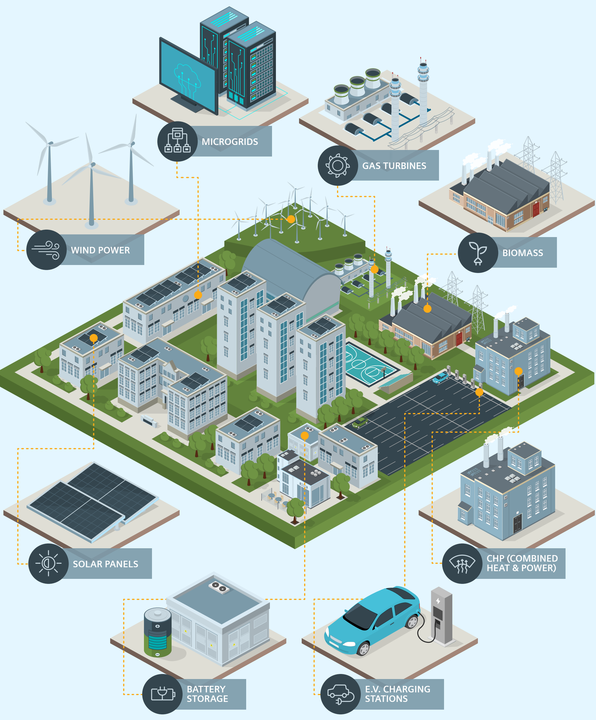
Distributed Energy Systems
THE CAMPUS CONNECTION

Colleges and Universities today are adopting a total energy management approach that couples **energy use reduction** with **smart procurement practices** and **on-site energy generation**. By implementing Distributed Energy Systems (DES), they utilize a diverse array of generation, storage, energy monitoring and control solutions. DES technologies represent a paradigm shift and offer significant opportunities to **reduce cost, improve reliability, enhance sustainability and secure additional revenue** through dynamic load management, on-site generation, and storage.



Microgrids give educational institutions the ability to optimize their energy portfolio and single point disconnection and independence from the grid, as the need arises.

Wind power is a cost-effective source of clean energy. Highly visible, on-campus wind turbines underscore a school's commitment to green power. Power Purchase Agreements from remote wind projects enhance wind power's availability.

Gas turbines burn clean and provide an efficient and cost-effective way for universities to generate electricity at a large range of outputs.

Biomass produces energy without fossil fuels and offers both fuel flexibility and cogeneration potential.

Solar photovoltaic and solar thermal offer space-flexible, cost competitive and visible promotion of clean energy. Can be owned or contracted via Power Purchase Agreement.

Battery storage allows schools to optimize the use of low cost and clean power supplies, while providing supply security.

Electric vehicle charging stations are a visible sign of university green energy commitment.

CHP (Combined Heat and Power) leverages the concurrent and highly efficient production of electricity and useful thermal energy from a variety of fuel sources.

CAMPUS BENEFITS OF EMBRACING A HOLISTIC APPROACH

1. **Cost Savings**
   Educational institutions can adapt their sources of energy to shifts in volatile market prices, while leveraging a variety of incentives and tax credits.

2. **Energy Efficiency**
   Real-time data monitoring and multipoint control of buildings, plants, and networks enables operational efficiency.

3. **Security & Stability of Power Supply**
   In the event of natural or manmade disasters, microgrids and on-site generation can support facilities during emergencies and maintain power quality.

4. **Emissions & Pollution Reduction**
   Microgrids and DES incorporate renewable, low-carbon energy sources that reduce the impact of the energy systems on the environment, improve air quality, and reduce health risks.

DES SUCCESS STORIES

VIRGINIA TECH.

Solar Implementation

A 100 kW solar array was placed on the roof of a parking garage that annually generates approximately
130,000 kWH
of electricity

This solar energy saves the equivalent of
208 BARRELS of oil
or one acre of forest from deforestation

ALGONQUIN COLLEGE

Embracing Renewable Energy Generation

Implemented a
MICROGRID
with a variety of
clean and renewable energy sources

These changes have saved them
$3.7 MILLION
in annual operating costs

WESLEYAN UNIVERSITY

Smart Heating Solution

676 kW gas engine saves the university an average of
$1,000 PER DAY
in gas and electricity charges

Siemens provides on-site, end to end, turnkey energy solutions that are making it easier for educational institutions to move forward in modernizing their power infrastructure. Reliable partners, such as Siemens, have the knowledge and expertise to help campuses manage each step of their power resourcing and modernization process. To learn more about Siemens higher education energy solutions, download the full-length white paper—**On-Site Energy for Higher Education**.

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Siemens Corporations
300 New Jersey Ave. N.W. • Washington, D.C. 20001 • Tel: (800) 743-6367
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