KeyBanc Capital Markets

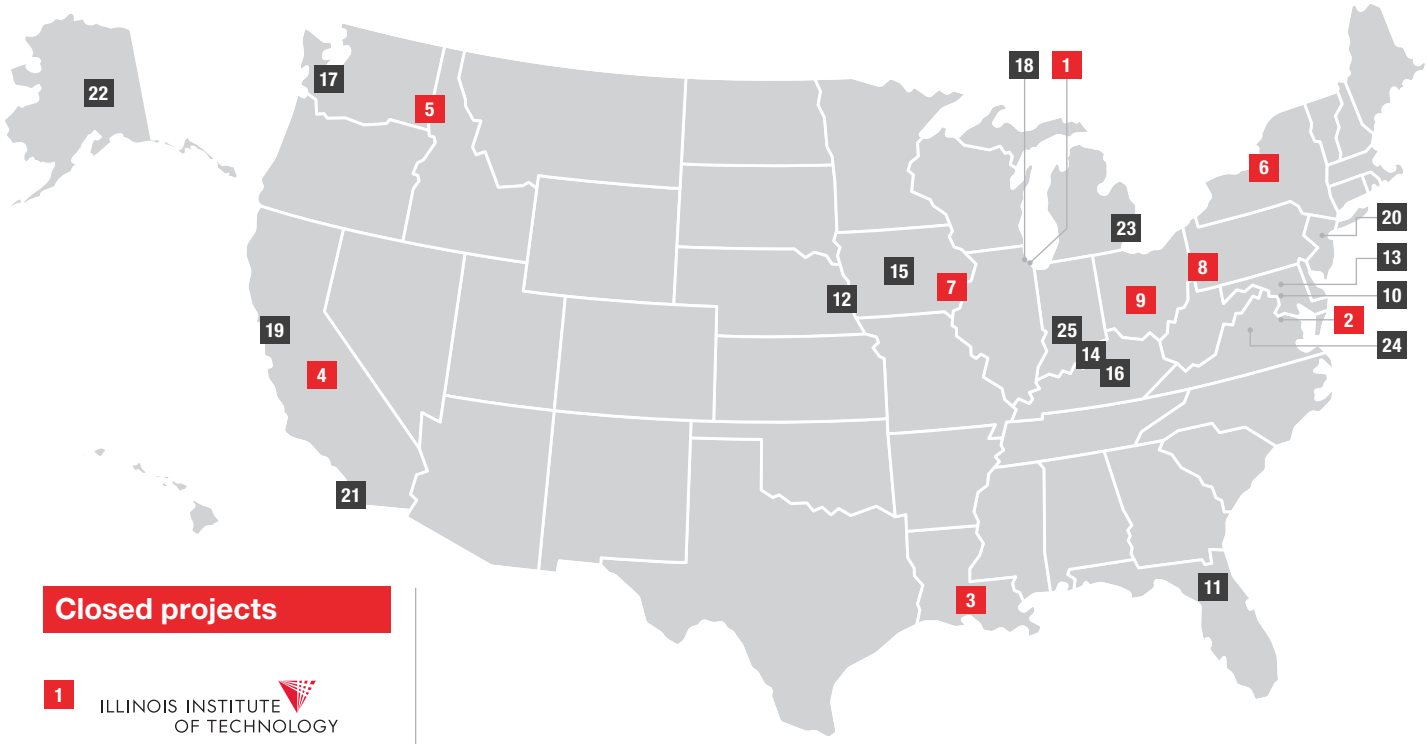
Campus energy P3s — fueling infrastructure improvements and carbon reduction goals

An increasing number of public and private universities are making public commitments to meet aggressive decarbonization goals, often net zero carbon emissions before 2050. While these pledges are bold and commendable, achieving these targets through status quo campus energy operations is often difficult for many universities. These targets are set in the wake of increasing unreliability of government funding — a result of constrained state and local budgets — and a growing backlog of deferred maintenance, which diminishes the efficiency of university energy consumption.

Key Learning Points in this Article

- Funding and budgetary pressures are requiring public universities, private universities, and university medical centers to consider public-private partnerships (P3s) to finance and deliver campus infrastructure improvements more efficiently.
- P3s are an attractive option for campus energy projects as traditional delivery and finance solutions have left many universities with significant deferred maintenance.
- More than 400 universities have set aggressive energy and sustainability goals that will require significant investment in updating existing infrastructure. Public-private partnerships can help institutions achieve ambitious carbon neutral goals such as net zero carbon.
- The private sector, including private equity, energy infrastructure contractors, and utilities operators, can provide innovation and optimize whole life energy service costs for universities.
- Because campus energy P3s require a long commitment and shared risk, universities should select potential private partners with care.

Higher education institutions are partnering with the private sector with increasing frequency to finance and deliver modernization projects critical to meeting these decarbonization goals and addressing deferred maintenance needs. Pursuing P3s allows universities to leverage private sector expertise, innovation, and capital to implement decarbonization efforts, address critical deferred maintenance needs, reduce energy costs, and achieve resiliency goals, all while preserving limited debt capacity for academic projects.



Closed projects

1 Illinois Institute of Technology

2 Georgetown University

3 LSU

4 Fresno State

5 University of Idaho

6 Syracuse University

7 Iowa

8 Duquesne University

9 The Ohio State University

Potential upcoming projects

10 University of Maryland

11 University of Florida

12 University of Nebraska Medical Center

13 Morgan State University

14 University of Louisville

15 Iowa State University

16 University of Kentucky

17 University of Washington

18 Northwestern

19 Berkeley University of California

20 Rutgers

21 San Diego State University

22 University of Alaska

23 Wayne State University

24 University of Virginia

25 Indiana University

University budget report card

Each year, colleges and universities are finding it more difficult to maximize their budgets. State funding is down while the pressure to limit tuition increases is simultaneously mounting. Since the Great Recession, funding has significantly decreased. Nationally for 2020, education appropriations remain 6.0% below 2008 funding levels with appropriations from 12 states being at least 20% below 2008 levels. Net tuition revenue per student reversed its positive trend since 2001 and declined 1% as colleges and universities have grappled with returning students to campus. In the near-term, higher education institutions will remain under the sustained pressure they have experienced since 2008 to cut costs where possible through innovative and creative means.

At the same time, higher education administrators are hesitant to use their limited debt capacity for nonacademic purposes. This constraint means the maintenance of campus energy infrastructure is often underfunded, and the deterioration of heating, cooling, and lighting systems is accelerated. Between 2007 and 2019, the deferred maintenance backlog on campuses increased approximately 35%. That deferred maintenance has created significant pent-up demand for energy projects, particularly those that support sustainability and renewable energy goals.

Energy opportunities in universities

The higher education sector spends more than $6 billion on annual energy costs. While the sector led the way in taking advantage of empty classrooms by pursuing energy efficiency upgrades, increased energy costs from advanced cleaning protocols and air purification to address the COVID-19 pandemic made the expenditures level from 2018-2020. More than 50% of university energy consumption costs arise from lighting, ventilation, and cooling equipment needs, making these systems the best targets for energy savings. Students need well-lit, heated, and cooled spaces to learn and live, so finding ways to bring down the cost of utilities is imperative. Most universities could save up to 30% on their energy bills by addressing deferred maintenance needs and pursuing cost-effective energy efficiency upgrades.

>50%

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30%

Amount most universities could save on their energy bills by addressing deferred maintenance needs and pursuing cost-effective energy efficiency upgrades.

Societal winds fueling net zero investments

Updating energy infrastructure on campuses offers benefits beyond simply balancing budgets. It's taking ambitious strides forward towards goals for carbon neutrality and net zero agendas. More than 400 of the nation's leading universities have set aggressive energy-reduction and climate action plans. To reach these goals, leading universities have developed a suite of shared energy-efficiency and renewable generation policies and initiatives, including the American College & University Presidents' Climate Commitment (ACUPCC) and the Association for the Advancement of Sustainability in Higher Education Sustainability Tracking, Assessment & Rating System (STARS). University collaboration to determine effective safety protocols to get students back on campus has been crucial throughout the COVID-19 pandemic, and the same level of collaboration will be critical to meeting the goals set by these institutions aiming to deliver net zero carbon campuses.

Net zero aims to balance the emissions produced versus the emissions removed from the atmosphere.

These lofty ambitions require public agencies and universities to commit to making every effort to reduce emissions and invest in methods to counterbalance the emissions it does produce. The goal of achieving a net zero campus today becomes further challenged when considering the age of many campus energy systems.

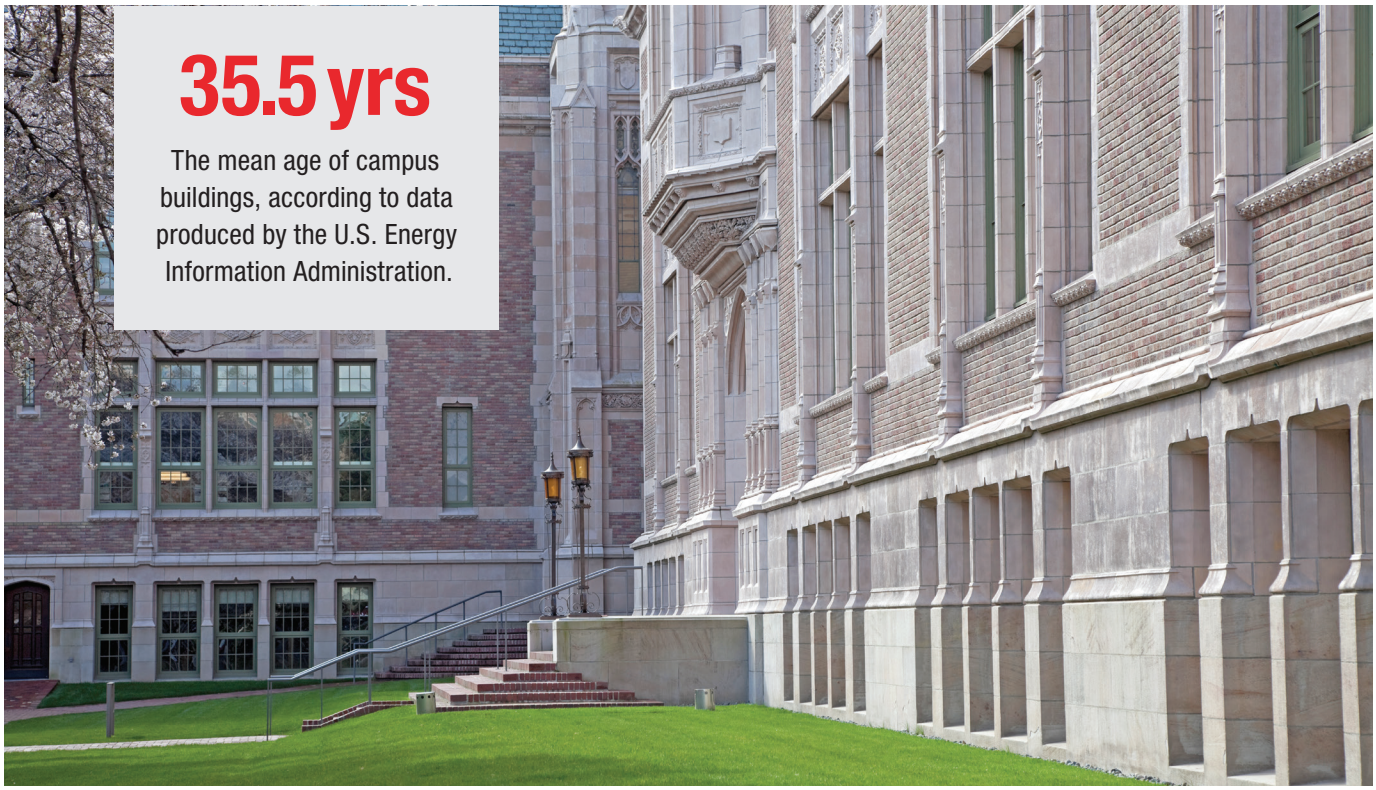
Aging energy infrastructure and workforce

The mean age of campus buildings is approximately 35.5 years, according to data produced by the U.S. Energy Information Administration. The resulting suboptimal energy efficiency due to aging means that buildings require higher energy consumption than they would otherwise need. In addition, the majority of energy systems operating university campuses today are either first- or second-generation systems, which translates into increased maintenance costs and challenged decarbonization plans.

Similarly, the operational expertise to manage these facilities relies on an aging workforce. The district energy sector has an increased emphasis on apprenticeship and internship programs to recruit the next generation of operation and maintenance professionals. In order to drive innovation and technological advancement capable of achieving net zero goals at the campus-wide level, institutions will need to seek to leverage the expertise of the private sector.

Need for resiliency

Of utmost importance to university medical centers and healthcare institutions is improving the resiliency of utility plants, particularly as campuses face climate change and resulting extreme weather events which are capable of straining and even crippling a medical center's energy infrastructure. Resiliency, redundancy, and reliability can all be addressed in partnership with a private developer through a P3 contractual framework.



Private sector investment and innovation on campus

Partnering with the private sector on energy projects can alleviate the burden on higher education administrators as they work to maximize tighter budgets, freeing them up to focus on their institution's core mission.

P3s have emerged as a viable means of simultaneously pursuing university climate pledges and addressing deferred maintenance, as demonstrated by recent successes at Fresno State University and the University of Iowa. Design-build-finance-maintain P3s, such as Meridiam and NORESCO's partnership in February 2021 with Fresno State University, serve as a cost-effective way for universities to reduce their maintenance costs by leveraging the private sector with performance-based payments. Monetizations on the other hand like those done at the University of Iowa and Georgetown University provide an opportunity for universities to free up much needed capital to invest in other core programs.

Unique to the Fresno State P3 was the "sustainable development goals" green bond, which tied the financing component of the project to actual measurable reductions in energy usage. The credit spread on the bonds is reduced if the developer exceeds the project's stated goal of reducing the utility system's energy consumption by 30%. This project serves as a framework for a creative way to align the university's energy needs with private sector expertise and will likely inspire similar projects across the country.

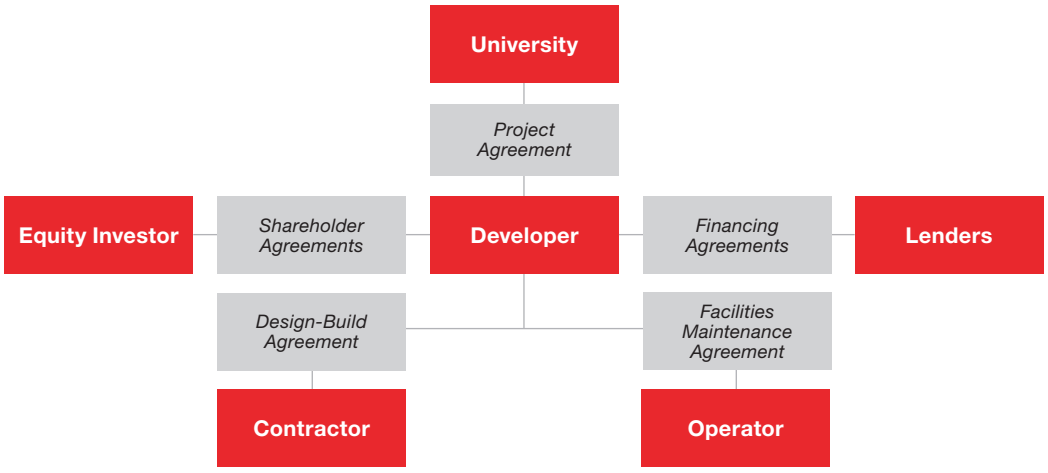
Upcoming P3s are emerging from Florida to Alaska as higher education institutions and university medical centers seek private sector innovation to tackle net zero targets through transparent and well-structured commercial frameworks.

Understanding the participants and the deals

Many private sector companies see significant opportunity in campus infrastructure partnerships. Deal participants may include:

- **Equity Investors**: U.S. or international private equity funds, as well as strategic investors who are also operators or contractors who have long-term, first-loss "skin-in-the-game" and are ultimately responsible for financing and delivering the project. These investors own the project company that enters into the long-term partnership with the university.
- **Contractors**: Firms that build the energy infrastructure on campuses on a fixed-price, date-certain basis.
- **Operators**: Firms who provide long-term operations and maintenance of the project with performance guarantees, many of whom might be the contractors who built it.

Universities have been partnering with private developers to design, build, finance, operate, and maintain needed infrastructure improvements across different asset classes, including student housing and parking. In exchange for the costs and risks incurred, the private participant will receive periodic payments from the university as either an "availability payment" or a more typical arrangement with "capacity charges" — a flat minimum payment for making the capacity available — and "demand charges" — a variable payment based on energy produced.



Making the right choice for your institution

Because these deals have a long life — 30 years or more in some cases — and may require extensive campus infrastructure work and maintenance, universities must choose their partners carefully. Here are a few best practices for forming an enduring and successful relationship:

- Before starting the process of procuring a partner, the university should consider its long-term energy policy for the project, including decarbonization targets, and have clear output specifications, project goals, and objectives.
- Consider risk sharing and mitigation. Not all risks are best undertaken by the private party, otherwise the project may misalign incentives and incur unnecessary pricing contingencies. Structure the transaction so that risks are allocated to the participant most capable of managing them.
- The private partner should have the requisite experience, demonstrated commitment, and solid financial capacity.
- Ensure the private partner is willing and incentivized to engage with students and stakeholders to advance energy efficiency and engineering educational opportunities.
- Recognize that a P3 is a long-term investment and that a higher performing bidder may be more useful and valuable to the university's vision and policy goals than simply the lowest cost bidder.

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Conclusion

Public-private partnerships help universities reduce campus energy costs, provide dependable and well-maintained infrastructure, while also meeting ambitious sustainability and resiliency objectives for the future. Most importantly, these partnerships allow universities to focus their attention and limited capital dollars on their primary mission — improving education outcomes.

KeyBanc Capital Markets® Infrastructure and P3 practice supports clients with a broad suite of financial products and services across sectors. We are product agnostic in our ability to offer bank debt, private placements and bond underwriting capabilities and an objective advisor supporting clients in achieving their financial goals and objectives.

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