ENERGY EDGE
strategic energy solutions

Energy Management Strategy Helps Stanford University Cut Costs While Achieving Sustainable Goals

COMPANY NAME
Stanford University

WEBSITE
www.stanford.edu

LOCATION
Silicon Valley, CA

INDUSTRY
Education

OVERVIEW

STANFORD UNIVERSITY is one of the world's leading teaching and research universities. Located in Silicon Valley, California, the university's 8,000-acre campus is home to over 16,000 undergraduate and graduate students and more than 2,000 faculty.

Several years ago, Stanford decided to retire its on-campus co-generation facility, which had provided the vast majority of the electricity and thermal needs of the campus for several decades, and seek to provide energy to the campus in a sustainable, efficient, and low carbon manner consistent with the University's Energy and Climate Plan. As part of the Plan, the University also decided to build a new, state-of-the-art, central plant to meet the thermal needs of the campus and commence purchasing the majority of the campus' electricity needs from the California grid under Direct Access, California's deregulated electricity market. In addition to the new central plant achieving unprecedented levels of efficiency, it also provided significant flexibility to the University by using thermal storage to allow the university to optimize the timing of energy demand and purchases.

The University spends over $30 million annually on energy and saw an opportunity both to cut costs and to make a sustainable energy choice by creating a comprehensive energy management strategy. The University engaged ENERGY EDGE to develop and implement their new plan.

Short-Term Goals

- *Leverage the flexibility of the new central plant*
- *Source energy from renewable generation for a significant portion of campus needs*

Long-Term Goals

- *Provide low-cost energy while maintaining flexibility to capitalize on future opportunities.*
- *Ensure mid- to long-term budget certainty*

APPROACH

ENERGY EDGE worked with Stanford to assemble a cross-functional project team to lead the development of the University's long-term energy strategy. Initial discussions and workshops were led by ENERGY EDGE to provide the Stanford team with an understanding of the California electricity market and the key risks, opportunities and decisions the University faced in developing its strategy. The broad background of team members included facilities, finance, accounting, legal and professors in the business, economics and engineering fields.

One of the key decisions the team faced early in the process was whether to build Stanford's energy strategy around a large, long-term renewable energy purchase or follow a more traditional

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procurement strategy where all energy is purchased directly from a retail service provider and is not asset-specific. ENERGY EDGE performed an extensive scenario-modeling effort to help analyze this decision. Determinations such as the size of purchase, term and type of generation technology (e.g. solar, wind, geothermal) were central to the debate. Stanford ultimately decided a long-term renewable energy purchase should serve as the cornerstone of their future strategy.

Once this decision was made, ENERGY EDGE worked with an engineering firm retained by Stanford to develop and issue an RFP for a long-term renewable power purchase agreement or PPA. More than 30 proposals were received from some of the most respected renewable energy developers in the world After a thorough review of all proposals, a small number of final candidates were selected for contract negotiation. ENERGY EDGE led the negotiation efforts in consultation with Stanford's external counsel.

In addition to the renewable PPA process, ENERGY EDGE led another RFP for a traditional retail electricity service agreement to provide energy to the campus for the period of time between the retirement of the co-generation facility (April 2015) and the beginning of the renewable PPA (Q4 2016).

25-year PPA for 50MW solar generating facility at 25% discount

15% annual savings with retail supply agreement

OUTCOME

At the conclusion of extensive negotiations, Stanford executed a 25-year PPA for a soon-to-be constructed 50MW solar generating facility at a price that is more than 25% below what the University expected to pay, based on PPA prices at the time. The solar plant will provide renewable, carbon-free energy for approximately 50% of the University's electricity needs for the 25-year term and will provide annual savings of more than $5 million compared to utility rates at the time. Stanford also executed a retail supply agreement to provide for the University's electricity needs until the solar plant is online in early 2017 at prices that represent a 15% annual savings compared to utility rates at the time.

The implementation of Stanford's new comprehensive energy strategy has laid the foundation for the University to receive the benefits of low-cost energy while meeting sustainability goals and leaving the opportunity for the University to capitalize on future improvements in technology and efficiency.