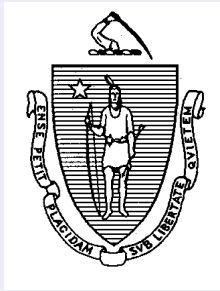


COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION



Reporting of Greenhouse Gas Emissions
by Retail Sellers of Electricity
Stakeholder Meeting
January 16, 2009

Agenda

- 9:30-9:45 Introductions, background and logistics
- 9:45-10:00 Summary of legislation and broader reporting regulation and schedule
- 10:00-11:00 Retail seller reporting: Overall approach and specific issues
- 11:00-11:45 Discussion and feedback
- 11:45-12:00 Next steps and potential future meeting(s)

Why Was I Contacted About This Meeting?

- MassDEP contacted retail sellers that may be subject to new reporting regulations based on being:
 - Licensed as a competitive supplier by the Massachusetts Department of Public Utilities (MA DPU)
 - An electric distribution company
 - One of the 40 MA municipal electric departments or light boards
- MassDEP contacted greenhouse gas Stakeholders

The Global Warming Solutions Act (GWSA) Background

- Signed by Governor Patrick on August 7, 2008
- Sets in motion a process to reduce greenhouse gas (GHG) emissions in MA
 - 10-25% by 2020
 - 80% by 2050
- Requires reporting of GHG emissions
 - Regulations for facilities adopted by January 1, 2009
 - Regulations for retail sellers implemented by July 1, 2009

Full text of the GWSA can be found at:

<http://www.mass.gov/legis/laws/seslaw08/sl080298.htm>



GWSA Reporting Purposes

- Measure progress to 2020 & 2050 Goals
- Target programs to reduce emissions where greatest improvements can happen
- Identify successful strategies
- Identify areas for additional opportunities
- “What is measured, can be reduced”

GHG Reporting Regulations Two Step Process

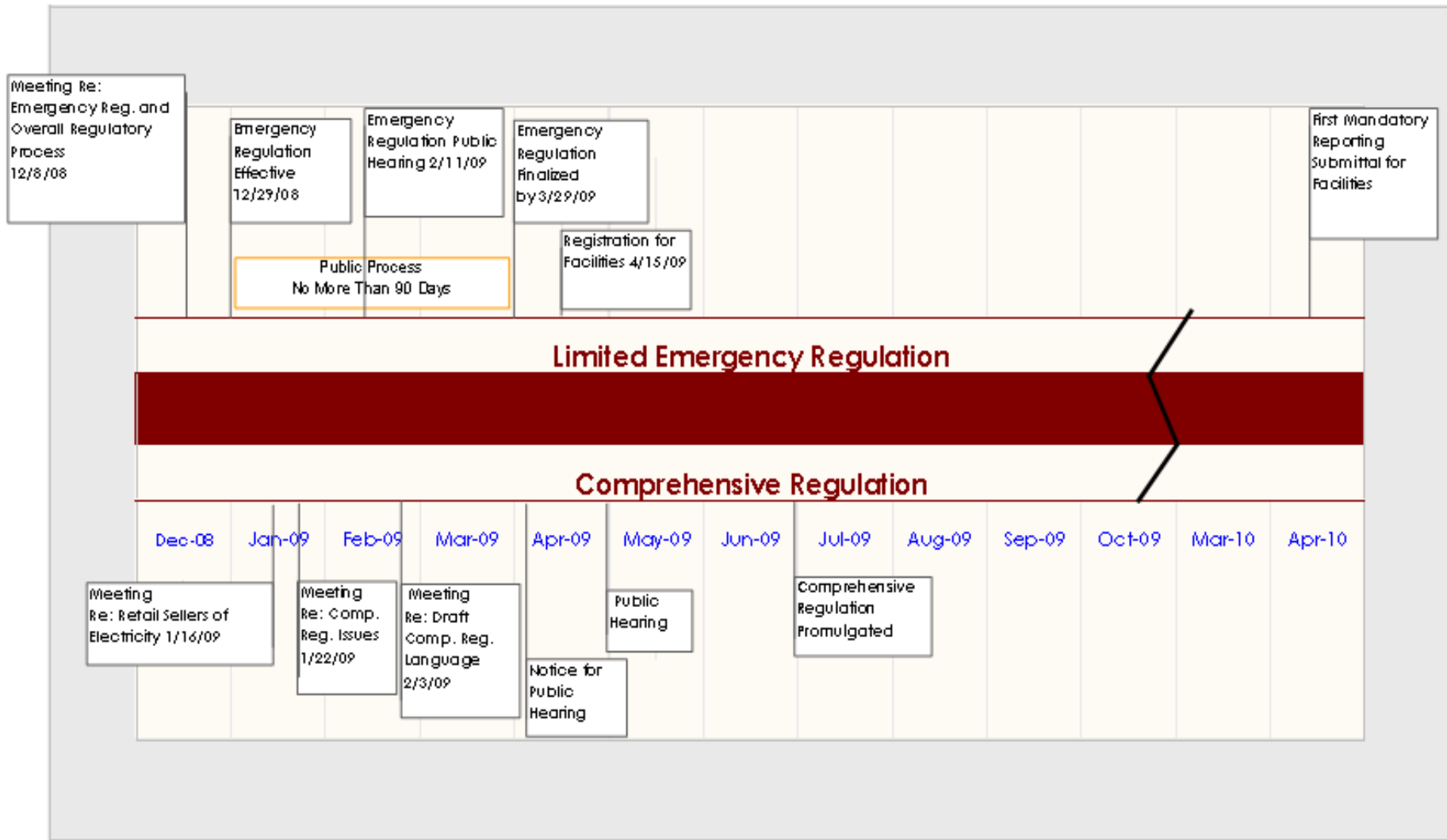
STEP 1: Limited Emergency Regulation on December 29, 2008

- Identifies sources, outlines the reporting process, provides notice to facilities
- Met the statutory deadline of January 1, 2009
- Does not address retail sellers of electricity

STEP 2: Comprehensive Regulations by June, 2009

- Reporting schedule, requirements, and logistics for reporting
- Allows additional public discussion
- Will include provisions for retail sellers of electricity

Draft Promulgation Timeline



Retail Sellers of Electricity

Under GWSA, the regulations shall:

*“require reporting of greenhouse gas emissions from generation sources producing all **electricity consumed**, including transmission and distribution **line losses** from electricity generated within the commonwealth or **imported from outside** the commonwealth; provided, however, that this requirement shall apply to all **retail sellers of electricity**, including electric utilities, municipal electric departments and municipal light boards...”*

Key Retail Seller Provisions

GHG emissions from:

- All electricity consumed
- Line losses
- Electricity generated within or imported from outside of MA

Who Has to Report?

- All retail sellers of electricity, including:
 - Electric utilities, i.e., distribution companies (4)
 - Municipal electric departments } (40)
 - Municipal light boards }
 - Competitive suppliers (~40)

Proposed Calculation Methodology

$$\text{Emissions} = \text{MWh} \times \text{EF} \times \frac{1 \text{ short ton}}{2,000 \text{ pounds}}$$

Where:

- Emissions = in short tons of carbon dioxide equivalents (CO₂e); CO₂e, means that, for gases other than carbon dioxide, the value is adjusted to account for differing global warming potentials
- MWh = Megawatt hours supplied by retail seller for consumption in MA
- EF = Emission factor, in lb CO₂e/MWh, calculated annually

Retail Seller Issues Prompted by Proposed Calculation Methodology

1. What to report
2. Verification
3. MWh; accounting for electricity generated by non-emitting renewable sources
4. When to report
5. GHGs to report
6. Updating annual emission factor (lb/MWh)
7. Electricity imports
8. Line losses

1. What Do I Have to Report?

- *Option A*: require GHG emissions only
- *Option B*: require GHG emissions and MWh
- Issues to consider:
 - Confidentiality
 - Verification

1a. Confidentiality

- *State law (Chapter 111 Section 142B) does not allow MassDEP to keep emission data confidential*
- *State law allows MassDEP to keep non-emission data confidential, if requested and if certain conditions are met (see 310 CMR 3.00)*
- *State law (Chapter 25A Section 7) allows Department of Energy Resources to collect certain data, including MWh, “maintained for the sole and confidential use of the commonwealth, its agencies and offices”*
- If only GHG emissions were reported, MWh supplied by retail seller could be back-calculated in certain cases
- Question: concerns from retail sellers with releasing MWh data?

2. Verification

Under GWSA,

*“The department shall adopt regulations to require the reporting and **verification** of statewide greenhouse gas emissions ...”*

2a. Verification

Two Options:

- **Third Party Verification**

- Retail sellers would hire an approved third party to verify emissions reports

- **Self-Certification and MassDEP Audit**

- For MWh, MassDEP would rely upon DOER review process for certain retail sellers (see next slide)

3. What MWh value do I use to calculate GHGs?

- If subject to Renewable Portfolio Standard (RPS), use same MWh that RPS compliance obligation is based on.
- If not subject to RPS, i.e., municipal electric departments and light boards, use MWh in “annual return” report to MA DPU.

3a. What if I used non-emitting MWh to comply with RPS?

- Any retail seller may subtract non-emitting (i.e., solar, wind, ocean, marine, small hydro) Renewable Energy Certificates (RECs) from total MWh sold, *prior to calculating GHG emissions*, if:
 - used to comply with RPS or
 - not used to comply with RPS, but were otherwise eligible to be used to comply with RPS
- Generation by coal, oil, natural gas, nuclear, large hydro, etc. is not eligible to comply with RPS

3b. Can I take credit for any non-RPS-eligible, non-emitting MWh?

- Do any municipal electric departments or light boards own non-emitting hydro or nuclear units that are not eligible to be used to comply with RPS?
- Do any retail sellers have sole-source contracts with non-emitting units that are not eligible for RPS?
- How would we ensure no double-counting?

4. When Do I Have to Report Each Year?

- *Option A*: report at a set time (e.g., 1 month) after MassDEP posts annual emission factor
- *Option B*: report MWh each August, followed by GHGs as in *Option A*

- *Availability of MWh from RPS report*: typically 11 to 14 months after calendar year
- *Availability of emission data from United States Environmental Protection Agency or Independent System Operator (ISO)*: typically 21 months to 2.5 years after calendar year, although ISO has been working to reduce time lag

4a. When Do I Have to Report for the First Time?

- Potential for a one-time report of the most recent year available; otherwise, 2010 retail seller GHG emissions would not be available until about 2012.

5. Which Gases Do I Have to Report?

- The GHGs emitted directly by power plants are CO₂, CH₄ (methane) and N₂O (nitrous oxide)
- lb CO₂e/MWh emission factor could include all three GHGs, weighted for global warming potential

6. How will the annual emission factor be updated?

- *Option A*: Revise the regulation annually
- *Option B*:
 - Methodology in regulation
 - Annually update emission factor, with public comment

7. How will emissions from electricity imported from outside MA be accounted for?

- MA imports 20% of its electricity consumption
- Each year's emission factor will be adjusted to account for states and provinces bordering MA that generate more electricity than they consume, or import electricity into New England (see next slide)

7a. Emission Factor Calculation

$$EF = \frac{\text{CO}_2\text{e from MA power plants} + \Sigma \text{CO}_2\text{e from NE Import State} + \Sigma \text{CO}_2\text{e from Import Area}}{\text{MWh consumed in MA}}$$

Where:

“CO₂e from NE Import State” is from New England states that generate more MWh than they consume in a given year

“CO₂e from Import Area” is from New York, New Brunswick or Quebec in years that New England imports MWh from them

7b. Example EF Calculation

$$EF = \frac{\text{CO}_2\text{e from MA power plants} + \text{CO}_2\text{e}_{\text{ME}} + \text{CO}_2\text{e}_{\text{NH}} + \text{CO}_2\text{e}_{\text{NB}} + \text{CO}_2\text{e}_{\text{QU}}}{\text{MWh consumed in MA}}$$

- In a given year:
 - 2 New England states (ME & NH) generate more electricity than they consume (each a “NE Import State”), while the other 4 New England states consume more than they generate
 - New England imports electricity from New Brunswick & Quebec (each an “Import Area”), but does not import from New York

8. How will emissions associated with line losses be accounted for?

- **MWh** used for RPS compliance already include line losses
- **Emission factor** discussed in previous 3 slides includes line losses

Retail Seller Issues Discussion: Pros, Cons, Alternatives?

1. What to report
2. Verification
3. MWh; accounting for electricity generated by non-emitting renewable sources
4. When to report
5. GHGs to report
6. Updating annual emission factor (lb/MWh)
7. Electricity imports
8. Line losses

Next Steps and Future Meetings

- Please submit any feedback on retail seller GHG reporting by January 25, 2009 to sharon.weber@state.ma.us
- The next stakeholder meeting on the comprehensive regulations is scheduled for January 22, 2009
- A meeting introducing the draft regulation will be held in February 2009
- Comprehensive Regulations are anticipated to be promulgated by June 2009
- For More Information see:
 - MassDEP Mandatory Greenhouse Gas Reporting Website:
<http://www.mass.gov/dep/public/hearings/ghgrmtgs.htm>
 - MassDEP Greenhouse Gases & Climate Change Website:
<http://www.mass.gov/dep/air/climate/index.htm>

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Retail seller questions

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Sample GHG Calculation

XYZ Retail Seller of Electricity

- Supplied 1,000,000 MWh of electricity, including line losses, in a calendar year
- Emission factor for the calendar year is determined to be 1,000 lb CO₂e/MWh
- 1,000,000 MWh x 1,000 lb CO₂e/MWh x 1 short ton/2,000 pounds = 500,000 short tons CO₂e
- **Total XYZ Retail Seller of Electricity emissions associated with electricity supplied = 500,000 short tons CO₂e**

Emission Factor Calculation (2)

$$\text{CO}_2\text{e from NE Import State } i = \frac{A_i}{B_i} (D_i - C_i) \frac{(C_{MA} - D_{MA})}{\sum (C_j - D_j)}$$

Average lb CO₂e/MWh
emission rate of state i
that has extra MWh

extra MWh from state i

MA fraction of electricity that New
England states need to import

Where:

CO₂e from NE Import State = CO₂e from a New England state i that generated more MWh than consumed in a given year, and which MA could therefore import electricity from

A_i = CO₂e emitted by power plants in state i

B_i = MWh generated by power plants in state i

C = MWh consumed in a state i, j or MA

D = MWh generated in a state i, j or MA

i = a New England state that generated more than it consumed in a particular year (i.e., exported)

j = a New England state that consumed more than it generated in a particular year (i.e., imported)

Emission Factor Calculation (3)

$$\text{CO}_2\text{e from Import Area } i = \frac{A_i}{B_i} E_i \frac{(C_{MA} - D_{MA})}{\sum (C_j - D_j)}$$

Average lb CO₂e/MWh
emission rate of area i
that has extra MWh

MWh imported from area i
to New England

MA fraction of electricity that New
England states need to import

Where:

CO₂e from Import Area = CO₂e from New York, New Brunswick or
Quebec in years that New England imports MWh from them

A_i = CO₂e emitted by power plants in area i

B_i = MWh generated by power plants in area i

C = MWh consumed in a state j or MA

D = MWh generated in a state j or MA

E_i = MWh imported by New England from area i

i = an area that New England imported power from

j = a New England state that consumed more than it generated in a
particular year (i.e., imported)

Retail Seller Reporting Provisions of GWSA

Section 2 of Chapter 21N of the GWSA

Section 2. (a) The department shall monitor and regulate emissions of greenhouse gases with the goal of reducing those emissions. The department shall adopt regulations to require the reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with this chapter.

The regulations shall:

- (5) require reporting of greenhouse gas emissions from generation sources producing all electricity consumed, including transmission and distribution line losses from electricity generated within the commonwealth or imported from outside the commonwealth; provided, however, that this requirement shall apply to all retail sellers of electricity, including electric utilities, municipal electric departments and municipal light boards as defined in section 1 of chapter 164A;*
- (6) ensure rigorous and consistent accounting of emissions and provide reporting tools and formats to ensure collection of necessary data; and*
- (7) ensure that greenhouse gas emissions sources maintain comprehensive records of all reported greenhouse gas emissions.*

SECTION 12 of Chapter 298 of the Acts of 2008

Clauses (4) and (5) of said third sentence of said subsection (a) of said section 2 of said chapter 21N shall be implemented not later than July 1, 2009.



Definitions from the Massachusetts General Laws

Section 1 Definitions of Chapter 164A of the Massachusetts General Laws

"Electric utility", any individual or entity or subdivision thereof, private, governmental or other, including a municipal electric department, wherever resident or organized, primarily engaged in the generation and sale or the purchase and sale of electricity, or the transmission thereof, for ultimate consumption by the public.

"Municipal electric department", an electric department or lighting plant of a city or town of the commonwealth, which department or plant is subject to the provisions of chapter one hundred sixty-four. Except where otherwise specifically provided, a municipal electric department may exercise any of its powers or authority contained in this chapter through its municipal light board. Before such a municipal electric department exercises any power under this chapter, this chapter shall be accepted by a majority vote, as defined in section one of chapter forty-four of the municipality.

"Municipal light board", the municipal light board or commission, municipal gas and electric commission or similar body; the mayor or city manager, as the case may be, of a city having no such body; or the selectmen of a town having no such body.