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**Background Document and Technical Support  
For Public Hearings on  
Proposed Amendments to  
310 CMR 7.00 et seq.:**

**310 CMR 7.00: Appendix B  
“Emission Banking, Trading, and Averaging”**

**and**

**310 CMR 7.29  
“Emissions Standards for Power Plants”**

**Regulatory Authority:  
M.G.L. c. 111, Sections 142A through 142N**

**December 2005**

This information is available in alternate format. Call Donald M. Gomes, ADA Coordinator at 617-556-1057. TDD Service - 1-800-298-2207.

DEP on the World Wide Web: <http://www.mass.gov/dep>

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**Background Document and Technical Support For Public Hearings  
On Proposed Amendments to 310 CMR 7.00 et seq.:  
310 CMR 7.00: Appendix B “Emission Banking, Trading, and Averaging” and  
310 CMR 7.29 “Emissions Standards for Power Plants”**

**I. Introduction**

In order to provide additional specificity and clarity on existing carbon dioxide (CO<sub>2</sub>) emissions regulations for power generating facilities, the Massachusetts Department of Environmental Protection (“MassDEP” or “the Department”) is proposing amendments to 310 Code of Massachusetts Regulations (CMR) 7.00: Appendix B “Emission Banking, Trading, and Averaging” and 310 CMR 7.29 “Emissions Standards for Power Plants,” in accordance with Massachusetts General Laws (MGL) Chapter 30A. Through this rulemaking process, the Department is proposing amendments to establish the detailed procedures by which affected facilities emitting CO<sub>2</sub> in excess of that allowed by the standards for fossil fuel fired units established at 310 CMR 7.29(5)(a)5. may demonstrate compliance by using emission reductions, avoided emissions and/or sequestered emissions.

The CO<sub>2</sub> emission standard in 310 CMR 7.29(5)(a)5. is expressed as both an annual cap (not to exceed historical actual emissions) and a rate (not to exceed 1800 lbs. of CO<sub>2</sub> per megawatt hour (MWh)). The annual cap is applicable beginning calendar year 2006. The rate is applicable beginning calendar year 2008.

Six power generation facilities in Massachusetts are affected by these regulations: Brayton Point, Salem Harbor, Mystic, Canal, Mt. Tom and NRG Somerset. The CO<sub>2</sub> annual cap for each facility is included in the facility’s approved 310 CMR 7.29 Emission Control Plan (ECP), as summarized below.

<u>Facility</u>	<u>Calendar Year CO<sub>2</sub> cap (tons)</u>
Brayton Point Station	8,585,152
Canal Station	5,331,820
Mt. Tom Station	1,117,569
Mystic Station	7,596,390
Salem Harbor Station	4,286,053
Somerset Station	916,586

In 2004, Governor Romney announced the Massachusetts Climate Protection Plan, which laid out a coordinated state-wide response to reduce greenhouse gas (GHG) emissions and protect the climate, focusing on strategies across the energy, building, transportation and natural resource sectors. The Plan stresses the integrated nature of climate, energy and economic growth in discussing actions called for in the Plan,<sup>1</sup>

*The Plan focuses on a range of strategies to achieve significant near-term reductions in GHG emissions. These strategies give priority to pollution reductions that are compatible with economic growth – measures which ease the transition to cleaner and less expensive energy resources, and which retain a higher proportion of the state’s energy dollars within Massachusetts. These strategies encourage public agencies, businesses, industries, and citizens to take cost-effective, common sense steps toward reducing GHG emissions in ways that also advance other important state policies and objectives.*

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<sup>1</sup> Massachusetts Climate Protection Plan, 2004, Page 7 [www.mass.gov/Eocd/docs/pdfs/fullcolorclimateplan.pdf](http://www.mass.gov/Eocd/docs/pdfs/fullcolorclimateplan.pdf)

One of the actions committed to in the Plan was the continued implementation of the existing regulation 310 CMR 7.29 to reduce specific emissions – including GHGs – emitted by older power plants, specifically by creating an emission banking and trading program,<sup>2</sup>

*DEP is developing provisions to govern the banking and trading of greenhouse gas emission reduction credits. To add CO<sub>2</sub> to the state's emissions trading program, the DEP has convened a stakeholder group to discuss CO<sub>2</sub> emissions credits and credit trading. The DEP has solicited broad input on the development of GHG banking and trading rules. In addition, the group has examined a wide range of technical issues and policy options, including which specific greenhouse gases are eligible for banking, the categories of action that can generate reduction credits, acceptable protocols for quantifying reductions, quantification challenges, the timing of eligible reductions, and the geographic area over which credits may be generated and traded.*

At this time, the Department solicits comments only on the specific provisions put forth in this proposal, and not on 310 CMR 7.29 matters previously decided with the promulgation of 310 CMR 7.29, or on 310 CMR 7.00: Appendix B, other than the newly proposed subsection (7) and proposed modifications to subsection (1) Introduction. Once comments are received, the Department will prepare and issue final amendments to the regulation and responses to comments received during the comment period.

## **II. Regulatory Background**

In June of 2000, the Department released a Technical Support Document entitled “*Background Document and Technical Support for Public Hearings on Proposed Amendments to 310 CMR 7.00 et seq.: 310 CMR 7.29 – Emissions Standards for Power Plants*” and proposed a regulation to lower emissions of harmful pollutants from power plants in order to further protect public health and the environment. This program was presented as the proposed new regulation 310 CMR 7.29. MassDEP held five public hearings, and solicited written comment on the proposed regulation.

After considering all of the written and oral comments received during the public comment period, the Department determined that emissions of sulfur dioxide, nitrogen oxides, carbon dioxide and mercury from the facilities affected by the proposed rule contribute, in combination with emissions from out of state sources and emissions from other, less easily controlled sectors of Massachusetts’ emissions inventories, to a condition of air pollution in Massachusetts and northern New England. In April of 2001, the Department filed a final regulation, 310 CMR 7.29, “Emission Standards for Power Plants,”<sup>3</sup> effective May 11, 2001, in order to reduce emissions from six affected facilities, and therefore, ease the condition of air pollution present in Massachusetts and northern New England. For more details on the final regulation see the “*April 2001 Statement of Reasons and Response to Comments for 310 CMR 7.29- Emission Standards for Power Plants,*” (hereafter referred to as the “*April 2001 Statement of Reasons.*”)<sup>4</sup>

Effective June 4, 2004, amendments<sup>5</sup> to 310 CMR 7.29<sup>6</sup> established mercury emission limits for four affected solid fossil fuel fired facilities.

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<sup>2</sup> Massachusetts Climate Protection Plan, 2004, Pages 23-24

<sup>3</sup> <http://www.mass.gov/dep/bwp/daqc/files/regs/729final.doc> and

<http://www.mass.gov/dep/bwp/daqc/files/regs/finalrtc.doc>

<sup>4</sup> <http://www.mass.gov/dep/bwp/daqc/files/regs/finalrsn.doc>

<sup>5</sup> <http://www.mass.gov/dep/bwp/daqc/files/regs/hgreg.doc>

<sup>6</sup> See <http://www.mass.gov/dep/bwp/daqc/files/regs/hgtsdx03.pdf> and <http://www.mass.gov/dep/bwp/daqc/files/regs/hgrevx03.pdf> for the mercury amendments proposed in October 2003.

The *April 2001 Statement of Reasons* stated, “DEP will also allow the use of off-site reductions and carbon sequestration to comply with the CO<sub>2</sub> emission cap and emission rate. DEP plans to propose modifications to 310 CMR 7.00 Appendix B in the future to allow CO<sub>2</sub> emissions trading for compliance purposes.” MassDEP planned to modify 310 CMR 7.00: Appendix B accordingly and in 2002 held four stakeholder meetings to discuss issues related to modifying 310 CMR 7.00: Appendix B.

The Massachusetts “Emission Banking, Trading, and Averaging” Program (310 CMR 7.00: Appendix B) was developed with stakeholder input during 1992 and 1993 and promulgated in 1994, with revisions proposed and finalized in 1997 following an internal audit of the early years of operations. The pollutants covered under Appendix B are oxides of nitrogen (NO<sub>x</sub>), volatile organic compounds (VOCs) and carbon monoxide (CO). The current proposed amendments would add a banking and trading program for CO<sub>2</sub> to Appendix B.

### III. Background on CO<sub>2</sub>

#### A. Health and Environmental Effects from CO<sub>2</sub> Emissions

The Department detailed human health impacts associated with climate change in the *April 2001 Statement of Reasons*. The human health impacts were summarized as follows:

##### *Human Health*

*Climate change is expected to have wide-ranging and mostly adverse impacts on human health, with a significant loss of life, including:*

- *Increases in mortality and illness due to increases in the intensity and duration of heat waves.*
- *Increases in the potential transmission of vector-borne infectious diseases (due to extensions in geographic range and seasons for vector organisms) such as malaria, dengue, encephalitis, and yellow fever.*
- *Increases in non-vector borne diseases (such as salmonellosis, cholera, and giardiasis) due to elevated temperatures and increased flooding.*
- *Additional health consequences from limitations on fresh water supplies, nutritious food, and the aggravation of air pollution.*

The scientific background and reasons for regulating emissions of GHGs were described in the 2004 Massachusetts Climate Protection Plan. That background and possible Massachusetts climate change impacts are repeated below from the 2004 Plan.

*Climate change refers to unstable weather patterns caused by increases in the average global temperature. There is a consensus among climate scientists that these changes result from atmospheric concentrations of carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and other heat-trapping gases. These greenhouse gases form a blanket of pollution that stays in the atmosphere and may be the fundamental cause of climate instability characterized by severe weather events such as storms, droughts, floods, heat waves, and sea level rise.<sup>7</sup>*

*Atmospheric concentrations of carbon dioxide are the highest they have been in 140,000 years, with concentrations going from 290 parts per million (ppm) in 1870 to 373 ppm today. A consensus of climate change scientists agrees that the increasing concentrations of GHGs are causing a rise in average global temperatures. Whether or not this rise in temperature is fully human-induced, temperature records are being broken frequently. For example, 2003 was the third warmest year on record, following 2002, while 1998 remains the warmest year ever recorded. The Inter[government]al Panel [on] Climate Change (IPCC), a group sponsored by the United Nations and the World Meteorological Organization, representing more than 2,000 leading climate scientists, predicts an average temperature increase of 5-9°F by 2100, although a wider range of outcomes is possible. To put this number in perspective, only about 9°F separates the world at the beginning of the twenty-first century from the world at the end of the last Ice Age, more than 10,000 years ago.<sup>8</sup>*

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<sup>7</sup> Massachusetts Climate Protection Plan, 2004, Page 5

<sup>8</sup> Massachusetts Climate Protection Plan, 2004, Pages 5-6

## *What Could be the Impacts of Climate Change on Massachusetts?*

*We are concerned about climate change worldwide because, if it continues, it will bring significant humanitarian, environmental and economic impacts globally. While there is some scientific uncertainty as to the magnitude of these potential changes, there is broad agreement that such change would affect many aspects of our daily lives.*

*There would also be impacts within the Commonwealth. For example, the New England Regional Assessment (NERA) predicts that if climate trends continue as projected, the weather patterns in Boston at the end of this century would look more like those now found in Richmond, Virginia or Atlanta, Georgia. Climate change on this scale would have wide-ranging consequences for the Commonwealth.<sup>9</sup>*

Categories of potential impacts resulting from climate change are detailed in the 2004 Plan as follows:<sup>10</sup>

*WEATHER EVENTS: Weather extremes, already a characteristic of New England, are likely to become more frequent and cause more damage under a changing climate. While no one storm is directly attributable to climate change, an increasing number of such events could become more commonplace, severely interrupting Bay State life and economic activity. For example, downed power lines, overburdened septic systems, and travel delays are all costs that would have to be borne by our citizens.*

*COASTAL IMPACTS: Massachusetts and all coastal states would lose beachfront in the coming years as climate change causes rising sea levels and stronger coastal storms. By 2100, a 5-9°F increase in global temperatures is forecast to double the rate of sea-level rise from 11 inches over the last century to 22 inches in this century.*

*ECONOMIC IMPACTS: Climate change would have impacts on important Massachusetts industries such as tourism and agriculture, which rely on the strength and vitality of our natural resources.*

*WATER RESOURCES: Higher temperatures would accelerate evaporation and cause drier conditions and droughts, placing pressure on our water resources, which are already stressed by regional growth. Water shortages would, in turn, alter the natural fish populations in our rivers, streams, lakes, and ponds, and saltwater could intrude in our coastal fresh water supplies.*

*FISH AND OCEAN IMPACTS: A warmer, saltier ocean and changing coastal currents would alter coastal and marine ecosystems, affecting the distribution, growth rate, and survival of our commercial fish, shellfish, and lobster stocks.*

*HUMAN HEALTH AND COMFORT: While CO<sub>2</sub> itself is non-toxic, its warming effects cause hotter weather with more frequent and severe heat waves, posing multiple health risks that include a rise in heat-related illness, more frequent periods of harmful outdoor air quality, and the spread of certain diseases.*

*NATURAL RESOURCES: Climate change could have serious impacts on the state's diverse ecosystems and native species, and may encourage the spread of non-native species. It would also likely alter the natural range of many different plants and animals. Over the long term, warming could intensify droughts and damage forest ecosystems.*

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<sup>9</sup> Massachusetts Climate Protection Plan, 2004, Page 6

<sup>10</sup> Massachusetts Climate Protection Plan, 2004, Pages 6-7

## B. Existing Efforts and Programs to Control CO<sub>2</sub> Emissions

In August 2003, a number of states in the Northeast began to work on a regional effort (the Regional Greenhouse Gas Initiative (RGGI))<sup>11</sup> to control greenhouse gas emissions, initially exploring mechanisms to apply CO<sub>2</sub> requirements to emissions from power plants in the region. There has been an intensive effort on the part of state environmental and energy agencies and stakeholders, including affected industries and environmental groups, to analyze many possible options. These Northeast states are working towards an agreement on a Memorandum of Understanding (MOU) laying out the broad principles of a program to initially stabilize, and then reduce, power plant CO<sub>2</sub> emissions. If an MOU is agreed upon, the participating states would then need to develop and come to agreement on a model rule to implement the principles outlined in the MOU. The model rule would then serve as a template for individual state rules to be promulgated according to each state's administrative and rulemaking procedures.

Internationally, the European Union's Emission Trading Scheme (EU ETS) opened January 1, 2005. The aim of the EU ETS is to help the 25 EU Member States achieve compliance with their commitments under the Kyoto Protocol<sup>12</sup> to the United Nations Framework Convention on Climate Change,<sup>13</sup> through trading-based flexibility. The EU ETS covers a total of more than 12,000 installations in the EU-25 (combustion plants, oil refineries, coke ovens, iron and steel plants, and factories making cement, glass, lime, brick, ceramics, pulp and paper), representing close to half of Europe's emissions of CO<sub>2</sub>.<sup>14</sup>

In October 2004, the EU adopted a "Linking Directive"<sup>15</sup> to lower Kyoto compliance costs and protect the competitiveness of EU businesses by creating a link between the project-based flexibility mechanisms of the Kyoto Protocol - Joint Implementation (JI) and the Clean Development Mechanism (CDM) - and the EU ETS. In principle, companies that carry out emission reduction projects outside the EU through JI or CDM will be able to convert the credits they earn from those projects into allowances that can be used for compliance under the EU ETS. The Linking Directive will therefore lower the cost to EU industry by offering more options for complying with the requirements of the ETS.<sup>16</sup> The MassDEP regulations presented below propose ways in which 310 CMR 7.00: Appendix B and 310 CMR 7.29 will be linked to JI, CDM and EU ETS under certain circumstances (i.e., if the "offset trigger price" is exceeded), taking advantage of cost savings while ensuring emission reductions.

## IV. Description of the Proposed GHG Credit Banking Option for Affected Facilities

MassDEP believes it is critical to go forward with implementing 310 CMR 7.29 at this time by establishing the process by which affected facilities may create GHG Credits. Therefore, the Department is proposing a new subsection to 310 CMR 7.00: Appendix B and conforming amendments to 310 CMR 7.29. Emission reductions, avoided emissions, and sequestered emissions allow affected facilities the option of complying with the CO<sub>2</sub> standards at potentially lower cost than only complying on-site, i.e., "out-the-stack," because additional compliance options would be available to the affected facilities.

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<sup>11</sup> <http://rggi.org/>

<sup>12</sup> <http://unfccc.int/resource/docs/convkp/kpeng.pdf>

<sup>13</sup> <http://unfccc.int/resource/docs/convkp/conveng.pdf>

<sup>14</sup> <http://www.europa.eu.int/rapid/pressReleasesAction.do?reference=MEMO/04/44>

<sup>15</sup> [http://europa.eu.int/comm/environment/climat/emission/pdf/dir\\_2004\\_101\\_en.pdf](http://europa.eu.int/comm/environment/climat/emission/pdf/dir_2004_101_en.pdf)

<sup>16</sup> <http://www.europa.eu.int/rapid/pressReleasesAction.do?reference=MEMO/04/44>

### Proposed Changes to 310 CMR 7.29

When 310 CMR 7.29 was initially promulgated on May 11, 2001, it contained requirements that “off-site reductions or sequestration” be “real, surplus, verifiable, permanent, and enforceable, as defined at 310 CMR 7.00: Appendix B.”

The existing definitions of “permanent”<sup>17</sup> and “enforceable”<sup>18</sup> in 310 CMR 7.00: Appendix B, which were referenced by 310 CMR 7.29 as promulgated May 11, 2001, require that reductions be federally enforceable. As the United States federal government does not recognize CO<sub>2</sub> as a pollutant, and therefore does not issue any permits limiting CO<sub>2</sub> emissions, retaining these definitions would effectively imply that no CO<sub>2</sub> reductions could be demonstrated to be permanent or enforceable. Therefore, MassDEP proposes modifying “permanent, and enforceable” in 310 CMR 7.29 to, “permanent *to the maximum extent feasible*, and enforceable *as a practical matter*” and removing the phrase, “as defined at 310 CMR 7.00: Appendix (B)” from 310 CMR 7.29.

In addition, it is not obvious to the Department how to address the requirement for permanence in a sequestration project, where trees (or other sequestering biota) may die, fall victim to fire or arson, be harvested or fail to thrive due to insect infestation. We solicit comment on the appropriate application of “permanence” to sequestration projects.

The Department seeks to make the changes to 310 CMR 7.29 and 310 CMR 7.00: Appendix B consistent, by using the phrase “emission reductions, avoided emission, and sequestered emissions,” in place of “off-site reductions or sequestration.” In addition, the requirement for “off-site reductions” is problematic, in that it is a disincentive to implementation of certain desirable projects, such as erecting a wind turbine on-site at an affected facility. The Department solicits comment on whether the definition of “Off-site Reduction” should be deleted from 310 CMR 7.29.

Also, please see related discussion of “Additional” and “Sequestration” in the Definition section below.

### Proposed Addition of 310 CMR 7.00: Appendix B(7) to 310 CMR 7.00: Appendix B

The proposed GHG banking regulation includes sections on: purpose, definitions, applicability, generation of GHG Credits, certification and verification applications, public participation, use and purchase, and program review. Issues under each section are discussed below.

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<sup>17</sup> Defined in 310 CMR 7.00: Appendix B(2) as “Permanent means that emission reductions implemented for the purpose of generating Emission Reduction Credit must be assured for the life of the corresponding Emission Reduction Credit through a federally enforceable mechanism.”

<sup>18</sup> Defined in 310 CMR 7.00: Appendix B(2) as “Enforceable means those limitations and conditions which are enforceable by the Department of Environmental Protection and the EPA. Examples of such enforceable mechanisms include, but are not limited to the following:

- (a) Conditions in pre-construction permits issued pursuant to 40 CFR 52.21 (federal delegated PSD programs); or
- (b) Limitations developed pursuant to 40 CFR Parts 60 (NSPS) and 61 (NESHAPS); or
- (c) Requirements contained in the EPA-approved Massachusetts State Implementation Plan (SIP), or source-specific SIP revisions that are approved by EPA; or
- (d) Conditions in pre-construction “plan approvals” issued by the Commonwealth of Massachusetts, provided that those pre-construction “plan approval” regulations have been approved by the EPA in the Federal Register as meeting the requirements of 40 CFR 51.160.
- (e) Permits issued pursuant to generic bubble regulations that have been approved by EPA as adhering to the December 4, 1986, Emissions Trading Policy Statement.
- (f) Information contained in a Department-issued Emission Reduction Credit approval for retrospectively approved ERCs, as to by what means the ERCs were created.”

### Purpose

The proposed regulation establishes a process to verify GHGs reduced, avoided or sequestered, in order for affected facilities (as defined in 310 CMR 7.29) to use GHG Credits for compliance with the CO<sub>2</sub> provisions of 310 CMR 7.29(5)(a)5. MassDEP solicits comment on the fact that these proposed regulations address GHGs, even though regulation 310 CMR 7.29 only explicitly refers to CO<sub>2</sub>, and does not use the term GHG.

### Definitions

In GHG programs, the term “additional” is a term of art with a meaning similar to that of “surplus.”<sup>19</sup> MassDEP proposes replacing the term “surplus” in 310 CMR 7.29 with the term “additional” and adding a definition for “additional” to 310 CMR 7.00: Appendix B(7), meaning “emission reductions, avoided emissions, and/or sequestered emissions in addition to those that would have taken place in the absence of actions taken to reduce, avoid, or sequester GHG emissions. Emission reductions, avoided emissions, and/or sequestered emissions are not eligible for certification as GHG Credits if the actions taken to reduce, avoid, or sequester GHG emissions are otherwise required by local, state or federal law or regulation, or if the actions are otherwise required as part of a local, state or federal permit or plan approval, agreement, administrative or judicial order, or other enforcement action (including actions taken to reduce other pollutants).” There are other definitions of additional that are not included, specifically: financially additional (where the applicant would be required to show that sales of GHG Credits certified under this regulation were the financial cut point that prompted implementation of a project) and environmentally additional (where possible project externalities, such as water quality, would be taken into account in assessing a project).

MassDEP solicits comment on replacing the term “surplus” with the term “additional,” as well as the proposed definition of “additional.”

MassDEP proposes a definition for “Afforestation,” meaning “the conversion of land that has been in a non-forested state for at least the last 10 years to a forested state.” The Department solicits comment on whether 10 years is an appropriate length of time land must be non-forested prior to submitting a GHG Credit application, or if another length of time is more suitable.

MassDEP proposes a definition for “Carbon dioxide equivalent or CO<sub>2e</sub>,” meaning “the weight of a quantity of a GHG multiplied by its GWP as calculated by the Intergovernmental Panel on Climate Change.”

Understanding that many other chemicals besides CO<sub>2</sub> are greenhouse gases, the Department proposes to allow credits for the reduction of such chemicals. The Department also proposes a definition of “Global Warming Potential or GWP,” meaning “the ratio of the global heat trapping effect, direct and indirect, of one mass unit of a gas to that of the same mass unit of carbon dioxide over a given period of time. The list of GHG GWPs maintained by the Intergovernmental Panel on Climate Change (IPCC), which utilizes a 100-year period, as amended by the IPCC from time to time, will be utilized by the Department in implementing 310 CMR 7.00: Appendix B(7).” The most recent list of IPCC-published GHG GWPs can be found in the “Third Assessment Report - Climate Change 2001” of IPCC Working Group I.<sup>20</sup> The Department solicits comment on whether it is appropriate to utilize IPCC’s Third Assessment Report, or to utilize IPCC’s then-current procedure (i.e., as it may be amended from time to time) for determining GWPs when assessing applications for GHG Credits.

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<sup>19</sup> Defined in 310 CMR 7.00: Appendix B(2) as “Surplus means, emission reductions beyond an established source baseline which, as such, are not required by the Department adopted SIP, relied upon in any applicable attainment demonstration, or credited in any RFP or milestone demonstration.”

<sup>20</sup> See <http://www.ipcc.ch/pub/wg1TARtechsum.pdf> Table 3, page 47.

MassDEP proposes to delete the definition of “sequestration”<sup>21</sup> from 310 CMR 7.29 and include a revised definition of “sequestered emissions” in 310 CMR 7.00: Appendix B(7), meaning “Sequestered Emissions means carbon that has successfully been captured and securely stored that would have otherwise been emitted to or remained in the atmosphere.”

#### Applicability

Facilities subject to 310 CMR 7.29 (“affected facilities”) would be the only entities allowed to apply to create GHG Credits under 310 CMR 7.00: Appendix B(7). GHG Credits may only be used for compliance with 310 CMR 7.29. In the case that Massachusetts signs the RGGI MOU and promulgates regulations to implement that MOU, MassDEP expects to propose modifications to 310 CMR 7.00: Appendix B(7) and 310 CMR 7.29 to be consistent with a RGGI model rule, to facilitate the transition from these requirements to those consistent with RGGI, and to detail how certified or verified GHG Credits will be treated in the MA RGGI regulations. Under RGGI, the Department will re-evaluate such GHG Credits and, to the maximum extent possible, authorize GHG Credits created under 310 CMR 7.29 to be used under RGGI.

MassDEP solicits comment on whether entities other than affected facilities should be allowed to apply to create GHG Credits, balancing

1. the desire to have a robust supply of GHG Credits and
2. the resources necessary to certify a potentially very large number of GHG Credits, generated at a large geographic distance from Massachusetts.

MassDEP also requests comment on whether applications from entities other than affected facilities should be limited to those with projects located in Massachusetts or the Northeast.

#### Generation of GHG Credits

##### *Eligible Project Categories*

The proposed amendments allow affected facilities to apply to MassDEP for certification and verification of GHG Credits for projects that generate emission reductions, avoided emissions and sequestered emissions. Examples of projects that might be approved include:

- reductions in landfill gas emissions (i.e., methane capture and combustion), beyond reductions already required,
- sulfurhexafluoride (SF<sub>6</sub>) capture and recycling,
- afforestation, and
- natural gas/home heating oil/propane end-use energy efficiency projects.

Additional credit types may also be approved.

##### *Ineligible Project Categories*

The following areas are proposed to NOT be eligible for certification or verification as GHG Credits:

- nuclear power generation,
- under-water and under-ground sequestration, and
- over-compliance with the cap and rate limitations in 310 CMR 7.29 by affected facilities.

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<sup>21</sup> Defined in 310 CMR 7.29 as “Sequestration means the uptake and long-term storage of carbon in the biosphere, underground, or the oceans so that the buildup of carbon dioxide concentration in the atmosphere will be reduced or slowed.”

MassDEP solicits comment as to whether certification of any type of project should be prohibited, and, if so, which project types should be prohibited, and is specifically seeking comment on: nuclear uprates, new nuclear plants, early reductions by affected facilities prior to January 1, 2006 (see further discussion under Certification Start Date, below), and over-compliance by affected facilities after January 1, 2006, once the CO<sub>2</sub> cap and rate take effect. If over-compliance with 310 CMR 7.29 were eligible to receive GHG Credit, the Department solicits comment on:

1. whether such GHG Credits should only be certified and/or used in the initial years of the program, as a start-up flexibility mechanism,
2. whether compliance with both the cap and rate would be necessary before allowing over-compliance to be used to satisfy a compliance obligation,
3. whether over-compliance with the cap can be used to satisfy a rate compliance obligation, and vice versa, and
4. whether over-compliance with the rate and cap can be added and the sum used to satisfy a compliance obligation.

Please note that even if over-compliance at an affected facility were eligible to receive GHG Credit, the *April 2001 Statement of Reasons* stated, “DEP has eliminated the inter-facility averaging provisions. Each facility must comply with the emission standards individually.” Thus, over-compliance at one affected facility could not be used for compliance with 310 CMR 7.29 by another affected facility.

#### *Offset Trigger Price*

RGGI modeling has been based on estimates of costs per ton of CO<sub>2e</sub> offsets available in the Northeastern part of the country, with an assumed cost floor of \$1 per ton of CO<sub>2e</sub>. Available offsets created through landfill gas reduction were estimated to cost up to \$7.50 per ton of CO<sub>2e</sub>, with the bulk of reductions costing \$1 per ton of CO<sub>2e</sub>. Available SF<sub>6</sub> offsets were predicted to cost up to ~\$1.50 per ton of CO<sub>2e</sub>. Available offsets created through afforestation were estimated at \$10-\$20 per ton of CO<sub>2</sub>. CDM credits, which are generated in developing countries, were assumed to be available at a price of \$6.50 per metric ton of CO<sub>2e</sub>, based on recent project data; not adjusting the price to reflect short tons was considered an added measure of conservatism in the assumptions.

With the above costs in mind, these proposed GHG banking regulations allow credits to initially be generated within the states participating in the development of RGGI (Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont) or in jurisdictions that have a carbon constraining program approved by MassDEP. MassDEP solicits comment on appropriate criteria that could be applied in the determination of whether another jurisdiction has an approvable carbon constraining program, and whether a program might be approved for one sector (e.g., power plants or vehicles) but not another. If the average calendar year price of GHG Credits rises above an “offset trigger price” of \$6.50 (adjusted annually based on the Consumer Price Index (CPI)) per ton of CO<sub>2e</sub>, or if the Department determines that there are insufficient GHG Credits available for purchase at or below the offset trigger price, then affected facilities may apply for certification of projects that occur anywhere on Earth, and certification of CO<sub>2</sub> allowances and CO<sub>2e</sub> credits from any Department-approved allowance or credit system, or portion thereof.

Examples of allowance and credit systems include the European Trading Scheme and Clean Development Mechanism. A portion of a credit system (i.e., a particular project category) could be approved in the instance where an affected facility seeks MassDEP approval of, for example, credits issued by a credit system for a landfill gas project. If MassDEP approved the credits from the landfill gas project, that portion of the credit system would be considered MassDEP-approved; if approval were sought for a different type of project, for example, SF<sub>6</sub> capture and recycling, MassDEP would separately assess the credit system for that type of project.

MassDEP solicits comment on the appropriate offset trigger price at which to accept applications with a broader geographic scope and accept allowances and credits from other systems. The Department also solicits comment on whether, once the geographic scope has been opened world-wide, it should ever subsequently be limited back to the states participating in the development of RGGI and jurisdictions that have a carbon constraining program approved by MassDEP and, if so, under what circumstances. In the draft regulation, the Department proposes that once the geographic scope has been expanded, it remain expanded indefinitely, so that projects begun in the expanded geographic area remain eligible for certification and verification. In addition, MassDEP requests comment on whether projects should be certified for different amounts of GHG Credit depending on whether the project occurs in Massachusetts, in the states participating in the development of RGGI, in the United States (US), or outside the US.

*Trust Trigger Price (“Safety Valve Mechanism”)*

If the average calendar year price of GHG credits in a particular year rises above a “trust trigger price” of \$10.00 (adjusted annually based on CPI plus 2%) per ton of CO<sub>2e</sub>, affected facilities whose CO<sub>2</sub> emissions exceed the limits established in 310 CMR 7.29 may opt to make payments at the then-current trust trigger price per ton of CO<sub>2e</sub> into an expendable trust. The trust, which is proposed to be named the Greenhouse Gas Expendable Trust, would be memorialized in a declaration of trust and be a dedicated, interest-bearing account created by the Secretary of Environmental Affairs pursuant to M.G.L. c. 7, s.4F and M.G.L. c. 6A, s.6 and in accordance with 801 CMR 50.00 (the expendable trust regulation promulgated by the Executive Office for Administration and Finance). The Commissioner of MassDEP, in consultation with the Secretary, would serve as the Trustee. Funds deposited into the Trust would be dedicated to the purpose of reducing CO<sub>2</sub> in the atmosphere and be used to fund projects or purchase greenhouse gas credits or allowances. Projects, credits or allowances funded or purchased by the Trust would have to meet the same standards required for GHG applications from affected facilities – such projects, credits or allowances would have to be real, additional, verifiable, permanent to the maximum extent feasible and enforceable as a practical matter. The Trust would be obligated to acquire the maximum amount of GHG reductions at the lowest cost, with a preference for Massachusetts-based reductions.

Such a safety valve mechanism is designed as an insurance policy against unlikely but potentially significant economic impacts, with the goal of maintaining the environmental objectives of the regulation while reducing cost uncertainty into the future. Placed at the right trigger level, the safety valve would still provide the market incentives for the development of emissions reduction technology and offset development.

The option to contribute funds to the Trust rather than fund projects or purchase credits or allowances would cease in each year that the average calendar year price of GHG Credits, of applied-for GHG Credits, or of projects paid for by the GHG Expendable Trust for the previous year falls below the trust trigger price. By resetting the program on a year-by-year basis, the safety valve protects from volatility of the market while maintaining emissions requirements after the threat of serious cost impacts have passed. Because MassDEP is unable to predict whether the trust trigger price would be reached, we are not able to predict how much money, if any, would be deposited into the trust.

MassDEP solicits comment on the appropriate trust trigger price at which to allow payment into a GHG Expendable Trust. We also solicit comment on whether, once the option to pay into a GHG Expendable Trust is allowed, that option should ever subsequently be removed, and, if so, under what circumstances. In the draft regulation, the Department proposes that the ability to pay into the GHG Expendable Trust be determined on an annual basis. A draft Declaration of Trust will be posted separately on the MassDEP web site.

### *Circuit Breaker Mechanism*

The proposed regulation includes a circuit breaker mechanism. If, at any time, the MassDEP Commissioner determines that the price of GHG Credits or of applied-for GHG Credits has substantially exceeded either the offset or trust trigger prices, or if insufficient certifiable applications for GHG Credits are submitted, then the Commissioner may, after public notice in the Environmental Monitor, and an opportunity for public comment, expand the geographic scope from which certification applications will be accepted, or allow payments into the GHG Expendable Trust. MassDEP solicits comment on whether the regulation should include such a circuit breaker mechanism, or suggestions on alternative mechanisms.

### *Certification Start Date*

The first calendar year for which reductions could be certified is calendar year 2006, which is the first year that affected facilities must comply with a CO<sub>2</sub> limitation in 310 CMR 7.29 (i.e., the facility-specific CO<sub>2</sub> emissions cap). Such emission reductions, avoided emissions, or sequestered emissions must have occurred on or after January 1, 2006, although the projects that led to such reduced, avoided or sequestered emissions may have begun any time after the Project Start Date discussed below. MassDEP is not aware of any projects undertaken by the affected facilities which generated emission reductions, avoided emissions or sequestered emissions after the initial 310 CMR 7.29 promulgation date of May 11, 2001 and prior to 2006, but solicits comment on whether such projects exist. Note that the January 1, 2006 start date would prohibit affected facilities from receiving credit for any CO<sub>2</sub> emission reductions below their cap or rate between May 11, 2001 and January 1, 2006. MassDEP solicits comment on the appropriate start date for GHG Credits to be eligible for certification.

### *Project Start Date*

The Department is proposing January 1, 2006 as a “Project Start Date,” that is, a threshold eligibility date after which projects must have been built and begun generating energy (in the case of certain avoided emissions), or must have been built and in use, or installed and operational (in the case of emission reductions or sequestered emissions),<sup>22</sup> and solicits comment on whether this is a reasonable Project Start Date. Not having a Project Start Date would make emissions avoided in 2006 by, for example, hydroelectric plants that began operating in the early 1900s, eligible to generate GHG Credits.

### Certification and Verification Applications

Affected facilities will first apply to the Department for GHG Credit certification. Such certification applications may be for prospective projects contemplated for the future, or for retrospective projects that have already been implemented. Applying for prospective certification will give the affected facility greater certainty that a contemplated project will be found acceptable. Applicants will next apply to the Department for verification of their GHG Credits once a project has been completed. Facilities may simultaneously apply for certification and verification of projects that have been implemented prior to the application date.

For project-based emission reductions, avoided emissions, and/or sequestered emissions, the proposed regulation limits certification eligibility to only those projects which generate 5000 or more tons CO<sub>2e</sub>. MassDEP solicits comment on whether 5000 tons is an appropriate threshold for certification, balancing

1. MassDEP’s desire to receive applications that contain a sufficient level of reductions to justify the resources necessary to determine if the proposed credits meet the criteria and to track and enforce them over time,
2. the number of credits likely to be needed by affected facilities, and

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<sup>22</sup> Note that an identical concept is part of the Department’s Public Benefit Set Aside regulations in the NO<sub>x</sub> Allowance Trading Program, at 310 CMR 7.28(6)(b)10.a.

3. the size of projects available to affected facilities.

In order to prevent double use of verified GHG Credits, the proposed regulations require affected facilities to share any information on project applications for certification that are also listed in any other certification system, registry or inventory, including, but not limited to, California Climate Action Registry, the Climate Trust, Climate Leaders Greenhouse Gas Inventory, Prototype Carbon Fund, 1605(b), the Chicago Climate Exchange, Clean Development Mechanism or Joint Implementation.

#### Public Participation

The proposed regulation uses the state's Chapter 30A administrative procedures public process to consider applications for GHG Credits. MassDEP solicits comment on whether the public process should be a 30A process.

#### Use and Purchase

Affected facilities may use GHG Credits if annual CO<sub>2</sub> emissions:

- in calendar year 2006 or later are higher than the specific facility cap established in an affected facility's 310 CMR 7.29 ECP approval, or
- in calendar year 2008 or later are higher than the allowed 1800 lb/MWh rate.

Facilities could choose to meet the emission limits on an on-going basis, i.e., "out-the-stack," and thus not need to use GHG Credits.

In addition to meeting the limits "out-the-stack" or using GHG Credits created specifically for compliance with 310 CMR 7.29, one additional mechanism is available to affected facilities to demonstrate compliance with the CO<sub>2</sub> provisions of 310 CMR 7.29: use credits or allowances from a Department-approved allowance or credit program, or portion thereof, pursuant to 310 CMR 7.00: Appendix B(7)(e)5.a. The existing regulation 310 CMR 7.29 requires affected facilities to demonstrate compliance each calendar year in a report due by January 30 of the next calendar year. Affected facilities would "use" allowances or credits from an approved allowance or credit program by demonstrating in the 310 CMR 7.29 compliance report that such allowances or credits have been retired for compliance with 310 CMR 7.29(5)(a)5.

As a start-up mechanism, since there are not yet any banked GHG Credits and it may take more than one year to create Credits, during only the first two calendar years of the program (2006 and 2007), facilities that need to use GHG Credits to demonstrate compliance with their facility-specific CO<sub>2</sub> emissions cap under 310 CMR 7.29(5)(a)5.a. may use GHG Credits that have been certified, but not yet verified. If such GHG Credits are used for calendar year 2006 or 2007 compliance, the GHG Credits must be verified by the end of 2008. If fewer GHG Credits are verified than originally certified and used for 2006 and 2007, the facility using such GHG Credits must, in the 310 CMR 7.29 compliance report due January 30, 2009, submit verified GHG Credits equal in amount to the shortfall. MassDEP solicits comment on whether to require some greater amount of verified credits, such as twice the shortfall in GHG Credits.

#### Other

We solicit comment on whether there are evaluation criteria MassDEP should use when reviewing GHG Credit applications that do not fit into the categories of real, additional, verifiable, permanent to the maximum extent feasible or enforceable as a practical matter. For example, the Department has proposed a criterion for afforestation projects requiring that land be non-forested for the 10 years prior to submitting a GHG Credit application. Are there other criteria, perhaps specific to the project, that are not subsumed by the requirements to be real, additional, verifiable, permanent to the maximum extent feasible and enforceable as a practical matter?

### Relationship to RGGI

If as anticipated Massachusetts signs the RGGI MOU and the RGGI process results in a model rule, MassDEP will propose a regulation to implement RGGI, including appropriate modifications to 310 CMR 7.00: Appendix B and 310 CMR 7.29. Once a sufficient number (as defined by the RGGI states) of states including Massachusetts have promulgated their RGGI regulation, the first RGGI compliance period and any modifications to the CO<sub>2</sub> provisions of 310 CMR 7.00: Appendix B and 310 CMR 7.29 would take effect. At this time, the RGGI states are planning for a 2009 implementation date for a regional CO<sub>2</sub> cap and trade program.

The Department is issuing for public comment the proposed regulatory revisions to 310 CMR 7.00: Appendix B and 310 CMR 7.29, which are attached as Appendices A and B. Specific issues upon which the Department seeks public comment are detailed below.

## V. Request For Comments

MassDEP requests comments on MassDEP's proposed CO<sub>2</sub> banking and trading option for affected facilities. Specifically, MassDEP requests comment on:

- *The appropriate application of “permanence” to sequestration projects.*
- *Whether the definition of “Off-site Reduction” should be deleted from 310 CMR 7.29.*
- *The fact that these proposed regulations address greenhouse gases (GHGs), even though regulation 310 CMR 7.29 only explicitly refers to CO<sub>2</sub> and does not use the term GHG.*
- *Replacing the term “surplus” with the term “additional,” as well as the proposed definition of “additional.”*
- *Whether 10 years is an appropriate length of time land must be non-forested prior to submitting a GHG Credit application, or if another length of time is more suitable.*
- *Whether it is appropriate to utilize IPCC's Third Assessment Report, or to utilize IPCC's then-current procedure (i.e., as it may be amended from time to time) for determining GWPs when assessing applications for GHG Credits.*
- *Whether certification of any type of project should be prohibited, and, if so, which project types should be prohibited, and specifically seeks comment on: nuclear uprates, new nuclear plants, early reductions by affected facilities prior to January 1, 2006, and over-compliance by affected facilities after January 1, 2006, once the CO<sub>2</sub> cap and rate take effect.*
- *If over-compliance with 310 CMR 7.29 were eligible to receive GHG Credit:*
  1. *whether such GHG Credits should only be certified and/or used in the initial years of the program, as a start-up flexibility mechanism,*
  2. *whether compliance with both the cap and rate would be necessary before allowing over-compliance to be used to satisfy a compliance obligation,*
  3. *whether over-compliance with the cap can be used to satisfy a rate compliance obligation, and vice versa, and*
  4. *whether over-compliance with the rate and cap can be added and the sum used to satisfy a compliance obligation.*
- *Appropriate criteria that could be applied in the determination of whether another jurisdiction has an approvable carbon constraining program, and whether a program might be approved for one sector but not another.*
- *The appropriate offset trigger price at which to accept applications with a broader geographic scope and accept allowances and credits from other systems.*
- *Whether, once the geographic scope has been opened world-wide, it should ever subsequently be limited back to the states participating in the development of RGGI and jurisdictions that have a carbon constraining program approved by MassDEP and, if so, under what circumstances.*
- *Whether projects should be certified for different amounts of GHG Credit depending on whether the project occurs in Massachusetts, in the states participating in the development of RGGI, in the United States (US), or outside the US.*
- *The appropriate trust trigger price at which to allow payment into a GHG Expendable Trust.*
- *Whether, once the option to pay into a GHG Expendable Trust is allowed, that option should ever subsequently be removed, and, if so, under what circumstances.*
- *Whether the regulation should include a circuit breaker mechanism, or alternative mechanisms.*
- *Whether projects undertaken by the affected facilities exist which generated emission reductions, avoided emissions or sequestered emissions after the initial 310 CMR 7.29 promulgation date of May 11, 2001 and prior to 2006.*
- *The appropriate start date for GHG Credits to be eligible for certification.*
- *Whether January 1, 2006 is an appropriate Project Start Date.*

- *Whether 5000 tons is an appropriate threshold for certification.*
- *Whether, if fewer GHG Credits are verified than originally certified and used for 2006 and 2007, to require some greater amount of verified credits, such as twice the shortfall in GHG Credits.*
- *Whether there are application evaluation criteria, perhaps specific to the project, that are not subsumed by the requirements to be real, additional, verifiable, permanent to the maximum extent feasible and enforceable as a practical matter.*
- *Whether the CO<sub>2</sub> provisions of 310 CMR 7.29 should be replaced by RGGI, if and when RGGI is launched.*

In addition, MassDEP solicits comments on any of the provisions set forth in these proposed revisions to 310 CMR 7.00: Appendix B and 310 CMR 7.29.

## **VI. Costs to Affected Facilities and Consumers**

### **A. Costs to Affected Facilities**

An affected facility will need to provide GHG Credits to comply with the 310 CMR 7.29 CO<sub>2</sub> regulations, if 1) starting in 2006, annual tons of CO<sub>2</sub> are higher than the CO<sub>2</sub> cap in that facility's 310 CMR 7.29 Emission Control Plan approval (the caps are listed on p. 3 of this Technical Support Document), or 2) starting in 2008, annual tons of CO<sub>2</sub> emissions are higher than a facility's net electrical output times a rate of 1800 lbs. of CO<sub>2</sub>/MWh.

#### *Compliance with the cap*

Between 2000 and 2004 (when facilities did not yet have to plan to comply with the annual cap), two facilities on occasion exceeded their CO<sub>2</sub> cap. Thus, if facilities operate in the future as they have in the past, some will exceed their cap in some years, and some will not. If the trust trigger price (initially \$10/ton of CO<sub>2</sub>) is considered a ceiling on compliance costs, and if facilities operate in the future as they have in the past, combined annual costs to the facilities to comply with their CO<sub>2</sub> caps could range from \$0 (as, for example, in 2002 and 2004, when all facilities emitted less than their CO<sub>2</sub> cap), to \$1,907,000 (as, for example, in 2000, when two affected facilities exceeded their CO<sub>2</sub> cap by a combined total of 190,700 tons of CO<sub>2</sub>). If sufficient GHG Credits are available at the low-end RGGI price estimate of \$1/ton of CO<sub>2e</sub>, annual facility costs to comply with their CO<sub>2</sub> cap would be substantially lower, or approximately \$190,700. Please note that while RGGI assumed a cost floor of \$1/ton of CO<sub>2e</sub>, it is possible that facilities could find projects that would pay for themselves (e.g., energy efficiency projects that reduce fuel costs).

#### *Compliance with the rate*

Between 2000 and 2003 (when facilities did not yet have to plan to comply with the rate limitation), all but two facilities regularly exceeded the CO<sub>2</sub> rate of 1800 lbs. of CO<sub>2</sub>/MWh. Thus, if facilities operate in the future as they have in the past, four facilities will exceed the rate, and two will not. If the trust trigger price (initially \$10/ton of CO<sub>2</sub>) is considered a ceiling on compliance costs, and if facilities operate in the future as they have in the past, combined annual costs to the facilities to comply with the CO<sub>2</sub> rate could range from \$7,588,000 (as, for example, in 2003, when four facilities exceeded the CO<sub>2</sub> rate by a combined total of 758,800 tons of CO<sub>2</sub>), to \$17,455,000 (as, for example, in 2000, when four facilities exceeded the CO<sub>2</sub> rate by a combined total of 1,745,500 tons of CO<sub>2</sub>). If sufficient GHG Credits are available at the low-end RGGI price estimate of \$1/ton of CO<sub>2e</sub>, annual facility costs to comply with the CO<sub>2</sub> rate would be substantially lower, or approximately \$1,745,500. To put these potential costs in context, the affected facilities are among New England's "more than 260 participating companies and

entities that complete more than \$7.25 billion of wholesale electricity transactions annually.”<sup>23</sup> Thus, 2003 costs at the trust trigger price would have amounted to less than one quarter of one percent of wholesale electricity transactions. Please note that while RGGI assumed a cost floor of \$1/ton of CO<sub>2e</sub>, it is possible that facilities could find projects that would pay for themselves (e.g., energy efficiency projects that reduce fuel costs).

#### B. Costs to Consumers

Consumers might experience costs of the 310 CMR 7.29 CO<sub>2</sub> regulations (from increased electricity prices) if the affected facilities could pass costs along to consumers. In the deregulated New England market, electricity prices are determined through a bidding process. Facilities bid to supply power, based on, among other things, their knowledge of their costs. ISO New England calls the lowest bidders on-line first, with the price paid to the suppliers of electricity in a five minute period determined by the bid of the last power-generating unit called on-line. This last unit called on-line is the marginal unit for that five minute period, and its bidding price is the price paid to all of suppliers called on for that five minute period, even for those suppliers whose bid was lower than the price of the marginal unit. If a unit affected by this regulation is the marginal unit in a given five minute period, the unit could theoretically pass the cost of complying with the 310 CMR 7.29 CO<sub>2</sub> regulations on to consumers, through its bid price. In time periods when an affected facility does not set the marginal price, the 310 CMR 7.29 CO<sub>2</sub> regulations have no affect on consumers’ electricity prices.

In 2004, coal-fired electric generating units throughout NEPOOL set the marginal price 12% of the time.<sup>24</sup> Coal-fired units typically set the marginal price during overnight hours, when electric generating units with higher costs are not needed to meet electricity demand. Eight of the seventeen units subject to 310 CMR 7.29 are coal-fired, and only coal-fired affected facilities emitted more than their respective CO<sub>2</sub> cap or the CO<sub>2</sub> emission rate from 2000 to 2004. Therefore, facility costs to comply with the CO<sub>2</sub> requirements of 310 CMR 7.29 are unlikely to be fully passed on to the consumer, as the affected facilities rarely set the marginal price. If affected facilities greatly increased their bids in hours that they set the marginal price, units with lower bids would run instead, resulting in the affected facilities not running and thus not setting the marginal price.

### VII. Agricultural Impacts

Pursuant to the intent of Massachusetts General Laws, Chapter 30A, Section 18, state agencies must evaluate the impact of proposed programs on agriculture within the Commonwealth.

The proposed amendments to add a CO<sub>2</sub> banking and trading regulation are not expected to have any negative impacts on agricultural production in Massachusetts.

### VIII. Impact on Massachusetts Municipalities, Proposition 2½

The proposed amendments to the regulation will not negatively impact cities or towns, as no affected facility is owned by a municipality.

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<sup>23</sup> See *2004 Annual Report*, ISO New England Inc., page 5, at [http://www.iso-ne.com/aboutiso/fin/annl\\_reports/2000/2004\\_annual\\_report.pdf](http://www.iso-ne.com/aboutiso/fin/annl_reports/2000/2004_annual_report.pdf)

<sup>24</sup> See *2004 Annual Markets Report*, ISO New England Inc., Figure 19, page 31, at [http://www.iso-ne.com/markets/mkt\\_anlys\\_rpts/annl\\_mkt\\_rpts/2004/2004\\_annual\\_markets\\_report.pdf](http://www.iso-ne.com/markets/mkt_anlys_rpts/annl_mkt_rpts/2004/2004_annual_markets_report.pdf)

## **IX. Massachusetts Environmental Policy Act**

This proposed action is “categorically exempt” from the “Regulations Governing the Preparation of Environmental Impact Reports,” 301 CMR 11.00, because the proposed regulation will result in reduced levels of emissions. All reasonable measures have been taken to minimize adverse impacts.

## **X. Impacts on Other Programs**

### **A. Toxics Use Reduction**

Implementation of 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 amendments will not affect this effort since the amendments provide compliance flexibility while not changing emissions standards.

### **B. Air Toxics**

In the past, air pollution control programs have focused on the six criteria pollutants: particulate matter, nitrogen dioxide, sulfur dioxide, ozone, carbon monoxide, and lead. Recently, concern has been raised over certain components of air pollution that are not specifically regulated by programs developed to control criteria pollutants. These compounds are collectively known as air toxics. The health effects of air toxics are wide-ranging and can vary from long-term carcinogenic effects to short-term adverse health effects.

The Clean Air Act requires EPA to promulgate control strategies for sources of toxic air emissions. MassDEP implements those standards as EPA promulgates them. In addition, MassDEP controls air toxics through programs aimed at controlling the traditional criteria pollutants. The proposed amendments to the regulations will not affect toxics since the amendments provide compliance flexibility while not changing emissions standards.

## **XI. Public Participation**

In developing this regulation, MassDEP consulted with the Executive Office of Environmental Affairs and the Office for Commonwealth Development. MassDEP also consulted with stakeholders, including affected facilities, environmental groups, and industry groups. Their input helped MassDEP shape this proposal.

The proposed amendments to 310 CMR 7.00: Appendix B and 310 CMR 7.29 are subject to public review and comment prior to finalization and promulgation. After public review, and MassDEP evaluation of and response to any comments, the final regulations will be submitted to the Secretary of the Commonwealth for promulgation. MassDEP plans to submit the final 310 CMR 7.00: Appendix B and 310 CMR 7.29 regulations to EPA as a revision to the Massachusetts State Implementation Plan at some point in the future.

As required by state law, MassDEP must give notice, conduct a public hearing and give the public the opportunity to provide comment for at least 21 days after publishing the notice of the proposed amendments. To assure more adequate notice for processing an amendment to the SIP and to comply with federal notice requirements, a formal notice is issued 30 days before the public hearings. Public

hearings to collect comments on the proposed 310 CMR 7.00: Appendix B and 310 CMR 7.29 revisions will be conducted under the provisions of M.G.L. Chapter 30A on:

Tuesday, January 17, 2006 at 6 pm  
Best Western Sovereign Hotel  
1080 Riverdale Street  
West Springfield, MA 01089-4607

Directions at

<http://book.bestwestern.com/bestwestern/propertyMapWeather.do?group=false&propertyCode=22043&disablenav=>

Wednesday, January 18, 2006 at 6 pm  
MassDEP, Southeast Regional Office  
20 Riverside Drive  
Lakeville, MA 02347

Directions at <http://mass.gov/dep/about/region/serodir.htm>

Thursday, January 19, 2006 at 6 pm  
MassDEP, Northeast Regional Office  
205B Lowell Street  
Wilmington, MA 01887

Directions at <http://www.mass.gov/dep/about/region/nerodir.htm>

Friday January 20, 2006 at 9 am  
MassDEP, Headquarters  
One Winter Street  
Boston, MA 02108

Directions at <http://mass.gov/dep/about/organization/depdir.htm>

Testimony may be presented orally or in writing at the public hearings. Written comments will be accepted until 5:00 p.m. on Tuesday, January 31, 2006. Please submit written comments to:

Sharon Weber  
Department of Environmental Protection  
Bureau of Waste Prevention  
One Winter Street  
Boston, MA 02108  
Attention: GHG Comments

If possible, please e-mail a copy to [Sharon.Weber@state.ma.us](mailto:Sharon.Weber@state.ma.us)

To ensure that your written comments are included in the hearing docket, please make sure that you address your comments to Sharon Weber. Comments sent to other offices may not be received in time to be included in the official docket.

*If there are any questions regarding this document, please contact Sharon Weber, 617-556-1190, [Sharon.Weber@state.ma.us](mailto:Sharon.Weber@state.ma.us), at MassDEP's Boston Office, Bureau of Waste Prevention.*

## **Appendix A. Proposed regulatory revisions to 310 CMR 7.00: Appendix B**

Modify 310 CMR 7.00: Appendix B(1) by adding text in italics below:

### APPENDIX B: U EMISSION BANKING, TRADING, AND AVERAGING

(1) Introduction. 310 CMR 7.00: Appendix B(1) *through (6)* establishes principles and procedures which can be utilized by facilities to comply with the requirements of 310 CMR 7.18, 310 CMR 7.19 and 310 CMR 7.00: Appendix A. 310 CMR 7.00: Appendix B contains provisions to allow emission averaging or "bubbles" and provisions to allow for the creation and use of emission reduction credits to be "banked", used or traded among facilities.

Add 310 CMR 7.00: Appendix B(7) to Appendix B, as follows:

#### (7) Greenhouse Gas Credit Banking and Trading.

(a) Introduction and statement of purpose. The goal of the program set forth in 310 CMR 7.00: Appendix B(7) is to reduce, avoid or sequester emissions of greenhouse gas (GHG) in order for affected facilities as defined in 310 CMR 7.29 ("affected facilities") to use GHG Credits for compliance with the applicable provisions of 310 CMR 7.29(5)(a)5.

(b) Definitions. The definitions in 310 CMR 7.00 apply to 310 CMR 7.00: Appendix B(7). However, the following terms have the following meanings when they appear in 310 CMR 7.00: Appendix B(7). Where a term defined in 310 CMR 7.00 definitions also appears in 310 CMR 7.00: Appendix B(7)(b), the definition in 310 CMR 7.00: Appendix B(7)(b) controls.

**Additional** means emission reductions, avoided emissions, and/or sequestered emissions in addition to those that would have taken place in the absence of actions taken to reduce, avoid, or sequester GHG emissions. Emission reductions, avoided emissions, and/or sequestered emissions are not eligible for certification as GHG Credits if the actions taken to reduce, avoid, or sequester GHG emissions are otherwise required by local, state or federal law or regulation, or if the actions are otherwise required as part of a local, state or federal permit or plan approval, agreement, administrative or judicial order, or other enforcement action (including actions taken to reduce other pollutants).

**Afforestation** means the conversion of land that has been in a non-forested state for at least the last 10 years to a forested state.

**Avoided Emissions** means emissions of a GHG that do not occur which would have otherwise occurred if not for specific actions undertaken.

**Certification** means the process of reviewing and conditionally approving a quantity of emission reductions, avoided emissions or sequestered emissions as GHG Credits.

**Coastal Waters** means the waters within the 12-mile limit pursuant to the Tariff Act of 1930 19 USLS §1581.

**Carbon dioxide equivalent or CO<sub>2e</sub>** means the weight of a quantity of a GHG multiplied by its GWP as most recently calculated by the Intergovernmental Panel on Climate Change.

**Energy Conservation Measure** means an action that reduces demand for electricity. An Energy Conservation Measure means the installation or implementation of one or more of the following measures:

- (a) the voluntary design, acquisition, and installation of projects which result in energy savings, and/or
- (b) the voluntary modification of maintenance and operating procedures in a building or facility which result in energy savings, and/or
- (c) the voluntary installation, replacement, or modification of equipment, fixtures, or materials in a building or facility which reduce energy consumption, and include, but are not limited to, modifications to windows and doors; caulking and weather-stripping, insulation; automatic energy control systems; hot water systems; equipment required to operate steam, hydraulic, and ventilation systems; plant and distribution system modifications including replacement of burners, furnaces or boilers; devices for modifying fuel openings; electrical or mechanical furnace ignition stems; utility plant system conversions; replacement or modification of lighting fixtures; and energy recovery systems.

Energy Conservation Measures do not include reductions in labor, load shifting, or measures that do not reduce energy use directly.

**GHG Credit** means a credit based on an amount of emission reductions, avoided emissions or sequestered emissions of a GHG. One GHG Credit has an assigned value of one ton of carbon dioxide equivalent. GHG Credits shall be expressed in whole tons. When certifying or verifying GHG Credits, the number of GHG Credits is rounded down for decimals less than 0.5 and rounded up for decimals of 0.5 or greater.

**GHG Expendable Trust** means the trust established pursuant to 801 CMR 50.00 for the purpose of providing a separate segregated interest-bearing account for the receipt of payments made pursuant to 310 CMR 7.00: Appendix B(7)(d)5.

**Global Warming Potential or GWP** means the ratio of the global heat trapping effect, direct and indirect, of one mass unit of a gas to that of the same mass unit of carbon dioxide over a given period of time. The most recent list of GHG GWPs maintained by the Intergovernmental Panel on Climate Change (IPCC), which utilizes a 100-year period, as amended by the IPCC from time to time, will be utilized by the Department in implementing 310 CMR 7.00: Appendix B(7).

**Greenhouse Gas or GHG** means any of the gases for which a GWP is listed by the IPCC.

**Leakage** means displacement of reduced, avoided, or sequestered GHG emissions to an area or location outside of the boundary of a project which reduced, avoided or sequestered the GHG emissions.

**GHG Registry** means the database of Massachusetts GHG Credits that have been certified, verified, voided and/or used.

**Real reduction** means the reduction in actual emissions released into the air or the reduction in actual emissions that would have occurred if a project had not taken place.

**Renewable Energy Generation Measure** means an energy supply-side measure using sources that are essentially inexhaustible or regenerative. Renewable sources of energy include, but are not limited to, wood, geothermal, wind, photovoltaic and solar thermal energy.

**Sequestered Emissions** means carbon that has successfully been captured and securely stored that would have otherwise been emitted to or remained in the atmosphere.

**Verification** means the process of determining the extent to which certified GHG emission reductions, avoided emissions and/or sequestered emissions actually occurred.

(c) Applicability.

1. Entry into this GHG Banking and Trading Program is voluntary.
2. 310 CMR 7.00: Appendix B(7) applies to affected facilities applying for certification and/or verification of GHG Credits.
3. GHG Credits certified and/or verified under this regulation may only be used to satisfy the requirements of 310 CMR 7.29(5)(a)5.
4. Applications for certification and/or verification of GHG Credits may only be submitted by an affected facility.

(d) Generation of GHG Credits.

1. GHG Credits may consist of emission reductions, avoided emissions, and/or sequestered emissions that are generated by any of the following: stationary, area and mobile sources; renewable energy generation measures; and energy conservation measures. Examples include, but are not limited to: landfill gas combustion; SF<sub>6</sub> capture; afforestation; natural gas, oil and propane end-use efficiency; and methane capture from farming operations.
2. The following are not eligible for certification as GHG Credits: nuclear power generation, under-water and under-ground sequestration, and over-compliance with the cap and rate limitations in 310 CMR 7.29 by affected facilities.
3. Emission reductions, avoided emissions and/or sequestered emissions shall be generated within the geographic limits of Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont, or the coastal waters thereof, or a jurisdiction that has a carbon constraining program approved by the Department under 310 CMR 7.00: Appendix B(7). The Department will maintain a list of approved carbon constraining programs or portions thereof.
4. The Department shall establish an offset trigger price for each calendar year. The offset trigger price for calendar year 2006 shall be \$6.50 per ton of CO<sub>2e</sub>. For each calendar year after 2006, until such time as the offset trigger price is exceeded, the Department shall publish the new offset trigger price by January 31, which shall be equal to the previous year's offset trigger price adjusted up or down according to the previous year's Consumer Price Index. By February 15 of each year, the Department shall determine whether the average calendar year price of GHG Credits or of applied-for GHG Credits for the previous year exceeds the offset trigger price for that previous year, or whether there are insufficient GHG Credits available for purchase at or below the offset trigger price for that previous year, in the geographic region specified in 310 CMR 7.00: Appendix B(7)(d)3. Notwithstanding 310 CMR 7.00: Appendix B(7)(d)3., if the Department determines that the average calendar year price of GHG Credits or of applied-for GHG Credits for the previous year exceeds the offset trigger price for that previous year, or that there are insufficient GHG Credits available for purchase at or below the offset trigger price for that previous year, then, for all subsequent years, affected facilities may apply for certification of projects that occur anywhere on Earth, and certification of CO<sub>2</sub> allowances and CO<sub>2e</sub> credits from

any Department-approved allowance or credit system. The Department shall maintain a list of approved systems.

5. The Department shall establish a trust trigger price for each calendar year. The trust trigger price for calendar year 2006 shall be \$10.00 per ton of CO<sub>2e</sub>. For each calendar year after 2006, the Department shall publish the new trust trigger price by January 31, which shall be equal to the previous year's trust trigger price adjusted up or down according to the previous year's Consumer Price Index plus 2%. By February 15 of each year, the Department shall determine whether the previous calendar year's average price of GHG Credits, of applied-for GHG Credits, or of projects paid for by the GHG Expendable Trust exceeds the trust trigger price for that previous year. Notwithstanding 310 CMR 7.00: Appendix B(7)(d)3. and 4., if the Department determines that the average calendar year price of GHG Credits, average calendar year price of applied-for GHG Credits, and average calendar year price of projects paid for by the GHG Expendable Trust for the previous year exceed the trust trigger price for that previous year, then, for compliance with that calendar year's CO<sub>2</sub> limits, applicants may pay the trust trigger price into the GHG Expendable Trust.

6. Notwithstanding 310 CMR 7.00: Appendix B(7)(d)3., 4., and 5., if, at any time, the Commissioner determines that the price of GHG Credits or of applied-for GHG Credits substantially exceeds either of the price thresholds established in 310 CMR 7.00: Appendix B(7)(d)4. or 5., or if insufficient certifiable applications for GHG Credits are submitted, then the Commissioner may, after public notice in the Environmental Monitor, and an opportunity for public comment, expand the geographic scope or allow payments into the GHG Expendable Trust at the rate set forth in 310 CMR 7.00: Appendix B(7)(d)5.

7. In order to be certified and/or verified as GHG Credits pursuant to 310 CMR 7.00: Appendix B(7), emission reductions, avoided emissions, and/or sequestered emissions shall be real, additional, verifiable, and enforceable as a practical matter and occur on or after January 1, 2006.

8. In order to be certified and/or verified as GHG Credits pursuant to 310 CMR 7.00: Appendix B(7), emission reductions, avoided emissions, and/or sequestered emissions shall be generated only by projects built and generating energy (in the case of certain avoided emissions), or built and in use, or installed and operational (in the case of emission reductions or sequestered emissions) by January 1, 2006.

9. In order to be certified and/or verified as GHG Credits pursuant to 310 CMR 7.00: Appendix B(7), emission reductions, avoided emissions, and/or sequestered emissions shall be permanent to the maximum extent feasible.

(e) Procedure For Certification and Verification of Emission Reductions, Avoided Emissions, and/or Sequestered Emissions as GHG Credit.

1. An application for certification of GHG Credit may be submitted to the Department in advance of the time when the emission reduction, avoided emission, and/or sequestered emission actually occurs (prospective certification) or after the emission reduction, avoided emission, and/or sequestered emission has actually occurred (retrospective certification).

2. An application for verification of GHG Credit may be submitted to the Department anytime after the emission reduction, avoided emission, and/or sequestered emission actually occurred.

3. For project-based emission reductions, avoided emissions, and/or sequestered emissions, only those projects which generate 5000 or more tons CO<sub>2e</sub>, as calculated under 310 CMR 7.00: Appendix B(7)(d), are eligible to be certified as GHG Credits.
4. Application Procedures for projects.
  - a. Applications are required for certification and verification of GHG Credits from emissions reduction, avoided emission and sequestration projects.
  - b. The GHG Credit application shall be submitted on a form supplied by the Department and shall include but not be limited to: a complete description of the project, a quantification protocol that details the calculation method for the quantification of pre- and post-project emissions for emission reductions; quantity of avoided emissions; or quantity of sequestered emissions, and a proposed method for determining, monitoring and assuring compliance.
  - c. GHG Credit applications shall express emission reductions, avoided emissions, and or sequestered emissions in whole tons of CO<sub>2e</sub>. When certifying or verifying GHG Credits, the number of GHG Credits is rounded down for decimals less than 0.5 and rounded up for decimals of 0.5 or greater.
  - d. GHG Credit applications shall contain sufficient information to allow the Department to evaluate each emission reduction, avoided emission and/or sequestered emission consistent with the requirements of 310 CMR 7.00: Appendix B(7). Where applicable, the applicant shall specify the best management practice used to determine an emissions baseline.
  - e. GHG Credit applications shall be submitted by and bear the signature of a legally responsible official from the affected facility submitting the application.
  - f. GHG Credit applications shall comply with provisions of 310 CMR 4.00 et seq. for fees and permit procedures as applicable.
  - g. Concurrent participation in other registries and certification programs.
    - i. If an applicant has submitted information relative to the emission reductions, avoided emissions, or sequestered emissions for which the applicant is seeking certification under Appendix B(7) to any other certification system, registry or inventory, then the applicant shall submit a copy of such information with its application for certification of GHG Credit in Massachusetts. The applicant shall state the status of its submittal to such other certification system, registry or inventory.
    - ii. If an applicant for GHG Credit fails to comply with 310 CMR 7.00: Appendix B(7)(e)4.g.i., then the Department may deny any GHG Credit applied for and void any GHG Credits that may have been approved. GHG Credits shall be voided in cases where the GHG Credit is found to have been used for a purpose other than those specified in 310 CMR 7.00: Appendix B(7).
  - h. GHG Credit certification and verification applications shall contain a description of potential project leakage, and describe how such leakage was or will be monitored and

avoided. The Department shall void GHG Credits to the extent of any leakage that has been identified.

i. GHG Credit applications shall document the price paid by the applicant per ton of CO<sub>2e</sub> applied for.

5. Applications for GHG Credits from other carbon constraining programs.

a. The Department may approve allowances or credits from any carbon constraining program as GHG Credits, provided that the Department determines such program or portion thereof has procedures in place to ensure allowances or credits are real, additional, verifiable, permanent to the maximum extent feasible and enforceable as a practical matter.

b. The application shall be submitted on a form supplied by the Department and shall include, but not be limited to: a complete description of the project or program as applicable; relevant laws, regulations, policies, and guidelines; and such other information as the Department deems necessary to make a determination pursuant to 310 CMR 7.00: Appendix B(7)(e)5.

6. Conditions of GHG Credit Certification and Verification Approvals

a. The Department may approve, approve with conditions, or deny GHG Credit applications.

b. The Department may require applicants to implement compliance assurance methods such as testing, monitoring, recordkeeping and reporting as part of the GHG Credit certification and verification approval.

c. The Department may consider scientific uncertainty and the extent to which a project may be harmful to the environment or public health when certifying or verifying GHG Credits.

(f) Public participation procedures for GHG Credit certification and verification applications pursuant to 310 CMR 7.00: Appendix B(7)

1. The Department will publish, at the applicant's expense, a notice of public comment on a draft approval, conditional approval, or disapproval. The Department will allow a 30-day public comment period following publication of the notice, and may hold a public hearing. After the close of the public comment period, the Department will issue a final decision.

2. 310 CMR 7.00: Appendix B(7)(g) shall apply to applications for GHG Credit pursuant to this section, instead of the procedures under 310 CMR 7.00: Appendix B(6).

(g) Use and Purchase of GHG Credits.

1. Affected facilities may use GHG Credits certified under 310 CMR 7.00: Appendix B(7) to comply with 310 CMR 7.29(5)(a)5.

2. Affected facilities may use GHG Credits certified in calendar years 2006 and 2007 to meet any compliance obligation under 310 CMR 7.29(5)(a)5. for those years, provided that such GHG

Credits are verified by December 31, 2008. If any certified GHG Credits which were used for calendar year 2006 or 2007 compliance with 310 CMR 7.29 are not verified by December 31, 2008 due to leakage or any other reason, the affected facility using the certified GHG Credits shall provide an equivalent amount of valid GHG Credits in the 310 CMR 7.29 calendar year 2008 report due January 30, 2009.

3. GHG Credits that have been used to satisfy any GHG liability or requirement other than 310 CMR 7.29, with the exception of requirements to disclose environmental and other attributes of electricity generation, shall not be eligible for use to comply with the requirements of 310 CMR 7.29.

4. Any affected facility which purchases a GHG credit from any source shall report the price paid per GHG credit to the Department within 30 days of purchase.

5. Once the Department approves an allowance or credit program or portion thereof pursuant to 310 CMR 7.00: Appendix B(7)(e)5.a., an affected facility may demonstrate compliance with the CO<sub>2</sub> provisions of 310 CMR 7.29 by demonstrating in the 310 CMR 7.29 compliance report due by January 30 of each year, that such allowances or credits have been retired for compliance with 310 CMR 7.29(5)(a)5.

(h) Program review.

1. The Department shall conduct a review of the GHG emission trading program beginning in 2010 and every five years thereafter. This review shall evaluate the reduction of CO<sub>2</sub> emissions, handling of applications for GHG Credit approval, and the use of approved GHG Credits, and may include review of GHG Credit creation and use protocols, and compliance assessment of sources using GHG Credit. The program review may also include assessment of the impact of the program on New England Governors/Eastern Canadian Premiers Climate Change Action Plan milestones.

2. The Department may propose the appropriate program revisions pursuant to Chapter 30A administrative procedures based upon program review.

## **Appendix B. Proposed regulatory revisions to 310 CMR 7.29**

Modify 310 CMR 7.29 by adding text in italics and deleting text in strikethroughs below:

310 CMR 7.29(2) Definitions.

Off site Reduction means reductions of carbon dioxide, including, but not limited to, carbon sequestration measures, shutdown of carbon dioxide sources, or renewable energy generation measures listed in 40 CFR Part 73 Subpart F Appendix A 3. Reductions shall be approved by the Department through quantification methodologies equivalent to quantification methodologies contained in 310 CMR 7.00: ~~Appendix B(3).~~

Sequestration means the uptake and long term storage of carbon in the biosphere, underground, or the oceans so that the buildup of carbon dioxide concentration in the atmosphere will be reduced or slowed.

310 CMR 7.29(5)(a)5. Carbon Dioxide Emission Standards.

c. Compliance with 310 CMR 7.29(5)(a)5.a. may be demonstrated by using ~~offsite-emission~~ reductions, *avoided emissions* or *sequestered emissions*~~ration verified under 310 CMR 7.00: Appendix B(7)~~ to offset emissions above the historical actual emissions, provided the Department determines such *emission* reductions, *avoided emissions* or *sequestered emissions*~~ration~~ are real, *additional*~~surplus~~, verifiable, permanent to the maximum extent feasible, and enforceable as a practical matter,~~as defined at 310 CMR 7.00: Appendix B.~~

d. Compliance with 310 CMR 7.29(5)(a)5.b. may be demonstrated by using ~~off-site~~*emission* reductions, *avoided emissions* or *sequestered emissions*~~ration verified under 310 CMR 7.00: Appendix B(7)~~ to offset excess emissions, provided the Department determines such ~~offsite-emission~~ reductions, *avoided emissions* or *sequestered emissions*~~ration~~ are real, *additional*~~surplus~~, verifiable, permanent to the maximum extent feasible, and enforceable as a practical matter,~~as defined at 310 CMR 7.00: Appendix B.~~ Excess emissions are any emissions above the net electrical output of the facility times 1800 lbs./MWh.