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DRAFT **EMISSIONS OFFSETS FROM BRAYTON POINT STATION FOR** **OUTER CONTINENTAL SHELF WIND ENERGY PROJECTS**

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1. Purpose and Summary

The Massachusetts Department of Environmental Protection (MassDEP) proposes to credit nitrogen oxides (NO_x) and volatile organic compounds (VOC) emissions offsets based on the emissions reductions that resulted from the permanent shut-down of the former Brayton Point Station power plant in Somerset, Massachusetts, and make those offsets available for use in Outer Continental Shelf (OCS) air quality permits issued by the U.S. Environmental Protection Agency, Region 1 (EPA) for offshore wind energy projects for which Massachusetts is the designated Corresponding Onshore Area (COA).

On August 8, 2016, Governor Baker signed the Act to Promote Energy Diversity, which, among other important legislative elements, allows for the procurement of up to 1,600 megawatts of offshore wind energy by 2027. To facilitate the construction of offshore wind energy generation, Massachusetts has been partnering with the U.S. Bureau of Ocean Energy Management (BOEM) to establish leasing areas for wind energy on the OCS offshore Massachusetts. There currently are several wind energy projects planned in the BOEM lease areas. The renewable energy from these projects will reduce greenhouse gases and other pollutants by displacing fossil-based energy on the New England electrical grid.

Under EPA's OCS regulations, 40 CFR Part 55, these projects require EPA air quality permits, which may include emissions offsets, to account for pollutants that will be emitted by the project during construction and operation. Since it is a goal of Massachusetts to promote offshore wind energy, MassDEP proposes to credit emission offsets created from the shutdown of Brayton Point Station and make those offsets available for use in EPA OCS air quality permits for offshore wind energy projects for which Massachusetts is designated the COA.

2. Background

Section 328(a) of the Clean Air Act (CAA), 42 U.S.C. § 7627(a), requires EPA to establish air pollution control requirements for OCS sources¹ located within 25 miles of States' seaward boundaries that are the same as would be applicable if the source were located in the COA as defined by the CAA. In 1992, EPA promulgated 40 CFR Part 55, which established requirements to control air pollution from OCS sources in order to attain and maintain federal and state ambient air quality standards and to comply with the provisions of part C of title I of the CAA.

Because the requirements in 40 CFR Part 55 must be the same as would be applicable if an OCS source were located in the COA, which is generally the nearest onshore area, EPA must periodically update the OCS requirements to maintain consistency with onshore requirements. EPA accomplishes this by incorporating by reference the onshore regulations into 40 CFR Part 55 so that the state's air regulations become federally enforceable and apply to OCS sources. On November 13, 2018, EPA published a consistency update final rulemaking incorporating applicable sections of MassDEP's current air pollution control regulations, 310 CMR 7.00, into 40 CFR Part 55.² See 83 FR 56259.

Under section 172(c)(5) of the CAA, a state's implementation plan (SIP) must include provisions requiring permits for the construction and operation of new or modified major stationary sources when sources are located in a nonattainment area. In addition, under section 173 of the CAA, before the proponent of a new or modified major source can begin construction and operation, it must apply for and receive from the relevant permitting authority a nonattainment new source review (NNSR) permit and must offset its emissions. To comply with the CAA requirements, MassDEP adopted state nonattainment new source review (NNSR) regulations in 310 CMR 7.00: Appendix A (Appendix A). As required by Section 173 of the Clean Air Act, MassDEP's NNSR regulations require the permittee of a new or modified major source to comply with any offset requirements to cover the NO_x and VOC emissions from the new or modified major source.

Massachusetts is located in the Ozone Transport Region (OTR), which was established under Section 184 of the Clean Air Act. This means that any new or modified Massachusetts stationary source with potential to emit equal to or greater than 50 tons per year of NO_x or VOC is considered a "major stationary source"³ and is subject to the Massachusetts NNSR requirements under Appendix A, including the requirement to offset emissions.

¹ Outer Continental Shelf Source, as defined under 42 U.S.C. § 7627.

² EPA's action was taken in response to the submittal of a Notice of Intent under 40 CFR 55.4 on December 11, 2017 by Vineyard Wind, LLC.

³ 310 CMR 7.00: Appendix A(2) Definitions – Major Stationary Source means any stationary source of air pollutants which emits, or has the federal potential emissions greater than or equal to, 100 tpy or more of any pollutant subject to the regulation under the Act, except that lower emission thresholds shall apply as follows:

50 TPY of volatile organic compounds (VOC), or
50 TPY of oxides of nitrogen (NO_x).

As described above, EPA has incorporated MassDEP's Appendix A NNSR regulations into 40 CFR Part 55, and EPA applies them when permitting an OCS source for which Massachusetts is the COA and whose potential to emit is above the Appendix A major stationary source thresholds. As implemented by MassDEP for onshore projects, when calculating potential to emit under Appendix A, a major stationary source determination does not include emissions from the construction of a source or from mobile sources. However, when calculating potential to emit for an OCS source, Section 328(a)(4)(C) of the CAA and EPA's 40 CFR Part 55 regulations require the OCS to include construction emissions and vessel emissions to and from OCS sources within 25 miles of the source. Furthermore, 40 CFR Part 55 requires consideration of construction emissions and vessel emissions to and from OCS sources within 25 miles of the source, in addition to annual operation and maintenance emissions, when determining the quantity of emissions offsets required when Appendix A applies. Therefore, due to expected high levels of NO_x and VOC emissions from the vessels during the construction, operation and maintenance of a large wind energy project in the OCS, the potential to emit from the OCS source may exceed 50 tons per year of NO_x or VOC. If so, the project is considered a "major source" and will require an NNSR permit from EPA, including emissions offsets.

To assist with the offset requirement in Appendix A, MassDEP also adopted regulations in 310 CMR 7.00: Appendix B (Appendix B) that provide a mechanism for sources that voluntarily reduce NO_x and VOC emissions to create emission reduction credits (ERCs) that can be "banked" and transferred to sources undergoing NNSR permitting under Appendix A that need to obtain emissions offsets. The Appendix B regulations define two types of ERCs, Rate ERCs (tons per year, also referred to as "continuous") and Mass ERCs (tons, also referred to as "discrete"). Under Appendix A(6)(i), applicants seeking approval to construct a new major source have the option to use Appendix B ERCs as emissions offsets.

Since the promulgation of Appendix B in the 1990s, almost all new or modified major stationary sources of NO_x and VOC in Massachusetts required to obtain an NNSR permit under Appendix A have obtained Appendix B ERCs and used such ERCs to meet Appendix A's emissions offsets requirements. However, given the quantity of emissions offsets required for all of the planned wind energy projects located in the OCS offshore Massachusetts, the limited availability of ERCs may become a significant permitting barrier for EPA and wind energy proponents. Therefore, to increase the supply of emissions offsets, MassDEP proposes to credit emissions offsets created from the permanent shutdown of the Brayton Point Station, and make the offsets available for use when permitting OCS wind energy projects.

3. Proposal to Credit Emission Offsets

Pursuant to 310 CMR 7.00: Appendix A(6)(f), MassDEP proposes to credit NO_x and VOC emission offsets based on the emissions reductions achieved from the permanent shutdown of Brayton Point Station, One Brayton Point Road, Somerset, MA 02726.

MassDEP will make some of the resulting emissions offsets available for exclusive use in the OCS air quality permits issued by EPA for offshore wind energy projects for which Massachusetts is the designated COA, as necessary to comply with the air permit requirements under 40 CFR Part 55. MassDEP will keep records of the quantity of offsets credited from the

Brayton Point shutdown, the quantity of offsets used for each particular offshore wind energy OCS permit action, and the remaining balance available for future use. MassDEP will communicate in writing with EPA whenever offsets are assigned for use to satisfy NNSR offset requirements in an offshore wind energy OCS permit. For planning purposes, there are seven leasehold areas for offshore wind currently approved by BOEM. MassDEP will finalize an equitable allocation of offsets based on additional information developed during the EPA permitting process.

4. Authority to Credit Emission Offsets from the Shutdown of Brayton Point Station

In accordance with 310 CMR 7.00: Appendix A(6)(f)1, emissions reductions achieved by shutting down an existing source or curtailing production or operating hours below baseline levels generally may be credited as emissions offsets if such reductions are real, surplus, permanent, quantifiable and federally enforceable. In addition, the shutdown or curtailment is creditable if it occurred after December 31, 1990, and the following conditions⁴ have been met:

- a. MassDEP has submitted a completed emissions inventory as required by the Clean Air Act, § 182(a)(1); *See* 84 FR 7299
- b. MassDEP has submitted complete revisions to 310 CMR 7.00: Appendix A as required by the Clean Air Act, § 182(a)(2)(C); (this is a NNSR certification for the Duke's County nonattainment area for the 2008 ozone standard.)
- c. MassDEP submits the 15% VOC reduction plan required by the Clean Air Act, § 182(b)(1)(A); and
- d. MassDEP submits the attainment demonstration required by The Clean Air Act 182(c)(2).

MassDEP's proposal to credit emissions offsets created from Brayton Point's shutdown is consistent with the concept included in EPA's Emission Offset Interpretive Ruling at 40 CFR Part 51, Appendix S.⁵ *See* Subpart V of Appendix S, Administrative Procedures that allows states to propose emission offsets from emission reductions.

MassDEP is using the authority provided in Appendix A, to credit emissions offsets created from the permanent shutdown of Brayton Point Station. MassDEP has concluded that it is appropriate as a matter of state law to credit the emissions offsets under Appendix A and make them available for use by EPA in OCS air quality permit actions for offshore wind energy projects for which Massachusetts is designated the COA.

5. Brayton Point Station Closure

As of June 1, 2017, four steam electric generating units, emission units (EUs) 1, 2, 3, and 4, located at Brayton Point Station were permanently shut down. In correspondence dated June 19,

⁴ MassDEP has met all of the listed CAA requirements.

⁵ Appendix S does not apply in Massachusetts because the Commonwealth has a SIP-approved NNSR regulation; but Appendix S is referenced here to show that MassDEP's decision to make available Brayton Point's offsets resulting from the plant's shutdown is consistent with what states are permitted to do under the Clean Air Act.

2017, Brayton Point Energy submitted Retired Unit Exemption forms for EUs 1, 2, 3, and 4, notifying MassDEP and EPA that these units were permanently retired.

On October 18, 2017, Brayton Point Energy LLC requested that the Prevention of Significant Determination (PSD) Permit 052-120-MA14, issued on April 2, 2009 for the construction and operation of two natural draft cooling towers and PSD Permit 052-120-MA15, issued on October 7, 2009, for the construction and operation of a dry scrubber and fabric filter emission control system on Unit 3, be terminated. The shutdown also includes all EUs as defined in Table 1 of the Final Air Quality Operating Permit 4V04019 dated July 25, 2011 and identified in the October 18, 2017 correspondence.

On December 6, 2017, MassDEP revoked all Air Quality Plan Approvals and Air Quality Permits issued by MassDEP. This included all Plan Approvals, Operating Permit 4V04019 dated July 25, 2011, and PSD Permit 052-120-MA14, issued April 2, 2009, and PSD Permit 052-120-MA15, issued October 7, 2009.

Brayton Point Energy LLC elected not to apply to MassDEP for the creation of ERCs within six months from the permanent shut down of Brayton Point Station, the deadline specified in 310 CMR 7.00: Appendix B(3)(d)4.b.⁶

The facility was sold and the current owner is in the process of demolishing the existing structures and redeveloping the property for non-power-generation use.⁷

6. Crediting Emissions Offsets from Brayton Point Station Shutdown

As noted above, 310 CMR 7.00: Appendix A(6)(f) states that in order for emissions reductions from a facility shutdown to be creditable as emissions offsets, they must be real, surplus, permanent, quantifiable and federally enforceable. The emissions reductions from the shutdown of Brayton Point Station qualify as creditable emission offsets because they meet these criteria. The emissions reductions are:

- Real (i.e., reductions in actual emissions released into the air) – the shutdown of Brayton Point Station means actual NO_x and VOC emissions from the facility will no longer be emitted into the air, and only real reductions of NO_x and VOC emissions are being quantified as offsets. At this time, no reductions of other pollutants are being credited as offsets.
- Surplus (i.e., reductions below the baseline established for the eligible source) – Brayton Point Station voluntarily ceased operation and therefore the reductions of NO_x and VOC

⁶ Under 310 CMR 7.00: Appendix B(3)(d)4, if Brayton Point Energy had wanted to create ERCs, then it was required to submit an Emission Reduction Credit Application to MassDEP within six months of:

b. the approval date of a federally enforceable mechanism for prospective emission reductions other than 310 CMR 7.00 Appendix B(3).

⁷ see <http://www.cdcco.com/power-plant/brayton-point-power-station/> and <http://www.braytonpointcommercecenter.com/>

emissions were surplus of any federal, state or local regulations. The emissions reductions are below baseline because Brayton Point is no longer operating. Furthermore, the actual reported emissions and operating levels of the emission units were compared to past and future applicable requirements that establish allowable emissions levels for the emission units. The magnitude of the emissions reductions was determined using the lower of the allowable and actual emissions.

- Permanent – Brayton Point Station permanently ceased operations and all air permits have been revoked, thus all NO_x and VOC emissions reductions are permanent.
- Quantifiable –Prior to shutdown, NO_x emissions were quantified using a continuous emissions monitoring system in accordance with 40 CFR Part 75, which provides a replicable basis for calculating the amount of reductions. VOC emissions were calculated from fuel usage rates and reference emissions factors, and discounted using a Compliance Assurance Multiplier following the procedure in 310 CMR 7.00 Appendix B(3)(c)4.b. After the shutdown, the NO_x and VOC emissions are zero.
- Federally Enforceable - all air permits for Brayton Point Station have been revoked. That means the current owner of the property would need to obtain a new NNSR permit if it ever intended to build a new major source. Thus, the NO_x and VOC emissions reductions are federally enforceable.

Furthermore, in accordance with Appendix A(6)(f)1., the Brayton Point Station shutdown occurred after December 31, 1990 and MassDEP complied with all of the SIP requirements in Appendix A(6)(f)1.a-d. In addition, MassDEP has not relied on the reduction in emissions from the shutdown of Brayton Point for any other federally-mandated air quality planning requirement, such as a reasonable further progress plan, ozone attainment demonstration, or Regional Haze SIP. Instead, and consistent with existing authorities, MassDEP intends to rely on Brayton Point shutdown emissions offsets to be creditable toward emissions from offshore wind development, and specifically the offset requirements of a project's NNSR permit as opposed to accounting for these reductions in any federally-mandated air quality planning activities.

7. Type of Offsets Needed for OCS Wind Energy Projects

To date, EPA has permitted one OCS wind energy project for which Massachusetts is the designated COA. This was the Cape Wind project, which was never constructed. For that project, EPA required Cape Wind to obtain discrete NO_x emissions reductions (i.e., mass offsets) to offset projected construction emissions. Cape Wind obtained these emissions reductions in the form of mass ERCs from MassDEP's ERC Bank under 310 CMR 7.00, Appendix B. Cape Wind did not trigger the need for rate ERCs to cover the emissions from the ongoing operation of the OCS because the potential emissions from post-construction operation and maintenance were below the major source threshold.

Due to their much greater areal coverage and number of individual turbines compared to Cape Wind, the potential emissions for the ongoing operation of the currently planned offshore wind

energy projects will exceed the major source thresholds, and, therefore, require emissions offsets for ongoing operations, which can be satisfied by rate (i.e., tons per year) emissions offsets.

MassDEP is proposing to credit mass offsets and rate offsets from the Brayton Point Station shutdown. MassDEP also proposes to convert rate offsets to mass offsets using the quantitative process in 310 CMR 7.00 Appendix B, which includes:

- determining the “Remaining Useful Life” of the Brayton Point units, for the purpose of converting rate offsets to mass offsets, and
- subtracting the NEPOOL or successor organization marginal emission rate when converting rate offsets from an electric generating facility to mass offsets.

8. Calculation of Emissions Offsets

See Attachments 1 and 2