Creating A Cleaner Energy Future For the Commonwealth

DOER
Massachusetts Department of Energy Resources

Massachusetts Solar Market

Post-400 MW Solar Program Policy Design

Stakeholder Briefing

June 7, 2013

AGENDA	
10:00am – 10:30am	Review of Emergency Regulation
10:30am – noon	Post-400 MW Solar Policy Design

DISCLOSURE

The information provided in these slides are part of a deliberative policy making process for which public input is valued. DOER has not finalized any decisions nor committed to any policy design or values presented in this presentation.

Completing the 400 MW Program

Emergency Regulation to Address Oversupply of Applications

EMERGENCY REGULATION – SCOPE/RATIONALE

- Statement of Qualification Applications were received by DOER at an accelerating rate since April 2013, resulting in a remaining capacity window that was rapidly diminishing to the market.
- DOER recognizes that the solar industry in MA includes a range of business size and experience, and wants to maintain a diverse and confident industry.
- DOER understands that some projects have been caught with serious sunk financial investments, but without prospect for qualification under the current program.
- DOER particularly recognizes the small (kW scale) market sector that has short project development cycles which are at risk for business suspension without available capacity for qualification.
- DOER also believes that many projects that have now sought qualification are not significantly developed and should have reasonably expected to be beyond the 400 MW cap and best suited for the post-400 MW program.

EMERGENCY REGULATION – APPROACH

DOER had several primary policy options available to accommodate the current overflow of applications.

- Begin an initial phase of the post-400 MW program
- Extend the current 400 MW program cap
- Establish new program and compliance obligation for interim projects
- Do nothing, and not qualify project applications beyond 400 MW cap

DOER recognizes the different impacts these alternative approaches have on projects within the 400 MW cut-off and projects outside the cut-off. As well as impacts on the maintenance of solar market activity over the next 6 to 9 months and on ratepayers.

After careful consideration of these impacts and our regulatory authority, DOER will move forward with an Emergency Regulation to allow the current 400 MW cap program to expand to accommodate those projects which are demonstrably well invested in the development cycle and for small projects to continue to proceed.

EMERGENCY REGULATION - OUTLINE

Qualification of Projects

- All Units greater than 100 kW that have received a Statement of Qualification or have applications deemed administratively complete by DOER and are within the 400 MW cap must meet *prescribed project construction timelines* or their SQs will be revoked.
- All Units that are now above the 400 MW cap and greater than 100 kW that have an executed Interconnection Service Agreement dated on or before June 7, 2013 shall be provided an SQ if they meet *prescribed project construction timelines*. Applicants will be given one week from the effective date of the emergency regulation to provide DOER their executed ISA, or their application will be rejected.
- All Units equal or less than 100 kW which have an Authorization to Interconnect and have submitted an SQA prior to the effective date of the post-400 MW solar carve-out program regulation shall be provided an SQ.

EMERGENCY REGULATION - OUTLINE

Prescribed Project Construction Timelines (for projects >100kW)

- A Unit must receive its Authorization to Interconnect* from its local distribution company on or before December 31, 2013.
- Units that have not received an Authorization to Interconnect on or before December 31, 2013 will be provided an extension to March 31, 2014 only if it can demonstrate to the satisfaction of Department that the project has expended at least 50% of its total construction costs by December 31, 2013. If the Unit provided such an extension receives its Authorization to Interconnect on or before March 31, 2014, the Unit will be provided a Statement of Qualification.
- If a Unit can demonstrate to the Department's satisfaction that either of these two timelines have been met, but that interconnection depends only upon receipt of notice of Authorization to Interconnect from the distribution company, and such receipt is delayed only by cause of the utility company, the SQ shall be extended indefinitely until such notice is received or denied.

* Projects in MLP territories will need to demonstrate receipt of an equivalent document from its local distribution jurisdiction.

EMERGENCY REGULATION - OUTLINE

Recalibration of Compliance Obligation

- All references in the current regulation (in and around 225 CMR 14.07(2)(e)) to the program capacity cap of 400 MW will be modified to read "the total capacity of all Qualified Units as of April 1, 2014".
- Thereby, the "steady state market" compliance obligation (MWh) will be adjusted towards the extended program cap (MW), times the hours in a year, times the Capacity Factor as calculated per the revised regulation.

- DOER expects reaching this new Cap will not fundamentally change the market balance or the anticipated timeframe for reaching the steady state market.

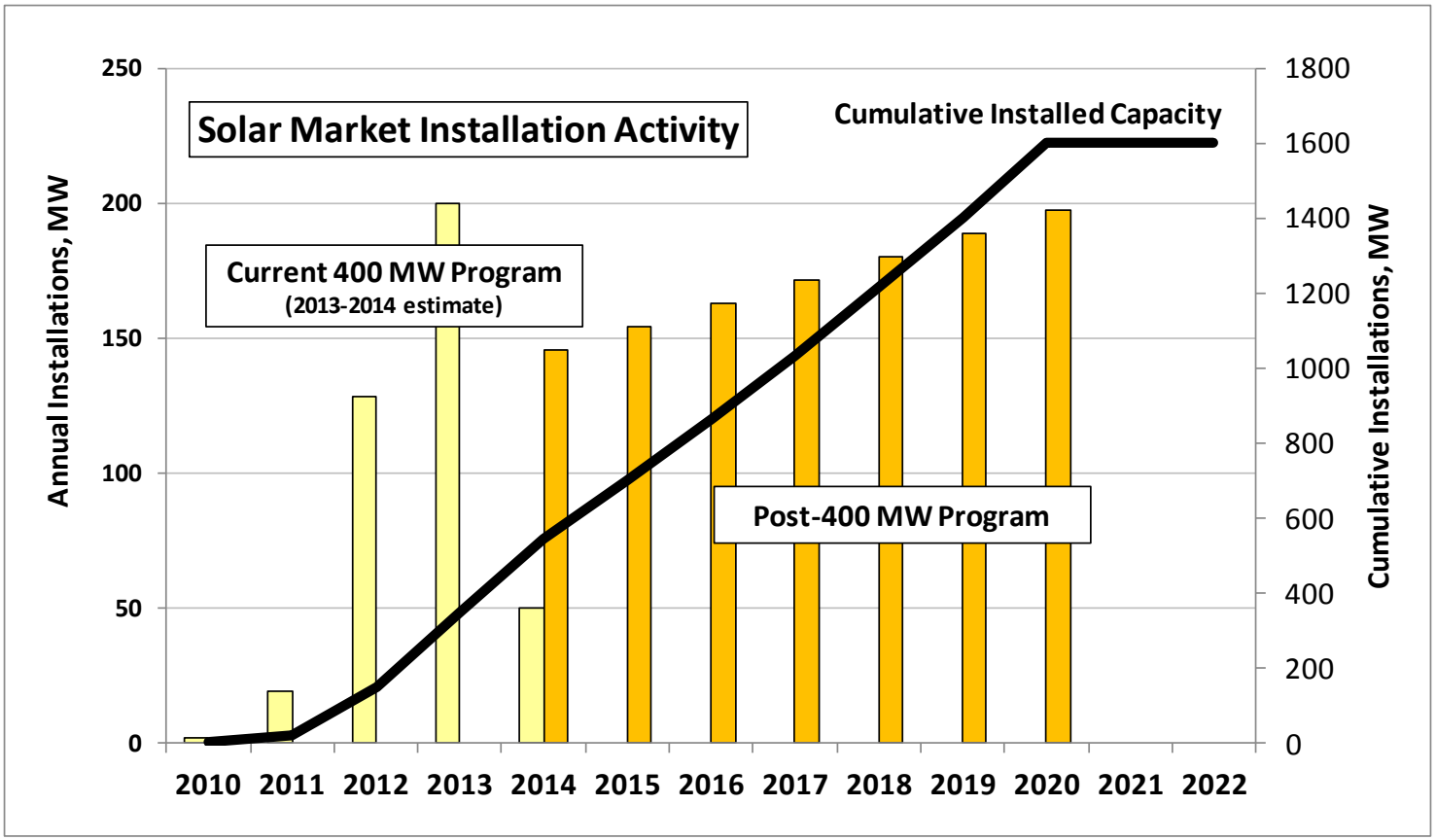
Creating a New RPS Solar Carve-out to Meet Governor's Goal of 1600 MW by 2020

Context and Available Capacity for Carve-out within the RPS Program

POLICY DEVELOPMENT – OBJECTIVES

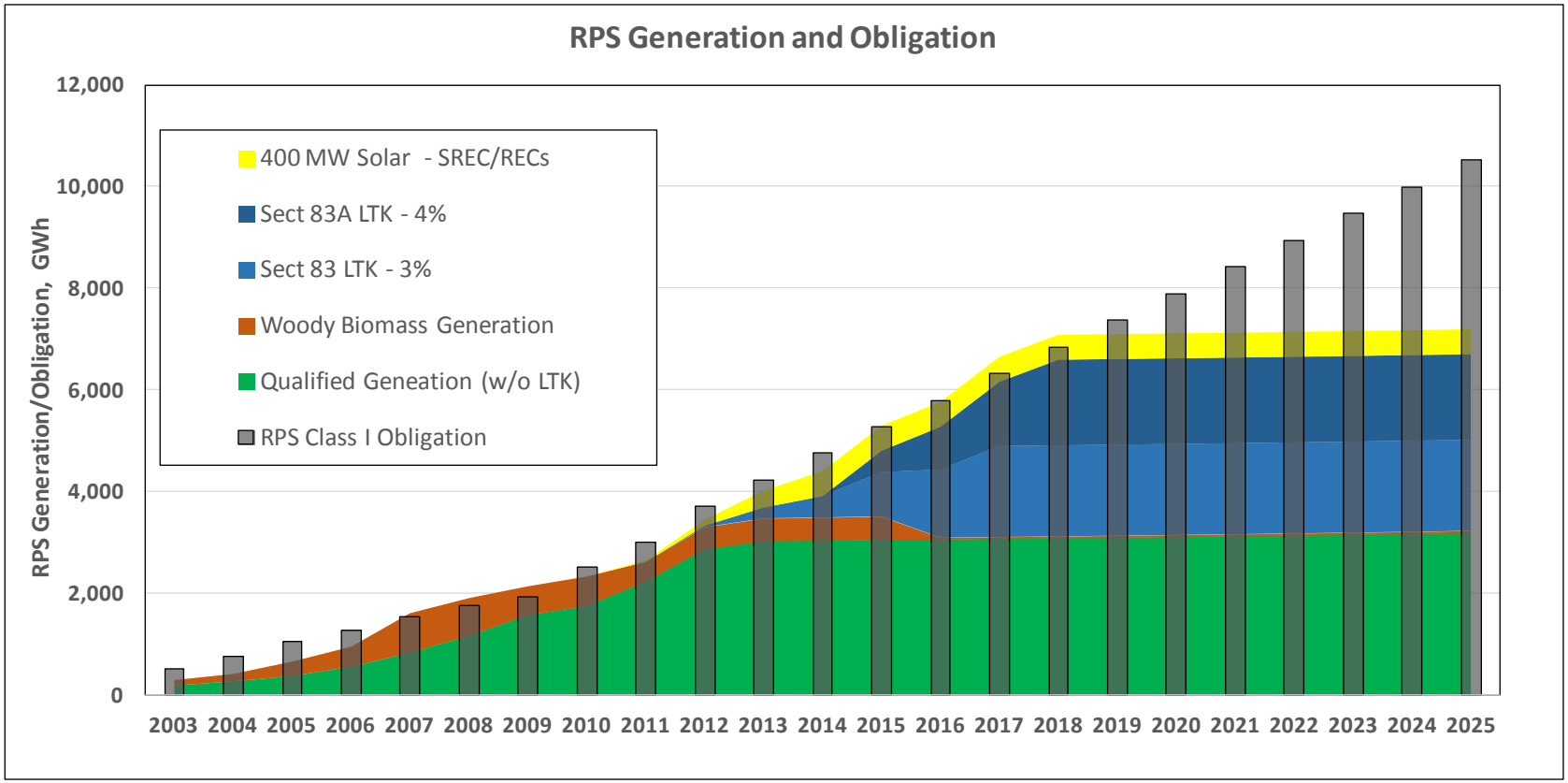
- Provide economic support and market conditions to maintain and expand PV installations in MA.
  - If possible, establish a program now that will drive the market towards and until the technology reaches cost parity with RPS Class I.
- Provide clear policy mechanisms that control ratepayers costs and exposures.
  - Heading well beyond 400 MW is only practical at costs to ratepayers (per MW) less than today.
  - Ratepayer costs should better reflect marginal cost of solar installations over time.
- Maintain robust growth across installation sectors – residential, small commercial, roof mounted, ground mounted, etc.
- Maintain competitive market of diverse PV developers , without undue burdens of entry.
- Address financing barriers limiting direct ownership, without compromising third-party ownership model.

Current / Projected Market Installations to Meet Governor's Goal



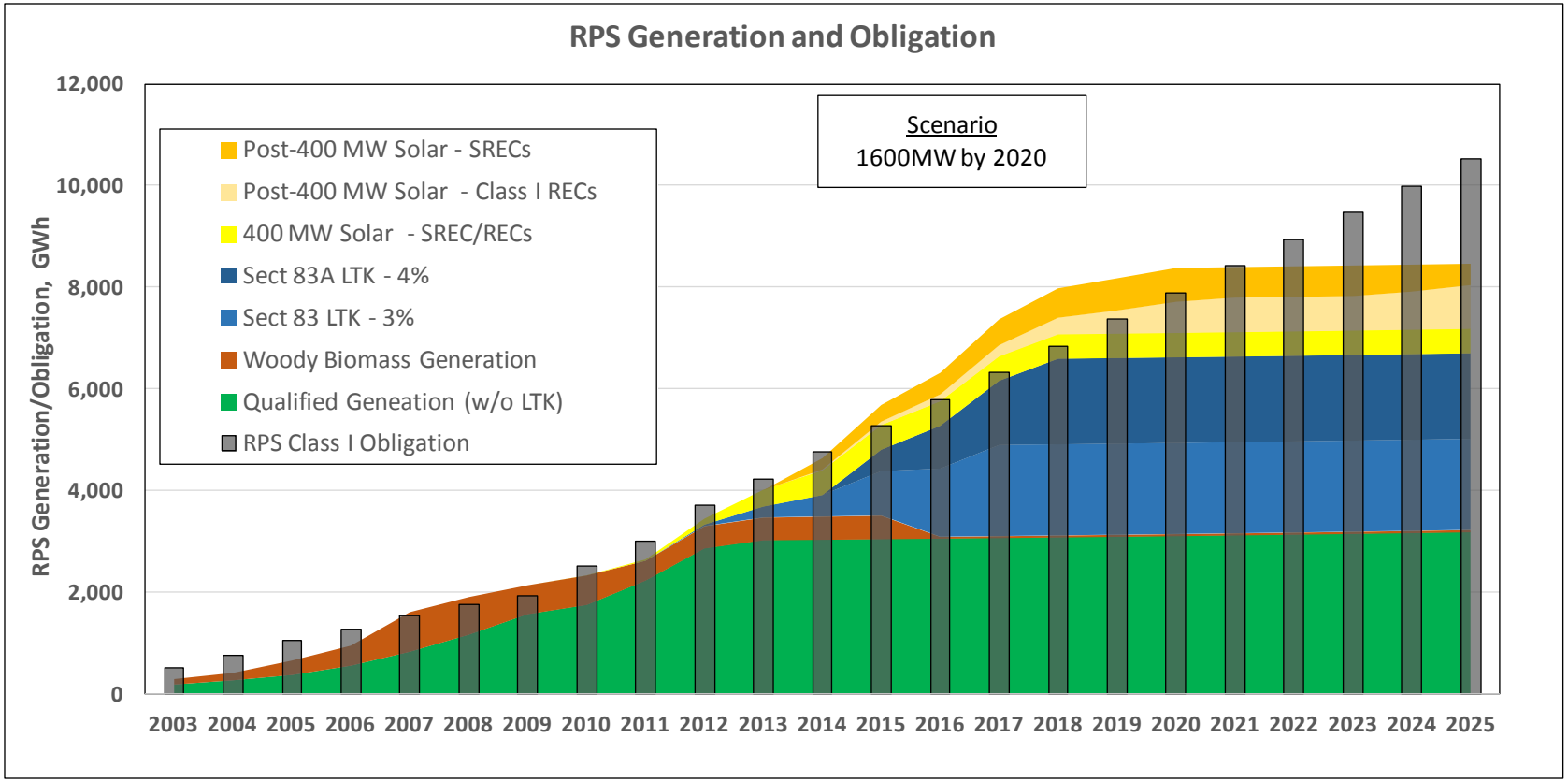
- To meet Governor's Goal, market needs to install 140 to 200 MW per year between 2014 and 2020.
- This installation rate is in keeping with 2012 installation rate, but does not maintain the accelerated market growth experienced in 2013.

RPS Class I Market Supply



Green Communities Act Section 83 and 83A LTKs will keep supply close to RPS Class I demand.

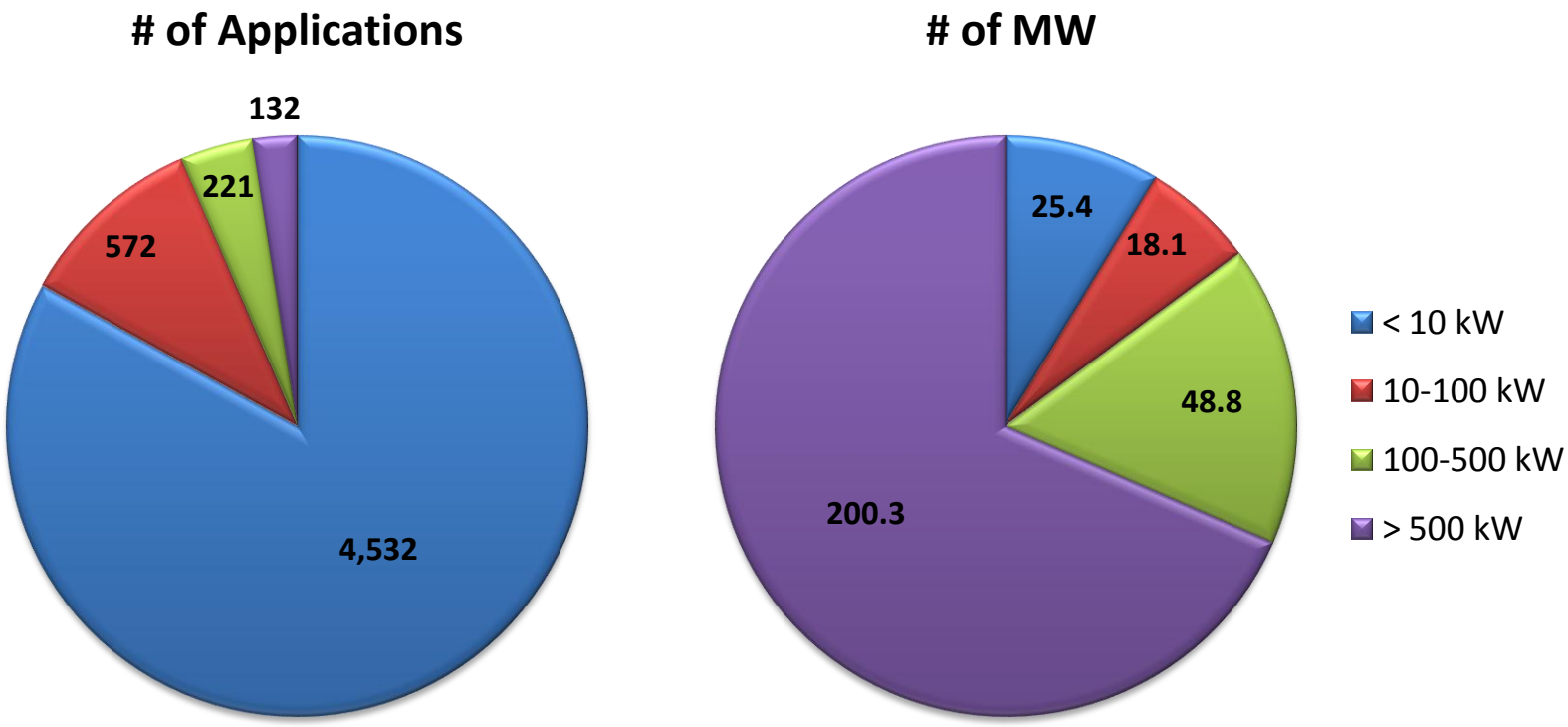
RPS Class I Market with Solar Carve-Out Generation



- RPS Solar Carve-Out has the potential to oversupply Class I market.
  - Depends on development timeframe of Section 83/83a LTK projects.
- Managed supply of Solar Supply will be necessary to protect Class I REC market.

Current Market Trends
System Size

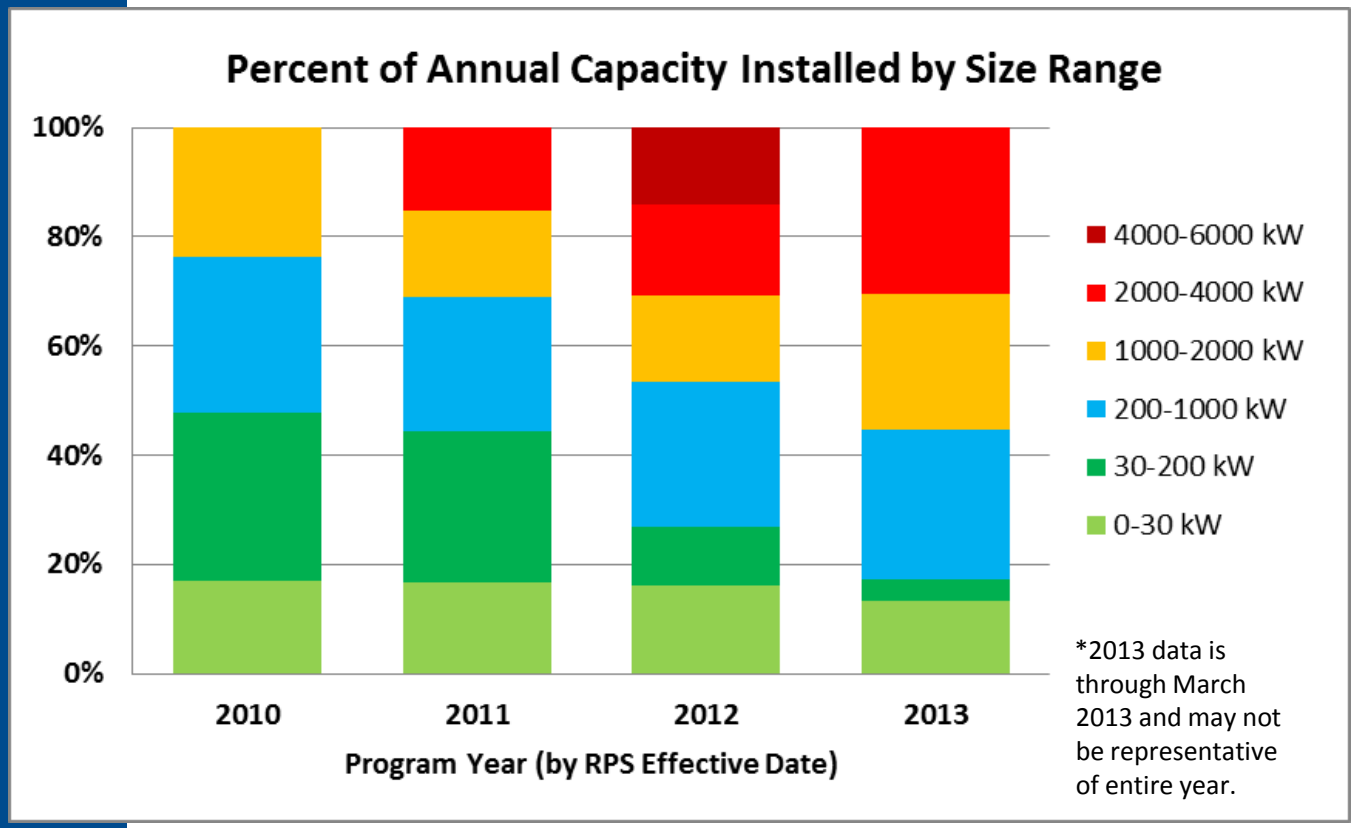
Current 400 MW Program Installations by System Size (through March 2013)



Small/Residential Market is very active in terms of numbers of installations.

Large systems dominate capacity installed and SRECs generated

400 MW Market Trend – by System Size



Market has been well distributed across size range.

Large systems represent a growing portion of the market each year.

PROPOSED POLICY DESIGN
RPS SOLAR CARVE-OUT – II

Key Design Features

- Post 400-MW program will create a new separate SREC market (SREC-II) with separate new compliance obligation on retail electricity suppliers.
- New Solar Carve-Out Program will set Program Cap of 1200 MW (or correspondingly less if SREC-I cap exceeds 400 MW).
- Financial incentive for solar projects will adjust as the market grows, and will differentiate between market sectors.
- Carve-Out projects will be "term limited", that is be eligible for SRECs for a fixed term (10 years), then moved over to Class I status.
- A separate but similar Solar Credit Clearinghouse Auction will provide a price support mechanism. All projects will have a fixed 10 year opt-in term.
- Compliance obligation will be set by formula to achieve 1200 MW by 2020 and to help maintain market balance.
- Program will institute "managed growth" provisions to throttle supply.
- DOER will carefully consider provisions to enable small/residential projects to opt into "Forward Minting" of SRECs to reduce SREC transaction costs and alleviate financing burden. (E.g. minting 10 years of estimated SREC generation at project start-up for "up-front" revenue stream.)

Regulating Incentive Value as the Market Expands

- With fixed-price Solar Clearinghouse Auction framework, SREC subsidy value remains constant across all qualified units and over time.
- DOER proposes a mechanism to reduce incentive value as the market expands and installation costs decline.

- Introduce **– *Adjusted SREC Factor***

CARVE-OUT GENERATION – ADJUSTED SREC FACTOR

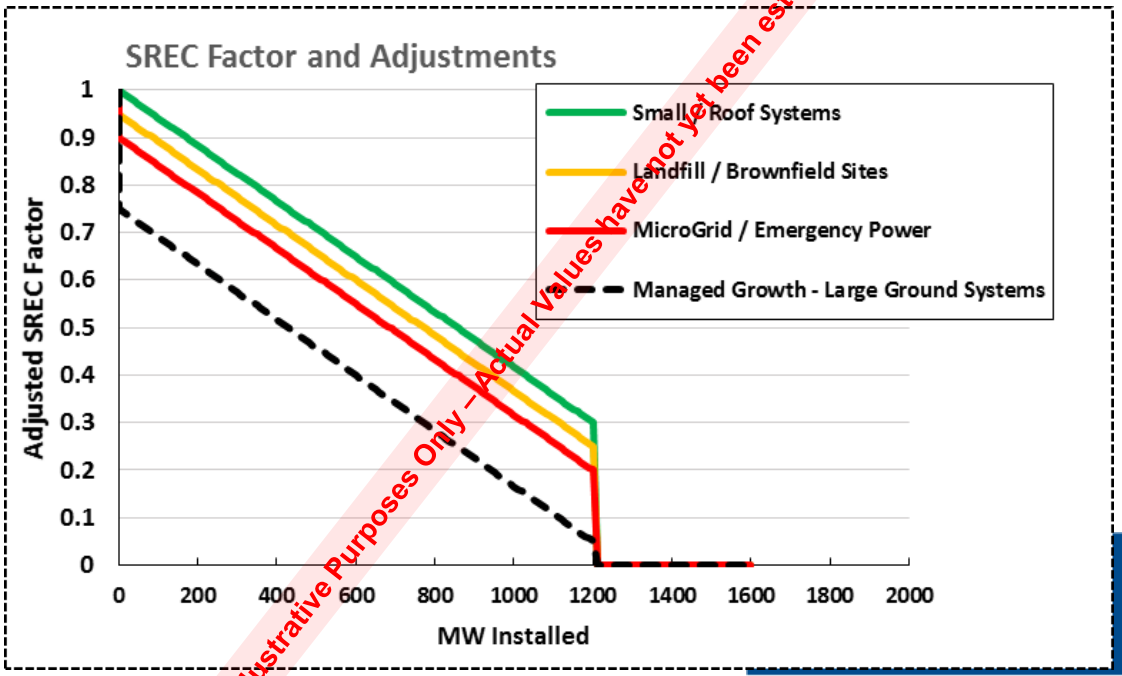
- For each MWh of generation, a Solar Carve-Out Unit generates the following attributes:
  - SRECs = 1 MWh x Adjusted SREC Factor
  - RPS Class I RECs = 1 MWh x (1 – Adjusted SREC Factor)

- SREC Factor declines gradually based on formula dependent on cumulative MW qualified. DOER regulation may provide discretion for DOER to make adjustments due to external changes (ITC, Net Metering, global markets, etc.)

- Declines towards 0 prior to end of new Carve-Out program.

- Decline of Solar Factor is gradual (non-step function) to reduce financial uncertainty and avoid market bumps.

- Current program does not discriminate incentive value by market sector. Adjusted SREC Factor will enable incentive differentiation, e.g. for small systems, or systems on Landfills.

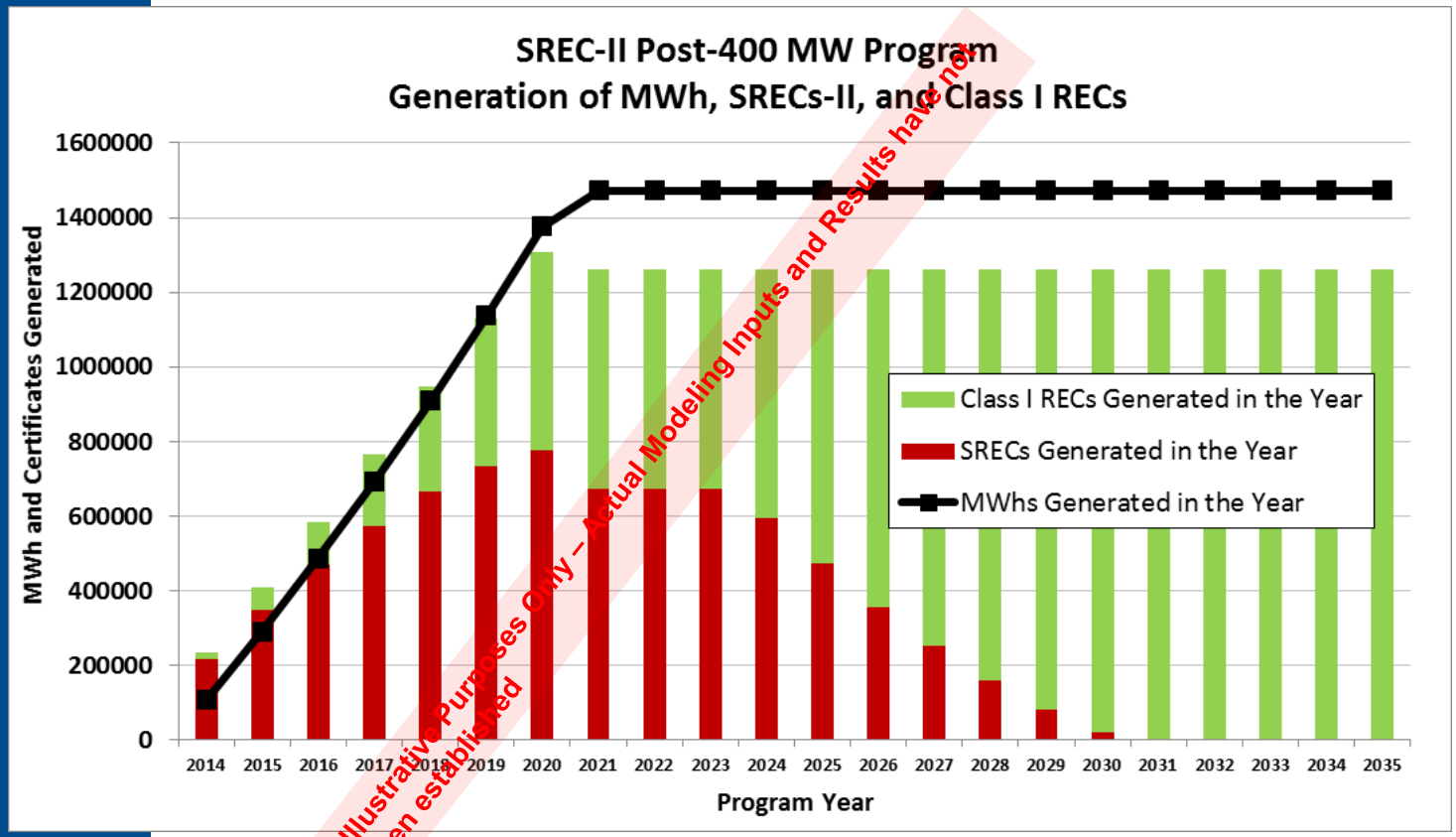


Adjusted SREC Factor Translates to Total Incentive Expected Value

- For example, assuming expected SREC and REC prices of $285 and $35, respectfully:
  - A large non-landfill ground mounted system installed as the 70th MW of the program, will receive an Adjusted SREC Factor of 0.7092, which translates to an expected SREC/REC incentive of $211/MWh.
  - A residential system installed as the 1030th MW of the program, will receive an Adjusted SREC Factor of 0.3992, which translates to an expected SREC/REC incentive of $132/MWh.

	Adjusted SREC Factors			Equivalent Incentive Value		
MW installed	Managed Growth - Large Ground	Small / Roof Systems	Landfill / Brownfield Sites	Managed Growth - Large Ground	Small / Roof Systems	Landfill / Brownfield Sites
0	0.7500	1.0000	0.9500	220	285	272
10	0.7442	0.9942	0.9442	220	284	271
20	0.7383	0.9883	0.9383	218	282	269
30	0.7325	0.9825	0.9325	217	281	268
40	0.7267	0.9767	0.9267	215	279	266
50	0.7208	0.9708	0.9208	214	278	265
60	0.7150	0.9650	0.9150	212	276	263
70	0.7092	0.9592	0.9092	211	275	262
80	0.7033	0.9533	0.9033	209	273	260
90	0.6975	0.9475	0.8975	208	272	259
100	0.6917	0.9417	0.8917	206	270	257
---	---	---	---	---	---	---
1000	0.1667	0.4167	0.3667	73	136	124
1010	0.1608	0.4108	0.3608	71	135	122
1020	0.1550	0.4050	0.3550	70	133	121
1030	0.1492	0.3992	0.3492	68	132	119
1040	0.1433	0.3933	0.3433	67	130	118
1050	0.1375	0.3875	0.3375	65	129	116
1060	0.1317	0.3817	0.3317	64	127	115
1070	0.1258	0.3758	0.3258	62	126	113
1080	0.1200	0.3700	0.3200	61	124	112
---	---	---	---	---	---	---

SREC Factor will Result in Supply of SREC-II and Class I Certificates



SREC-II supply will depend on the mix and vintage of qualified Units and their corresponding Adjusted SREC Factors, along with extent of Forward Minting.

Managing Solar Growth to Protect Class I REC Market and Sustain Solar Industry

- RPS Class I available capacity for Solar Carve-Out may be limited due to commitments to Class I generation through Section 83/83A LTKs.
- DOER will manage Solar Carve-Out supply by limiting (quarterly or annually) the available MW of qualifications extended to certain market sectors.
  - Unrestricted project installations include, but are not limited to, residential installations, roof mounted projects, projects on landfills/brownfields, projects serving microgrids or emergency power, any projects <200 kW.
  - Managed supply would come primarily from large ground mounted arrays not on landfills or brownfields. Managed supply will be qualified competitively based on criteria including, for example, price (applicants bid SREC Factor), and non-price criteria such as land use attributes, tree cutting, development timeline and likelihood of success, local benefits, etc.
- DOER expects this managed supply may also help mitigate public concerns raised over rapid expansion of PV on open lands.
- DOER expects this managed supply to enable more accurate projection of SREC supply. This will allow for annual adjustment of compliance obligation to better maintain market supply/demand balance and avoid unfettered market expansion and oversupply.

SREC-II Supply Transparency and Establishing the Compliance Obligation

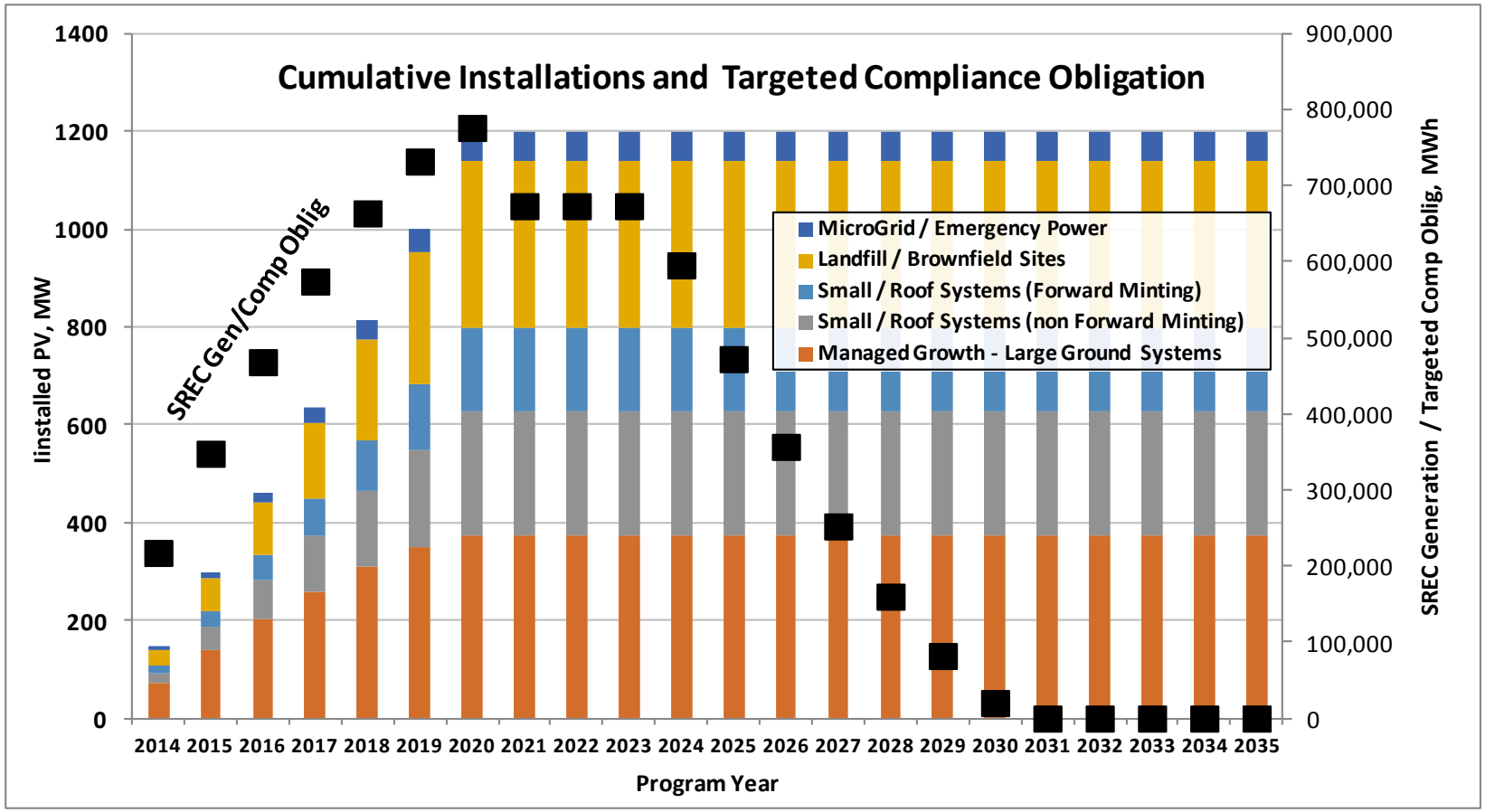
- Annual market supply of SRECs will depend on
  - cumulative solar installations
  - vintage of projects (as projects expire their 10-year SREC term limits)
  - declining SREC Factor, and distribution of projects by Adjusted sectors
  - possible forward minting.
- DOER will create public real-time database of qualified/operating projects with corresponding Adjusted SREC Factors.
- Annual Compliance Obligations will be established to support installation growth needed to achieve 1200 MW by 2020, with transparent methodology to account for actual SREC-II generation based on weighted average of Adjusted SREC Factor of installed fleet, forward minting, and balancing adjustments for annual Banking/Auction Volumes.

DETERMINATION OF ANNUAL SREC-II COMPLIANCE OBLIGATION

Compliance Year	Target Solar Installed	SREC-II Compliance Obligation	Notes
	MW	MWh	
2014	145	e.g. 275,000	Initial year obligations to be set by DOER in regulation.
2015	300	e.g. 400,000	
2016	462	By formula or public model that estimates projection of SREC-II generation based on target MWs installed within 10-year SREC-II term limit, weighted average Adjusted SREC Factor, Forward Minting units, plus volume of SREC-II Auction Deposits and banked Certificates in CY-2.	Compliance Obligation to be announced by DOER by August 30 of CY-1.
2017	634		
2018	814		
2019	1003		
2020 and beyond	1200		

For Illustrative Purposes Only – Actual Values have not yet been established

Example: Targeted Solar Installations and Calculated SREC-II Compliance Obligation



Creating A Cleaner Energy Future For the Commonwealth

DOER
Massachusetts Department of Energy Resources

SREC-II Alternative Compliance Rate Schedule

Given the size of the SREC-II market, DOER will need to substantially reduce the ACP Rates (compared to SREC-I market) to protect ratepayers during years of undersupply.

Proposed ACP Rate Schedule

Compliance Year	ACP Rate $/MWh
2014	375
2015	350
2016 and beyond	325

Other Policy Issues and Activities

Auction Mechanism – Firming the Floor

- Representative Calter – Bill filed (H. 2915)
- Requires that Distribution Utilities purchase any SRECs that remain un-cleared in final round of Clearinghouse Auction.
- Firm Floor substantially reduces investment risk and would justify reductions in SREC Factors and solar ACP rate.
  - Revisions of Factors/ACP may be necessary if Bill is decided after promulgation of new Carve-Out program.
- DOER and EEA are currently reviewing this Bill.

PROTECTING AGRICULTURE/FOREST LANDS

- Unmanaged use of agricultural and forest lands for solar installations is inconsistent with other state efforts and public interests to protect such land resources.
- Unmanaged solar expansion will further raise local issues and public scrutiny of solar policy and industry regarding use of agricultural land and cutting forests to install PV.
- DOER, in coordination with other state agencies, will consider policy options to manage and evaluate solar installations on agricultural and forest lands.

Residential Market – Ownership Models

- The residential market has seen a transformation from approximately 2/3 of systems being directly owned by homeowner, to 2/3 or higher now being owned by third-parties. This is consistent with national trends.
- Evidence suggests that value to MA homeowners and economy is greater if project and subsidy benefits accrue to local owners or investors.
- While third-party ownership has successfully extended reach of solar market and should remain an important part of the program, barriers to direct ownership financing has, in part, limited this ownership option to homeowners.
- DOER will look at options to enhance local financing for direct ownership customers apart from regulation. Solar Carve-out rules might support direct ownership by:
  - Providing higher SREC Adjustment Factor to direct ownership installations
  - Extend Forward Minting option to direct ownership only, or require that Forward Minted SREC-II accrue to homeowner.

Solar Policy Analysis – Consultant Support

DOER has contracted with a consulting team to provide technical support as the solar policy program is developed.

- Task 1. Evaluation of Current Solar Costs and Needed Incentive Levels across Sectors
- Task 2. Comparative Evaluation of Carve-out Policy with Other Policy Alternatives
- Task 3. Evaluation of the 400 MW Program's Success in Meeting Objectives, and Analysis of Economic Costs and Benefits of the Post-400 MW Solar Program
- Task 4. Comparative Regional Economic Impacts of Solar Ownership/Financing Alternatives

STAKEHOLDER COMMENTS

This presentation will be posted on DOER's web page pertaining to the *Post-400 MW Solar Policy Development*.

DOER is interested in receiving public comments on the proposed policy design. Please send your comments by June 21st.

Send your comments electronically to DOER.SREC@state.ma.us. In the Subject line, plus put "SREC-II Policy Design Comments".

We thank you for your continued input.