



# **Maryland Energy**

ADMINISTRATION

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*Powering Maryland's Future*

Kyle Haas

Clean Energy Program Manager

# MD Clean Wood Burning Stove Grant

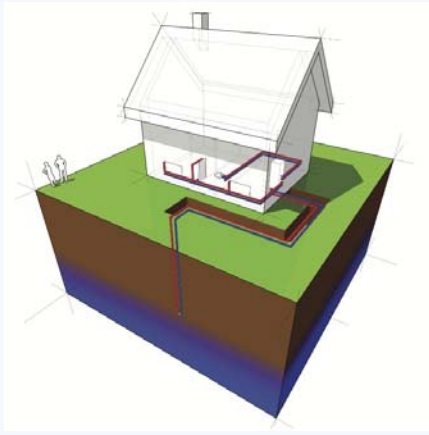
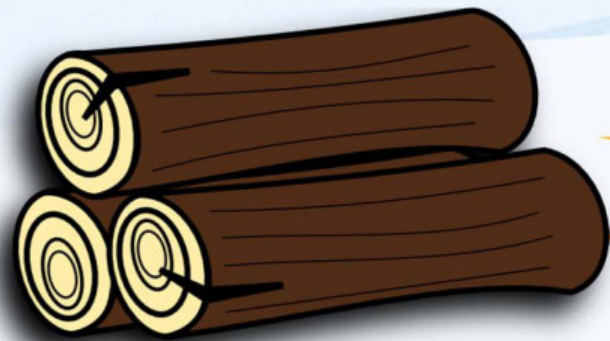


- \$700/pellet \$500/wood stoves.
- Targets rural homeowners:
  - Replace heating oil, propane, old woodstoves only. No natural gas.
- Must meet EPA/Washington State emissions standards (see MEA website).
- Professional install doesn't need additional inspection.

# Incentives for commercial wood heating

- \$\$\$ set aside for effective way to deploy commercial wood heating systems
- Goal: Deploy efficient commercial wood systems
- Partnering with DNR, WEC, UM Extens.
- Challenges:
  - How to ensure projects are actually deployed?
  - How to maximize # of grants?
  - How to leverage funds with other sources of \$
    - USFS





## Thermal Renewable Energy Task Force

Finding ways to incent renewable thermal energy like electric energy

# Renewable Portfolio Standard



- Requires electric suppliers to use renewable resources to use renewables
- If goals are not met, suppliers pay Alternative Compliance Payment
- Compliance: Award/retirement of Renewable Energy Credits (RECs)
- Qualified tech. (solar PV, wind, etc.) earn 1 REC for each MWH
- As enacted in 2004, only for electricity

**SB717/HB933**

2011

Solar Water Heating

**SB652/HB1186**

2012

Geothermal  
Heating/Cooling

**SB787/HB1084**

2013

Biomass Thermal

- Each bill was proposed or enacted in separate years to incorporate geothermal heating and cooling, solar hot water or thermal biomass into RPS
- Structure of RPS was never modified to address this incorporation
- Each technology has different qualifications, regulations and processes
- Out of state biomass facilities had potential to flood REC market, devaluing RECs

# Thermal Renewable Energy Task Force:

- Discussions centered around a new, separate tier to the RPS that qualifies thermal tech.
- Efficiency requirements
- Applications: useful thermal applications
- How to create a valuable incentive, limiting ratepayer impact
- How to manage existing facilities and tech.

# Last Year's Presentation

- Project at Catoctin Mountain Growers
- Financing issues at CMG killed the project
- No funds awarded
- Connected with MD Hawk, UMES and CET to replicate project





# Wood Gamechanger Project



UNIVERSITY of MARYLAND  
EASTERN SHORE

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- \$350,000 MEA grant
- 1MMBTU system
- Circulates hot water for year round production
- **Partners dedicated to replication (UMES, MD Hawk, CET)**

C A M B R I D G E



E N V I R O N M E N T A L  
T E C H N O L O G I E S



**MARYLAND HAWK  
CORPORATION**



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# Cambridge EnTech



Examples of  
CET Industries & Products

**Cambridge Environmental Technologies was created to capitalize on the company's systems technology expertise and engineering experience.**

## **Cambridge Environmental Technologies Quick Facts:**

- Emphasizes finding creative ways to improve the performance of proven environmental technologies such as patented automated emissions control system- the Kinetic Electrostatic Precipitator (ESP) and our patent pending mechanical filter- the Reeltration System
- Strategic partnership with BETH Filters GmbH (100+ year old gas filtration company located in Lübeck, Germany to supply traditional dry, wet, and tar ESPs and bag houses to the North American market
- Provides engineering, design and manufacturing for material handling and combustion/gasification grate systems
- Developing multiple waste-to-energy projects throughout the state of Maryland

# ½-5 Acre Greenhouse- Biomass Boiler System – Project Review

- Maryland Hawk plans to use biomass to generate hot water for thermal energy required to heat the greenhouse which will eliminate the need for propane or oil as a heating source.
- Develop an education component involving horticulture, the greenhouse will be used as an active teaching and learning facility for biomass-to- energy technology.
- Demonstrate the value of biomass generated renewable energy through capital cost justification, demonstrating the abundant availability of biomass feedstocks, state-of-the-art pollution controls, and the ease of system operation.
- Provide site access to our local communities, stake holders and state visitors to come see and learn about the advantages of generating renewable energy with biomass.
- Insure that this project is a catalyst in providing repeatable, affordable, and successful biomass projects throughout Maryland and in the mid-Atlantic region for hundreds of small to medium sized greenhouses and sharing relative data with the poultry industry
- Our collective goal is to demonstrate the economic value of biomass technologies in Maryland, e.g. through increased clean energy production from innovative technologies that demonstrate sustainable energy practices in agriculture.

# Woody Biomass- MD



**Woody Biomass**

Approx. quantity available in MD: 7 MM tons

Total energy potential of woody biomass in MD: 10,425,710 MWh

Equivalent # of MD households' annual electricity consumption: 840,783

## **CET's Current Greenhouse project- Eastern Shore of Maryland**

- Global objective: Prove that renewable energy from wood and possibly poultry litter are cost effective alternatives for poultry growers and greenhouses on Delmarva
- Main objective: Heat ½ acre greenhouse using hot water from a woody biomass combustor
- Secondary objective: Determine if poultry litter is a feasible feedstock for the combustor
- Final objective: Create electricity with surplus energy from the combustion system
- Small scale (300 kWh) combustion system
- Hot water boiler and high efficiency heat exchanger
- Reeltration System for pollution control
- 10 kWe Organic Rankine Cycle (ORC) for electrical output
- Installation slated for late October 2013

# Current Projects - Woody Biomass

## Sample of existing CHIPTEC & CET customers:



**Universities**

Middlebury College  
Colby College  
Eastern Illinois University  
Santa Fe Community College  
University of Western Montana



**Public Schools & Government**

Arizona Public Service  
Rice Lake School District  
Hartford High School  
Ausable Chasms Schools  
Craig Town School  
City of Battle Creek



**Industry**

ConEdison Solutions  
J. Gibson Mcllvain Co.  
Columbia Forest Products  
Marion Plywood  
Johnson Lumber  
Arnot Ogden Medical Center

## Sample of current projects:



**Airports**

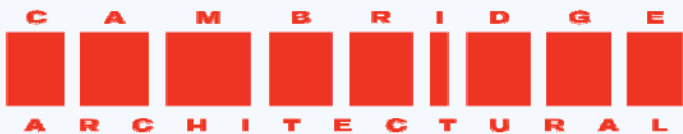


**Prisons**



**Government Districts**

# CONTACT INFORMATION



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