



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

DEVAL L. PATRICK
Governor

MAEVE VALLELY BARTLETT
Secretary

DAVID W. CASH
Commissioner

Background Information and Technical Support Document for:

310 CMR 7.75

Clean Energy Standard

Regulatory Authority

M.G.L. c. 111, sections 142A and 142B, and M.G.L. c. 21N

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This information is available in alternate format. Call Michelle Waters-Ekanem, Diversity Director, at 617-292-5751. TDD# 1-866-539-7622 or 1-617-574-6868

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I. INTRODUCTION

The Massachusetts Department of Environmental Protection (MassDEP) is proposing a new regulation to increase the percentage of electricity sold to consumers in Massachusetts that is generated using clean energy. The regulation, 310 CMR 7.75: *Clean Energy Standard (CES)*, would require retail electricity sellers to annually demonstrate the use of clean energy to generate a specified percentage of their electricity sales. For the purpose of implementing the CES, clean energy would be defined based on a threshold level of greenhouse gas (GHG) emissions, regardless of the technology used to generate the electricity. While renewable energy would qualify as clean energy, the primary purpose of the CES would be to encourage development of additional low and zero-emissions generation technologies that are not included in the existing Renewable Portfolio Standard program. To minimize regulatory burden, the regulation would allow flexibility with regard to the type of low or zero-emissions generation used to meet the standard.

II. BACKGROUND AND PURPOSE

Chapter 298 of the Acts of 2008, the Massachusetts Global Warming Solutions Act (GWSA), was passed by the legislature and signed into law by Governor Patrick in August 2008 to address the challenges of climate change and seize opportunities to lower energy costs and grow the clean energy sector. The GWSA requires Massachusetts to plan for, and achieve, emission reductions of 80% from 1990 levels by 2050. In 2010, as required by the GWSA, the Secretary of the Massachusetts Executive Office of Energy and Environmental Affairs established an interim target of 25% reductions for 2020, and issued the Massachusetts Clean Energy and Climate Plan for 2020 (CECP). The CES would implement the *Clean Energy Performance Standard* strategy included in the CECP.¹ The purpose of the CES is to reduce Massachusetts' reliance on fossil fuel fired electric power plants by increasing the use of clean energy to generate electricity. As emissions from combustion of fossil fuels at electric power plants are a significant fraction of Massachusetts' total GHG emissions, the CES will contribute to achieving the emission reductions required by the GWSA. The CES will also support efforts to reduce emissions from the transportation sector by providing clean electricity that can be used to power electric vehicles.

In order to facilitate stakeholder engagement, MassDEP created a web page to house materials related to the CES. Unless otherwise noted, references cited in this document, along with other background materials, are available on this web page. The web address is:
<http://www.mass.gov/eea/agencies/massdep/climate-energy/climate/ghg/ces.html>.

Massachusetts' primary clean energy program is the Department of Energy Resources' (DOER's) Renewable Portfolio Standard (RPS). The RPS requires delivery of increasing percentages of renewable energy to electricity customers of Massachusetts. The proposed CES draws on DOER's experience implementing RPS, and is designed to be compatible with, and complementary to, RPS. In particular, while the CES would be similar to RPS in that it would require the delivery of clean energy, it would differ from RPS in that it would rely on an

¹ Available, along with other reference materials, at <http://www.mass.gov/eea/agencies/massdep/climate-energy/climate/ghg/ces.html>.

emissions-based performance standard to identify eligible technologies. As all RPS-eligible technologies meet the emissions-based CES qualification requirement, all RPS-eligible technologies will qualify as clean energy under the CES. However, the CES includes additional clean generation technologies that are not eligible for RPS, such as large hydroelectric generators, and will therefore ensure support for all technologies that have the potential to contribute to the emission reduction requirements of the GWSA.

Like RPS, the proposed CES allows the use of clean energy generated outside of Massachusetts for compliance, consistent with the GWSA requirement to address emissions that occur when electricity is used in Massachusetts, regardless of where the electricity is generated. This approach is also consistent with MassDEP's GHG reporting program for retail electricity sellers, which requires revision to ensure that emissions reports fully reflect the impact of the CES on GHG emissions. Proposed revisions to those regulations are included in this package.

Key sources of information used to develop this proposal, available on MassDEP's web site, include:

- The description of a *Clean Energy Performance Standard* included in the CECP. This description states: "A market-based framework is needed to provide a clear signal to the electricity market to improve upon the cleaner energy portfolios of the last few years. One approach to be considered is a CPS [Clean Energy Performance Standard], which would require electricity suppliers to favor lower- and no-emissions sources in the mix of electricity delivered to their customers."
- The study titled *A Clean Energy Standard for Massachusetts*, prepared by Synapse Energy Economics for Massachusetts energy and environmental agencies in 2013. This report identifies an RPS-like "share of sales" requirement as the most viable CES design option and includes technical conclusions that have informed the development of the CES.

In order to learn more about stakeholder perspectives of the CES, MassDEP shared a discussion draft of the proposed regulation with stakeholders in October 2014. On October 27, MassDEP held a stakeholder meeting to discuss the CES. Approximately 125 stakeholders, including private citizens, and representatives of companies, municipalities, industry associations, and advocacy groups attended the meeting. Approximately 60 written comments were submitted by stakeholders after the meeting, and MassDEP met separately with several stakeholders to discuss the proposal. MassDEP also collaborated extensively with DOER and the Massachusetts Department of Public Utilities (DPU) in developing this regulation. Information and perspectives provided during and after the October 27 meeting informed this proposal.

At the stakeholder meeting, MassDEP requested input on four key questions. These questions are summarized below, along with MassDEP's proposed approach to addressing them and a summary of some of the most widely held stakeholder views. Several commenters also commented more broadly on costs and benefits of a CES. These comments ranged from general support for using a CES to support clean energy to general opposition based on concerns about potential costs and effectiveness. Additional detail regarding stakeholder comments is provided in subsequent sections of this document.

- Applicability: MassDEP is proposing to include all retail electricity sellers, including municipal light plants (MLPs), in the CES. Stakeholders differ on whether MLPs should be included in the CES. While some stakeholders support inclusion of MLPs, representatives of MLPs generally oppose their inclusion, citing costs and asserting that MassDEP does not have legal authority to include MLPs in a CES. MassDEP is proposing to include MLPs in the CES because inclusion of MLPs, which account for approximately 15% of electricity sales in Massachusetts, is most consistent with the GWSA requirement to reduce statewide GHG emissions from all sources. MassDEP also notes that including MLPs in the CES will decrease any per-kWh impacts by spreading the requirement across a larger number of electricity consumers, as documented in the Synapse study referenced above.
- Eligible Clean Technologies: MassDEP is proposing an emission threshold that would likely allow the following technologies to qualify: large hydroelectric generators, nuclear power plants, and power plants with carbon capture and sequestration technology. Many stakeholders that commented on this question argued strongly against the inclusion of nuclear energy, citing concerns about risk, toxicity, waste disposal, and thermal pollution. A significant number of these stakeholders advocated for the exclusion of any technology not included in the RPS program. MassDEP is not proposing to exclude any particular technology that meets the emissions-based threshold from the CES. The Green Communities Act of 2008² established a mandated minimum level of renewable energy in 2050 of approximately 50%, an amount that is clearly not sufficient to deliver the 80% emission reductions by 2050 required by the GWSA. MassDEP's other key regulatory program for the electric power sector, the Regional Greenhouse Gas Initiative, provides a broad, technology-neutral incentive to develop technologies with lower GHG emissions. Similarly, the United States Environmental Protection Agency's proposed Clean Power Plan,³ which MassDEP strongly supports, allows the use of technologies beyond those included in Massachusetts' RPS program to reduce GHG emissions. A broad, technology-neutral emissions-based qualification standard appears most consistent with these statutes and programs, and also has the potential to lower costs by facilitating competition among qualifying technologies. With regard to nuclear power, MassDEP notes that, as discussed below, the CES, as proposed, would not allow existing nuclear power plants to qualify. MassDEP also notes that the CES will allow the use of RPS-qualified resources for compliance with the CES, thereby providing an additional incentive to develop renewable resources and enhancing the degree to which the CES complements the RPS.
- Eligibility of Existing Generators MassDEP is not proposing to include existing generators in the CES at this time, even if they meet the emissions-based threshold. There are several reasons for this. First, including existing generators could result in "resource shuffling." (Resource shuffling, as documented in the Synapse study, refers to the shifting of contractual arrangements to reflect additional clean energy purchases without any corresponding change in generation or emissions.) Second, including existing generators would result in "windfall profits" for some or all existing generators, and associated costs to ratepayers. (Windfall profits, as discussed in the Synapse study, are

² The Green Communities Act can be found at: <https://malegislature.gov/Laws/SessionLaws/Acts/2008/Chapter169>

³ See <http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule>.

profits that result when already profitable activities, such as continued operation of existing power plants, are subsidized at ratepayer expense.) Third, existing ownership and contractual relationships between MLPs and existing low and zero-emissions generators may complicate options for addressing existing generators. Fourth, as noted above, a large number of stakeholders objected to including existing nuclear power plants in the CES. On the other hand, MassDEP recognizes the important role that existing generators play in providing large amounts of low and zero-emissions electricity to consumers in Massachusetts, and notes that several commenters provided suggestions for addressing some of the concerns described above. Therefore, to allow additional time for consideration of this issue, MassDEP is proposing a regulatory requirement for MassDEP to review options for addressing existing low and zero-emissions generators in the CES in 2016.

- Stringency. Many stakeholders commented on the need for additional clean electricity to address the long-term requirements of the GWSA, which will necessitate a near complete cessation of using conventional fossil fuel-fired power plants by 2050. As discussed in detail below, MassDEP is proposing an approach to setting the percentage of clean energy required for each year that ensures this result while acknowledging the need to adjust the required rate of growth for consistency with changing circumstances.

MassDEP welcomes comments on all aspects of the proposed CES regulation, including those described above.

III. DESCRIPTION OF THE PROPOSED REGULATION

The proposed regulation would require retail electricity sellers to annually procure clean energy credits (CECs, referred to as “clean energy attributes” in the proposed regulation), denominated in MWh, corresponding to a percentage of electricity sales (the “standard”). Because of the many similarities between the CES and RPS, MassDEP is proposing regulatory language for the CES that is, in many cases, identical to language used in the RPS regulation. Using similar language will ensure that the CES will be fully compatible with the RPS, and simplify compliance for retail sellers that are subject to both programs. Reviewers unfamiliar with the RPS program and regulation should review information about RPS available on DOER’s web site.⁴

A. Applicability

The regulation would apply to all retail electricity sellers in Massachusetts, including investor-owned distribution companies, competitive suppliers, and MLPs. The CES would apply to the same companies and MLPs that currently report GHG emissions to MassDEP pursuant to 310 CMR 7.71(9). The regulation would also apply to any clean energy generators that choose to apply to create CECs, including generators outside of Massachusetts.

B. Requirements for Retail Electricity Sellers

Compliance

⁴ Available at <http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/rps-aps/>.

MassDEP is proposing to require retail electricity sellers to comply with the CES using CECs. The number of CECs that would be required each year would be calculated by multiplying the annual electricity sales for the year by the standard for the year. Creation, transfer, and submission of CECs would occur within the same NEPOOL-GIS⁵ tracking system that is used to track renewable energy credits (RECs) used to comply with RPS. This system has worked well for the RPS program for years and can easily be adapted for the CES. Any RECs used to comply with Massachusetts RPS Class I requirements would also count toward compliance with the CES. (RPS Class I is the component of the RPS program that supports construction of new renewable energy generation.)

2020 – 2050 Standard Setting

MassDEP is proposing to set the standard for 2015 – 2050 as described below. In general terms, the primary basis for setting the standard will be anticipated resource availability by 2020, but the regulation will also include a mechanism for annual review and calibration of the standard to ensure the availability of enough clean energy to allow for the complete phase-out of fossil fuel-fired generation by 2050. In order to ensure that the CES complements the RPS, the RPS percentage requirement of 15% of load in 2020 with 1% annual increases thereafter is explicitly considered in setting the standard. In all cases, percentages are rounded to the nearest 1%.

- In order to allow sufficient time for project development, MassDEP is not proposing to require delivery of new clean energy before 2020 beyond that required to comply with RPS. However, for years 2015 – 2019, MassDEP is proposing to use the RPS Class I requirement for that year (i.e., 10% for 2015, 11% for 2016, 12% for 2017, 13% for 2018, and 14% for 2019) as the standard. This will provide a basis for setting the 2025 – 2029 standard (as described below), and allow for creation of CECs (beginning in 2018) that may be banked and used for compliance with standards in effect for 2020 and later years.
- For 2020 -2024, MassDEP is proposing a standard of 30% plus the RPS Class I requirement for the year (i.e., 45% for 2020, 46% for 2021, 47% for 2022, 48% for 2023, and 49% for 2024). 30% is the percentage of additional clean electricity projected to be available for use in Massachusetts by 2020 after full implementation of the *Clean Energy Imports* strategy included in the CECP, adjusted upward based on more recent information. Specifically, the CECP, which was finalized in 2010, refers to the construction of a new 1200 MW power line that “will bring to New England enough inexpensive clean power to serve up to 15 percent of Massachusetts’ present electricity demand.”⁶ More recent research completed for DOER addressed the potential for an additional 1200 MW line by 2020.⁷ MassDEP derived the 30% by doubling the 15% figure provided in the CECP to account for the potential construction of two new

⁵ <http://www.nepoolgis.com>

⁶ *Massachusetts Clean Energy and Climate Plan for 2020*, p. 45.

⁷ *Memorandum: Incremental Benefits and Costs of Large-Scale Hydroelectric Energy Imports*, Synapse Energy Economics, 2013.

transmission lines instead of one, as well as the potential for development of additional wind energy resources.⁸

- For each year after 2024, MassDEP will, beginning in 2015, annually establish the standard for the year ten years in the future (i.e., the 2025 standard will be established in 2015). Prior to establishing the standard for each year, MassDEP will publish a proposed standard and allow time for public comment. The standard will be determined by completing the following calculation:
 1. Determine the percentage of electricity sold to customers in Massachusetts that was generated using fossil fuels, as reflected in the most recently available statewide GHG inventory published pursuant to the GWSA.⁹
 2. Divide the percentage determined pursuant to step 1 by the number of years remaining until 2050. The result of this calculation is the required annual increase in clean energy, expressed as a percentage of electricity sales.
 3. Multiply this annual rate of increase by 10 for use in setting the standard 10 years in the future. This is the amount of additional clean energy that will be required in year 10, expressed as a percentage of electricity sales.
 4. Add the amount of clean energy determined in step 3 to the current standard. For years 2025 – 2029 only, add an additional 30% to adjust for the 2020 standard.

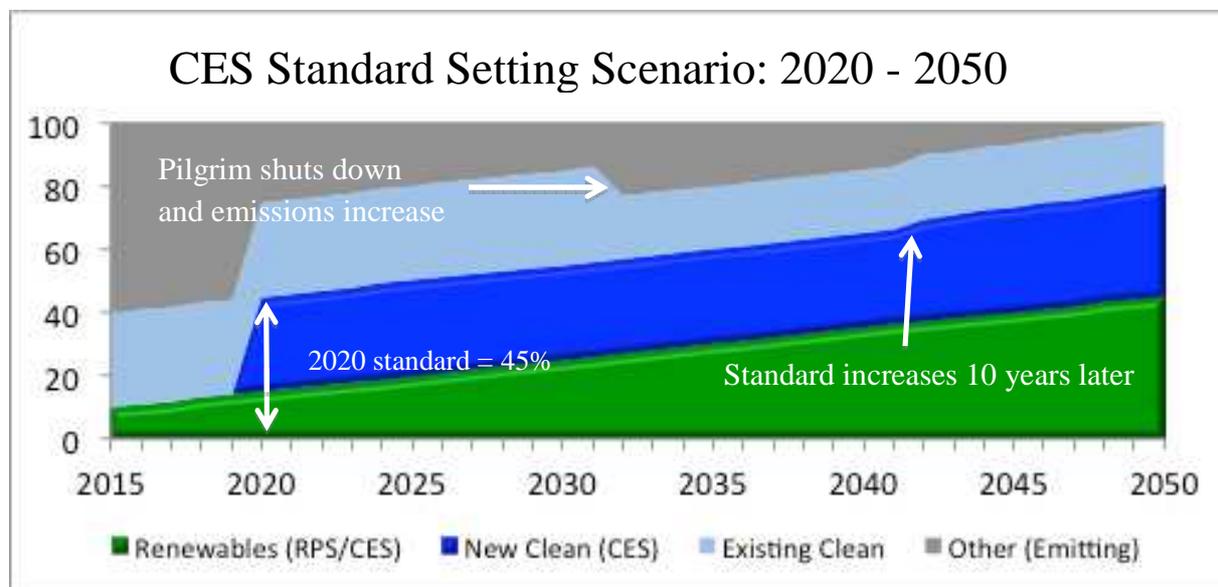
If the result of the calculation above is greater than the standard in place for the prior year, then this will become the new standard. If not, the standard will not change from the prior year. To ensure ongoing support for clean energy resources, the standard will not decrease from year to year, regardless of the result of the calculation. As discussed below, the ability to bank RECs provides compliance flexibility, particularly with regard to the 2020 standard, as the availability of one new transmission line is anticipated by 2018.

The following figure shows how the CES standard could evolve over time based on this standard-setting approach. The figure is illustrative only, and is based on very simplified assumptions, such as constant electric demand and 1:1 substitution of clean generation for fossil fuel generation. In particular, the figure shows how the proposed approach could compensate ten years later for increased fossil fuel fired generation that could, for example, occur if the Pilgrim nuclear power plant were to shut down at the date of expiration of its current operating license in 2032. The proposed approach would similarly compensate for other changes that may affect electricity generation, such as load growth that results in increased emissions from fossil fuel-fired power plants. The figure reflects contributions of various energy sources, as reflected in

⁸ The potential for additional wind energy development is discussed in: *Global Warming Solutions Act: 5-Year Progress Report*, p. 43.

⁹ The emissions tracking approach that MassDEP uses for the purposes of reporting and inventorying GHG emissions from the generation of electricity used to serve load in Massachusetts can be adapted to serve this purpose. The approach assumes that all electricity generated in Massachusetts is delivered to customers in Massachusetts (because Massachusetts imports electricity) and assigns MWh from exporting states and Canada to Massachusetts based on a formula that considers the balance between generation and load in each state.

MassDEP's statewide GHG inventory.¹⁰ In the figure, existing clean energy includes non-RPS low and zero-emissions generating sources reflected in the GHG inventory, including nuclear power plants in Massachusetts and New Hampshire (which exports electricity to Massachusetts), and hydroelectric power imported from Canada.



MassDEP requests comment on all aspects of this approach to standard setting, including but not limited to:

- The basis for the 2020 standard.
- Whether the approach should explicitly allow for the continued operation of some amount of fossil fuel-fired generation in 2050 (e.g., 5%).
- Whether a limit on the annual rate of increase (e.g., 3%) would be appropriate.
- Whether a multi-year average (or minimum) amount of fossil fuel-fired generation should be used to address anomalous events such as temporary nuclear power plant shutdowns.
- Whether setting the standard five years in advance, instead of ten, would allow sufficient time for project development.
- Whether standard review process could be completed less frequently, such as once every three years.

Distribution companies and competitive suppliers will be required to comply with the schedule above in each year.

Because MLPs are not included in the RPS program, the standard will be established somewhat differently for MLPs, as described below. In 2050, consistent with the GWSA requirement to address all electricity emissions, MLPs will be required to deliver the same percentage of clean energy as all other retail sellers. However, because MLPs are not subject to the RPS program, and are therefore not currently required to deliver renewable energy that can count toward CES

¹⁰ The GHG inventory is available at <http://www.mass.gov/eea/agencies/massdep/climate-energy/climate/ghg/greenhouse-gas-ghg-emissions-in-massachusetts.html>.

compliance, the 2020 standard will be adjusted downward for MLPs by subtracting out the RPS component of the non-MLP standard. A gradual phase-in of the full CES requirement will occur between 2020 and 2050.

The proposed compliance schedule for MLPs is:

- For 2018 – 2019, a standard of zero will be used for the sole purpose of allowing MLPs to create and bank CECs.
- For 2020, the standard will be 30%, equal to the amount of non-RPS eligible clean energy projected to be available in 2020.
- For 2021 – 2050, the standard will be equal to the standard specified above for distribution companies and competitive suppliers, except that it will be reduced by an amount equal to the following fractions of the RPS Class I requirement for that year: 2021: 29/30; 2022: 28/30; 2023: 27/30; etc., until the standard is fully in effect for MLPs in 2050.

Alternatively, MassDEP requests comment on whether the standard for MLPs should always be discounted by the full amount of the RPS standard for the year. For example, under this approach if the CES in 2050 is 80%, and the RPS Class I requirement is 45%, MLPs would be allowed to acquire 35% of the electricity that they sell from fossil fuel-fired power plants.

MassDEP is aware that some MLPs have ownership and contractual relationships with low and zero-emissions generation sources, including relationships that allow MLPs to sell RECs to electricity sellers that are subject to RPS. To address this situation, MassDEP is proposing to allow MLPs to subtract MWh associated with these contractual and ownership interests from the calculation of the number of CECs required for compliance, provided that that the MWh are not associated with RECs sold for use to comply with RPS or any other similar program. As discussed below, MassDEP intends to study the broader issue of treatment of existing low and zero-emissions resources in 2016. For the purpose of completing this calculation, low and zero-emissions resources not associated with RECs would include only MWhs generated by nuclear power plants and hydroelectric resources that are not eligible for RPS, consistent with what has been reported to MassDEP by MLPs under MassDEP's GHG emissions reporting program. MassDEP is not proposing to allow subtraction of MWhs for which RECs have been sold to third parties to avoid double counting of the non-emitting attributes of these MWh, but seeks comment on whether this is the correct approach.

This standard-setting process will ensure compliance with the 2020 and 2050 emissions targets established pursuant to GWSA, provide a long term market signal to support clean energy development, and be compatible with the RPS program, including with regard to MLPs.

Compliance Flexibility

MassDEP also recognizes the need to provide an alternative compliance payment (ACP) option to allow electricity sellers to comply with the CES if the number of CECs available in a particular year is insufficient to allow full compliance using CECs. MassDEP is proposing to set the ACP amount equal to 50% of the RPS ACP amount for each year. Setting the ACP at 50% of the RPS Class I ACP amount will establish a consistent relationship between corresponding

components of the two programs and send a clear market signal that renewable energy remains the preferred source of clean energy. MassDEP proposes to use ACP payments to further the Commonwealth's climate adaptation and mitigation goals.

To provide additional flexibility beyond that afforded by the ACP option and banking provisions (discussed below), MassDEP is seeking comment on whether multi-year compliance periods would be appropriate or necessary for the CES.

C. Eligible Clean Energy Generators

MassDEP proposes to qualify electricity generators for the CES using an emissions-based threshold. Specifically, MassDEP would adopt an identical threshold to the one used by DOER to qualify biomass fueled generators for the RPS program: generators would be required to demonstrate emissions at least 50% lower than the most efficient natural gas-fired power plant on a lifecycle basis. MassDEP would make the determination on a case-by case basis, but anticipates that the following non-RPS eligible technologies may qualify:

- New large hydroelectric generators.
- New nuclear power plants.
- New fossil fuel-fired power plants that use carbon capture and sequestration (CCS) to reduce emissions to the required level.

This list of potentially qualifying technologies is consistent with research reviewed by the Intergovernmental Panel on Climate Change (IPCC), which has published estimates of lifecycle emissions of various generation technologies.¹¹ The IPCC lists a range of estimates for each technology. For nuclear power, the maximum listed estimate is less than one third of the minimum estimate for natural gas, and the median estimates differ by a factor of 40. The other technologies show broader ranges but also appear very likely to qualify assuming emissions are not at the upper end of listed ranges.

All RECs usable for compliance with RPS Class I would also be used as CECs to demonstrate compliance with the CES, so RPS-eligible generators would not be required to separately demonstrate eligibility to MassDEP (even if they operated before the earliest CES eligibility date of 2010). Generators eligible for DOER's Alternative Energy Portfolio Standard (APS) program would only be able to create CECs if they separately qualify for the CES by demonstrating compliance with the emission threshold and build date requirements. Because the CES, as proposed, would not include existing low and zero-emissions generators, RPS Class II resources would not be eligible to create CECs.

Use of an emissions-based threshold would have several advantages:

- Consistency with the goal of reducing emissions by 80% from 1990 levels by 2050, as required by the GWSA.

¹¹ See *Annex III: Technology-specific Cost and Performance Parameters*, IPCC 2013, table A.III.2, p. 10. Available at http://report.mitigation2014.org/drafts/final-draft-postplenary/ipcc_wg3_ar5_final-draft_postplenary_annex-iii.pdf.

- Consistency with RPS qualification requirements for biomass, so that biomass generators that do not qualify for RPS would also not qualify for CES.
- Utility for determining CCS eligibility (by providing a performance standard for determining the required capture efficiency of the carbon capture technology).

MassDEP is proposing to limit the CES eligibility to new clean energy generators built after 2010, the year that the CECP was finalized and a CES was explicitly identified as a likely GWSA policy. This date would exclude all existing nuclear power plants from qualifying for the CES, but could allow a small number of recently constructed hydroelectric power plants in Canada to qualify (subject to the requirement to utilize new transmission lines described below). Allowing generators built any time after 2010 (vs. a later date) would acknowledge any efforts undertaken to address the *Clean Energy Performance Standard* or *Clean Energy Imports* strategies in the CECP. Allowing older existing generators to qualify would likely result in significant resource shuffling and windfall profits, as documented in detail in the 2013 CES study referenced above. MassDEP also notes that existing low and zero-emissions generators already benefit from the incentives created by the Regional Greenhouse Gas Initiative (RGGI) program, and that the proposed CES standard-setting process ensures that the standard is calibrated to address the need to replace existing fossil fuel-fired generation sources, not all existing generators.

MassDEP acknowledges that the loss of existing low and zero-emissions generators prior to 2050 could make it more difficult to achieve GWSA-required emissions reductions. MassDEP also acknowledges the potential that, by providing incentives for new generators that could compete with existing low and zero-emission generators, the CES has the potential to reduce the profitability of existing generators to some degree over time. In order to address this issue, MassDEP is proposing to include a regulatory requirement to complete an analysis of options for including existing low and zero-emissions generators in the CES in 2016. This analysis will also consider unique issues that could arise for MLPs that have ownership or contractual interests in existing low or zero-emitting generators, the appropriateness of including existing nuclear power plants, and treatment of technologies currently included is DOER's RPS Class II program for existing generators.

Even if existing generators are excluded from the CES, resource shuffling could occur with respect to transmission of electricity from Canada. Currently, electricity imported from Canada is an important source of clean electricity for Massachusetts, but the ability to import additional electricity from Canada is limited by the amount of transmission capacity in place. Resource shuffling could occur if new hydroelectric generation resources were to displace existing hydroelectric resources as the source of the electricity traveling through existing transmission lines. In this case, CES compliance could occur without any change in the amount of clean energy available for use in Massachusetts. In order to prevent this from occurring, MassDEP is proposing to require that clean energy imported to Massachusetts from outside New England demonstrate, using NERC tags, that the electricity was imported into New England through transmission capacity that came online after 2010, including through upgrades to existing transmission lines. This provision will ensure that, in order to be counted toward compliance with the CES, new eligible generation sources provide for the delivery of the electricity to Massachusetts. MassDEP requests comment on whether this provision is necessary and

adequate, and on whether there may be other ways to ensure that the CES results in the delivery of additional clean energy to Massachusetts. MassDEP also notes that, to the extent that resource shuffling results in greater emissions than would otherwise have occurred, the process proposed for adjusting the standard annually will compensate to some degree.

Regarding biomass and bioenergy, combined heat and power, and small non-RPS eligible hydroelectric generation, this proposal takes an approach that recognizes the diversity of technologies and policies in place. The standard-setting process focuses on existing fossil fuel-fired generators, which have uniformly negative climate impacts, and does not explicitly address bioenergy. On the other hand, bioenergy is not eligible for crediting because bioenergy, including bioenergy from waste combustion, is addressed in the RPS program. MassDEP is attempting to strike a similar balance for combined heat and power (CHP) facilities, which are addressed in the APS program and unlikely to separately qualify for the CES. For consistency with RPS, MassDEP is not proposing to allow non-RPS eligible bioenergy and hydroelectric generators to participate in the CES. This approach will ensure that the CES does not reduce the incentive to develop renewable generators that are fully RPS-compliant, and also avoids administrative costs associated with MassDEP evaluating qualification applications covering RPS-eligible technology categories. However, MassDEP acknowledges the range and complexity of issues surrounding bioenergy, CHP, and small hydropower systems, and welcomes detailed comments from stakeholders regarding the inclusion of these technologies in the CES.

D. Other CES Design Elements

Treatment of MLPs, stringency, and generator eligibility are the key differences between the CES and DOER's RPS program. The general structure and regulatory language are otherwise very similar to RPS. Proposed CES provisions that are similar to, or identical to, aspects of the current RPS regulation, are briefly discussed below.

- **Geographic Eligibility** - MassDEP is proposing that eligible generators be limited to generators located in New England or adjacent control areas, as is the case for RPS, with one exception: Generators that deliver clean energy into New England or an adjacent control area through a dedicated transmission line would be eligible to participate in the CES as if they are located in the control area to which the energy is delivered. This requirement will ensure deliverability to New England through an identifiable transmission path, but also maximize the potential for competition among clean energy generators to reduce program costs. MassDEP is requesting comment on all issues related to geographic eligibility, including whether eligibility should be strictly limited to New England and adjacent control areas, whether it may be possible to address the requirement for a clean energy unit to deliver its electricity to New England for use in Massachusetts using NERC tags without otherwise restricting the location of the generation, and whether capacity requirements can be met by generation units outside New England and adjacent control areas.
- **Banking of CECs** – For consistency between the RPS and CES programs, MassDEP is proposing banking provisions for all electricity sellers that are identical to those included in the RPS program. However, MassDEP is requesting comment on whether limitations

on banking are appropriate and necessary for the CES, and whether consistency with RPS with regard to banking is advantageous.

- RPS provisions related to aggregation of small generators, behind the meter generation, third party meter reading, incremental generation, and repowered, relocated, and replacement generation are not proposed for inclusion in the CES regulation because they appear to be relevant only for generation technologies included in the RPS program or for existing generators that are not eligible for the CES. As noted above, these technologies would create RECs through DOER's RPS program, not MassDEP's CES program.
- Statement of Qualifications – MassDEP is proposing to use qualification procedures based on RPS requirements for CES resources that do not qualify for RPS. MassDEP requests comment on whether it may be possible and desirable to implement the CES without a statement of qualification process, for example if MassDEP can proactively identify and label eligible generators within the relevant tracking systems with assistance from the generators.

MassDEP also notes that this proposal does not directly address two key electric system needs: energy storage and energy efficiency. While important, these needs are beyond the scope of the proposed CES. Furthermore, Massachusetts is already a national leader in both areas, with energy efficiency policies that have earned Massachusetts first place in the American Council for and Energy Efficient Economy's national ranking for four years in a row, and an alternative energy portfolio standard program that includes provisions to accommodate new storage technologies.

MassDEP will also likely consider implementing fees for the Clean Energy Standard. Any fees would be proposed and finalized in a separate rulemaking process.

D. Greenhouse Gas Reporting

The Global Warming Solutions Act required MassDEP to have retail sellers of electricity report GHG emissions associated with the generation of electricity used in Massachusetts. MassDEP established an approach for retail sellers to report GHG under regulation 310 CMR 7.71(9).¹² Retail sellers have so far reported GHG emissions for years 2008, 2010, 2011 and 2012. MassDEP posts summaries of the reported emissions online.¹³

In order to harmonize reporting of GHG emissions and compliance with the CES, MassDEP is proposing to move the GHG emissions reporting requirements for retail sellers of electricity from 310 CMR 7.71(9) to the CES regulation at 310 CMR 7.75(9). In addition, MassDEP proposes two substantive changes to reporting of GHG emissions by retail sellers of electricity.

First, the current GHG reporting regulations allow, but do not require, retail sellers to report GHG emissions consistent with each retail seller's use or ownership of particular RECs or generating units. MassDEP proposes to require GHG emissions reporting to reflect emissions

¹² Additional information is available in the Technical Support Document published when these requirements were finalized, with is available on the Clean Energy Standard web page.

¹³ <http://www.mass.gov/eea/agencies/massdep/climate-energy/climate/approvals/ma-greenhouse-gas-emissions-reporting-program.html#4>.

associated with the fuel shown on the certificates that retail sellers retire in their subaccounts in the regional certificate tracking system so that reporting under the CES and for retail seller GHG emissions is aligned. MassDEP requests comment on whether it is appropriate to require GHG emissions reporting that reflects the particular RECs, CECs and generating units that each retail seller uses, as documented in the regional tracking system, and in long-term contracts or ownership documentation.

The second substantive change to the reporting of GHG emissions by retail sellers is to propose a fixed date by which retail sellers must report emissions each year, specifically, September 15 of the second year after the end of each calendar year. The current reporting regulation requires MassDEP to notify retail sellers of the submittal deadline each year. This approach was chosen because at the time the reporting requirement was established, there was uncertainty as to the availability of the underlying data needed to report GHG emissions. MassDEP now has experience with the timing of data availability and is confident data will be available to allow retail sellers to meet the proposed submittal deadline. Also, it has been confusing to retail sellers to not have a fixed reporting date each year and additional work for sellers and MassDEP. MassDEP requests comment on the appropriateness of specifying a fixed reporting date, and on the proposed date.

IV. ECONOMIC IMPACTS

Overall, state programs that have driven the reduction of GHG emissions have had significant net positive benefits in the Commonwealth, keeping energy dollars in Massachusetts, mitigating price volatility of fossil-fuel generated electricity, reducing electricity demand and thus dampening price increases, gaining energy savings for residential, business and municipal customers and growing clean energy jobs. The economic impacts of the CES could result in similar benefits, but at this time costs and benefits are extremely difficult to quantify because of the diverse technologies and long time scales involved.

In the short term (until 2020), CES costs will be minimal, because the CES does not impose any requirement to provide clean energy beyond the RPS. In the medium term (until 2030), the 2013 Synapse study provides information about likely costs and benefits. For example, the executive summary of that report describes modeling of several CES scenarios out to 2030, the most relevant of which shows likely increases in electric bills in the range of 2-3% in that year. Additional scenarios analyzed by MassDEP using the same modeling tool with the proposed CES stringency showed bill impacts of 3-4% in 2020 and 5% in 2030, within the same general range. Therefore, MassDEP estimates electricity bill impacts in the range of 3 - 5% in the 2020 to 2030 time frame. In the longer term, however, clean energy policies such as the CES that allow multiple low and zero-emissions technologies to compete economically are expected to reduce costs. When avoided fuel costs are included, the transition to clean energy is likely to deliver economic benefits. Finally, it is also relevant that MassDEP is proposing an ACP option that will have the effect of capping the per-kWh premium attached to the purchase of non-RPS eligible clean energy at a level 50% lower than the per-kWh cap included in the RPS program.

Another possible point of reference for considering program costs is the structure of the GWSA itself. Two aspects of the GWSA are relevant. First, the GWSA essentially requires the increasing use of clean electricity until nearly all fossil fuel generation is removed from the generation mix. Therefore, it may be appropriate to attribute some CES costs to the GWSA itself rather than the CES or, alternatively, consider the CES as a strategy for avoiding potentially larger costs of reducing emissions without a CES. And the issue of economic impacts is addressed explicitly within the structure of the GWSA. In particular, the planning process that resulted in the publication of the CECP was completed pursuant to a process that was required, pursuant to the GWSA, to consider economic impacts. Therefore, the inclusion of a CES-like strategy in the CECP suggests that, at the time of publication of the CECP, the CES was considered likely to have acceptable economic impacts. The GWSA-mandated every-five-year schedule for reviewing plans to achieve emission limits, next scheduled to occur in 2015, will consider economic impacts and provide an ongoing mechanism for considering potential cost impacts of the CES.

MassDEP also notes that, by avoiding greenhouse gas emissions, the CES would avoid negative impacts of these emissions, including impacts of sea level rise, worsened air quality, and various ecological and agricultural impacts. Furthermore, because this is a new policy structure that has not been implemented elsewhere in the world, successful demonstration of its viability could lead to additional reductions in other jurisdictions, such as other US states attempting to comply with the requirements of EPA's Clean Power Plan. If GHG emissions are not addressed in the coming decades the economic impacts in Massachusetts are likely to become very large and include, for example, costs associated with increased vulnerability to storms and, in the longer term, the gradual and permanent inundation of significant portions of Boston and other coastal areas.

V. SMALL BUSINESS IMPACT STATEMENT

The proposed regulations would not directly affect small businesses because the sale of electricity is not an activity that is normally undertaken by small businesses. Potential electricity rate impacts described above would apply to small businesses that use electricity. As discussed above, impacts on per-kWh electricity rates are expected to be minimal, and may also be more appropriately attributed to the GWSA, not the CES.

VI. AGRICULTURAL IMPACTS

The proposed regulations are not expected to have any negative impacts on agricultural production in Massachusetts. Positive impacts may result from reduced GHG emissions. For example, it is possible that increases in the frequency of extreme weather events that can destroy crops could be avoided if GHG emissions are reduced.

VII. IMPACT ON MASSACHUSETTS MUNICIPALITIES

The proposed regulations will not negatively affect most cities or towns. Communities that own retail sellers of electricity (i.e., MLPs) would be subject to the regulation, and the list of economic impacts described above would apply. MassDEP also notes that sale of electricity,

which municipalities may voluntarily undertake, is not a mandated municipal service. Therefore, costs associated with operation of a power plant are not mandated costs subject to the restrictions of Proposition 2 ½ (Town of Norfolk v. Department of Environmental Quality Engineering, 407 Mass 233 (1990)).

VIII. MASSACHUSETTS ENVIRONMENTAL POLICY ACT (MEPA)

Pursuant to 301 CMR 11.03(12) (MEPA Regulations), these proposed regulations will not reduce standards for environmental protection, opportunities for public participation in permitting or other review processes, or public access to information generated or provided in accordance with these regulations. Promulgation of these regulations, therefore, does not require the filing of an Environmental Notification Form under MEPA.

IX. IMPACTS ON OTHER PROGRAMS – AIR TOXICS

Air toxics are a group of chemical air contaminants that are associated with significant environmental impacts or adverse health effects such as cancer, reproductive effects and birth defects. The federal Clean Air Act requires EPA to promulgate source-specific controls based on Maximum Achievable Control Technologies (MACT) for air toxics. In addition, MassDEP controls air toxics through reductions of criteria pollutants and through its Toxics Use Reduction Program. Toxics use reduction is a MassDEP priority. Toxics use reduction is defined as in-plant practices that reduce or eliminate the total mass of contaminants discharged to the environment. The proposed regulation is likely to reduce emissions of toxics by reducing the generation of electricity through fossil fuel combustion.

X. PUBLIC PARTICIPATION

M.G.L. Chapter 30A requires MassDEP to give public notice and provide an opportunity to review the proposed regulations at least 21 days prior to holding a public hearing. The hearing will be held in accordance with the procedures of M.G.L. Chapter 30A. The public hearing notice, proposed regulations and background document are available on MassDEP's website at: www.mass.gov/dep/public/publiche.htm.

Questions about this document may be addressed to Will Space at 617-292-5610, or william.space@state.ma.us.