Prime Environments

10 Questions to Ask Before Undertaking an Energy Efficiency Upgrade©

You know your equipment or building needs an energy efficiency upgrade. But before taking the first step there are 10 questions to which you should get the answers. Knowing the questions to ask and getting accurate answers insures your investment is justified, as well as make your energy renovation project go smoothly, minimize stress and eliminate buyer's remorse. The goal is to help you get the most energy savings at a cost providing the greatest value.

1) What is the first step I should take when considering an energy efficiency upgrade?

Answer – Find an energy efficiency professional who provides information FIRST

A primary barrier to successful energy efficiency upgrades is the building owner's lack of information. Technology is changing fast. When reviewing the proposal detailing the unique technologies that will be incorporated into their project many owners remark, "I didn't even know that stuff existed!"

An energy efficiency professional should be easy to find simply by searching the web. Qualified energy professionals typically have a wealth of information available about their experience and credentials on their company website. A true energy professional will maintain a website that provides a variety of case studies, relevant local rebates and incentive programs, a listing of qualified specialty partners that can be called in to provide expertise on unique situations (solar, geothermal, wind, etc.), and news articles and recognition from the communities they serve. Credibility should ooze from all aspects of an expert's website.

Look for reports, case studies, testimonials and blog articles that showcase those on the leading edge of energy efficiency. While some utility companies maintain a list of "approved" contractors, they tend to specialize in the products that are used in energy efficiency upgrades and may not have the depth of knowledge for a comprehensive energy renovation.

2) Am I looking for a salesperson or a consultant?

Answer – It depends on the size of your project, but in most cases choosing an energy efficiency consultant or expert will give you the most comprehensive solution.

Salespeople tend to be product-oriented and look at efficiency projects in terms of incorporating their product(s) instead of looking at your big energy picture. Almost all energy products offer a choice between good, better and best.

For example, if you have a conference room that is rarely used, installing the most expensive and energy-efficient lighting will never see a reasonable return on the investment. The "good" version would have worked just as well with lower expense. Energy-efficiency projects are all unique. There is no "one-size-fits-all" solution.

Each project must be customized to accommodate the demands of the facility including hours of operation, work that's being performed and any unique environmental requirements. Consultants will typically have a broad knowledge of multiple options, various technologies and the needed expertise to make your project a success. They will propose the optimal solution to your application; sales people will most often propose the solution that best fits their product offering.

3) How can I become energy efficient without putting a big dent in my cash flow?

Answer – There are now funding programs that make efficiency projects affordable without requiring an upfront cash outlay.

When considering energy efficiency upgrades, a common concern is the cost. Common funding options are paying cash, financing with a commercial loan or leasing the equipment. Most commercial bank loans and equipment leases must be fully repaid before offsetting energy savings are generated.

Fortunately, in most states, there is an innovative energy efficiency financing program that solves funding concerns: Property Assessed Clean Energy (PACE). The loan is repaid with a voluntary special assessment on the owner's property taxes. Key benefits of a PACE loan compared to traditional funding options are:

- Long terms-often 20 years or more-at fixed interest rates
- The loans "run with the land" allowing for a seamless transfer to the new owner when the property is sold, eliminating the need for the original owner to pay off the loan.
- May be considered "off-balance-sheet." In these cases, the loan is considered an expense as opposed to a long-term liability, thereby preserving the owner's borrowing capacity for other projects.
- In some states, a PACE-funded project must be cash flow positive over the life of the loan. That is, the resultant energy savings must be greater than the entire cost of the project-energy audits, engineering, equipment, labor, materials, legal, financing, etc.

When the proper finance options, rebates, tax incentives and local programs are incorporated into efficiency projects, it's often the case where not doing the project is more costly than initiating the energy efficiency upgrades. One project reduced the owner's total cash outlay by 13%, even after factoring in the cost of the project. It was going to cost the owner less money to undertake a comprehensive energy efficiency upgrade than if he kept using his old, energy-hungry technology. When he saw those numbers, he knew he had to make the improvements rather than continue to waste money and energy with the status quo.

4) Should I invest in energy efficiency even though I plan on selling my business prior to the loan being fully repaid?

Answer – With the right financing option such as PACE and its seamless transfer of the property tax assessment, it does make sense.

Property Assessed Clean Energy (PACE) is an example of a financing option that eliminates the concern about selling a business following an energy efficient investment. Often the sale of a building necessitates satisfying an underlying loan before the sale can be finalized. But since PACE uses the taxing authority of the local county to secure an energy efficiency loan to the property, this provides security for the lender. It then allows the financing to move seamlessly with the sale of the property instead of needing to be satisfied by the owner prior to sale.

5) Are there other reasons to pursue energy efficiency besides saving money and energy?

Answer – There are several reasons to pursue energy efficiency.

Owners of commercial real estate can significantly benefit from energy efficiency upgrades. In most cases operating expenses will be reduced resulting in a higher net operating income (NOI). This drives market value. Considering energy efficiency upgrades can increase tenant comfort, especially HVAC systems, they often result in higher occupancy and lease rates. Plus, they improve the overall marketability of the property.

For industrial applications, improved HVAC and lighting often results in increased productivity. And in many cases, reduce scrap rates and accidents. And if energy-consuming equipment is replaced, in addition to reduced maintenance costs, the project frequently results in increased production up-time. This alone can more than offset all energy-saving benefits.

Getting some great PR for environmental stewardship can be an additional bonus. If a company wants to be perceived as "green," having visual reminders (solar panels, green gardens, etc.) may be more important than putting in a new energy-efficient heating system nestled in the bowels of the building.

One company installed cutaway portals in the walls and floors to showcase the energy efficient technology that was hidden within. Another company installed plaques that told a story of the re-purposed products used during the construction of its new facility. A rooftop garden was the highlight of a business that its clients were encouraged to walk through while learning about how much rainwater and heat the garden absorbed.

6) How do I know if my business or building is a candidate for an energy-efficient renovation?

Answer – If you have an energy-intensive building with long operating hours, and your facility is old or several years have passed since its last an energy efficiency upgrade, it is most likely a good candidate.

Businesses that have high energy demands, operate for long hours and have been in business for many years with the same equipment are good candidates for energy efficiency upgrades. Those factors create the greatest probability for significant energy reductions.

For most facilities, HVAC and lighting alone consume 60 to 75% of the total energy. Depending on the age of existing technologies, energy savings of 40%to 50% are frequently achievable, especially if building automation and lighting control systems are included in the upgrade. Building envelope improvements, i.e., windows, doors and insulation, can also save appreciable amounts of energy. And energy renewable projects such as solar and geothermal can markedly reduce energy consumption for most buildings.

The typical chimney system is a perfect example. In the past chimneys simply carried away the unwanted exhaust from an operation. But that exhaust contained a lot of heat and moisture that was simply being wasted. In most old buildings the exhaust is simply dispensed into the atmosphere. New heat recovery technology can capture a large percentage of that heat and moisture and repurpose it to other uses within a building. For example, retrieved heat can cut down on other heating fuel usage, and recovered water can be used for lawn irrigation and toilets.

Lighting is another example. Many of the lights used in older buildings are being phased out of production due to their inefficiency. Advances in lighting technology offers significant energy savings. Adding occupancy-sensors as well as computerized control systems can further reduce lighting costs.

7) What process will an energy efficiency expert typically follow?

Answer – The most common process typically involves three steps

Step 1 – Usually this involves an ASHRAE Level I audit by the energy consultant. This is a relatively brief "walk-through" of the facility to get a sense of overall energy-reducing opportunities. Key areas assessed are the HVAC and lighting systems, doors, windows, and building insulation. It will also include potential opportunities for increasing energy efficiencies of manufacturing processes as well as the impact of building automation. A determination will also be made if the facility is a good candidate for energy renewal projects such as solar and geothermal.

This step should involve company leadership. Since an energy upgrade or retrofit and its associative funding is very much a financial transaction, the CFO should be involved from the beginning.

Step 2 - The second step is often an ASHRAE Level II energy audit. This will involve the energy consultant analyzing prior energy bills, determining the present energy rates, quantifying where energy is presently being used, collecting data, videos and pictures of what technology is presently on site and understanding what outcome is desired with the upgrade (more light, less light, cooler, better environment, cleaner air, quieter, warmer, etc.).

Step 3 – The third step is creating a formal proposal and plan of action. A key element will be the development of a long-term financial analysis to define the element annual cash flow resulting from the energy and water efficiency upgrades.

The three steps can vary for several reasons, but the required information that is typically the same. The complexity of gathering the information will differ for each project.

8) Are my savings guaranteed?

Answer – In certain situations, yes.

There are many stories of the resultant energy savings never achieving promised levels. In far too many cases there is no recourse- the supplier of the equipment or the energy consultant or sales person were no longer to be found. That's why it's critical to conduct your due diligence before contracting for the work.

Cost savings from the latest energy efficiency technologies can be significant, consistent and predictable. If outcomes are predictable then guarantees may be possible. This requires a "baseline" to be established prior to the energy retrofit, with any subsequent operational changes taken into consideration to determine the effect on guaranteed energy savings. For example, a second shift can't be added without a significant impact on energy consumption.

As a consumer protection feature many of the new energy financing and rebate programs mandate a savings guarantee. In a number of states, guaranteed savings are a key feature of the Property Assessed Clean Energy (PACE) program. To make a guarantee, the cost and saving projections must be calculated out for the life of the loan-20 years or more is common. Those projections will look at the life expectancy of the technology, replacement costs, projected increases in utility expenses, costs of maintenance, etc.

9) What are some of the non-energy-related benefits I should consider when deciding to initiate an energy efficiency project?

Answer – There are many more than you would expect.

The stories that detail the indirect benefits of energy efficiency upgrades are remarkable. A brief list would include increased occupant health, increased productivity, improved concentration, less noise pollution, etc. Often old technology is noisy, smelly, hums, flickers, runs too much, is too dim, breaks down or is just plain annoying. Here are some comments that illustrate the benefits: "The new equipment hardly ever runs" … "I don't feel like I'm working in a fog anymore" … "We are able to complete so many more cycles per shift now".

Countless studies show the direct relationship between work environment and productivity. When the air is clean, the lighting good, the noise diminished, and the environment more comfortable and safer, people perform better. When you add energy and cost savings, it's truly a winning combination.

10) Is it a good idea to wait until the cost of the upgrades come down?

Answer – Not at all

While some energy-related product costs are going down, e.g., the cost of solar panels, in most cases they only go up. A greater share of the total energy efficiency project cost is labor, energy audits, financial analyses, engineering, financing and legal. While these costs may remain constant for a relatively short period, in the long run they only increase due to inflationary pressures.

As noted earlier, energy efficiency upgrades result in other financial benefits besides reduced energy costs: increased worker productivity…reduced absenteeism… employee attraction and retention…improve occupant health. And these benefits often increase commercial real estate occupancy and lease rates, directly increasing NOI and property value and marketability.