

**Biomass Policy Development in  
Massachusetts**  
*RPS Rulemaking*

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**Biomass and  
Greenhouse Gas  
Emissions – A  
Burning Issue**

**Boston, MA**

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# Learning Objectives

- Understand the historical role of biomass in contributing to the MA RPS demand
- Appreciate the role of biomass developers in proposing new projects in MA
- Understand the attributes and concerns surrounding the use of biomass energy, and the role of the public in bringing forth policy concerns
- Appreciate the decisions and process of the MA state government to address science/policy issues
- Understand the draft regulations MA DOER has proposed pertaining to the eligibility of biomass for the MA RPS program

# Primary Drivers for Clean Energy Policy (The Acts of 2008)

- **Green Communities Act**
  - Expands EE delivery mechanisms and goals
  - RPS – expansion and strengthening targets
  - Net metering provisions
  - Wind Siting Commission
- **Global Warming Solutions Act**
  - 2020 commitments – 10-25% below 1990 levels
  - 2050 commitments – 80% or more below 1990 levels
- **Oceans Management Act**
  - Provides zoning-like planning of state waters
  - Identifies presumptive areas for wind development
- **Clean Energy Biofuels Act**
  - Mandate for advanced biofuels
  - Paves way for transition to LCFS

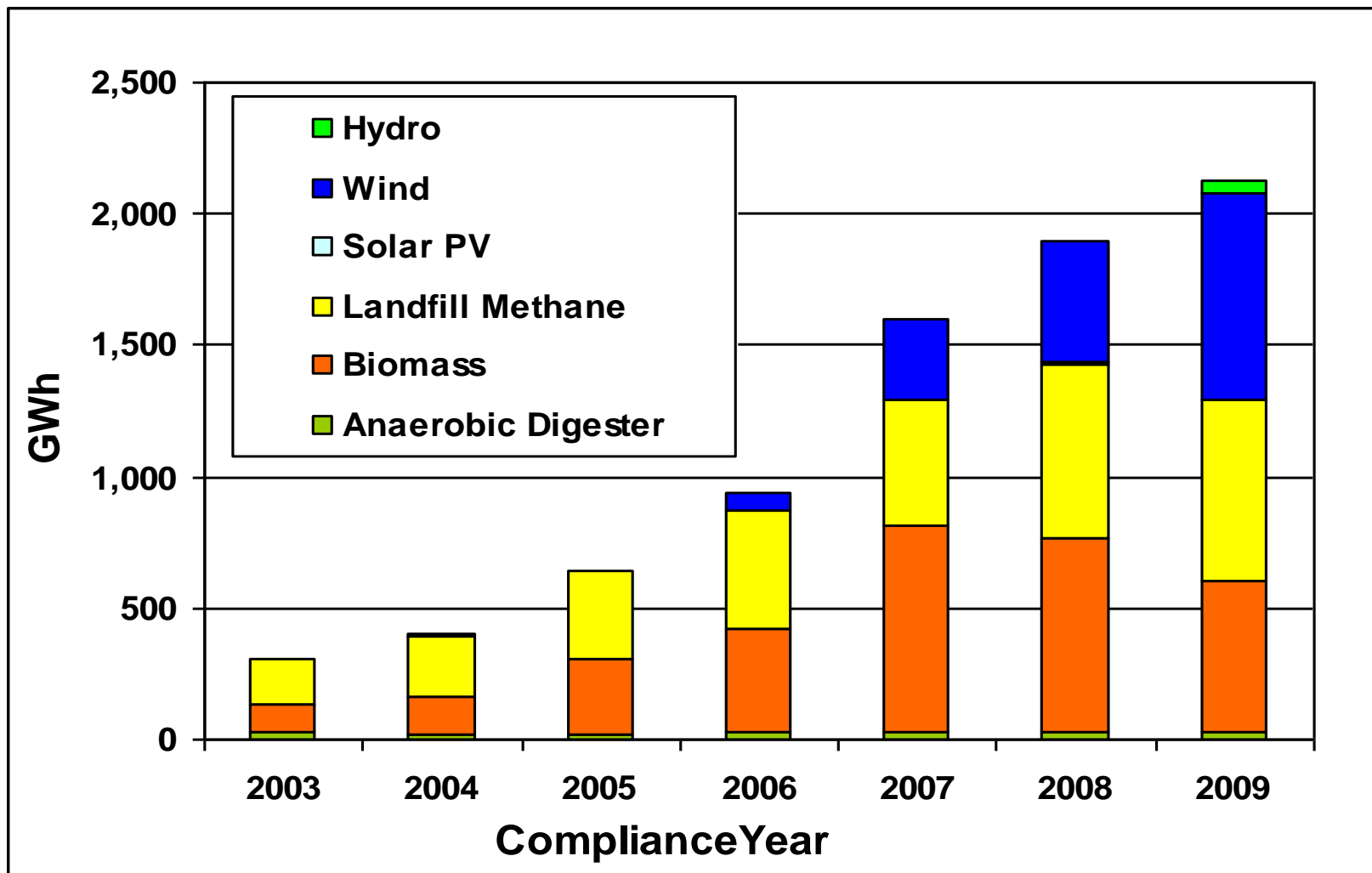
# MA Class I RPS Program Success



	2003	2004	2005	2006	2007	2008	2009
Surplus Banked	61	20	1	9	81	211	386
ACP Compliance	0	265	368	323	11	1	0
Compliance from Banked	255	61	20	2	7	81	190
Compliance Year Generation	304	445	645	939	1600	1896	2130

# MA RPS Class I

## Compliance Trend By Technology



# Biomass – How did we get here?

- RPS Program prompted significant private development interest in large central, electric-only biomass power plants in western MA
  - Locations: Russell, Greenfield, Pittsfield, Springfield
- Concerns were raised by local citizens
  - Truck traffic, air emissions, greenhouse gas emissions, forest impacts
- DOER and EEA Secretariat sought to understand biomass GHG accounting in light of GWSA and to assure protection of MA forests. Available science-based analysis of biomass GHG accounting was not satisfactory to DOER.
- Biomass opponents organized ballot referendum to restrict (essentially eliminate) any biomass from qualifying for RPS.

# Biomass – Observations

## **What's good about biomass?**

- Biomass presents a large indigenous energy resource in MA.
- Biomass can be effectively used for non-intermittent baseload power generation, and for CHP, heating, district energy, and cellulosic biofuels - offers a non-fossil substitute for coal and fuel oil.
- Biomass creates substantial local and sustained economic development.

## **What's problematic about biomass?**

- Biomass has air emissions.
- Biomass impacts forests and calls for strict forest harvesting regulations and broader forest policy to maintain full range of forest services for nature and humans.
- Biomass is a renewable, but finite, resource, and total demand pressure on forests needs to be properly constrained.

## **What's not well understood about biomass?**

- What are net impacts of biomass on carbon emissions, and how does forest management and the allowable re-sequestration timeframe impact this assessment?

# Massachusetts Approach

Department of Energy Resources  
Executive Office of Energy and Environmental Affairs  
Department of Environmental Protection  
Department of Conservation and Recreation

**Step back .... study science .... establish prudent policy .... move forward**

- EEA Secretary asked DOER to integrate “sustainability” criterion in RPS regulations for eligible biomass fuel
- DOER enacted suspension of new RPS qualifications for woody biomass units
- DOER commissioned comprehensive science-based study of forestry and carbon accounting issues (the “Manomet Study”). Completes Public Meetings and comments on study.
- DOER files draft proposed revisions to the RPS regulations pertaining to the eligibility of biomass units.

# RPS Biomass Rulemaking

## Key Principles

- Eligible Woody Biomass Fuels
  - Rely primarily on forest residues, and non-forest sources
  - Allow for limited thinning to avoid forest high-grading
  - Implement/enforce fuel certification and tracking system
- Overall Efficiency Criterion
  - Reduce Carbon Debt by requiring high efficiency use of biomass
  - Maximize GHG and other benefits achieved from limited biomass resource
- Life-Cycle GHG Reduction
  - Demonstrate reductions consistent with the GHG reduction commitments of the Commonwealth under the MA GWSA
- Grand-parenting Qualified Biomass Projects
  - Provide reasonable timeframe for existing qualified units to meet new standards

# RPS Biomass Rulemaking

## Key Components: Eligible Biomass Fuel

- Forest Derived Residues
  - Harvesting residues (tops/branches not used for products)
  - Unacceptable Growing Stock
  - Thinnings to improve timber stand
  - Removals to improve regeneration goals, including invasive species

*Forest Derived Residues limited to 15% of total removal of timber product for forest nutrient retention.*
- Forest Salvage
  - Downed storm damage
  - Control of pest infestations
- Non-Forest Derived Residues
  - Primary/secondary forest products industry residues
  - Land clearing for land use change
  - Clean yard/wood wastes (prunings, road/park maintenance)
- Dedicated Energy Crops

# RPS Biomass Rulemaking

## Key Components: Fuel Certification/Tracking

- *Biomass Fuel Certificate* accompanies eligible fuels and provided to DOER quarterly by qualified Units.
- For forest derived eligible biomass, harvest site is provided an *Eligible Forest Residue Tonnage Report* prepared by certified forester approved/trained by DOER that stipulates the total number (tons) of *Biomass Fuel Certificates* that can be removed from the site.
- Advisory Panel will monitor tracking and verification procedures and provide findings/recommendations to DOER.
- Forest Impact Assessment will be conducted every 5 years.

# RPS Biomass Rulemaking

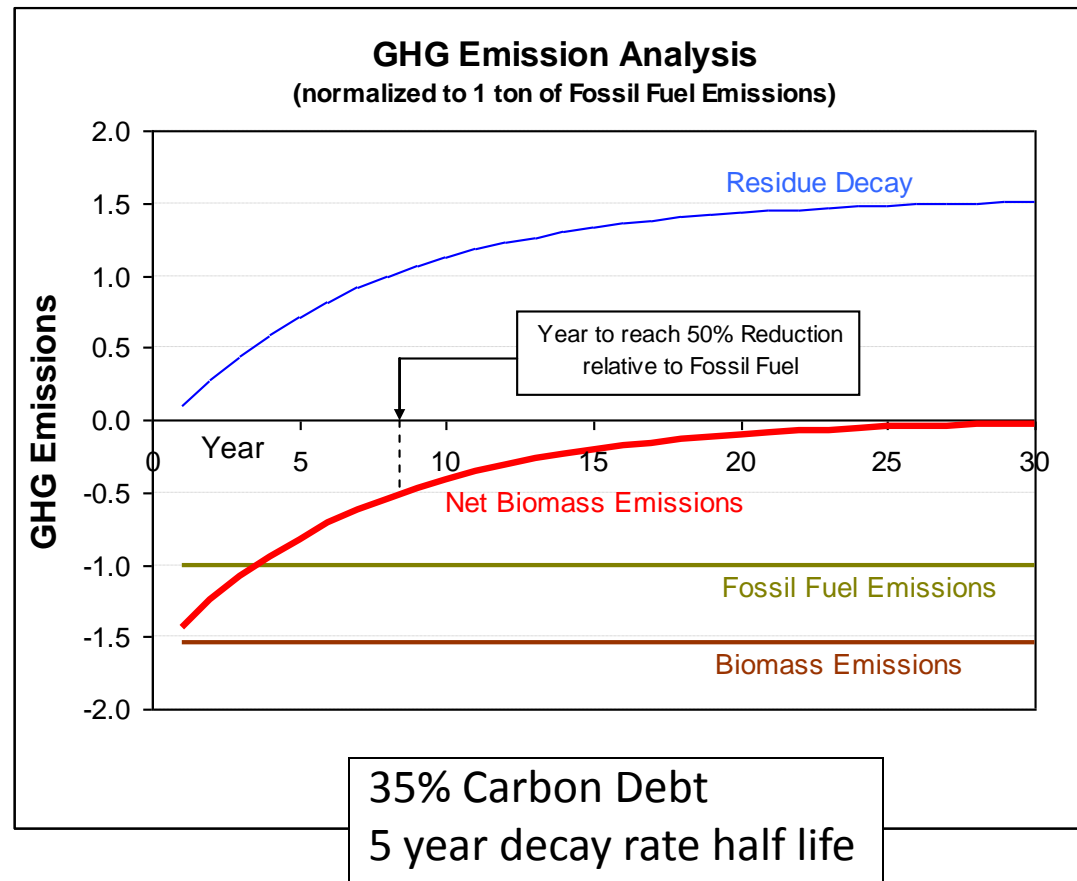
## Key Components: Overall Efficiency

- Generation Units must meet Minimum Overall Efficiency Criterion
- Overall Efficiency calculated as:  
(Electric + Thermal + Bio-Products Energy Output) / Biomass Input Fuel
- Units provided RECs based on Quarterly Performance
  - Units must achieve at least a 40% Overall Efficiency
  - 40% Overall Efficiency earns one-half REC credit per MWh
  - 60% and greater Overall Efficiency earns full REC credit per MWh
  - REC credit ramps up linearly from ½ to full credit between 40 and 60% efficiency.

# RPS Biomass Rulemaking

## Key Components: Life-Cycle GHG Reduction

- Consistent with 2008 Global Warming Solutions Act, biomass units must demonstrate a life-cycle GHG reductions
  - 50% reduction compared to natural gas combined-cycle electric generation in 20 years
  - Reduction of GHG from avoid fossil fuel serving heating loads are added
- Based on predominant use of residue biomass (alternative fate is quick decay) and high efficiency conversion (low carbon debt), the GHG reduction threshold should be feasible.



# RPS Biomass Rulemaking

## Key Components: Previously Qualified Units

- Existing terms of Statement of Qualifications remain in effect through 2012.
- Starting in 2013, Units must utilize Eligible Biomass Fuels to remain qualified through 2014.
- Beginning 2015, all criteria must be met to remain qualified.

# RPS Biomass Rulemaking Process and Timetable

- DOER filed draft proposed regulations on September 17<sup>th</sup> and held two Public Hearings on October 15<sup>th</sup>
- DOER is in receipt of nearly 500 written comments (available on DOER website)
- As required in law, DOER will file proposed final regulations with Legislature soon
- Following review by Legislative Committee, DOER will promulgate final regulations

# A Vision for Woody Biomass in MA

- Changes to RPS eligibility for biomass does not close the door, but re-focuses market development on opportunities to utilize the limited resource in more efficient ways.
- Expectation is to see focus on smaller scale CHP systems, and emerging opportunities for district energy applications (campuses, office parks, hospitals, etc.)
- MA seeks to level policy playing field between biomass electric and thermal – eliminating the perverse incentive to utilize biomass in less efficient modes.
- MA/Northeast is highly depending on fuel oil for building heating, and emerging (EU based) highly efficient and clean biomass heating technology will be a focus of policy attention.

# Questions/Comments

## Contact Information

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