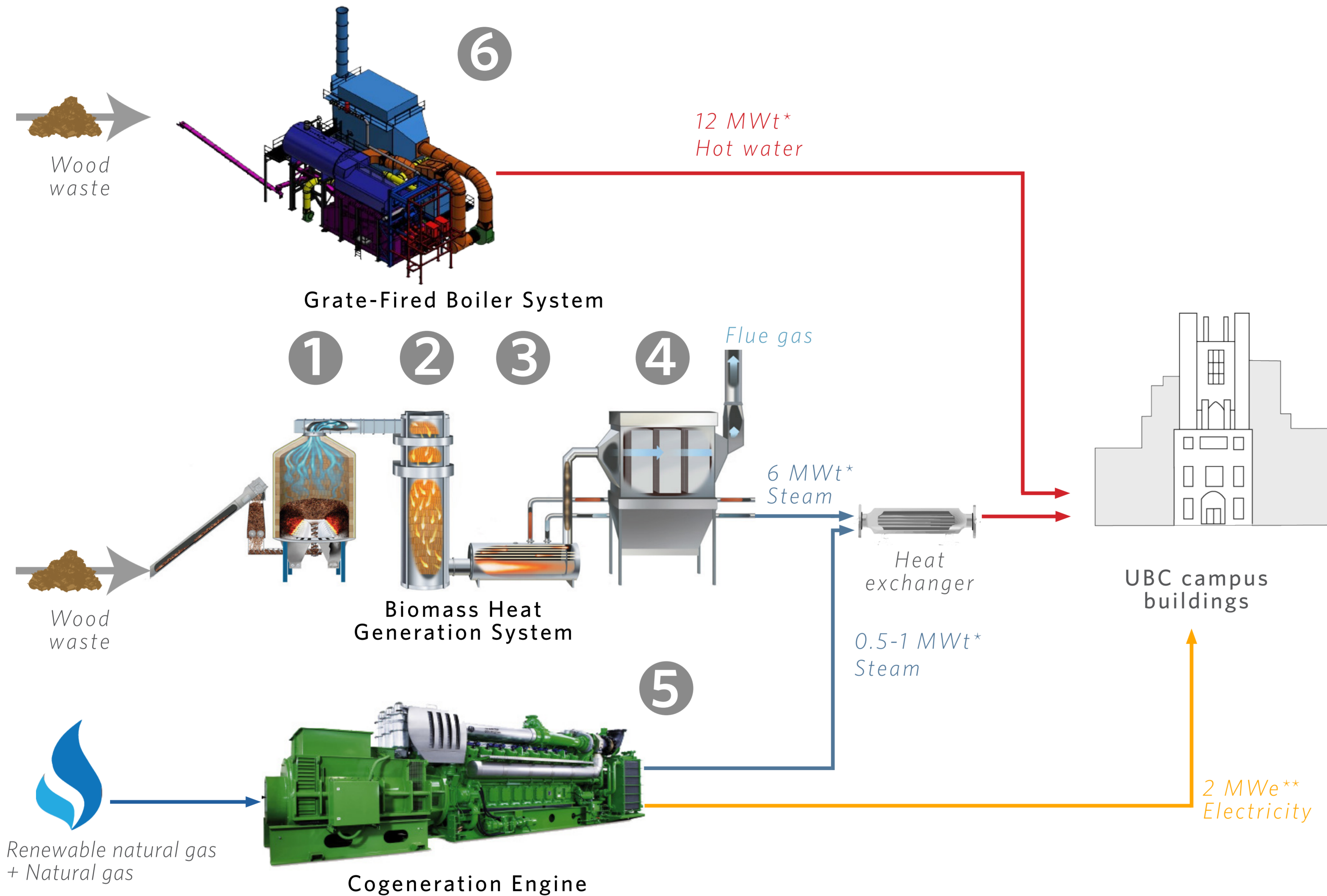


BIOENERGY RESEARCH & DEMONSTRATION FACILITY

ENERGY SYSTEMS



BRDF produces...

- 70%** of total campus heating and hot water needs per year
- 100%** of campus heating and hot water needs in the summer
- 5%** of total campus electrical needs per year

BRDF has enabled...

- 20+** research projects using the facility data and on-site lab
- 1,000** visitors through 50 to 100 tours each year

BRDF Saves...

- \$1.44M** on UBC operational costs annually (CAD)

Technology Demonstration

- Demonstrates large-scale biomass-to-energy conversion using wood waste as fuel.
- Provides up to 19 MWt of renewable thermal energy plus 2 MWe of electricity for campus needs.
- Showcases advanced systems for biomass fuel handling, energy production, ash removal, and emissions control, while supporting ongoing research and technology improvements.

Research & Innovation

- A flagship Campus as a Living Lab capital project enabling collaboration between faculty, staff, and industry.
- Hosts the Biorefining Research and Innovation Centre (BRIC) with advanced labs and pilot-scale reactors.
- Since 2012, BRDF collaborators have produced 12 peer-reviewed papers, 3 graduate theses, 8 student projects, and 15 professional reports.

1 GASIFIER

Converts the wood waste into a clean synthesis gas (syngas).

2 OXIDIZER

The syngas is combusted and the resulting flue gas is directed through the boiler.

3 BOILER

Hot flue gas enters the boiler to produce steam for campus heat distribution.

4 ELECTROSTATIC PRECIPITATOR

Filters the particulate matter from the flue gas, which is then released into the atmosphere.

5 COGENERATION ENGINE

The internal combustion engine uses renewable natural gas and natural gas to generate electricity and heat.

6 GRATE-FIRED BOILER (GFB)

Wood waste is burned in the Grate-Fired Boiler to produce hot water for UBC's District Energy System.