



Renewable Fuel Heating Plant



**National Renewable
Energy Laboratory**

SYSTEM SPECIFICATIONS

Manufacturer:

Advanced Recycling Equipment (Pennsylvania)

Owner: Ameresco

Fuel: Wood waste and forest thinnings from Colorado's Front Range

Total output:

29 billion Btu annual estimated output (41 billion Btu total natural gas savings due to conversion efficiency of natural gas combustion)
The facility is designed to meet additional future heating loads, so annual output will increase when the Research Support Facility comes online

What it will heat:

The research buildings on NREL's South Table Mountain Campus

Displaced fuel: Natural gas

Ultimately, plant could displace up to 75% of NREL's South Table Mountain natural gas use

Project completion date:

Construction will be completed by May 2008

Location: NREL South Table Mountain Campus

Financial Terms

ESCO owned and maintained: Ameresco finances the construction of the plant and buys the wood waste; the company will be repaid with the proceeds from NREL's natural gas utility cost savings

There will be no upfront or additional future costs to the taxpayer

Fully-loaded cost: \$3.3 million (borne by Ameresco)

First-year plant savings (in natural gas costs): \$400,000

Contract term (to purchase heat): Capital will be paid off in ~25 years

Wood waste contract:

Ameresco has the responsibility for obtaining the wood waste

- Ameresco has a long-term contract with A-1 Organics, which includes ash hauling
- Initial price: \$29/ton or \$2.42/MMBtu (NREL historical two-year average natural gas cost is \$9.97 MMBtu)

DOE/NREL Energy Impact

Total NREL heating consumption: 56 billion Btu

The South Table Mountain portion of this is 47 billion Btu

% plant will be of total NREL heating load: 52%

% plant will be of Table Mountain Campus heating load: 62% (this number will increase as the system is designed to serve heating loads associated with the new Research Support Facility)

Environmental Impact

Carbon offsets: The plant initially will offset 4.8 million pounds of CO₂ (or 2,200 metric tonnes of carbon) each year

TEAM Initiative & Executive Order 13423: Facility will help work to goal of 30% reduction in energy intensity and GHG reduction by 2015 across all DOE sites



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