

National Biomass Power Perspective

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Redding, California
for
Maine Biomass Commission Meeting
August 2, 2016 / Augusta, Maine

Background on Bill Carlson

- **Electric power industry since 1970**
- **Renewable power industry since 1980's**
- **Chairman/Founder – Biomass Power Association**
- **Board Member/Founder – California Biomass Energy Alliance**
- **Advisory Role – Western Governors, USDA/USDOE**
- **State Biomass/Renewable policy development in CA, LA, MT, NV, OR, WA**



Current National Perspective

- Biomass power industry stable, but threatened by lower natural gas prices, falling prices of wind/solar
- Substantial growth in south, northwest in 2000-2010 period due to high renewable prices, substantial incentives
- Older biomass fleets in California, New England (including Maine) now off/almost off original contracts and struggling to find adequate replacements
- Long time host states, such as California, Maine, Oregon, recognize environmental, economic value of plants and seek to preserve/expand industry



Comparing California and Maine

- Early adoption of biomass power after passage of PURPA (1978) due to high power rates, adequate fuel, aggressive state action
- Large biomass fleets, primarily standalone plants, built in large scale
- Plants integrated themselves into forest products industry, forest management, agriculture, solid waste management
 - Allowed ban on ag waste burning
 - Largest component of CA landfill diversion
- Original 20-30 year power contracts have now largely run their course
- Despite 30 years of forest fuel removal, both states have more trees now than at the start



Creating an Industry/Preserving an Industry

- **Incentives for Creation**
 - Federal Production Tax Credit (PTC)
 - Federal Investment Tax Credit (ITC)
 - Federal accelerated depreciation
 - Federal low cost financing
 - Early state property tax exemption
 - State sales tax exemption on equipment
 - State Income Tax Credit
 - State Loan Program
 - Long term fixed price power contract



Creating an Industry/Preserving an Industry

- **Incentives for Preserving**

- Fuel credits/payments
- State support for overmarket cost of power
- Set aside within Renewable Portfolio Standard (RPS) for biomass
- Thermal Renewable Energy Credits (REC's) for CHP
- Monetary recognition of capacity/baseload feature

Bottom Line: Cheaper to preserve than create as capital already paid for/recovered



If Maine Decides to Preserve, How Big is Task?

- Maine's average electrical load is 1,370 MW (2014, EIA)
- Maine's 40% RPS thus requires 550 average MW
- Maine has 6 biomass power facilities with 240 MW total capacity (BPA, 2016)
- Maine biomass plants contribute 200 average MW (36% of needed total)
- Preservation task is large, but not staggering

Existing Applicable Tools in Maine Legislation/Regulation

- **State building green power purchasing**
 - 100% renewable power to state buildings
- **Community-based renewable energy production incentive**
 - Max project size of 10 MW
 - Max program size of 50 MW (reached & closed)
 - \$0.10/kWh or less if return acceptable
 - Expired at end of 2015



Existing Applicable Tools in Maine Legislation/Regulation - continued

- **State RPS Law**
 - 40% of total sales by 2017
 - Use NEPOOL GIS for accounting
 - 1.5x RECs for community based projects
 - Additional goals for wind
- **Current RFP for 2 year contracts with state overmarket payments**



Why Should Biomass Power Industry in Maine be Sustained?

- Local economic, environmental, forest management benefits described by others
- Could be integral part of State's Federal Clean Power Plan (CPP) compliance, particularly in subsequent rounds
- Avoid loss of baseload capacity that must be replaced, particularly with high future intermittent renewable penetration
- Could become base for industrial expansion in Maine as supplier of low cost thermal energy



Principles for Sustaining Biomass Power Industry

- Both electric and non-electric benefits accepted as real and documented
- Need to sustain industry at lowest cost to government/ratepayers
- Need to avoid windfalls to existing plants
- Solution(s) needs to be long-term (20 years)
- Solution needs to nudge industry to more sustainable CHP model from standalone

Possible Maine Solutions

- **Biomass set aside within Maine's RPS**
- **Thermal RECs issued for biomass combined heat and power (CHP) systems**



Biomass Set Aside

- Auction mechanism to award 10-20 year contracts with ME utility
- Auction size less than current installed capacity to create competition/avoid windfalls
- Auction rules could prescribe fuels to be used
- RECs to utility as part of bid to allow cost recovery/preserve upside
- Previously done in CA and AZ, with current RFP in CA tied to fuel from high hazard zones



Awarding of Thermal REC's

- Pushes plants towards CHP model to increase revenue and thermal efficiency
- Would be equivalent to electrical REC and used for RPS compliance
- Any use of plant steam/flue gas for heating/cooling or electrical displacement would qualify
- Initiation of program actually lowers RPS compliance cost for utilities
- Current programs in MA, NC, NH and rules currently being drafted in OR

Maine Conclusion

- Biomass makes up highest percentage of State's electrical capacity in Maine and New Hampshire, by far, and thus solution needed
- Benefits to ratepayers appear to justify additional cost to ratepayers
- Far cheaper to sustain current industry than to replace later
- Other states dealing with same issues at the same time

Thank you

Questions?

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