Creating A Cleaner Energy Future For the Commonwealth

DOER
Massachusetts Department of Energy Resources

225 CMR 16.00

Renewable Thermal Technologies in the APS

Biomass Subgroup Meeting

November 24, 2014

Westborough, MA

Agenda

- Introduction
- Biomass system requirements
  - Air emissions
  - Storage requirements
    - Fuel / Thermal
  - Minimum efficiency
- Resource sustainability
- Fuel quality

Specifications in the Statute

DOER has to establish for biomass, biogas and liquid biofuel technologies (with MassDEP):

- **Air emission performance standards** for PM2.5 and CO;
- A requirement of **50% reduction in life-cycle GHG emissions**;
- Requirements for **thermal storage** or other means to minimize deterioration of efficiency or emissions due to boiler cycling, if feasible;
- Fuel conversion **efficiency performance standards**;
- Requirements that fuel shall be provided by means of **sustainable forestry practices** (with DCR).

Biomass Sustainability

- Demonstrate sustainable **forest management**
  - Key role for licensed forester
    - Forest management plan, best management practices, Forest Guild biomass guidelines
  - Sustainability certification of fuel feedstock
    - MA sourced: Commonwealth Quality Program

      Incl. provisions for downed wood and soil condition
    - Import from outside MA: Sustainable Forestry Initiative, Forest Stewardship Council, ENPlus, Programme for the Endorsement of Forest Certification…
  - Option to use DOER qualified list of suppliers

Biomass Sustainability

- Verification
  - Qualified biomass system owners required to keep record of invoices to demonstrate eligible fuel is used
    - Spot audits by DOER or Agent
  - DOER tracks and reports average aggregate share of residues/thinnings from large wood chip users and pellet producers

Biomass GHG Balance

- Need to demonstrate 50% lifecycle GHG savings compared to default traditional heating source
  - DOER calculation, no individual reporting
    - Based on representative reported mix of residues and thinnings
    - Include in sustainability criteria
  - Residue versus thinnings share in pellet feedstock should be about 50/50

    (Indicative results based on the MA RPS Class I GHG Calculation Guideline)

Biomass System Performance

DOER to establish with MassDEP: best in class commercially feasible technologies

- **Air emission performance standards**
  - Small systems

    PM: max. 0.1 lb/MMBtu heat output

    CO: tbd
  - Large systems: MassDEP air permit
- Requirements for **thermal storage** or other means to minimize deterioration of efficiency or emissions due to boiler cycling, if feasible
  - No storage needed if boiler can operate with minimum emissions / efficiency loss at 20% of capacity
  - Review based on results of MassCEC metering
- Fuel conversion **efficiency performance standards**
  - Min. 80% efficiency

Biomass Fuel Quality

- Combine sustainability with fuel quality
  - Dimension (length, diameter)
  - Heating value
  - Moisture content
  - Ash content
  - Contaminants
- Available standards
  - ENplus (EN 14961-2, ISO 17225-2) > PFI