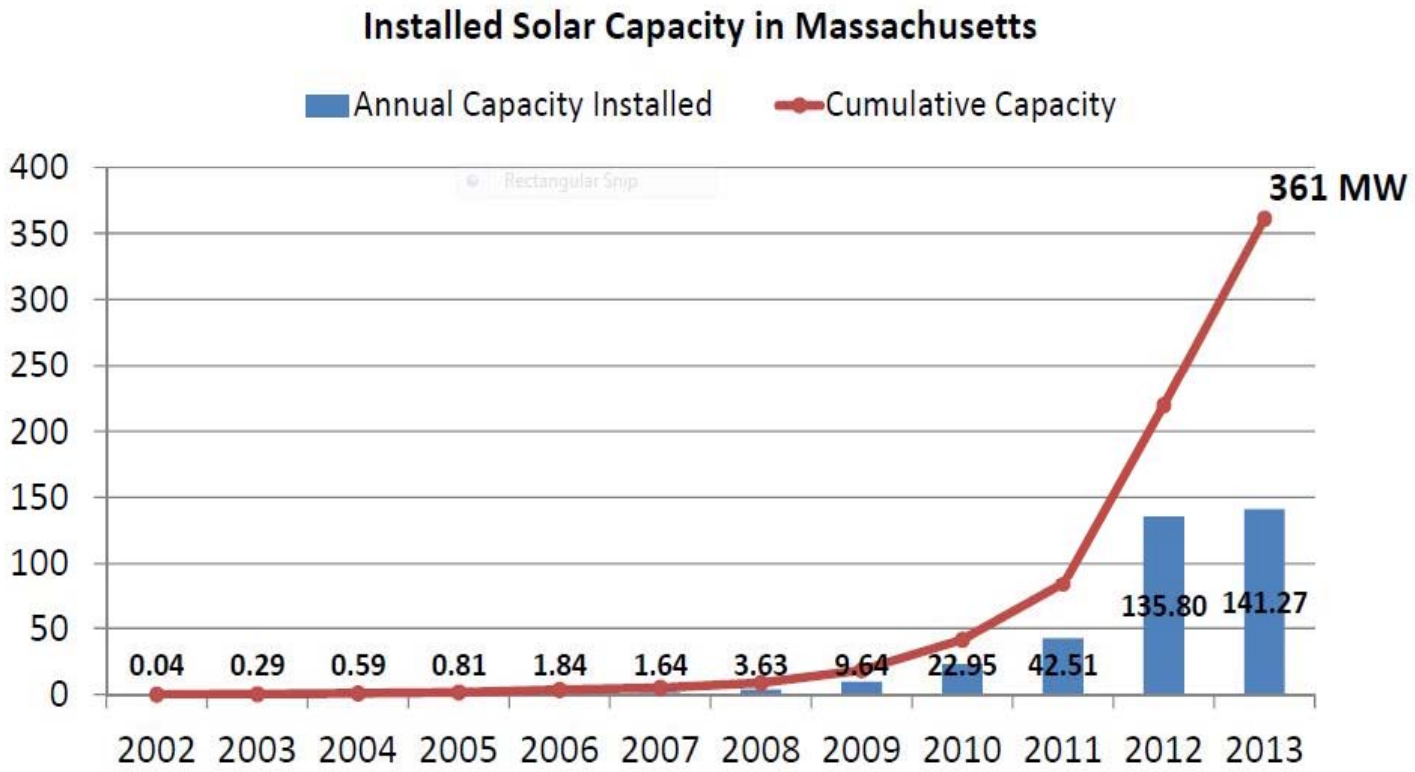
Mark Sylvia, Commissioner

December 13, 2013

Electricity Restructuring Roundtable

Evolving Landscape and Regulatory Framework for Solar

Remarkable Solar Growth in Mass.



In May 2013, the Patrick-Murray Administration met its 2017 goal to have 250 MW of solar power installed in Massachusetts. The Administration has set a new target of 1600 MW for 2020. The above figures represent the cumulative amount installed as of December 1, 2013.

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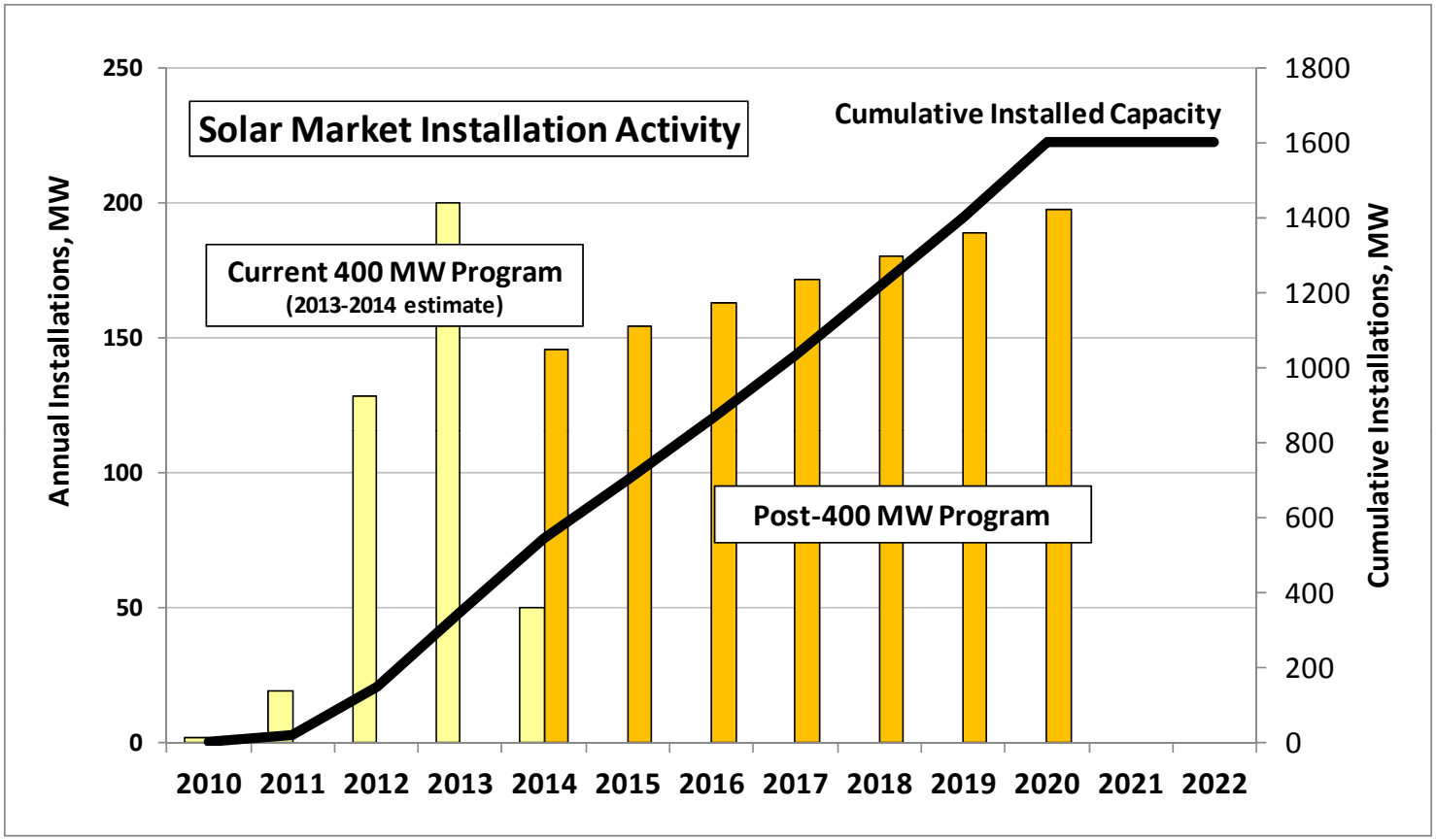
Current/Projected Market Installations



- To meet Governor's 1600 MW goal, market needs to install 140-200 MW per year between 2014 and 2020 (adjusted for final SREC-I Capacity)
- This installation rate maintains growth from 2012 installation rate, but does not sustain the accelerated market growth experienced in 2013.

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SREC-II Policy Objectives

- Provide economic support and market conditions to maintain and expand PV installations in MA
- Control ratepayer costs
- Maintain robust, progressive growth across installation sectors and manage growth to reach 1600 MW by 2020
- Maintain competitive market of diverse PV developers, without undue burdens of entry
- Address financing barriers limiting residential and non-profit direct ownership, without compromising third-party ownership model
- Minimize regulatory complexity and maintain flexibilities to respond to changing conditions

SREC-II: Key Design Features

- Program Cap of 1600 MW minus the capacity reached in SREC-I by June 30, 2014.
- Projects eligible to generate SREC-IIs for 10 years (40 quarters), with incentive declining over time through a 10-year forward schedule of Auction Prices and ACP Rates. Units generate Class I RECs following 10 years of eligibility.
- SREC Factors provide financial incentive differentiated between market sectors.
- Review of SREC Factors 2016/2017 provides ratepayer and developer protections.
- Forward Minting is eliminated. Residential direct-ownership market will be addressed with an ACP-funded financing program.
- Managed Growth sector provided fixed SREC Factor and will not be subject to competitive solicitations. Qualifications will be limited by Annual Blocks made available on a two year forward schedule by DOER.
- Compliance Obligation and Minimum Standard set in regulation for 2014 and 2015. Annual calculations thereafter based on actual and projected supply, constrained by Cumulative Installed Capacity Targets, which informs determination of next Annual Block for Managed Growth sector.

Reducing Incentive Value Over Time

	$/MWh		
Year	Auction Price Bid	Auction Price After 5% Fee	ACP Rate
2014	300	285	375
2015	300	285	375
2016	300	285	350
2017	285	271	350
2018	271	257	350
2019	257	244	333
2020	244	232	316
2021	232	221	300
2022	221	210	285
2023	210	199	271
2024	199	189	257
2025	Values announced by DOER each year to maintain 10-year forward schedule.		
2026			
2027			
2028			
2029			
2030			

Auction Price and ACP Rate Schedules

No change from prior Stakeholder Meetings

Values are included in regulation

Market Sectors and SREC Factors
(Factors Provided in Guideline)

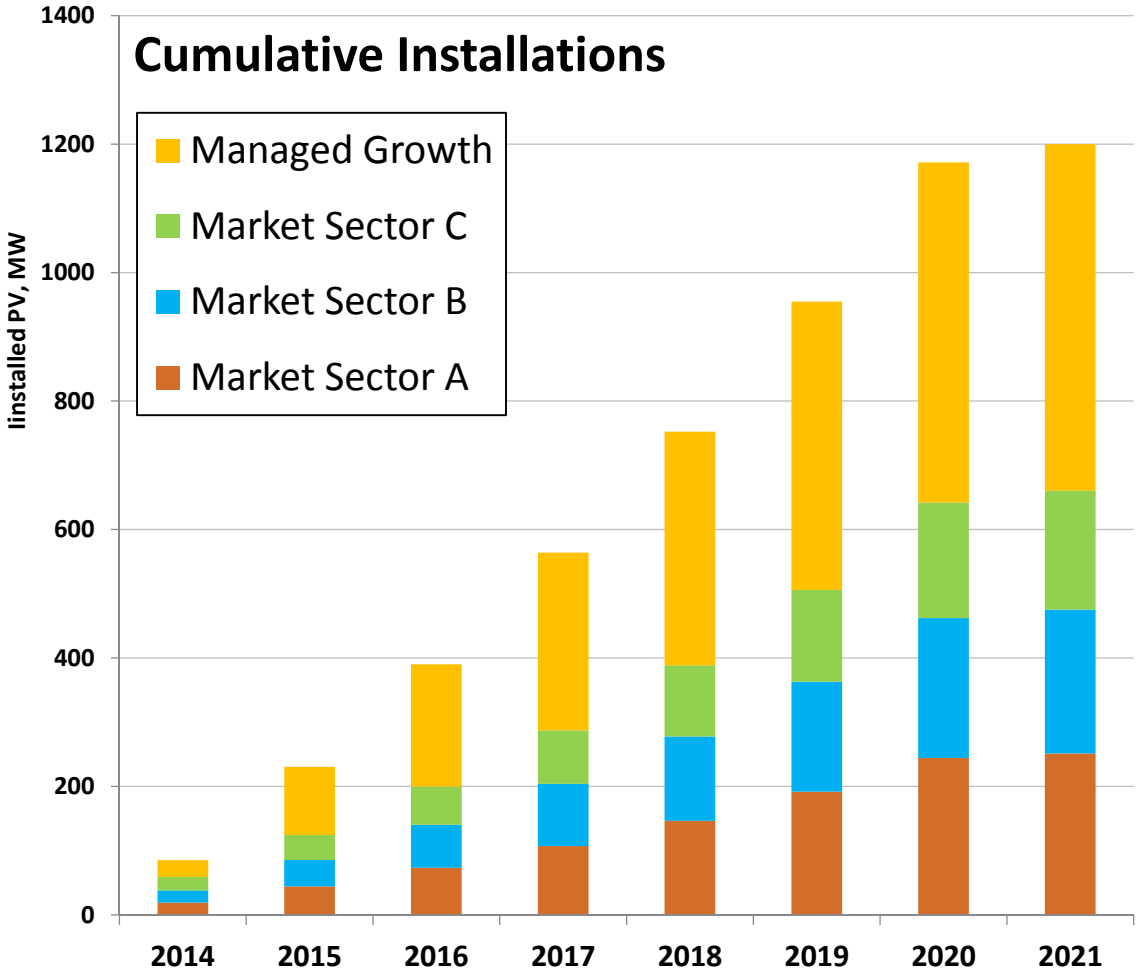
Market Sector		SREC Factor
A	Residential, Parking Canopy, Emergency Power Generation, Community Shared Solar, or any Unit with a capacity <= 25 kW.	1.0
B	Building Mounted, or ground mounted Unit with a capacity > 25 kW with 67% or more of the electric output on an annual basis used by an on-site load.	0.9
C	Landfill or Brownfield, or a Unit with a capacity of <= 500 kW with less than 67% of the electrical output on an annual basis used by an on-site load.	0.8
Managed Growth	Unit that does not meet the criteria of Market Sector A, B, or C.	0.7

SREC Factor for Residential increased to 1.0.

Managed Growth has fixed SREC Factor (not subject to competition).

SREC Factors subject to evaluation in 2016/2017, to accommodate market/policy changes. Changes applied with delay.

Projection of Market Sector Growth



DOER anticipates Managed Growth Blocks will support significant market share.

Other Market Sectors will impinge on available Blocks depending on actual growth.

SREC-II generation will peak in 2020/2021, and then begin to taper to zero by 2030/2031, as 10-year eligibilities expire.

This projection represents one sample future outcome. While these data reflect DOER's analysis of market trends, DOER does not endorse or suggest this to be the most likely outcome.

Residential Direct Ownership

ACP-funded Support Program

- Elimination of Forward Minting: Questions raised about FM effectiveness in achieving objective to facilitate residential financing. DOER assessed significant administrative complexities.
- DOER estimates that a robust residential direct ownership market would need to be supported by $20-50 million in loans at the start of the program, and $300-600 million cumulatively through 2020. This volume represents a significant opportunity for the financing/banking industry.
- DOER plans to announce, in parallel with the SREC-II rulemaking, a financing support program using ACP funds. Final development of the program will be done in coordination with stakeholder input, including direct discussions with the banking industry.
- DOER anticipates using approximately $30 million of ACP funds for this purpose. Leveraging funds will be important, along with strategies to enable banking sector to sustain lending as ACP support is diminished.
- MassCEC will maintain CommSolar II rebate program through the development of the financing program.

Benefits and Costs of SREC-II

Table 10. NPV of Cost-Benefit Components, ACP vs. Auction Floor ($ Millions)

	ACP	Auction Floor
Solar Program Costs	(1,976)	(1,543)
Wholesale Market Effects	$87	$87
Avoided REC Payments	$184	$184
Avoided Generation Capacity Costs	$772	$772
Avoided Emissions	$122	$122
Avoided T&D	$949	$949
Net Benefit	**138**	**571**
Benefit-cost Ratio	**1.07**	**1.37**

Over program life, benefits to the electric system and public outweigh program costs.

Actual SREC-II prices may be lower than Auction price, reducing program costs further.

Over program life, utility rate impact of program averages 1.2% and 1.5% of total bill, with peak impact of 2.5% to 3.5% (2018-2021 timeframe). For a typical residential monthly bill, impact is $0.91 to $1.48 over program life, and $2.44 to $3.49 at peak.

SREC-II brings solar into the market at incentive values 30-50 percent below SREC-I.

From DOER consultants report, Task 3b: *Analysis of Economic Costs and Benefits of Solar Program*

SREC-II and Net Metering

- Most non-residential solar projects depend on the net metering credit incentive, along with SREC revenue
- MA market is non-uniform in the availability and value of Net Metering credits by utility territory
- DOER is cognizant of Net Metering caps being reached and impact on solar (and other renewables) economic feasibility
- DOER currently has no policy stance on the raising of the NM caps
- DOER has commissioned a study on NM policy and is evaluating cost/benefits and policy options to assist policy making. Study should be available at the end of 2013

SREC-II Anticipated Rulemaking Process

- RPS Class I regulation revisions for SREC-II are expected be filed any day
- Rulemaking will include Public Hearing and comment period in January, followed by review by Joint Committee on TUE
- DOER projects rule to be promulgated before the end of Q1 2014

Solar is Working for the Commonwealth

- Residential solar PV prices dropped 28 percent in Massachusetts in 2012 – second biggest drop in the nation last year.
- Governor's goal of installing 250 MW by 2017 met four years early; new goal of 1600 MW by 2020.
- Solar is well distributed throughout the Commonwealth, with installations in 346 of 351 MA cities and towns. Over 120 municipalities are hosting solar projects on town facilities.
- Solarize Mass program has supported 9 MW of residential solar in 33 towns (another 15 towns are underway).
- Massachusetts is well ranked nationally (SEIA 2012)
  - 6th in solar capacity installed in 2012
  - 7th in cumulative installed capacity
  - 3rd in commercial installations; 6th in residential installations
  - 2nd lowest weighted average commercial installation costs
  - 4th in total solar jobs; 8th in per capita solar jobs
- Over 1800 firms in MA work primarily in the renewable energy sector, employing over 21,000 workers. Nearly 60% of renewable energy workers support the solar sector *(2013 MassCEC Jobs Report).*

Thank you!

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Commissioner

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