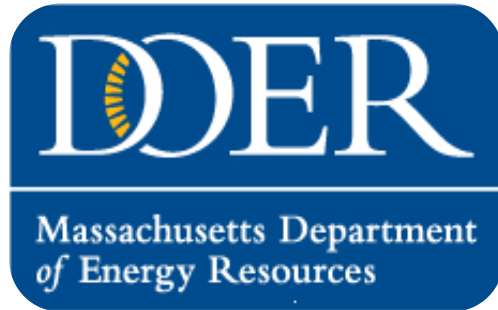


Creating A Clean, Affordable, and Resilient Energy Future For the Commonwealth



COMMONWEALTH OF MASSACHUSETTS

Charles D. Baker, Governor

Karyn E. Polito, Lt. Governor

Matthew A. Beaton, Secretary

Judith Judson, Commissioner

Next Generation Solar Incentive Stakeholder Meeting #7

December 15, 2016

Agenda

- Review of progress to date (30 minutes)
- On-bill crediting mechanism (30 minutes)
- Rate setting process and competitive procurement (1 hour)

DOER Solar Stakeholder Process

- Presented straw proposal to nearly 400 stakeholders on September 23rd
- Over 130 sets of comments totaling 600+ pages were received on proposal by October 28th deadline
- DOER established stakeholder engagement process at the beginning of October
- Established six working groups:
 1. Metering, Billing, and Crediting
 2. Application Review and Block Management
 3. Tariff Adders and Eligibility Criteria
 4. Land Use & Siting
 5. Energy Storage
 6. Tariff Design & DPU Process
- Have held 36 working group meetings since mid-October in addition to meetings with individual organizations or groups of organizations
- Over 100 different representatives have participated in the meetings
- Meetings have been very productive and have identified many areas of agreement
- Where agreement has not been reached, it has been beneficial for parties to have a forum in which they can freely exchange opinions

Next Steps

- Approaching the close of this engagement process and will soon move into the rulemaking
- Today will be the final large working group meeting
- DOER is finalizing its proposal and going through an internal review process
- We hope to issue a revised proposal in early January and file an emergency regulation shortly thereafter

Progress to Date

- Agreement on utilizing 3rd party administrator for program administration:
 - Application review and block management
 - Incentive calculation and payment
 - Independent verification of production data
- On-bill credit calculations for virtually metered systems will be performed by other entities and/or utilities
- RFP will be jointly issued by utilities shortly after regulations are filed
- Administrator expected to be capable of performing all functions by the time the tariff is approved by DPU

Metering and Reporting

- Metering
 - Two separate meters
 - Utility customer meter
 - Production meter
 - Utility will own production meter and will report data to administrator on a monthly basis
 - Technical requirements for meters still need to be refined, but would likely mirror existing standards
 - System owner may own redundant production meter if they choose to do so

Qualification Process and Criteria

- Qualification Criteria
 - Two levels of qualification
 - Block reservation (pre-interconnection)
 - Tariff enrollment (post-interconnection)
 - Basic qualification criteria will model MassACA and DOER Assurance of Qualification for projects above 25 kW:
 - Executed ISA, Site Control, Non-ministerial permits
 - Criteria for projects 25 kW and less will be modeled on Commonwealth Solar II Rebate
 - Executed turnkey contract with customer
 - Notice of complete interconnection application
 - All facilities will be required to submit authorization to interconnect and utility account information in order to enroll in program

Reservation Periods and Block Allocation

- Initial Reservation Period:
 - 12 months
- Extended Reservation Periods:
 - Indefinite for mechanical completion
 - 6-month legal challenge
 - 6-month one-time extension
 - How much should the fee for extending be? \$25/kW?
 - Exceptions for good cause
- Queue Order
 - First-come, first-served
 - Incomplete applications hold position until end of “cure period.”
 - Minimum of two weeks for cure period
- Block Allocation
 - Last project in gets blended rate.
 - If a project does not meet deadlines, it loses its reservation and current block is increased accordingly.
 - Minimum 20% set-aside for small (≤ 25 kW)
- Decrease between blocks
 - DOER has proposed a 3% reduction between blocks

Tariff Adders

- Location based adders:
 - DOER and MDAR to establish criteria for agricultural and canal canopies
 - Some discussion about including a rooftop + re-roof adder for rooftops that need to be replaced
- Off-taker based adders:
 - DOER has proposed including \$0.02/kWh adder for public projects
 - DOER has suggested minor modifications to proposed adders
- Policy based adders:
 - DOER has proposed eliminating the non-net metered adder
 - Only one variable adder for storage facilities

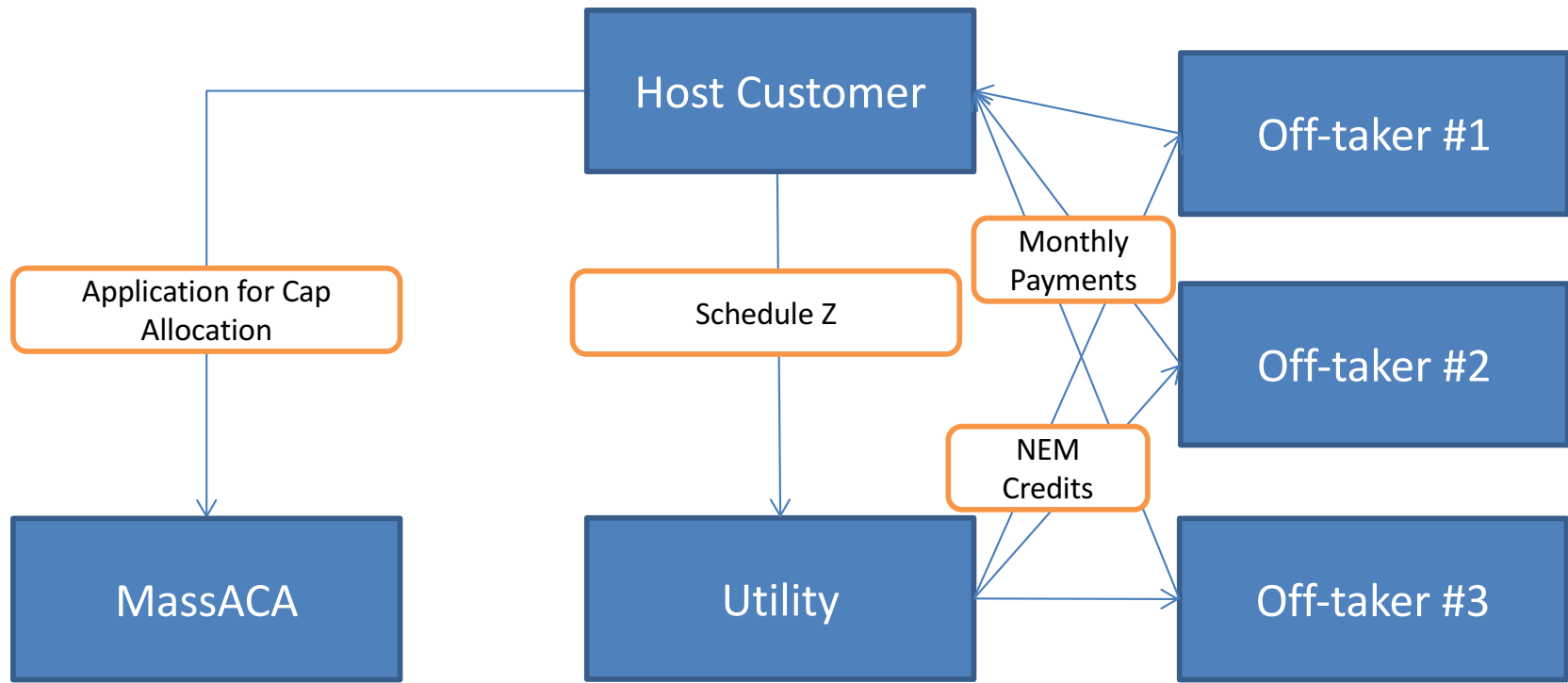
Treatment of MLPs

- MLPs indicated to DOER that they strongly opposed any mandatory obligations or requirements
- Initially opposed voluntary program as well, but several productive meetings have led to them expressing interest to work to create a framework for voluntary MLP solar program
- Broad interest in designing a program that will allow MLP participation
- Implementation will be staggered with tariff proceeding, with DOER re-opening its regulation to add MLP program components immediately after completing the emergency regulation to implement the tariff structure
- Rulemaking for MLP program will occur concurrently with the DPU tariff proceeding

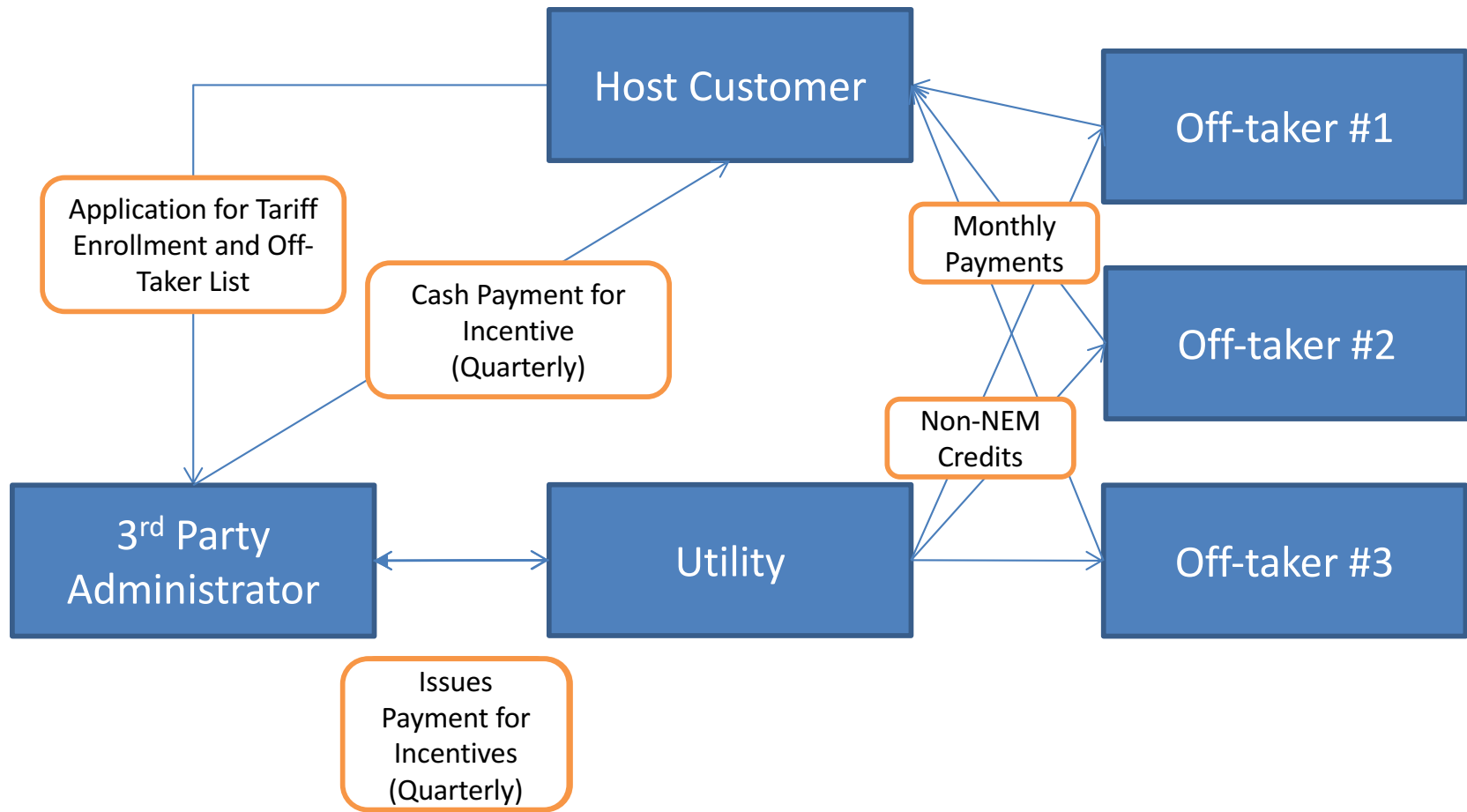
Solar Energy Compensation Rates

Facility Type	Compensation Rate	Term Length
Net Metered	1. Full NEM Credit Rate 2. Market NEM Credit Rate	1. 25 years (reverts to market NEM thereafter) 2. Indefinite
Non-Net Metered	Basic Service minus RPS?	Indefinite?
Qualifying Facility	Hourly market clearing price plus monthly market clearing price for capacity	Indefinite
ISO-NE Market Participant	Locational marginal price	Indefinite

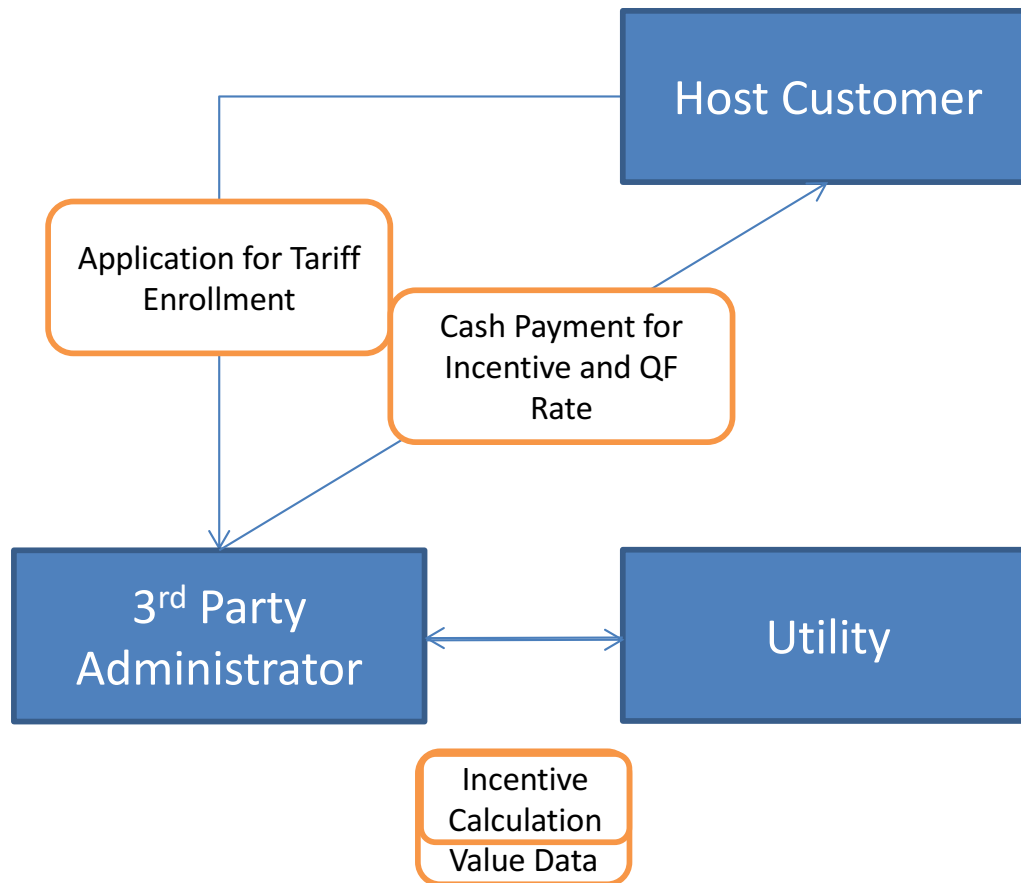
Net Metering Flow Chart



Non-Net Metering Flow Chart



QF Flow Chart



Implementation Questions

- Will need to be part of model tariff filed with DPU
- Is this feasible from a billing perspective?
 - How can the third-party administrator address utility concerns?
- What should the applicable rate be?
 - Basic service minus RPS?
 - Other?
- Should there be a limit on the number of credits that can be allocated?
 - For example, should annual kWh consumption determine the number of credits that a customer can receive? Or can customer have as many credits allocated as they want?
- Will credits carry forward indefinitely? Can they be cashed out?
- Does this apply only to “standalone” facilities?
- How long does the rate apply for?

Summary of Proposed Changes to Tariff Rate Structure

- Tariff term lengths for projects >25 kW increased from 15 to 20-years
- Base rates reduced
- Non-net metering adder removed
- \$0.02/kWh adder for public projects proposed
- Other adders modified
- Tariff rates differentiated between sized-to-load and standalone systems
 - Sized-to-load systems are any that are designed to meet 125% or less of the on-site load (three-year historical average or projections if data not available)
 - Standalone systems are those designed to meet more than 125% of the on-site load
- Sized-to-load system will receive flat tariff rates that do not take into account value of energy (i.e. no netting of energy value to determine incentive)
- Standalone systems will still receive incentive payments equal to the net value after energy value has been netted out of total tariff value

Additional Information

- Rates and adders were determined using values found in the “Effective Incentive Requirement” workbook produced by Sustainable Energy Advantage for DOER
- SEA’s modeling was used to derive all tariff rates with the exception of the building mounted, public, and storage adders
- The specific incentive requirement values used to derive the rates will be detailed in publicly provided workbook that will be posted to DOER’s website
- Building mounted and public adders are not necessarily reflective of incremental costs identified by SEA (although DOER believes that many such projects do cost incrementally more), but are reflective of DOER’s overall policy objectives of encouraging rooftop solar and public projects
- Storage adders were derived using cost/benefit data compiled as part of DOER’s *State of Charge* report

Illustrative Tariff Values for Standalone (>125% of Annual Load) Systems

Capacity Based Tariff Rates (kW AC)		
System Capacity	Incentive (\$/kWh)	Term Length
Less than or equal to 25 kW AC (Low Income) ¹	\$0.34	10-year
Less than or equal to 25 kW AC	\$0.29	10-year
>25 - 250 kW AC	\$0.23	20-year
>250 - 1,000 kW AC	\$0.17	20-year
>1,000 - 5,000 kW AC	\$0.14	20-year

1. Must be an R-2 customer to qualify

Note: These are proposed values and are not necessarily indicative of final tariff rates

Illustrative Tariff Values for Sized-to-Load (<=125% of Annual Load) Systems

Capacity Based Tariff Rates (kW AC)		
System Capacity	Incentive (\$/kWh)	Term Length
Less than or equal to 25 kW AC (Low Income) ¹	\$0.15	10-year
Less than or equal to 25 kW AC	\$0.10	10-year
>25 - 250 kW AC	\$0.05	20-year
>250 - 1,000 kW AC	\$0.05	20-year
>1,000 - 5,000 kW AC	\$0.05	20-year

1. Must be an R-2 customer to qualify

Note: These are proposed values and are not necessarily indicative of final tariff rates

Illustrative Tariff Adder Values

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

Off-taker Based Adders	
Type	Adder Value (\$/kWh)
Public Entity	\$0.02
Community Shared Solar (CSS)	\$0.06
Low Income Property Owner	\$0.03
Low Income CSS ¹	\$0.08

Policy Based Adders	
Type	Adder Value (\$/kWh)
Storage + PV	Variable

1. Must be at least 50% R-2 off-takers

Note: These are proposed values and are not necessarily indicative of final tariff rates

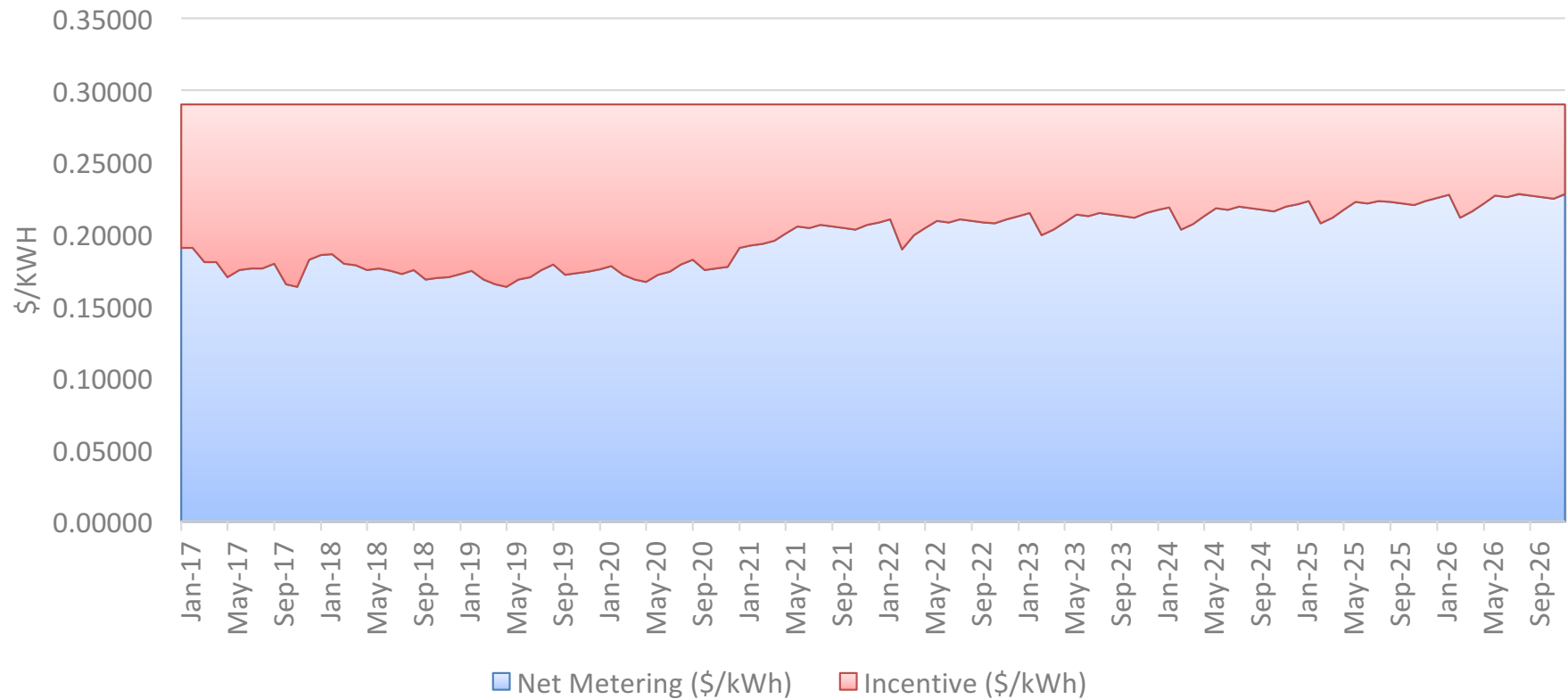
Solar + Storage Adder

- After reviewing Public Comments and Storage Stakeholder Discussions, DOER has created a proposed formula for a Storage Adder
- Adder is determined based on ratio of Power (kW) and energy (kWh, duration)
- Incentive levels were derived from *State of Charge* report data and represent values that address the revenue gap for storage projects, but deliver storage at a net benefit to ratepayer

Storage kW as % of Solar	Storage Hours @ Rated Capacity								
	Minimum				Maximum				
	2	2.5	3	3.5	4	4.5	5	5.5	6
25%	0.0274	0.0301	0.0323	0.0341	0.0357	0.0371	0.0384	0.0395	0.0406
30%	0.0356	0.0391	0.0419	0.0443	0.0464	0.0482	0.0499	0.0513	0.0527
35%	0.0425	0.0466	0.0500	0.0528	0.0553	0.0575	0.0594	0.0612	0.0628
40%	0.0476	0.0522	0.0560	0.0592	0.0619	0.0644	0.0666	0.0686	0.0704
45%	0.0511	0.0561	0.0601	0.0635	0.0665	0.0691	0.0715	0.0736	0.0756
50%	0.0534	0.0586	0.0628	0.0664	0.0695	0.0723	0.0747	0.0769	0.0790
55%	0.0549	0.0602	0.0646	0.0683	0.0714	0.0743	0.0768	0.0791	0.0811
60%	0.0558	0.0612	0.0657	0.0694	0.0727	0.0755	0.0781	0.0804	0.0825
65%	0.0564	0.0619	0.0663	0.0701	0.0734	0.0763	0.0789	0.0812	0.0834
70%	0.0567	0.0622	0.0668	0.0706	0.0739	0.0768	0.0794	0.0817	0.0839
75%	0.0569	0.0625	0.0670	0.0708	0.0742	0.0771	0.0797	0.0821	0.0842
80%	0.0571	0.0626	0.0672	0.0710	0.0743	0.0773	0.0799	0.0823	0.0844
85%	0.0572	0.0627	0.0673	0.0711	0.0745	0.0774	0.0800	0.0824	0.0846
90%	0.0572	0.0628	0.0674	0.0712	0.0745	0.0775	0.0801	0.0825	0.0847
95%	0.0573	0.0628	0.0674	0.0712	0.0746	0.0775	0.0802	0.0825	0.0847
100%	0.0573	0.0629	0.0674	0.0713	0.0746	0.0775	0.0802	0.0826	0.0847

Small System Tariff

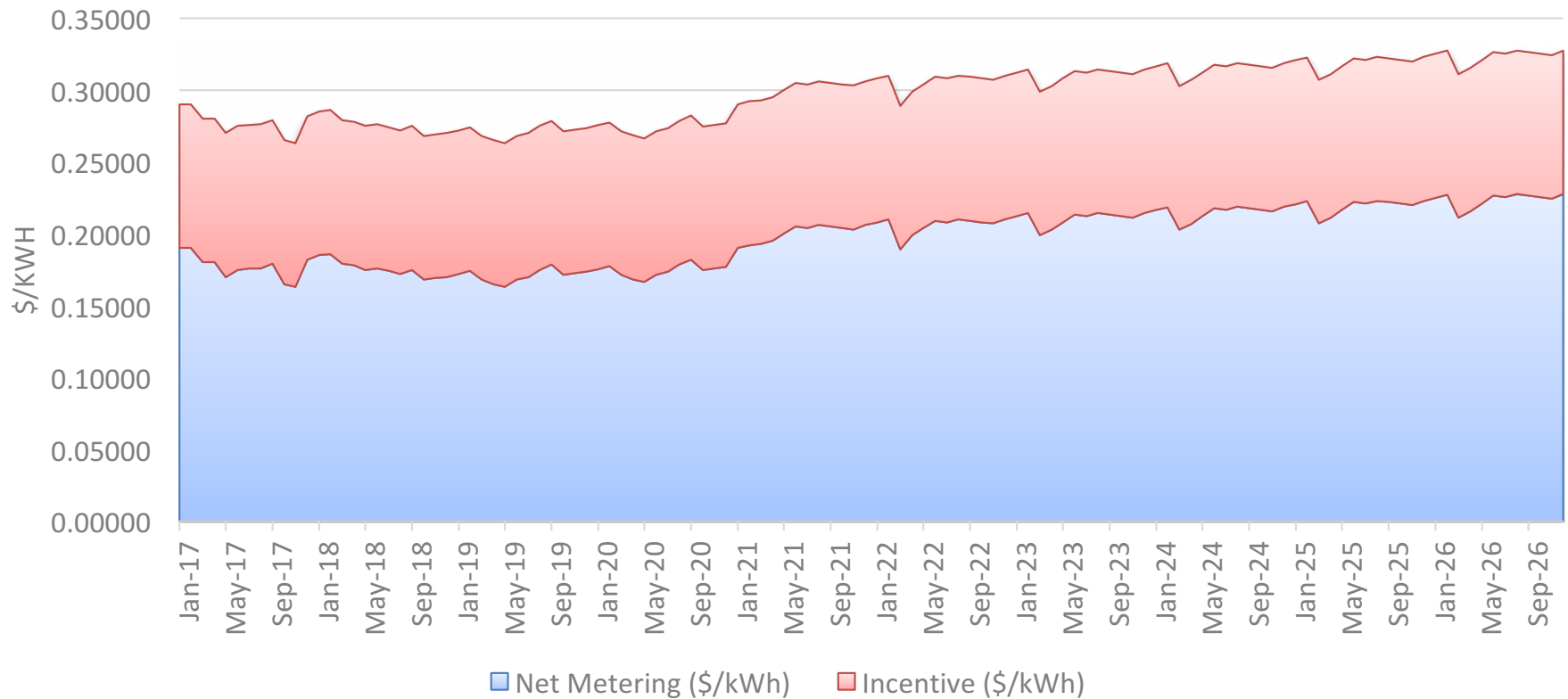
10-year Small NEM System (1-25 kW) Tariff Payments (>125% load)
(National Grid)



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

Small System Tariff

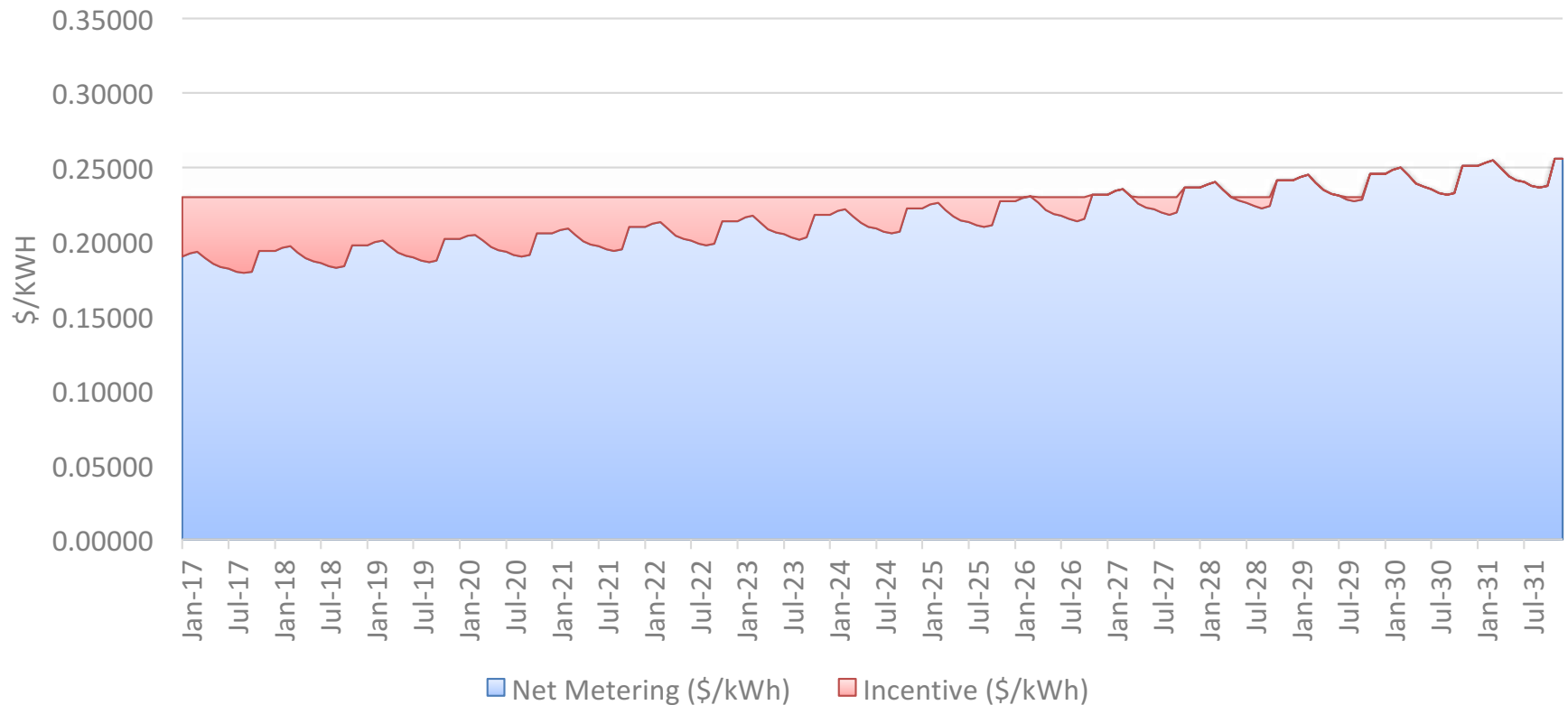
10-year Small NEM System (1-25 kW) Tariff Payments ($\leq 125\%$ load)
(National Grid)



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

Medium System Tariff (w/NEM)

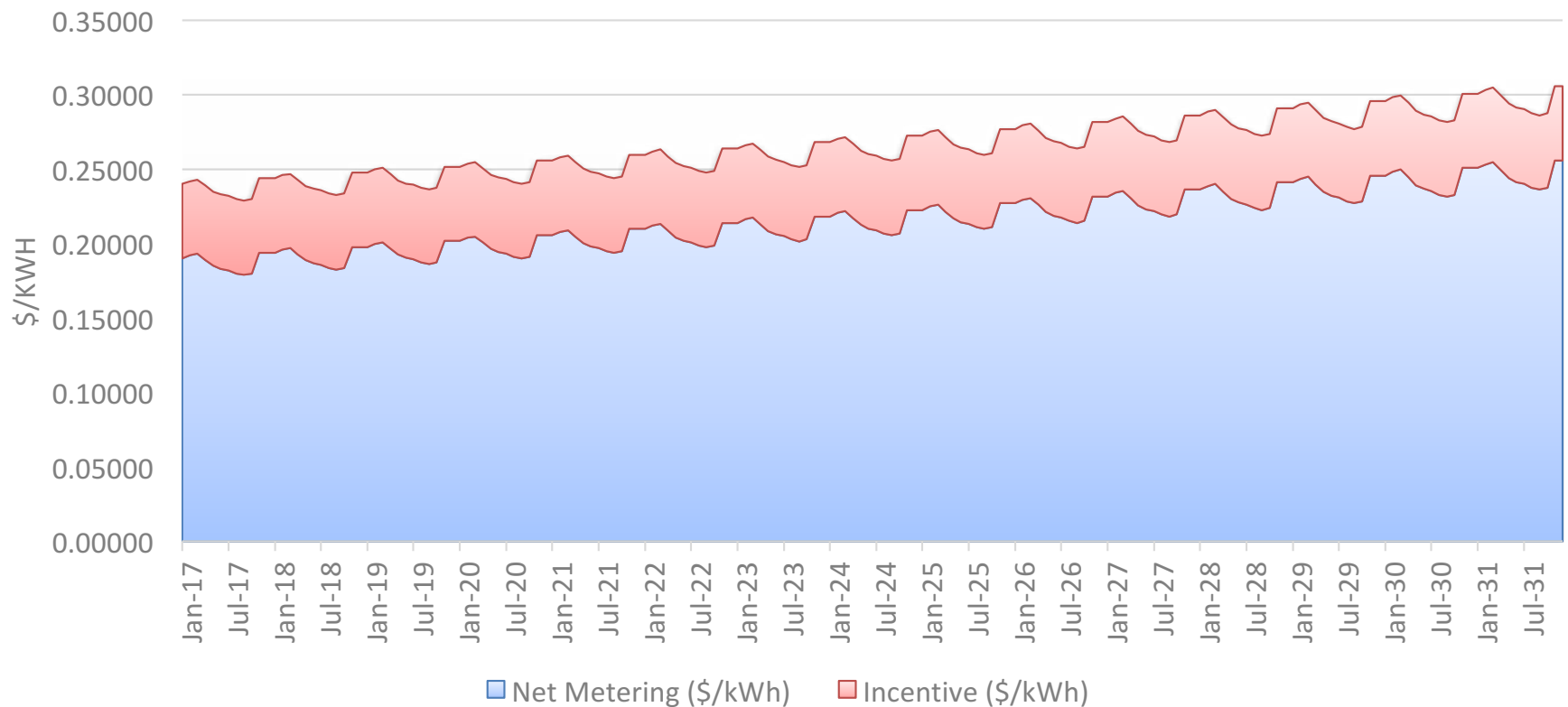
20-year NEM Medium System (25-250 kW) Tariff Payments
(>125% load)
(National Grid)



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

Medium System Tariff (w/NEM)

20-year NEM Medium System (25-250 kW) Tariff Payments
($\leq 125\%$ load)
(National Grid)



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