**Energy Savings Performance Contract**

Considered the largest initiative of its kind executed by the Commonwealth’s Division of Capital Asset Management & Maintenance (DCAMM), UMass Dartmouth’s guaranteed energy savings contract with NORESKO included two phases of work.

**Phase 1** contained 18 energy conservation measures that address energy and water savings opportunities and critical HVAC infrastructure improvements.

**Phase 2** contained the largest measure, a new gas turbine combined heat and power (CHP) system that produces much of the electricity and steam needed by the campus.

### Phase 1

#### Heating Plant Upgrades

The steam service in the main mechanical rooms was upgraded and various types of previously unmaintained piping systems were insulated.

**BENEFITS:** Optimized plant operations, increased energy efficiency.

**Annual Guaranteed Savings:** $42,517

#### HVAC Upgrades

New, high efficiency electric motors and variable speed drives in select inductors were installed. The major HVAC equipment in several buildings was modified, added, and/or replaced. A new absorption chiller was installed to reduce various mechanical equipment was repaired.

**BENEFITS:** Increased comfort and reduced noise levels.

**Annual Guaranteed Savings:** $100,912

#### Water Conservation

New, low flow fixtures replaced existing plumbing fixtures, including toilets, urinals, and showers. Repairs were made to sewer lines and fire valves to reduce inflow.

**BENEFITS:** Significantly reduced water consumption.

**Annual Guaranteed Savings:** $476,324

#### Building Controls Upgrades

The existing building management system was recommissioned and current capabilities expanded. New building management systems were installed in locations without central control. Additionally, substations for electricity and steam consumption were installed.

**BENEFITS:** Improved energy consumption.

**Annual Guaranteed Savings:** $755,364

#### Lighting Improvements

Lamps and ballasts were replaced in 16,000 fixtures and 2,254 occupancy sensors were installed. Exterior lighting was upgraded to LED.

**BENEFITS:** Increased safety and security campus wide.

**Annual Guaranteed Savings:** $290,686

#### Building Weatherization

Doors, roof ventilators, joints and softs, and pipe penetrations and dampers were weatherized.

**BENEFITS:** Reduced need for capital budgeting.

**Annual Guaranteed Savings:** $43,333

### Phase 2

#### Cogeneration System

The cogeneration system, also known as Combined Heat and Power (CHP), produces much of the campus electricity more cost-effectively than a traditional power plant. The system offers the ability to recover wasted heat normally discarded for improved energy efficiency and reduced environmental impact. The gas-fired combustion turbine system is equipped with a heat recovery system and produces both electricity and steam for heating and cooling. The system can generate up to 742 megawatts of electricity.

**BENEFITS:** Reduced CO₂ emissions by 6,000 US tons.

**Annual Guaranteed Savings:** $2,456,310

### Financial Highlights

- **$1.8 Million**
  - Phase 1: Annual Guaranteed Savings

- **$35.9 Million**
  - Phase 2: Total Guaranteed Savings

- **$11 Million**
  - Phase 2: Annual Guaranteed Savings

- **$21.9 Million**
  - Phase 2: Total Guaranteed Savings

### Environmental Highlights

- **18,333,137 kWh**
  - Annual reduction in electricity usage

- **3,309 trees**
  - Annual equivalent number of trees planted

- **21,155,000 Lbs CO₂**
  - 102,300 Lbs NO₂
  - 35,360 Lbs SO₂
  - Annual emissions reductions