

NY RENEWABLE BIOMASS

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New York State Energy Research and Development Authority
(NYSERDA)

April 28, 2010



New York State Energy Research and Development Authority (NYSERDA)

- Established in 1975 by State Legislature
- Cognizant energy agency for New York
- Mission: To identify solutions to State's energy and environmental challenges in ways that benefit the State's economy
- Forge public/private partnerships with businesses, municipalities, residents, and other energy stakeholders to accomplish this goal

Renewable Fuels Roadmap and Sustainable Biomass Feedstock Study

Supported by: NYSERDA, NYS Department of Environmental Conservation, NYS Department of Agriculture & Markets

Prime Contractor: Pace University

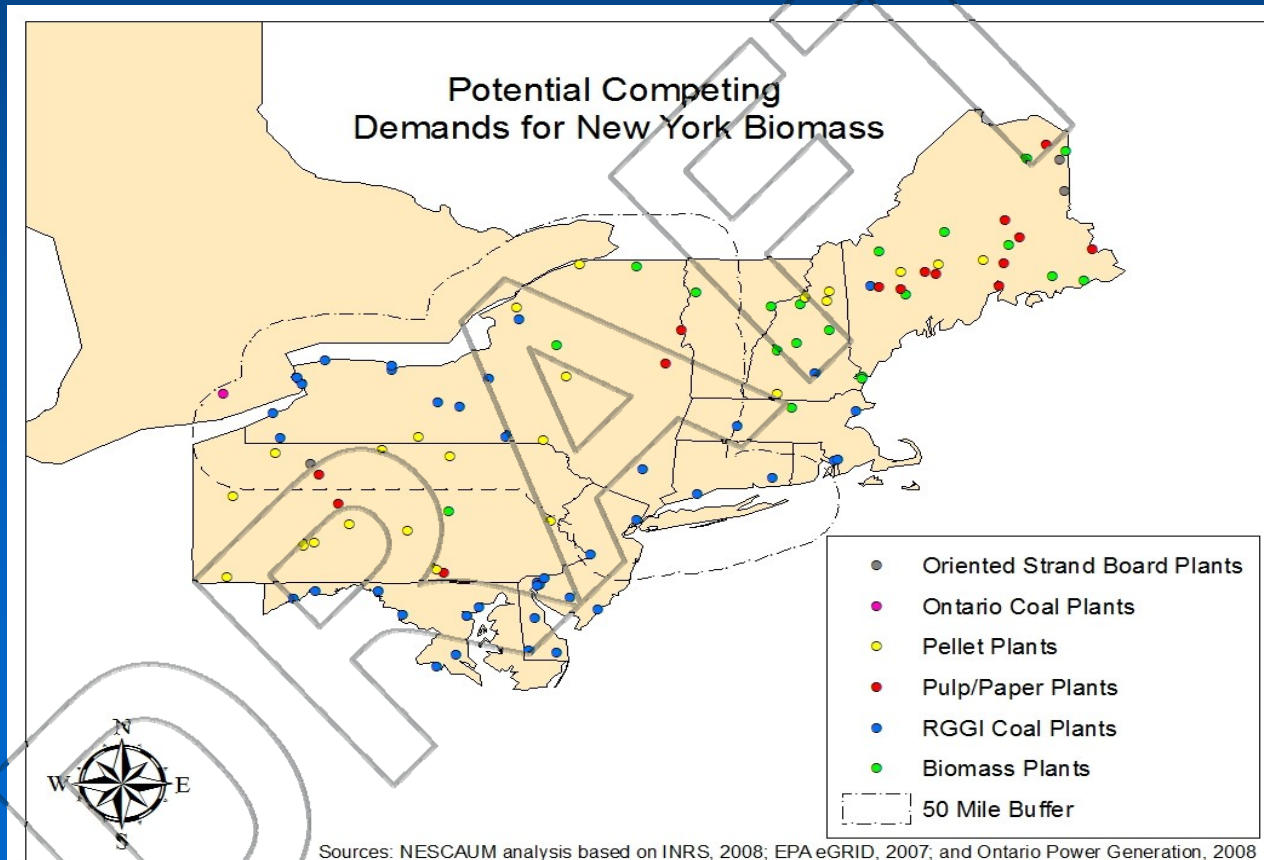
Report targeted on web in March 2010 with two annual updates.

- Life-cycle environmental consequences including upstream emissions and land-use impacts
- Best practices for supplying sustainable feedstock
- Current industrial and research base in NYS
- Distribution network
- Workforce and training needs
- Financial resources needed to develop industry
- Economic development benefits for agricultural areas

“Roadmap” Conclusions

- Focus on Biofuels,
 - Many results useful to others in Bioenergy
 - Biofuels industry under distress
 - Few other choices for liquid transportation fuels
- Stakeholder input – held statewide meetings, sustainability survey shows low consensus among 35 criteria
- Sustainability must include how to measure, validate, enforce
- NY has enough feedstock for future biofuels industry
 - Forests growing 3x faster than we are cutting
 - 54% of NYS is forestland
- Life-cycle analysis shows GHG reductions
- 80% of jobs in feedstock (inc. transport)
- Need policies to: develop industry, increase demand, and help producers, harvesters, distributors, refiners

Competing Uses for Biomass



- Biofuels
- Wood products
- Electricity generation
- CHP
- Thermal heating

RGGI could create substantial biomass demand

At 2.5% co-firing 4.3 green tons needed (current state-wide wood products industry)

Framing the Issue

- Residential and commercial sector in New York account for 45% of distillate used
- How New York compares:
 - 21% of residential energy consumption is distillate, compared to 7.8% nationally
 - NY's residential distillate use represents 20% of all distillate used in residential sector in U.S.

Residential and Commercial Heating (solid biomass)

- Market survey of high efficiency European biomass combustion appliances
- Energy and emissions performance of high efficiency pellet boiler integrated with solar thermal and hot water storage
- Comparative study of emissions and energy performance of residential biomass heating systems
- Multiple demonstrations and evaluations of high efficiency, low emissions wood heating equipment

Residential and Commercial Heating (solid biomass) cont'd

- Development of multiple high efficiency, low emissions wood boilers
 - 3 NYS manufacturers supported by NYSERDA
- Laboratory testing of grass combustion appliances
- Development of a mobile grass pelletizer
- Evaluation of wood feedstock variability

Residential and Commercial Heating (air quality)

- Heating the Northeast with Renewable Biomass conference.
 - New Source Performance Standard – for residential wood heating equipment. Will highlight NYSERDA sponsored research with BIOENERGY 2020+ (Austria) and EPA Office of R&D. The EPA staff Air Quality Planning and Standards will also present an update on regulation development.
 - Area Source Boiler Rule – for all commercial boilers. Session will focus on wood-fired commercial boilers and highlight NYSERDA funded research with NESCAUM (conventional technologies), and Clarkson University (Advanced Climate Technology high-efficiency pellet boiler).

Biomass-Fired CHP Units

- Lockheed Martin, Owego
 - (2) 600 HP biomass boilers
 - using waste products from local lumber mills
 - Will save \$2.1 million in operating expenses annually
- US Salt, Watkins Glen
 - Fluidized-bed boiler
 - Will save \$4 million annually
 - 5-6 year payback
- Griffiss Business Park, Rome
 - Feasibility study addressed feedstock cost and supply in 50-mile radius

Guide for siting Small-Scale Biomass Projects in NYS

- Recently completed by Pace, on our website
- Designed to aid future investment in biopower projects
- 10 MW or smaller biomass to electricity
- Three technologies: direct combustion (100% or cofiring), biomass gasification, anaerobic digestion
- Underscores importance of CHP in making a project viable

Energy Plan

- Sets targets: 2009-2010; 2011-2013; 2014-2018

Some examples:

- Biofuels -- LCA completed 2011-2013, tax incentives aligned with LCA conclusions regarding alternative fuels
- Bioheat – B20 in home heating oil tax credit extends beyond 2011
- Biomass Heating
 - find \$ for wood boiler change out
 - biomass heating performance standards: 2011-2013,
 - Energy Star incorporated into incentive packages 2011-2013
- LCFS – implemented 2014-2018
- Climate Action Plan – bioenergy use and sustainability is monitored 2014-2018

Climate Action Plan

- Stakeholder Process
- Draft September 2010
- Components include:
 - Mitigation
 - Adaptation
- Policies on mitigation and adaptation submitted to Governor by the end of 2010



Biomass is complicated

Forms of biomass – lots of different feedstocks

Conversion technologies – risk, innovation

Products, end users, market sectors

Infrastructure barriers

Conflicting, uncertain or lacking policies

Many needs

Good future for us – lots to do!

PON 1260 Clean Energy Business Growth and Development

Support the growth and development of clean energy companies in New York State.

Eligibility: Businesses with operations in NYS seeking to initiate new operations or expand existing ones, or businesses outside NYS willing to open operations in NY. Companies may be well established or early stage enterprises, but must have a product or service that is commercial or in a near commercial stage of development.

Technologies may be full systems or components of systems.

Funding: Five separate rounds are scheduled under this PON and total available funding is \$6,400,000. All, or none, of the available funds could be allocated in any round. The maximum project award is \$200,000, which must be matched by contractor cost share.

Due Dates: Round 4: 06/02/2010 Round 5: 11/03/2010

PON 1772 Next Generation Emerging Technologies for End-Use Efficiency (Up to \$4.9 Million Available)

Development and demonstration of emerging and innovative technologies or systems that increase the efficiency of end-use energy consumption in buildings, reduce greenhouse gas (GHG) emissions in buildings, reduce energy demand in NYS, or are of strategic importance to the State's energy and environmental future.

Proposals Due Dates: April 29th, July 29th, October 28th

Category A – Feasibility projects \$100K, 20% co-funding.

Category B – Product Development \$300K, 50% co-funding.

Category C – Demonstration projects \$300K, 50% co-funding.

Category D – Product Commercialization Program \$700K, 30% co-funding (Restricted to Electrical Efficiency).

Planned Solicitation - Fall 2010

Renewable Thermal Energy Program - Advanced Conventional System and Unconventional Systems (\$1M RGGI)

- Biomass, Solar Thermal, Solar Wall, Pre-cooling and heating w/free energy, geothermal, large centralized thermal storage, Waste Heat Recovery, and thermal photovoltaic

Green Jobs Green New York Program (Under development)

- Loans for energy efficiency projects
- Workforce Development

NYS Wood Boiler Change Out Pilot (Pending)

NYSERDA's objective with this Pilot is

- Demonstrate high-efficiency wood-fired boiler technology
- Facilitate emission reduction projects
- To presents a unique opportunity to produce local, state, and national benefits.

The lessons learned from this change out will provide important information that may be incorporated into NYSERDA's existing residential efficiency programs as well as providing guidance for a change out program on the national level with the EPA.

Pilot emphasis

- Home Energy Audit
- Proper System Sizing
- High-Efficiency Boiler
- Hot Water Storage
- Data Logging to monitor performance & emissions

Where to find information:

- <http://www.nyserda.org/publications/>
 - Biomass Guidebook
- www.NYSEnergyPlan.com
- www.NYClimateChange.us
- <http://www.nyserda.org/funding>

