COMMENTS ON DOER SOLAR STRAWMAN PROPOSAL

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Standalone (Ahead Of The Meter)

1. Which “net metering” rate will be used?
   - Within a utility territory, more than one “net metering” rate may be used for standalone systems
     - E.g. Eversource – NEMA: A9 (General without Demand Meter) or B5 (Optional Time of Use)
   - Value of PV energy generated can vary by several cents / kWh depending on the rate
   - Rates may be subject to changes that could incentivize standalone PV to switch rate classes

Standalone (Ahead Of The Meter), cont..

2. Standalone net metering rate may exceed Tariff rate
   - E.g. Eversource-NEMA weighted-average standalone net metering rates have been in the $0.20 to $0.25 / kWh range.
     - Proposed *Illustrative Tariff Values* for > 250 kW-AC lower than net metering value
     - With any increase in delivered energy costs, standalone net metering rates likely to rise also
     - ***If net metering services are available, why would a PV participate in the new solar program if they expect the net metering rate to exceed the new tariff?***
   - If standalone net metering value exceeds tariff, there will be an incentive to install standalone PV over behind the meter PV
     - This does not appear consistent with the new program's goals

Standalone (Ahead Of The Meter), cont..

3. Incentive structure may complicate the terms in Power Purchase Agreements (PPAs)
   - Typical arrangement has been:
     - Developer keeps SRECs
     - Off-taker pays flat rate, or rate with preset escalation, to developer for 20 years
       - Known energy rate is a big PLUS!
     - Off-taker gets full benefit of net metering credits
   - Under proposed new program
     - When net metering rate goes up, the value of the incentive goes down
       - ***If a developer takes the incentive (e.g. like SRECs, now), how do they protect themselves from this risk?***
         - Indexed PPA rate? (Do Off-takerss loose the comfort of knowing what the rate will be?)
         - What if net metering rates (small commercial class) are modified (by DPU) substantially? How does the agreement deal with this situation?

Standalone (Ahead Of The Meter), cont..

4. Merchant PV vs. Off-taker PV
   - As the new program design caps the combined value of net metering, or sale to utility as a QF, and Incentive:
     - ***Why would a developer bother to negotiate a PPA with a municipality or other Off-taker?***
       - Assuming the value of the net metering credits does not exceed the Tariff.
       - The Tariff rate is the same under either case, but,
         - Under the PPA, the developer will need to share some of the benefits with the Off-taker (e.g. municipality)
           - Under a PPA a lengthy RFP proposal, contract negotiations, etc.. may be required
             - If sited on public land, a land-lease only agreement likely to be easier to obtain
         - As a QF, they can keep all of the benefits without the hassle/risk of securing a PPA agreement
   - ***Will solar with Off-takers (primarily public) for landfills, brownfields, parking lots, etc.. be a thing of the past***?
     - If so, does this endanger “community” and local support for solar?

Behind The Meter

1. Who owns the solar production meter?
   - The behind the [utility] meter, “meter”
     - Installed on customer side of electric system, prior to grid interconnection point
     - Measures solar generation prior to consumption by load
     - Frequently used with a Data Acquisition System (DAS) to report generation remotely and also track PV performance
   - If utility owned,
     - Will utility have meter accuracy requirements?
       - Would current meter / DAS vendors supporting the SREC market meet these requirements?
       - Could they integrate their DAS systems with the utility meter?
     - Will there be any liability concerns for the utility in having equipment on the customer side of the electric system?
     - Whose responsible for the accuracy, testing and calibration of the meter?
   - If customer owned,
     - What, if any meter requirements are there?
     - How do the utilities collect the meter data?

Behind The Meter, cont..

2. How does generation data get to the utility?
   - If meter is utility owned, utility meter reading system records generation
   - If meter is customer owned,
     - Production Tracking System (PTS)?
       - Currently used to track PV generation for SRECs
       - How does the utility access the information and link it to specific utility accounts for Incentive calculation and processing?
     - PTS/ NEPOOL-GIS
       - Like SREC market, aggregators buy rights to Incentive attribute from PV owners, aggregate generation, then sell to utilities.
       - The base electric rate associated with the PV will need to be tracked through the sales chain to establish the Incentive associated with the PV.
       - Does a new class of “attribute” need to be added to the GIS system to accommodate this? If so, how long would it take to get this set up?
   - What are the soft cost implications?

Behind The Meter, cont..

3. Special consideration for PV with storage
   - Systems with storage will have energy losses associated with storing and retrieving energy
     - To ensure storage PV systems are sufficiently incentivized, should a factor (e.g. X 1.1) be applied to the generation reported?
       - AC coupled storage systems may already have a solar production meter installed after the PV inverter but prior to storage, so no factor may be required
       - DC coupled systems
         - May experience significant loses prior to solar production meter
         - Some PV storage systems may require two (2) behind the meter, meters to accurately track generation, and manual calculation of the result (e.g. as currently experienced with Outback residential PV with storage systems)
   - Energy Resiliency (backup power) systems may require a higher incentive than Peak Shaving Systems
     - For energy resiliency the idea, is to keep the “tank” full to serve in an emergency
     - Peak shaving burns the tank during certain hours to save money and will likely achieve a higher value for each kWh of energy generated by the PV

Behind The Meter, cont..

4. What's the Base Rate?
   - For rate classes that have demand based T&D charges in lieu of energy based T&D charges, what is the rate to be used in the incentive calculation?
     - "All in" - i.e. total $ charges divided by kWh used in a month.
       - Would likely be unfair to those on utility commercial accounts
         - Max PV generation does not often occur at the peak demand time, thus rates that have T&D demand charges are not optimal for PV
           - PV can not capture full value of rate
           - As opposed to an energy (kWh) only rate
     - Supply only – i.e. does not include T&D charges
       - Conceptually easier, but would this meet the statewide program goal?
   - Adjustment for PV at sites that have a supply contract (e.g. energy choice)?
     - Energy rate may be substantially higher or lower than utility default rate
     - If supply and T&D bills not consolidated, how does utility get supply rate?
   - PV sited in municipal aggregation area?

Data Aggregation and Incentive Management

1. Who does the math?
   - For Standalone PV, utility has both the generation and net metering rate for a specific PV – meter and rate are linked together under the utility account
     - Can process of deriving incentive be automated, (e.g. [Tariff Rate – Net Metering Rate]* kWh) ?
     - If not, how many PVs will need to be manually calculated and processed each month?
   - For Behind The Meter PV
     - Could MassCEC do the math?
       - Generation data and utility rate need to be linked by someone
       - Does PTS track utility account numbers?
       - Could PTS track rate class?
2. Who cuts the checks to PV?
   - Utilities?
   - MassCEC on behalf of the utilities?
   - Aggregators (e.g. like current SREC brokers)?

Community Shared Solar

1. Comments on CSS Definition

- Per, “No more than two participants may receive electricity or net metering credits in excess of those produced annually by 25 kW AC capacity,”
  - Could be an ambiguous benchmark
    - How much energy (kWh) does the 25 kW-AC benchmark generate? What are the design details and equipment specifications? What generation projection tool should be used (e.g. PV Watts), what weather file?
      - Simpler approach perhaps: “No more than two participants may have a share that exceeds 25 kW AC of nominal rated inverter capacity as calculated by: Share(%) * Total Project Inverter Nominal Rated Capacity.
- Nitpick: as written, may be perceived as excluding some forms of CSS, e.g. when the net metering host customer is the “community”
  - Suggest modifying language to: “…in the form of formal ownership, a lease agreement, a retail supply contract, ***[power purchase agreement]*** or a net metering contract.”

Community Shared Solar, cont..

2. Comments on Retail Supply Contract Option
   - Is this CSS, or more akin to a green power program?
     - Is this the same as offerings currently available with a mix of wind, hydro and biomass? Except the technology is solar?
     - What is the “community” and how is the PV “shared?”
       - Power buyers co-op?
   - Will DOER promulgate minimum solar content requirements?
     - Will it always be possible to be 100% solar? (e.g. in winter months?)
     - If not, what’s an acceptable minimum content?
     - Could an offering that had 50% and 50% other renewables participate at a prorated (50%) level in the program?

Program Design Suggestions

1. Standalone Net Metering PV
   - Why bifurcate net metering and the incentive?
     - Total of the two is capped
     - Both have utility cost recovery
     - Doing the math of calculating the incentive adds cost / complexity
     - Simplify math: Value = energy (kWh) * Tariff Rate
   - Elective distribution of incentive
     - Host Customer decides what percent of value will be credited to electric bills (through a modified Schedule Z) and what portion will be paid in cash
       - E.g. customer wants 50% of value as a credit on electric bills, and 50% to go as cash to third-party PV owner
     - Should help simplify PPA / Net Metering Agreements and reduce administrative burden for the utilities, help program roll out sooner

Program Design Suggestions, cont...

2. Behind The Meter
   - To reduce administrative burden and soft costs, allow behind the meter PV a buyout option
     - One-time payment from utility to PV owner to purchase 10 years of Class 1 RECs (i.e. the Incentive payments)
     - PV generation is projected for 10 years (using a prescribed method) and utilities are able to claim the RECs associated with the generation in each year
     - Tariff set based on the expected cost of a behind the meter PV system and expected benefits with reasonable payback period
       - Tariff may vary by utility territory to account for lower or higher costs and benefits
       - Policy and other adders can be included
     - PV sites may be subject to audits or other means to verify generation, must maintain approved meter or means to track generation
     - Annual or bi-annual evaluation of program can determine whether actual generation is in line with projected generation
       - Meter reads from sample of PV sites sufficient for 80/20 confidence (or higher) used to document annual generation – approach similar to that used verify benefits of energy conservation programs
       - Results calibrated to account for insolation experienced during the year
       - If projections are higher or lower than actual generation, then projections can be adjusted as needed

Program Design Suggestions, cont...

2. Behind The Meter, cont..
   - Benefits of Incentive Buyout for Behind the Meter
     - Easy to adjust Tariff with each block or as needed to account for changes in the market
     - Incentivizes Behind the Meter versus Standalone (i.e. money now, instead of in the future)
     - Should reduce administrative burden and soft costs
       - No need to calculate the incentive on a monthly basis for each site
       - No metering or rate class issues to contend with
     - Should mesh nicely with Solarize programs and the Mass Solar Loan program
       - Lower loan amounts required – means less interest to pay
     - Faster program startup time – no need to construct business / metering / billing systems to get metering data to the utilities and process it
     - MLPs could readily utilize the program while proving funding for the PV in their territories
       - MLPs could set their own incentive levels
       - MLPs could accrue Class 1 RECs and sell them to recoup program costs
   - Income Tax implications
     - Program should be designed to allow the PV owner an option to treat the Buyout as non-taxable, or taxable, depending on which approach minimizes their taxes

Program Design Suggestions

3. Incentivize Off-Taker PV over Merchant PV
   - Why is an adder for non net-metered Standalone systems needed?
     - The structure of the Tariff appears to level the playing field between net-metered and non net-metered PV
       - Why is an adder needed?
     - Won't this encourage solar developers to sell power to the utility?
       - Why would they respond to an RFP released by a community?
         - More cost and hassle for less financial benefit
         - Why go behind the meter, if better value as Merchant PV?
     - No energy savings for communities?
       - No community participation?
       - Will solar be industrialized with no substantial community participation?
   - Suggestion – add requirement that to take the Adder there have to be Off-Takers in some form
     - Energy benefit needs to show up on an electric bill
   - Suggestion 2 – allow Behind the Meter PV to take an Adder if they aren't net metered
     - Not necessarily at the same level as for Standalone
     - Otherwise might incentivize Standalone over Behind the Meter when no net metering services are available
   - Nitpick: should the Chart on Slide 23 of the Straw Proposal (Large System Tariff (Qualifying Facility)actually show the Tariff at $0.20 instead of $0.15
     - $0.15 Base + $0.05 Adder