

Fossil Energy Test Stand (FETS)

The FETS area was developed for testing, evaluation, and demonstration of fossil energy combustion devices. Various forms of coal combustion devices have been tested at FETS ranging from clean burning coal experiments to magneto hydrodynamic (MHD) electric generator development. The FETS test area has also been used for high-energy laser testing as well as laser component development testing.

Covering approximately ten acres, the FETS test area consists of three combustion test cells, two covered bays, a laser test pad, a control center, a warehouse, and an equipment storage area.

The FETS area has a 17,000-gallon cooling tower water system used for device thermal management during combustion testing. Cooling water is pumped by three 100 HP (1000 gpm) pumps to deliver water to each of the three test cells. There is a separate quench water system for cooling and scrubbing combustion gases.

FETS Cell 1

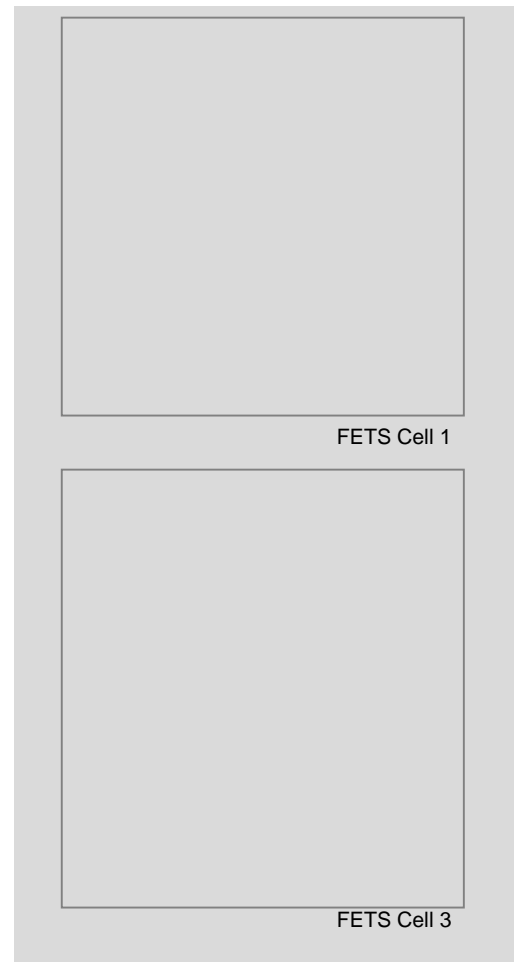
The FETS Cell 1 test cell is an open-ended test cell constructed for development and testing megawatt class combustion devices. The cell is open to the front with concrete back wall, sidewalls, and roof. The cell is 23 ft. wide by 28 ft. deep by 21 ft. high. Cell #1 contains a 1-ton jib crane and has drive in access through the front of the test cell. The test cell has also been used for gas generator development testing. The catalyst bed of the gas generator decomposes 92% hydrogen peroxide to create oxygen and steam.

FETS Cell 2

The FETS Cell 2 test cell is an open-ended test cell constructed for development and testing megawatt class combustion devices. The cell is open to the front with concrete back wall, sidewalls, and roof. The cell is 33 ft. wide by 33 ft. deep by 26 ft. high. Cell #2 contains a 2-ton jib crane and has drive in access through the front of the test cell.

FETS Cell 3

The FETS Cell 3 test cell is an open-ended test cell constructed for development and testing megawatt class combustion devices. The cell is a covered steel I-beam structure with two levels. The cell is 25 ft. wide by 60 ft. deep by 30 ft. high.



FETS Covered Bays

In addition to the three test cells, the FETS area has two covered bays that are adjacent to Cells 1 and 2 and can be used to house support equipment or *tankage*. The bays are open to the front with concrete walls and a metal roof. One bay is 30 ft. wide by 24 ft. deep by 24 ft. high and the other bay is 28 ft. wide by 24 ft. deep by 18 ft. tall.

Laser Test Area

A laser test pad was constructed for testing the Tactical High Energy Laser (THEL) system at FETS. This 75 ft. by 87 ft. reinforced concrete pad was engineered to precisely mount the components of the THEL system. The pad also provides secondary containment for the laser reactants, with a concrete sump at the north edge of the pad.

FETS Control Center

The FETS Control center is located inside of a concrete block building that offers protection from the test cells and provides office space and utilities for the area.

FETS Warehouse

The FETS warehouse is a 50 ft. by 60 ft. by 18 ft. high structure with two large roll up doors. The facility contains heavy-duty storage shelves to facilitate storage of components for the systems tested at FETS.

