

**Executive Office of Energy and Environmental Affairs
Massachusetts Department of Energy Resources**

Green Communities Act Section 83A - Long Term Contract Carve-out

Determination of Eligible Technologies

October 23, 2013

With this determination the Massachusetts Department of Energy Resources (DOER) specifies which technologies meet the criteria of the carve-out of the long term contracts requirement pursuant to Section 83A of the Green Communities Act as amended by Chapter 209 of the Acts of 2012, Section 36.

A. Analysis of eligible technologies/projects

Projects seeking a long term contract under this carve-out need to be “newly developed, small, emerging or diverse renewable energy distributed generation facilities”, and more specifically need to meet the following criteria:

1. Qualify for the Massachusetts Renewable Portfolio Standard Class I.
2. Be located in the service territory of the utility. An energy project can only apply for a long term contract with the utility that services its location.
3. Have a nameplate capacity not larger than 6 MW. ISO New England defines¹ nameplate capacity as “the rating of a generator and a measure of its ability to produce electricity”. In the context of this determination, DOER specifies that the nameplate capacity will be (a) the rated AC capacity of the power generating installation or (b) in the case of co-firing or blending an RPS Class I eligible with an ineligible fuel, the capacity represented by the average annual portion of the total electrical output that qualifies as RPS Class I Renewable Generation. Note that in the latter case the entire Generation Unit must meet the requirements of an advanced biomass Power Conversion Technology as set forth in the RPS Class I².
4. Use a technology with less than 30 MW installed in MA before 4/1/2012.
5. Not be qualified for net metering services. A project can seek qualification as a net metering facility while simultaneously bidding for a long term contract under this carve-out. If the project is awarded a long term contract, it must demonstrate in writing it (a) withdrew its application for a cap allocation if the project doesn't currently receive net metering services, or (b) relinquished net metering services if the project is currently receiving net metering services.
6. Be a distributed generation facility. Distributed generation (DG) is any electricity generating technology installed by a customer or independent electricity producer that is connected at the distribution system level of the electric grid³.

The DOER analyzed installed capacity of the different renewable technologies in the table below. This analysis shows that criterion 4 excludes the following technologies: solar PV, wind turbines, hydroelectric and landfill gas. From the currently qualified technologies in the MA Renewable Portfolio Standard Class

¹ <http://www.iso-ne.com/support/training/glossary/index-p4.html>

² 225 CMR 14.05(1)(a)7

³ <https://sites.google.com/site/massdgc/home/frequently-asked-questions#question1>

I (RPS), the following technologies are not excluded based on criterion 4: anaerobic digestion and biomass. Furthermore, a number of Class I eligible renewable energy technologies currently have no projects qualified in MA, but may be considered for the list of eligible technologies. These are detailed below.

Technology/Resource	MA generation qualified before 4/1/2012 (MW) ⁴			
	Class I	SCO	Class II	Total
Solar Photovoltaic	19	70		89
Hydroelectric	7		43	50
Landfill Gas	44			44
Wind	43			43
Anaerobic Digester ⁵	19			19
Biomass	10			10

B. Technology Determination

The DOER determines the following list of technologies/resources **be eligible** to long term contracts required under the Section 83A Carve-out:

- Biogas from **anaerobic digestion (AD)**, pure or blended with landfill gas, provided blending increases the electricity generation of the AD facility and the landfill was previously unable to have a viable energy generation project absent the AD facility. The landfill gas contribution to the energy generated onsite has to be less than 50% of the onsite energy generation in any given year of the facilities’ operation. The project developer wishing to blend landfill and AD biogas will have to prove to DOER’s satisfaction that energy generation at the landfill was previously economically or technically unfeasible.
- **Biomass** energy using an RPS Class I eligible biomass fuel and with high Overall Efficiency to meet RPS Class I standards, in combined heat and power applications or deploying alternative technologies such as:
 - o Pyrolysis: thermal conversion (destruction) of organics in the absence of oxygen to produce mainly biofuels,
 - o Gasification: thermal conversion of organic materials at elevated temperature and reducing conditions to produce primarily permanent gases,
- **Marine or hydrokinetic energy**⁶, including but not limited to in-line hydro, tidal, current and wave energy.

⁴ Note that the date of RPS qualification is used as a proxy for the date of installation, except for the Solar Carve-out where the commercial operation date was used.

⁵ The MWRA Deer Island AD is rated 18 MW, but the effective use of digester gas in 2012 represented 2.7 MW (Nexant, January 2013). The steam generator was retrofitted after 4/1/2012 with a back pressure turbine, adding 1.1 MW to the installed capacity.

⁶ 225 CMR 14.02: “hydrokinetic energy: electrical energy derived from waves, tides and currents in oceans, estuaries and tidal areas; free-flowing water in rivers, lakes, streams, and human-made channels, provided that such water is not diverted, impounded, or dammed; or differentials in ocean temperature, called ocean thermal energy conversion.” If a man-made channel, built for a non-energy generating purpose, should take advantage of the free-flowing water in a generating unit, that unit should be considered to produce hydrokinetic energy.

- Emerging **run-of-river hydroelectric** technologies with direct passage of fish and other aquatic life and which do not use conventional water turbines.
- **Fuel cells** using biogas or another eligible RPS Class I Renewable Fuel.
- **Wind turbines**,
 - o having a nameplate capacity less than or equal to 99kW,
 - o or using an innovative or emerging design different from standard horizontal axis turbines (eg. airflow acceleration) to the extent that it has either already been tested as a prototype or is a scale-up of a previously deployed or field-tested technology,
 - o or a field verification for small offshore wind projects in state waters.
- **Solar thermal electric**: solar energy used to generate electricity by heating up a fluid.
- **Geothermal** energy to produce electricity using steam from reservoirs of hot water found a few miles or more below the Earth's surface.

Smart grid applications

DOER encourages the integration of grid modernization with the generation technologies above.

Projects can add a viable storage technology tied to the generating unit, additional grid communication capabilities or invest in the capacity to ride through grid outages, and thereby increase the value of their proposal by providing greater availability, power quality or resilience.

Other technologies

Other new technologies may be eligible on a case by case basis provided approval by DOER and provided they qualify under the analysis provided herein. Project proponents will have to demonstrate the viability of the technology and its application in Massachusetts to DOER's satisfaction.

C. Non-eligible technologies

Based on the criteria laid out in Section 83A of the Green Communities Act, the following technologies will not be eligible for the long term contract carve-out:

- Projects that qualified for net metering and use the net metering services concurrent with a Long Term Contract pursuant to the Section 83A,
- Projects with a nameplate capacity larger than 6 MW or using a technology that has more than 30 MW installed capacity in the Commonwealth prior to 4/1/2012,
- Solar PV,
- Hydroelectric projects using conventional water turbines,
- Landfill gas, unless they are unable to generate energy on their own, and by blending with biogas from anaerobic digestion can increase the energy generation of the AD facility,
- Onshore wind projects using standard horizontal axis turbines with a nameplate capacity of more than 99 kW.

D. Procedure for Request for Proposals

Per the statute, prior to December 31, 2016, Massachusetts Distribution Companies (Fitchburg Gas and Electric Company d/b/a/ Unitil, National Grid, NSTAR Electric Company and Western Massachusetts

Electric Company) must solicit proposals for long-term contracts with eligible renewable energy distributed generation facilities. Unlike the larger Section 83A process, each utility will contract for its own projects and contracts within their service territory. The contracts must represent 0.4% of the company's total energy demand. DOER and the Office of the Attorney General shall be consulted by the Companies regarding their contracting and solicitation methods. Prior to issuing a Request for Proposal, the timetable and method of solicitation must be approved by the Department of Public Utilities (220 CMR 21.04(6)).

If after a first round of RFP's the utilities did not get enough eligible proposals to fill the carve-out share, DOER may issue a Request for Information to identify potential new technologies or project types and use this information to help the utilities design subsequent rounds of RFP's.