Kinect ENERGY GROUP

AESI

CASE STUDY

A major U.S. University benefits from an electric supply evaluation to assess electric costs, sustainability and reliability

INDUSTRY
Education

LOCATION
U.S.

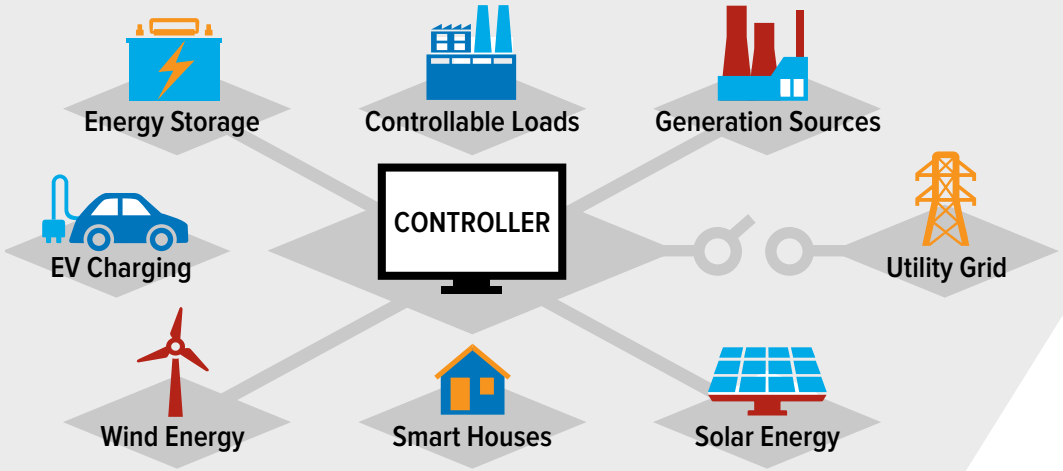
CHALLENGE

A large University has a student enrollment of more than 42,000 students and 207 buildings on their main campus. The University needed to evaluate energy options to reduce cost, meet sustainability goals and improve reliability. The University has diverse loads supporting classrooms, student residences, research centers, healthcare facilities, libraries, fitness facilities, a stadium, auditorium, etc.

OVERVIEW

An Electric Supply Evaluation (ESE) was executed by Kinect Energy Group, in partnership with AESI. Kinect Energy is a global energy management corporation specializing in procurement, portfolio and risk management, data management, supply management and consulting and sustainability services. AESI is a provider of professional engineering, technical and management solutions to electric utilities and government agencies across North America.

The project provided a comparison of the University's current energy supply to Distributed Energy Resource (DER) solutions that are **cost effective, clean, reliable and resilient**. The University was also interested in the economic viability and carbon footprint of campus-operated Combined Heat & Power (CHP) systems currently in operation. The University will use the ESE results to formulate their DER strategy.



A Microgrid is a collection of Distributed Energy Resources, which can improve reliability while reducing energy costs and carbon emissions.

PROCESS & OPTIMIZED SOLUTIONS

The University will use their DER results to feed into sustainability and energy efficiency projects currently underway. ESE highlights:

- Obtained electrical and thermal generation and load information and analyzed the load profiles to study peak demand periods.
- Multiple DER solutions were proposed optimizing different criteria including maximizing the present value over the project term, reducing greenhouse gas emissions and providing the best return on investment.
- DER solutions were optimized using Homer Grid, an analytical tool develped by NREL and supported by Homer Energy, LLC.
- The DER technologies studied were solar photovoltaic (PV), wind turbines, CHP generators, peaking generators and battery storage.
- As applicable, the ESE also included available Federal incentives.

SUMMARY

Key Recommendations:

- Continue operating the existing turbine-based CHP system on their campuses. The analysis indicated that a significant amount of carbon is avoided through the operation of existing CHP systems.
- Deploy a combination of peak shaving generation, solar PV and battery storage to reduce operating costs and carbon emissions as well as improving reliability. The combination of 1.3 MW of Solar, 4 MWH of Battery Storage, and 7.5 MW of Peak Shaving Generation is estimated to save the University $20 Million over 25 years on a Net Present Value basis.
- Develop a more detailed granular electric outage tracking database to monitor electric reliability and provide a foundation for proactive or remedial action.

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