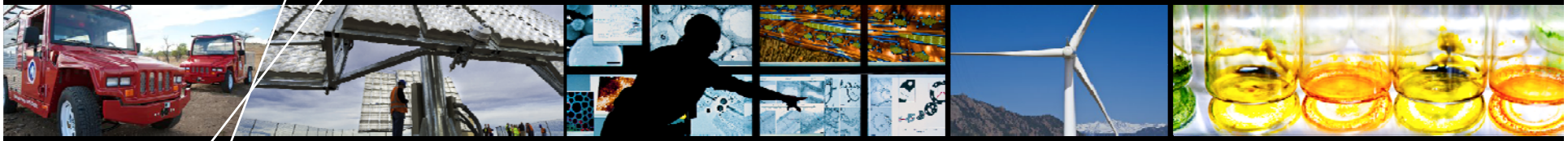
NREL
NATIONAL RENEWABLE ENERGY LABORATORY

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

FEMP
Federal Energy Management Program

Data Centers



NASA Net Zero Workshop

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NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, operated by the Alliance for Sustainable Energy, LLC.

Data Center Key Considerations

- Use energy-efficient equipment
- Upgrade legacy equipment
- Consolidate & virtualize servers
- Right-size IT infrastructure
- Good relationship between IT and Facilities
- Track & manage Data Center energy consumption
- Perform long-term capacity planning for power
- Make energy consumption a part of TCO analysis
- Implement targeted/adaptive cooling solutions
- Improve airflow management
- Standardize your equipment

RSF Data Center Efficiency Measures

- Built ultra-energy-efficient cooling system leveraging climate
  - Direct use of outside air
  - Adiabatic air side economizer
  - Requires little chilled water
- Innovative airflow management
- Increased operating temperatures
- Contained hot aisle
- Waste heat reuse
- High Efficiency UPS