



NASA JET PROPULSION LAB, CALTECH

Pasadena, California



\$4.6MM

Verified Annual Savings

61,697 MMBTU

Verified Annual Energy Savings

18 MM GAL.

Annual Water Savings

At a glance

CEG Solutions partnered with NASA's Jet Propulsion Laboratory (JPL) at CalTech to complete three phases of energy upgrades across 128 mission-critical buildings— all without disrupting JPL's 24/7 operations.

OVERVIEW

CalTech's NASA JPL campus includes more than 150 facilities, many dating back to the 1940s. With over 5,000 staff on site daily, JPL required upgrades that could not interrupt 24/7 mission-critical operations. The facility needed to modernize aging systems, reduce energy and water use, and improve resiliency while safeguarding national research and space exploration activities.

Project Highlights

- \$4.6MM & 61,697 MMBtu annual energy savings
- 25% water reduction
- Deep energy retrofit in 2 major facilities (47-48% reduction)
- \$700,000 in secured utility incentives
- Measured PUEs < 1.25 & 1.35 at 2 data centers
- Secure microgrid with generation and storage for 3+ days of backup power



STRATEGIES

Deep Energy Retrofit, Electrification & Carbon Reduction, Energy & Operational Efficiency, Incentives, Performance Contracting, Resiliency



Awards

- 2022 DOE Federal Energy & Water Management Award
- 2016 DOE Federal Energy & Water Management Award
- 2021 AEE Region V Innovative Energy Project of the Year
- 2016 AEE National Energy Project of the Year

Energy Conservation Measures

- DDC upgrades & VAV conversions
- Daylighting & occupancy controls
- Spectrally enhanced lighting
- Water infrastructure upgrades
- Xeriscaping & irrigation improvements
- RO water treatment plant upgrades
- Chiller/boiler replacement & right-sizing
- Building envelope & window film improvements
- Rooftop solar PV system
- Data center consolidation & renovation
- New server racks, UPS, PDUs, backup generator, ancillary infrastructure
- In-rack cooling & high-efficiency cooling systems
- Secure microgrid for resiliency

SOLUTIONS



CEG delivered a three-phase ESPC project that implemented advanced building automation, HVAC upgrades, lighting improvements, and water infrastructure modernization. We consolidated and renovated data centers, installed an on-site 285 kW solar PV system, and added a secure microgrid with battery storage. These measures improved operational efficiency, increased redundancy, and reduced JPL's reliance on the power grid.

RESULTS



The project generates \$4.6M in verified annual savings, reduces energy use by more than 61,000 MMBtu, and saves 18 million gallons of water each year. JPL now operates with enhanced resiliency, capable of supporting critical loads for more than three days during grid outages. The upgrades also delivered significant non-energy benefits, including improved mission continuity, reduced O&M costs, and award-winning data center efficiency.

