

# Biomass Power Generation: 5 MW and Under

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# Overview

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- Environmental, social, economic benefits
- Biomass power generation
  - Process, inputs and products, plant layout
- Project examples

# Why utilize biomass for power generation?

- **Environmental and Social**

- Renewable energy
- Replace fossil fuel
- Markets for low-use wood (waste, forest residues)
- Considered carbon neutral

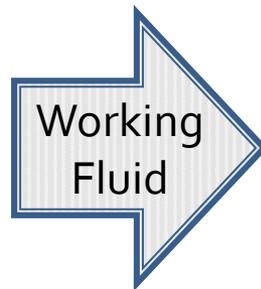
- **Economic**

- Energy dollars stay local
- Energy savings to owner

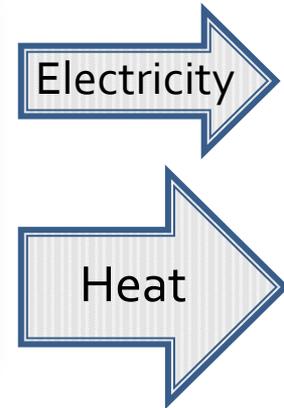
# Biomass power generation under 5 MW



Advanced Combustion Unit



Turbine or Engine  
(ORC, Steam, Syngas)



- Current economics require use of heat, Combined Heat and Power (CHP)
- Thermally-led CHP is most efficient use of limited biomass resource (60 – 80% thermal efficiency)

# Inputs, products

**What goes in?**

**Biomass Fuel**



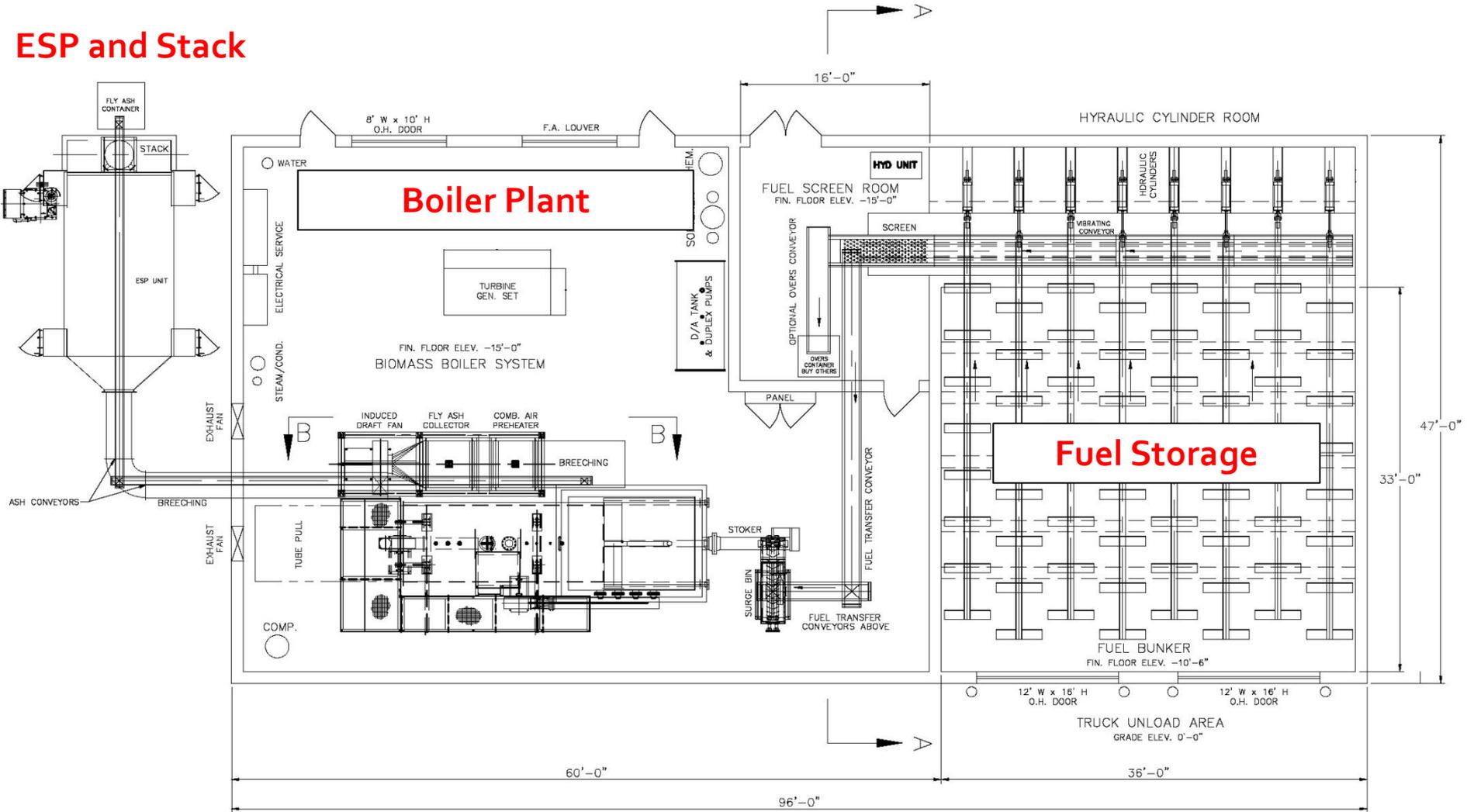
**What comes out?**

**Ash (soil amendment)**

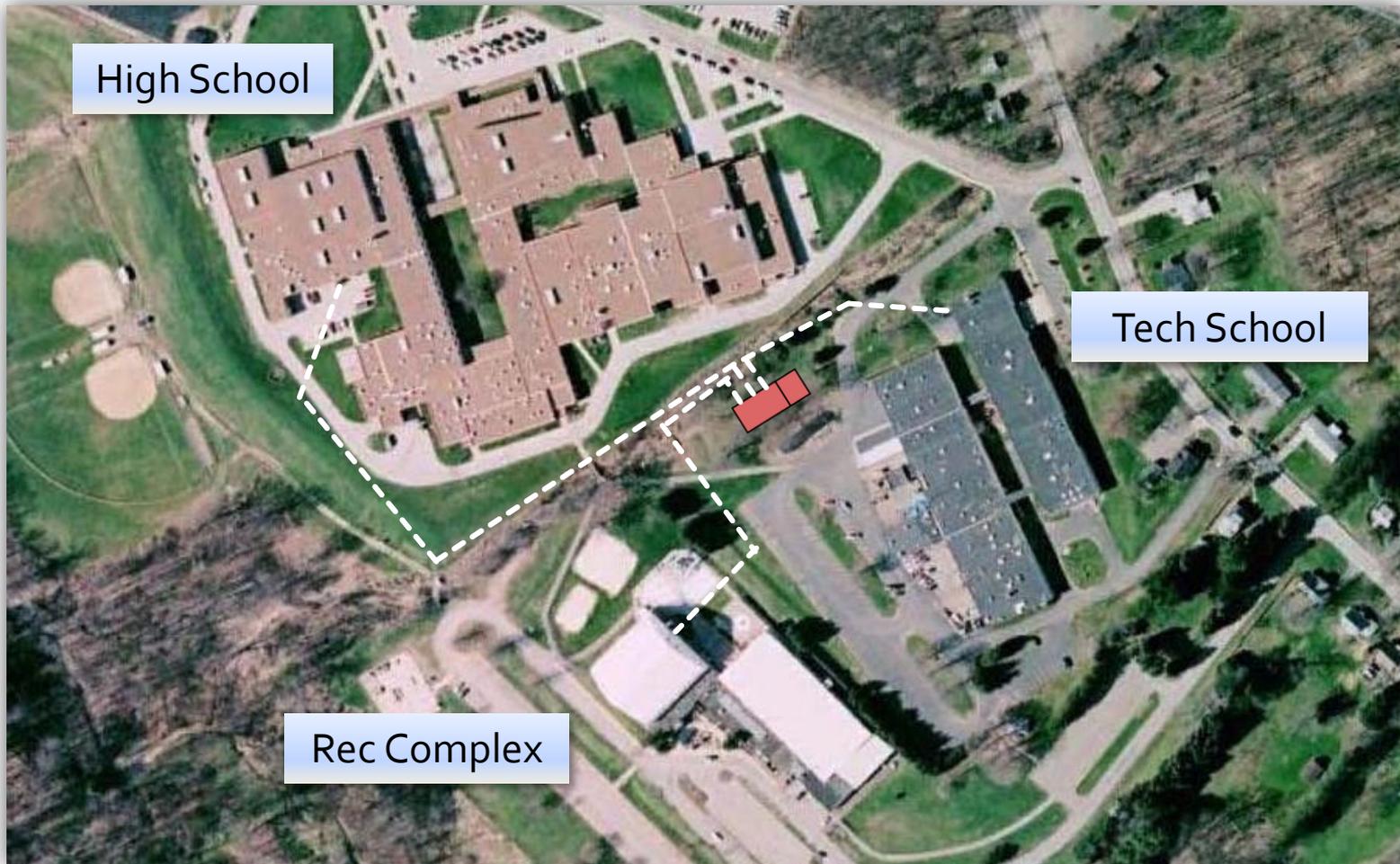


# Plant layout

## ESP and Stack



# Plant location



# Where a plants 5 MW and under constructed?

- Near large heat demands
  - Hospitals
  - Universities
  - Government facilities
  - Schools
  - Housing complexes
  - Industrial facilities
- Biomass plants are just like any other building at the facility



*Biomass Operations*

*< Fuel Deliveries      Visitors >*







MOUNT WACHUSETT COMMUNITY COLLEGE  
BIOMASS POWER PLANT

Faculty  
&  
Staff  
Parking Only



# Summary

- Environmental, social, economic benefits
- Biomass plant is just another building at a university, hospital, manufacturing plant, government facility, etc.
- Biomass plants pose no special threat to wildlife

