NATIONAL RENEWABLE ENERGY LABORATORY

Golden, CO

Incorporating cutting-edge sustainable design and technology to achieve Net-Zero energy.

In 2008, NORESCO was chosen as part of an integrated design/build team for the U.S. Department of Energy's Research Support Facility (RSF) located at the National Renewable Energy Laboratory. Serving as an energy efficiency and renewable energy technology showcase, the facility's stringent energy goals included 50% energy savings, energy use below 35.1 kBtu per square foot, and net zero energy.

NORESCO provided a comprehensive range of sustainable building services to identify and integrate viable sustainable design strategies into the project. NORESCO's LEED® consultants guided the project team through the certification process from pre-design through construction. NORESCO provided energy and daylight modeling as part of Xcel Energy's EDA incentive program. NORESCO engineers also played an active role within the project team, resolving issues that arose during the construction phase.

As commissioning authority, NORESCO's engineers commissioned the HVAC, photovoltaic, central building automation, energy and water sub-metering, and automated lighting controls systems. Due to complexity of the facility's systems, NORESCO executed close to 100% functional performance testing instead of the standard 20% sampling. Of the 365 issues identified by NORESCO during commissioning, 352 were resolved and the remaining were documented for resolution by the client and their contractors.

In addition to achieving net-zero energy, the RSF had the highest score among LEED-certified U.S. Federal facilities, at the time of certification. The facility also achieved all 17 possible points in the Energy & Atmosphere category under LEED® for New Construction™ v2.2.

* Funded by Xcel Energy's Energy Design Assistance Program

Certification

- LEED Platinum®
  LEED® for New Construction™ v2.2
- ENERGY STAR®
  2012
- EStar Award
  U.S. Department of Energy
- GreenGov – Green Innovation Award
  White House Council on Environmental Quality

Services

- LEED certification consulting
- Energy & daylighting modeling
- LEED fundamental and enhanced
- Commissioning
- Measurement & verification

Environmental Impact

- 37.1% estimated annual energy savings (ASHRAE 90.1-2004)
- $110,819 estimated annual energy cost savings
- 35.4 kBtu/sqft verified annual energy use
- 92% of occupants receive natural daylighting
- 45.5% less potable water use due to waterless urinals, dual-flush toilets, and grey water recycling

Services for this project were provided by Architectural Energy Corporation (AEC), which is now part of NORESCO.