



July 11th, 2017

To: Massachusetts Department of Energy Resources
RE: SMART COMMENTS

From: Marko Rosenfeldt
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And
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Subject: SMART COMMENTS regarding Production Metering and Energy Storage
Calculation Guidelines

Dear DOER,

On behalf of Enphase Energy, we are submitting input for consideration into the 225 CMR 20:00 Solar Massachusetts Renewable Target (SMART) Program requirements around the following two topics.

1. Production Meter requirements
2. Energy Storage Guidelines

As a leading global Energy Solutions provider for renewable energy systems, Enphase solutions are deployed in more than 620,000 systems, of which approximately 5% are located in Massachusetts. Part of the Enphase Energy Solution are Microinverters for PV solar applications, AC Battery units for energy storage applications and revenue grade metering and control communication gateways for system management via the cloud-based Enlighten platform. Enphase Production Metering products already meet the ANSI C12 accuracy requirements of the SREC I / SREC II Programs and Class I RECs and we are partnered with PowerDash for MassCEC PTS reporting as well as Class I REC reporting into NEPOOL GIS.

1. Comments regarding Production Meter Requirements

Regarding Production Meter requirements from page 37 of the January 31, 2017 – SMART Final Program Design presentation <http://www.mass.gov/eea/docs/doer/rps-aps/final-program-design-1-31-17.pdf>,

Metering and Reporting

- Metering
 - Two separate meters
 - Utility customer meter
 - Production meter
 - Distribution company will own production meter and will report both production and utility meter data to program administrator on a monthly basis
 - Technical requirements for meters still need to be refined, but would likely mirror existing standards
 - Process will be established to ensure that production meter data can be accessed by the system owner
 - System owner may own redundant production meter if they choose to do so
 - Data Acquisition System (DAS) may be required for all systems

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Enphase is recommending against the distribution company owning the production meter. We request that the SMART Program accepts existing and alternative production metering solutions.

1. A distribution company-owned production meter would add a redundant production meter to PV systems in Massachusetts. Many Enphase PV systems already include ANSI C12 accuracy production meters and advanced solar and/or storage system functionality requires real-time metering, monitoring and control hardware. A redundant distribution company-owned production meter will add to overall system installation and hardware costs.
2. Allowing production meter specifications, and installation requirements to be defined by the distribution company that owns the meter, may introduce unnecessary and burdensome requirements for meter specifications, additional installation and inspection processes and overall increased system costs. Such meter requirements may not represent the most cost-effective solution available, and drive up solar system costs.
3. Production meter data access is typically required for a variety of needs independent of the utility/distribution company's or the SMART program's needs. For example, many financing arrangements such as leasing and Power Purchase Agreements require independent, revenue-grade production metering. If the utility/distribution company owns the production meter, that will either require a complex service relationship between the utility and the leasing/PPA provider or require the leasing/PPA provider to have redundant production metering and communications.
4. Monthly reporting basis is not an adequate reporting interval, as data must be available for the many different stakeholders on an as needed basis. Existing production metering solutions already included in PV systems today have online portal infrastructures that already provide a solution for near real-time production metering, as well as monthly production metering, and flexibility for data access to entities needing production data for financial or maintenance reasons at any given time.
5. With the trend of having an ANSI C12 accuracy production meter integrated into inverter manufacturer offerings (such as Enphase Envoy-S Metered and IQ Envoy), this proposed policy change of having the production meter be independent of the generation equipment is at odds with natural technology evolution in the marketplace. Having the production meter component as an integrated component is a cost-saving development, making solar more cost-effective and accessible generally.



6. With the increasing development of solar-plus-storage solutions, new service models may develop that would significantly alter the current relationships between solar system owners and distribution companies. In some of those scenarios, it may be cumbersome and perhaps a conflict of interest for a distribution company to serve as the primary production metering provider for the system owner.
7. If redundant production metering is required, that will increase the cost of solar for the installer and ultimately for the system owner -- which is an increase to both fixed costs (meter) and recurring costs (connectivity/service since cellular is standard now).

2. Comments regarding Energy Storage Guidelines

As an Energy Storage Solutions provider, we are glad to see the Energy Storage incentive adder. The proposed Operational Requirements, that the Energy Storage System must discharge at least 52 complete cycle equivalents per year, does not define when this is supposed to occur within the year or at what time of day. Therefore, the actual benefit that the storage solution provides is not defined. Enphase suggests the SMART program adds valuation for dispatched energy at some schedule beyond the already provided calculated incentive adder. For residential energy storage systems, this would incentivize storage solutions with long lifetimes and high cycle capabilities over storage solutions that may be used primarily for utility outage backup power and cycle the minimum required 52 times at random times, which has no value to the distribution company or rate payers incentivizing the SMART program. We would welcome residential energy storage valuation beyond backup, for distribution system resiliency and solar energy shifting.

For any questions about our comments, please contact Enphase Energy via email: mrosenfeldt@enphase.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'Marko Rosenfeldt'.

Marko Rosenfeldt
Sr. Manager Field Applications Engineering

A handwritten signature in black ink, appearing to read 'Mark Baldassari'.

Mark Baldassari
Director Codes and Standards