



Overview of Energy Financing in the Higher Education Sector

The higher education sector accounts for over 5 billion square feet of floor space in the United States and spends an estimated \$6 billion annually on energy costs. Higher education institutions play a unique role in their communities as labs for innovation and research, and many schools are using innovative financing strategies to implement energy efficiency and renewable energy. The sector has been a market leader in the adoption of energy savings performance contracting (ESPC) and, more recently, green revolving funds. Other common financing approaches include leases, loan and debt financing, and other forms of internal funding. This primer serves as an introduction to critical issues in energy finance for higher education and provides case studies, market data, and other resources to help leaders in the sector take advantage of innovative financing strategies. The primer is part of the [Better Buildings Financing Navigator](#), an online tool that helps public and private sector organizations find financing solutions for energy efficiency and renewable energy projects.

COMMON BARRIERS TO ENERGY FINANCING

- LIMITED STAFF BANDWIDTH**
Schools often have limited staff capacity and resources to support the facilities team on energy and sustainability initiatives.
- COMPETING BUDGET PRIORITIES**
Many schools have a range of competing priorities—including their core mission of education—that all seek funding from operating and capital budgets.
- LIMITED ACCESS TO DEBT FINANCING/DEBT LIMITS**
Schools may be hesitant to take on debt for energy projects or have debt restrictions in place.
- LEADERSHIP RESISTANCE**
Higher education institutions are organizationally complex with many stakeholders, and some CFOs and other decision-makers are resistant to tackling energy projects they perceive as risky or low-priority.

COMMON FINANCING SOLUTIONS

- ENERGY SAVINGS PERFORMANCE CONTRACTS (ESPC)**
Performance contracts, in which an energy service company (ESCO) coordinates installation and maintenance of efficiency equipment in a customer’s facilities and is paid from the associated energy savings, are very common in the higher education sector. [Read more.](#)
- INTERNAL FUNDING**
Many institutions have established green revolving funds, capital investment campaigns, or direct endowment investment campaigns to finance energy projects without accessing third-party capital. [Read more.](#)
- LEASES**
Higher education institutions may use lease financing to pay for the upfront costs of an ESPC or to directly lease energy equipment. This may include capital leases or, for public institutions, tax-exempt leases. [Read more.](#)
- DEBT OR LOAN**
Higher education institutions may use debt or loan financing to pay for the upfront costs of an ESPC or simply to purchase energy equipment. [Read more.](#)
- OTHER OPTIONS**
[Efficiency-as-a-service](#) and [power purchase agreements](#) are also applicable to higher education.

FINANCING CONSIDERATIONS

There are a few unique characteristics of the higher education sector that affect which financing options are a good fit:

- ▶ Campus buildings rarely change ownership, allowing school officials to consider taking a long-term investment approach
- ▶ Schools often have older buildings in their portfolios, which may present some challenges (e.g. historic preservation) but can also create a large savings potential by replacing outdated or inefficient systems
- ▶ The close proximity of campus facilities and the larger average project size generally lends itself to campus-wide financing efforts like performance contracts and green revolving funds
- ▶ Many schools have sizeable endowments that can be used to finance energy projects, though there are often restrictions (real or perceived) on investing endowment capital in on-campus projects
- ▶ Academic departments and students can provide assistance with research, outreach, and implementation efforts for energy projects

Higher education institutions with limited budgets for energy projects can seek external financing options to cover the initial cost of project implementation. [Energy Savings Performance Contracting \(ESPC\)](#) has been a frequently used solution to implementing energy upgrades across campuses. Under an ESPC, an energy service company (ESCO) coordinates installation and maintenance of efficiency equipment in a school’s facilities and is paid from the associated energy savings. The ESCO typically provides a savings guarantee, and the improvements are usually owned by the school and may be installed with little or no upfront cost (if the ESPC is financed). ESPCs are typically better suited for larger projects (\$500k+, and often \$5 million+), but the scope of campus projects is often large enough to meet these thresholds.

ESPCs can be self-financed if the school has enough cash on hand, or it may seek financing from a third-party lender to cover some or all of the upfront cost. The majority of financed ESPCs are backed by an on-balance sheet financing mechanism such as a loan or capital lease. Under these structures, the school owns the equipment throughout the financing term. According to a recent [Lawrence Berkeley National Laboratory \(LBNL\) report](#), ESCOs reported that from 2012 to 2014 the majority of higher education institutions paid for ESPCs with 100% external financing, while self-funding or using a combination of internal and external capital represented a small percentage of projects.

While the scalability, performance risk assurance, and longer contract terms of ESPCs may be appealing for many schools, ESPC assessments and negotiations do generally require significant staff time to coordinate, and a substantial portion of the cash flow from the project must be paid to the ESCO and the lender (if financed) during the contract. [Leases](#), including capital leases or tax-exempt leases, and [loans](#) are other common external financing solutions that schools may use to finance projects. These financing options are generally simple, quick, and accessible with minimal contract complexity. These options also allow schools to capture a greater percentage of total cash flow from energy savings with no ESCO involved, but these savings are not guaranteed, and operation and maintenance of equipment must be arranged by the school.

Other options for financing include performance-backed arrangements such as [efficiency-as-a-service](#) and [power purchase agreements](#) that require no upfront capital and typically come with a performance guarantee. These options can be appealing to institutions with limits on the debt they can take on, as they offer third-party ownership of the energy equipment and are typically considered off-balance sheet for the customer.

In addition to external financing solutions, many colleges and universities are using [internal funding options](#) such as green revolving funds (GRFs) to pay for energy projects. Sometimes referred as a revolving loan fund, a green revolving fund is a pool of internal capital used to fund multiple rounds of energy projects. Some of the cost savings achieved are used to replenish the fund (i.e. “revolved”), thus creating a sustainable funding cycle that can be maintained indefinitely. Seed funding can come from sources such as the operating budget, capital budget, endowment, or donations/grants but do not require the school to seek external financing. So far the higher education sector has led the market in adoption of GRFs. Green revolving funds differ from a capital investment fund, which does not involve a revolving component.

Another option for schools to consider is tapping directly into the endowment to finance energy efficiency and renewable energy projects. According to Intentional Endowments Network’s [Investing in Clean Energy: Campuses and Endowments](#), university endowments have over \$528 billion in assets and are uniquely positioned to make long-term investments in energy upgrades through direct purchase of projects or providing seed capital for a GRF. While it is increasingly common for endowment managers to make investments in companies and other assets that support clean energy, direct endowment investment in on-campus energy projects is less common due to financial performance concerns, regulations, and limited peer resources or guidance. For more information on green revolving funds and endowment project financing, visit the [Intentional Endowment Network](#) and the Sustainable Endowments Institute’s [Billion Dollar Green Challenge](#).

Colleges and universities may be eligible for utility and/or regional tax credits, rebates, and other savings opportunities that can help to lower the overall cost for energy efficiency and renewable energy. For more information on available opportunities, visit the [Database of State Incentives for Renewable Energy](#) and DOE’s [Tax Credits, Rebates, & Savings Database](#).

STATE OF THE MARKET

Higher education has been a leading sector in the implementation of ESPCs along with other organizations in the MUSH market (municipality, university, school, hospital). Lawrence Berkeley National Labs reported that higher education institutions spent \$519M on ESPCs in 2014 out of \$5.2B in total ESPC activity across all sectors that year. The sector has also led the adoption of GRFs, and as of 2015 there were 140 active funds at colleges and universities of varying size, geographic location, and financial resources. The average higher education GRF is \$1.4M in size (though size can vary \$10k to \$10M+) and has a project payback of 3.5 years.

BETTER BUILDINGS IMPLEMENTATION MODELS

- On-Balance Sheet, Off-Debt Capacity Performance Contracting**
Delaware State utilized previously restricted state appropriations to create a revenue-neutral debt structure, allowing for large-scale bond financing of energy efficiency projects.
- Internal Green Revolving Fund**
The University of Utah implemented an internal Green Revolving Fund (GRF) to allocate savings from current energy efficiency projects to invest in future energy efficiency projects.
- Delta Force**
U. Va. formed an internal, cross-functional retro-commissioning team with a cost-recovery element akin to a revolving loan fund, so future projects can be paid for with metered savings from past and future projects.

NEXT STEPS

If you are a higher education leader ready to take the next steps on financing for energy projects, consider doing the following:

- ▶ Engage the facilities team to assess the opportunities in your building portfolio that are feasible to implement. Understanding the size and scope of the potential projects will help determine the appropriate financing mechanisms (e.g. whether an ESPC would be appropriate or how a GRF should be sized). The facilities team is often the gatekeeper to getting projects done and should be involved in all stages of project design and implementation.
- ▶ Get a handle on what university budgets can be accessed. Funding sources can include the capital or operating budget, endowment, a student green fee, fundraising from alumni, and more.
- ▶ Assess if an ESPC is an option, particularly if you prefer to outsource the installation and operations to a third-party and/or want a performance guarantee.
- ▶ Consider the possibility of implementing a green revolving fund. For more information visit the [Billion Dollar Green Challenge](#).
- ▶ Consider using the [Better Buildings Financing Navigator](#) to explore the range of third-party financing options available and connect directly with Financial Allies who may be able to finance your project.

Additional resources:

- ▶ [Financing Sustainable Energy Projects at Liberal Arts Colleges](#)
- ▶ [AASHE Campus Sustainability Hub](#)
- ▶ [Billion Dollar Green Challenge](#)
- ▶ [Investing in Clean Energy: Campuses and Endowments](#)