



# **4 Ways Energy Solution Providers Can Deliver Greater Value**

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# Introduction

There are several reasons why large energy consumers invest in energy solutions:

- **To reduce their energy costs** by curtailing overall energy usage, and by reducing energy usage when prices are high and during costly peaks
- **To lower their environmental impact** by reducing overall consumption and favoring sustainable energy sources<sup>1</sup>
- **To increase their resilience** against disruptions in the grid, for instance to maintain production or keep crucial systems operating during an outage

But finding the right mix of energy solutions—and getting the most out of them— isn't easy. And while large enterprises may have dedicated energy intelligence and management teams, most organizations do not.

As a result, many large consumers turn to Energy Service Companies (ESCOs) and other energy solution providers for products, services, and expertise. However, despite

the proven benefits of energy solutions and significant tailwinds behind the adoption of cleantech, solution providers encounter a number of barriers, including:

- **A crowded marketplace** that causes customers to perceive every proposal as roughly the same, with minor technical differences and limited unique value
- **Customer doubts or confusion about the return on investment (ROI)**, which can cause sales engagements to slow down or stall and can contribute to dissatisfaction
- **High upfront capital requirements** that prevent customers from moving forward with investments—especially if the payback period extends beyond 18 months

This document outlines four ways energy solution providers can overcome these barriers to reap significant rewards in the short term while positioning themselves as leaders in a rapidly expanding market.<sup>2</sup>

<sup>1</sup> For example, [Penn State cut its emissions in half](#) (and is on pace for an 85% reduction by 2050) by taking a holistic approach to energy and emissions management

<sup>2</sup> Research Dive [forecasts](#) that the North American energy management will experience a CAGR of 13.0% through 2026

# Encourage Customers to Go Big

For large energy consumers to maximize the return on their investments in energy solutions, they need to do larger upgrades all at once, rather than smaller upgrades incrementally.

Helping customers to understand this reality will:

- Enable them to experience more value from the solutions you provide
- Increase your average deal size

## Why holistic upgrades optimize returns

To understand why holistic upgrades optimize returns, let's start with a straightforward example: a large building operator who wants to curtail their energy consumption by upgrading and retrofitting.

According to the United States Department of Energy (DoE), the top six uses of energy within buildings are heating (20.8%), lighting (11.3%), cooling (10.0%), water heating (9.2%), refrigeration (6.6%), and ventilation (4.2%).<sup>3</sup> Excluding refrigeration, which is generally outside the scope of a building's efficiency upgrades, these five systems account for 55.4% of building energy usage—hinting at potentially huge savings.<sup>4</sup>

However, the relationships between these systems are extraordinarily rich and complex. Changing one impacts the others in ways that are challenging to predict without tremendous computation and simulation. Complicating matters further, these relationships change with the seasons, time of day, and due to demands placed upon them by the building's tenants, and they're also dependent upon the building's location and condition.

In short: a building's annual energy consumption is determined by multiple systems interacting in complex and interdependent ways. Any incremental approach to upgrades (e.g., HVAC in year one, lighting in year two, windows in year three, etc.) is ultimately doomed to suffer from diminishing, lower-than-expected—and potentially even negative—returns.

That's why (daunting though it may be) a holistic approach that accounts for these relationships delivers better returns.<sup>5</sup>

Now, let's move beyond the comparatively simple realm of upgrades and retrofits and extend our analysis into sources of behind-the-meter supply like batteries, generators, and solar arrays—the same concepts and complexities apply, because these additional components are integrated into the overall energy solution mix.

<sup>3</sup> See the DoE's [Quadrennial Technology Review](#)

<sup>4</sup> Breakthrough Energy's comprehensive report, [Advancing the Landscape of Clean Energy Innovation](#), states that, "Opportunities for improved building efficiency are enormous. By 2030, building energy use could be cut more than 20 percent using technologies known to be cost effective today; emerging technology advances could cut energy use for buildings by more than 35 percent. Much higher savings are technically possible."

<sup>5</sup> One emerging technique is to use Building Information Modeling (or BIM) to employ simulation and experimentation in a virtual replica of the building under study to account for the complex relationships between different energy systems and create an instruction manual for optimized returns





# Leverage the Power of Operating Expenses

The list of potential customers who would meaningfully benefit from energy solutions is long; moreover, the list is getting longer as new technologies emerge, prices for existing technologies decline, and energy costs continue to cause concern.

That being said, the resources available to—and the purchasing preferences of—different organizations vary considerably.

Unfortunately, the upfront capital required—especially at the scale needed to optimize returns—can present a significant obstacle and, ultimately, can prevent organizations from moving forward with projects.

However, by changing the way energy solution transactions are constructed—by turning a large capital expense (CapEx) into an affordable and convenient operational expense (OpEx)—providers can:

- **Secure business that is otherwise unattainable** due to longer payback periods; and
- **Unlock the huge market segment** consisting of organizations who want to invest in energy solutions but lack the capital required to do so

## Make projects more affordable and convenient by transforming CapEx purchases into OpEx

Introducing an OpEx-based, “no upfront costs” purchase model in which customers spread out payments over a period—typically anywhere from 24 to 60 months—is an effective way to access the vast majority of prospects who otherwise would not be able to invest in large-scale energy solutions.

In this approach:

1. A financier pays the solution provider in full at the start of the project
2. The solution provider delivers the energy solution; the solution immediately starts delivering benefits (e.g., \$10,000/month, on average)
3. During the term of the agreement, the customer pays a fixed amount (e.g., \$8,000/month) toward the project and

enjoys the remainder of the savings delivered by the solution (e.g., \$2,000/month, on average)

4. Once the project has been repaid in full, the customer enjoys the full savings delivered by the solution (e.g., \$10,000/month, on average)

By transforming capital-intensive projects into affordable and convenient operational expenditures, energy solution providers gain access to an expanded market and buyers also enjoy a range of benefits, including:

- **The ability to get started right away**, rather than waiting for capital to become available
- **Instantaneous time-to-value**, as charges for the solution are more than offset by the savings they deliver
- **Simpler approval processes**, compared to CapEx purchases

## Further derisk the investment with performance-based contracting

Many ESCOs already use performance-based contracting: when an ESCO implements a project, their compensation is directly linked

to the customer's actual energy cost savings. Under this methodology, the customer pays for the solution out of the savings delivered.

In this approach:

1. The solution provider delivers the energy solution; the solution delivers immediate benefits
2. During the term of the agreement, the customer enjoys a portion (e.g., 20%) of the savings delivered by the solution and the remainder (e.g., 80%) goes toward paying for the project
3. Once the project has been paid for (which varies slightly based upon the savings delivered), the customer enjoys 100% of the savings delivered by the solution

Unsurprisingly, this approach is extremely appealing to customers, as it derisks the investment and essentially guarantees them a positive return.

There is no technical reason why every energy solution provider can't offer performance-based contracting. In fact, if you are confident in the value of the solutions you offer, then this model could be the key that unlocks a whole segment of the market that is otherwise too risk averse or fiscally constrained to invest in energy solutions.



### How EnPowered Payments Unlocks Unwinnable Opportunities

Because of the enormous benefits that come from transforming CapEx projects into an OpEx-oriented model, even well-resourced energy consumers may still prefer the operationalized approach—increasing the appeal for any solution provider who offers this option.

To learn more about the details of how these projects are structured, please see **Business Case Study: How EnPowered Payments Unlocks Unwinnable Opportunities**.



# Help Customers Get the Most Out of Their Investments

Demand or capacity fees and time-of-use pricing (TOU) play a big role in determining what consumers pay for electricity. In fact, these charges—which are usually based upon a facility's monthly peak or the peak usage of the entire system—can represent anywhere from 20-71% of a facility's monthly electricity bill.<sup>6</sup>

Peaks are surprisingly complicated,<sup>7</sup> but to avoid huge costs an organization should aspire to do two things:

1. Flatten their peaks
2. Avoid consumption during peak periods

Combined with other energy solutions, reducing peak costs can generate compelling returns. For example, the Conrad Hotel in Chicago managed to save over 450,000 kWh per year after installing automated HVAC controls, infrared sensors, and wireless door switches. The investment also paid for itself in 18 months, thanks to more than \$35,000 in annual savings.

Similarly, after Adobe instituted a new open-plan office layout at its headquarters it installed an automated system to shut down HVAC and lighting use in areas that had been unoccupied for more than 15 minutes. This project reduced energy consumption by 65%,

while the number of employees working in the space grew, from 80 to 135.

Note that in both of the examples above, the organizations introduced automated systems. In conjunction with other smart technologies like Internet of Things (IoT) sensors and centralized control systems, automation can remove the day-to-day—and even minute-to-minute—complexity of managing the ever-growing array of energy systems in modern facilities.

However, to deliver optimal returns, such systems require three crucial inputs:

1. **Configuration**, such as time-of-day or temperature-triggered settings
2. **Real-time feedback mechanisms**, for instance from smart sensors to measure variables like temperature, lighting, and air pressure throughout the facility
3. **Electricity pricing forecasts**, which are essential to making informed decisions about when to buy from the grid or select an alternative

The first two inputs are generally straightforward, but the third is a major hurdle for most organizations.

<sup>6</sup> For more about peaks, see [What the Peak?!](#)

<sup>7</sup> To learn more, see [Six Types of Energy Peaks](#)

# The power of energy intelligence

Electricity prices are volatile and confusing, with a long list of dynamic rates, capacity or demand adjustments, delivery fees, and other charges driving up costs and turning your bill into a complicated mess.

There are many ways to save money—in the short term and over the long haul—but monitoring all the market signals and making sense of them is extremely difficult, typically requiring teams of experts.

Lacking the resources of large enterprises, smaller organizations who want to avoid high-cost periods have traditionally had a few options:

1. **Engaging with an energy consultant** who provides forecasting of energy markets and costs for general planning
2. **Signing up with utilities** to receive notifications of projected high costs
3. **Signing up with a third-party advisory service** to receive notifications of projected high costs

Unfortunately, these approaches all have drawbacks.

For example, many consultants use something called a linear regression approach using publicly available data to basically ‘connect the dots’ and try to predict where future data points will be. Linear regression is an appropriate approach for simple systems, but it is poorly suited to dynamic systems with many variables (e.g., usage, weather, temperature, etc.), feedback loops, and interdependencies. The result is that there is tremendous room for improvement beyond what consultants provide.

Utility forecasting is limited in that it provides information focused on that day rather than a season. For this reason and others,

such forecasts are prone to suffering from higher than necessary peak curtailments. For example, during the 2019 summer season, the Independent Electricity System Operator (IESO) called 18 events for Ontario.<sup>8</sup>

High cost advisory services are the strongest of the three options, but they have two weaknesses: first, high cost prediction is complicated, so the advice is only as good as the provider; second, the more organizations there are responding to high cost forecasts, the more unreliable the prediction data becomes.<sup>9</sup> Plus, operations managers within organizations are under pressure to maintain production, so even when a high cost is forecast accurately there are no guarantees about the number of organizations that will respond and to what degree.

Fortunately, there is another option that delivers better outcomes than either linear regression or participation in high cost prediction programs: machine learning-generated forecasts.

Unlike linear regression, machine learning (and more specifically, neural networks) are capable of synthesizing hundreds of millions of data points—including market signals and usage information—and turning them into near real-time forecasts that demonstrably outperform the alternatives.

Incorporating such a “virtual energy intelligence team” into your service portfolio will enhance your value proposition by helping your large energy consumers to:

- **Precisely plan usage** to avoid costly periods
- **Optimize the performance and ROI** of their energy solutions—whether automated or not
- **Identify strategies** to increase control and predictability over the longer term

<sup>8</sup> For an extended explanation, see [The Challenges of Predicting Peaks](#)

<sup>9</sup> This phenomenon is a characteristic of chaos theory: if thousands of users are all basing their decisions on the same publicly available data, then their collective actions can negate that data's predictive power



# Increase Performance Transparency

Buyers of energy solutions often struggle to calculate the return on their investments, for a few reasons:


- Before-and-after consumption analyses need to account for 'natural' (i.e., unrelated to the new solutions) variations in usage
- Measuring an avoided cost (e.g., not purchasing from the grid during a peak) is not straightforward
- Costs (e.g., for solutions, for energy) are typically spread across multiple statements and invoices

Any solution provider who can help their customers understand the performance and measure the ROI of energy solutions will benefit from increased customer satisfaction, stronger business case tools, and a longer list of reference customers.

## The simplicity of on-bill payments

One 'low-hanging fruit' that can substantially increase performance transparency is to bundle charges, rebates, and operational

savings for projects, products, and services directly on customers' existing electricity bills. Doing so allows customers to see their energy costs and the savings returned by their energy solutions in one place.

 <div> <b>A+ Utility INC.</b>  P.O. Box 1021, Guelph, ON N1E5K3  <a href="http://www.aplusutility.ca">www.aplusutility.ca</a>  Questions? See reverse to contact </div>	
Billing Summary	
<b>Delivery Charges</b>	\$2,904.91
<b>Energy Charges</b>	\$18,904.60
<b>ABC Partner Charges</b>	\$9,904.28
<b>Regulatory Charges</b>	\$1,976.11
<b>Total Electricity Charges:</b>	\$33,689.90
Taxes	\$4,379.69
<b>Total New Charges:</b>	\$38,069.59
<b>Total Charges:</b>	\$38,069.59

# Conclusions

The market for energy solutions is in the early stages of enormous growth. However, solution providers routinely encounter a number of barriers, including a crowded marketplace, customer doubts or confusion about ROI, and high upfront capital requirements that prevent projects from getting started (especially if the payback period is longer than 18 months).

To overcome these barriers, energy solution providers should:

- Help customers to understand that they can gain the greatest returns by taking a holistic, large-scale approach to investing in energy solutions
- Offer convenient purchasing options to align with how customers want to purchase solutions; in particular, providing an operationalized purchase model enables customers to get started on projects right away and, at the same time, allows solution providers to access prospects who lack sufficient capital—likely the majority of the market.
- Ensure customers to get the most out of their investments in energy solutions; for example, providing timely energy forecasts allows automation systems to minimize demand/capacity fees and time-of-use charges that can cause energy bills to bloat
- Build trust and help make your customers' lives easier by increasing performance transparency—when customers see that their investments are having the desired impact, they will be eager to make more and will be equipped with the evidence to make the case to internal decision makers



## EnPowered: The on-bill platform for the energy industry

EnPowered is a pioneering cleantech company accelerating the adoption of innovative solutions in energy-intensive industries.

### A more convenient way to sell energy solutions

**EnPowered Payments** allows energy solution providers to align their selling model with the way customers want to buy.

Bundle charges, rebates, and operational savings for projects, products, and services directly on customers' existing electricity bills—and even offer an OpEx-based purchase model to reach new prospects.

### Help your customers get the most out of their solutions

**EnPowered Programs** analyzes more than 400 million market signals to identify when electricity is going to be expensive and makes those insights available through a simple API.

This predictive feed allows large energy consumers to make informed decisions that lower energy costs and decrease emissions.





EnPowered is a pioneering cleantech company accelerating the adoption of innovative solutions in energy-intensive industries. The company's platform provides convenient on-bill payment to enable the acquisition of energy solutions. The platform also predicts spikes in electricity prices, prompting assets to shift usage to save money and decrease emissions. Additionally, EnPowered is building the Virtual Energy Movement, an ecosystem of like-minded companies that focus on the adoption of flexible energy assets to help the grid shift to renewables. Founded in 2015 in Waterloo, Canada, EnPowered is continually expanding its North American partner network of energy solution providers.

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