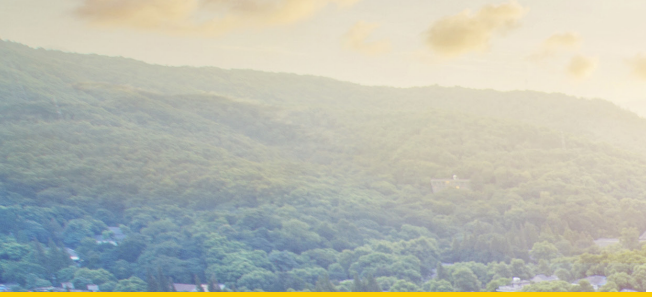
Shell ENERGY

Multi-Faceted Energy Management Strategies to Plan for Peak Load Days

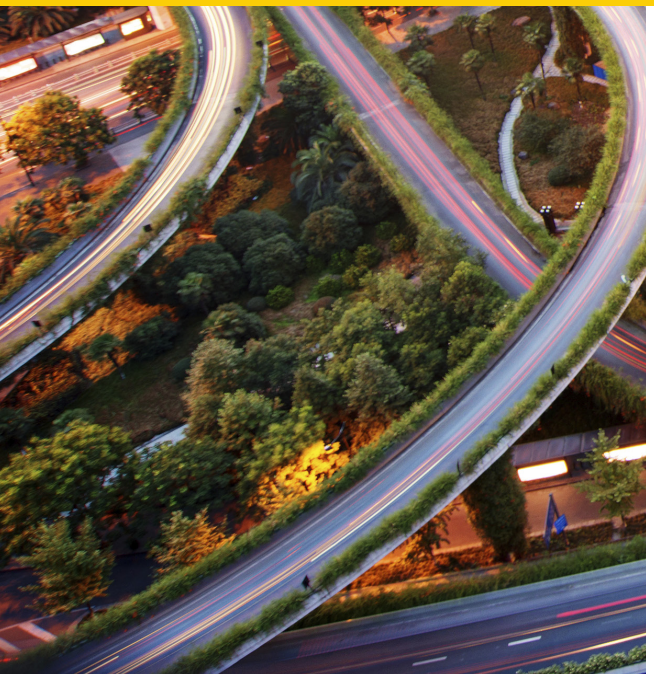


THE CASE FOR A MODERN ENERGY STRATEGY

Energy, whether power or gas, is a leading operational expense in commercial and industrial (C&I) facilities. Rate swings, fluctuating demand, and sector-specific market forces all impact overall energy costs, which contribute to year-over-year budgetary uncertainty.

As a result, facility managers and executives take cost comparison seriously. However, optimizing spend and minimizing risk in the increasingly complex energy climate demands a more comprehensive approach than simply shopping around for the best price.

By increasing efficiency, managing market exposure, and making wise infrastructure upgrades, C&I facilities can reduce utility spend, meet internal even create a new revenue stream. Viewing these opportunities from the lens of peak load days highlights their potential benefits.



Understanding Peak Load Days

The timing of peak load days depends on factors such as region, vertical, and business operations. Weather is often the strongest determinant due to increased HVAC needs. Cold weather climates are typically winter-peaking, while warm climates peak in summer.

Simply put, electricity and natural gas cost more during peak demand periods. A recent example was experienced during California's August 2020 heat wave, where power prices rose 10 times higher than in the previous days.[1] Again, multiple factors influence the amount of this increase, including the energy mix used, region, procurement strategy, and more. It follows that a multi-pronged approach is necessary to curb this significant expense comprehensively.

PLANNING FOR PEAK LOAD / C&I

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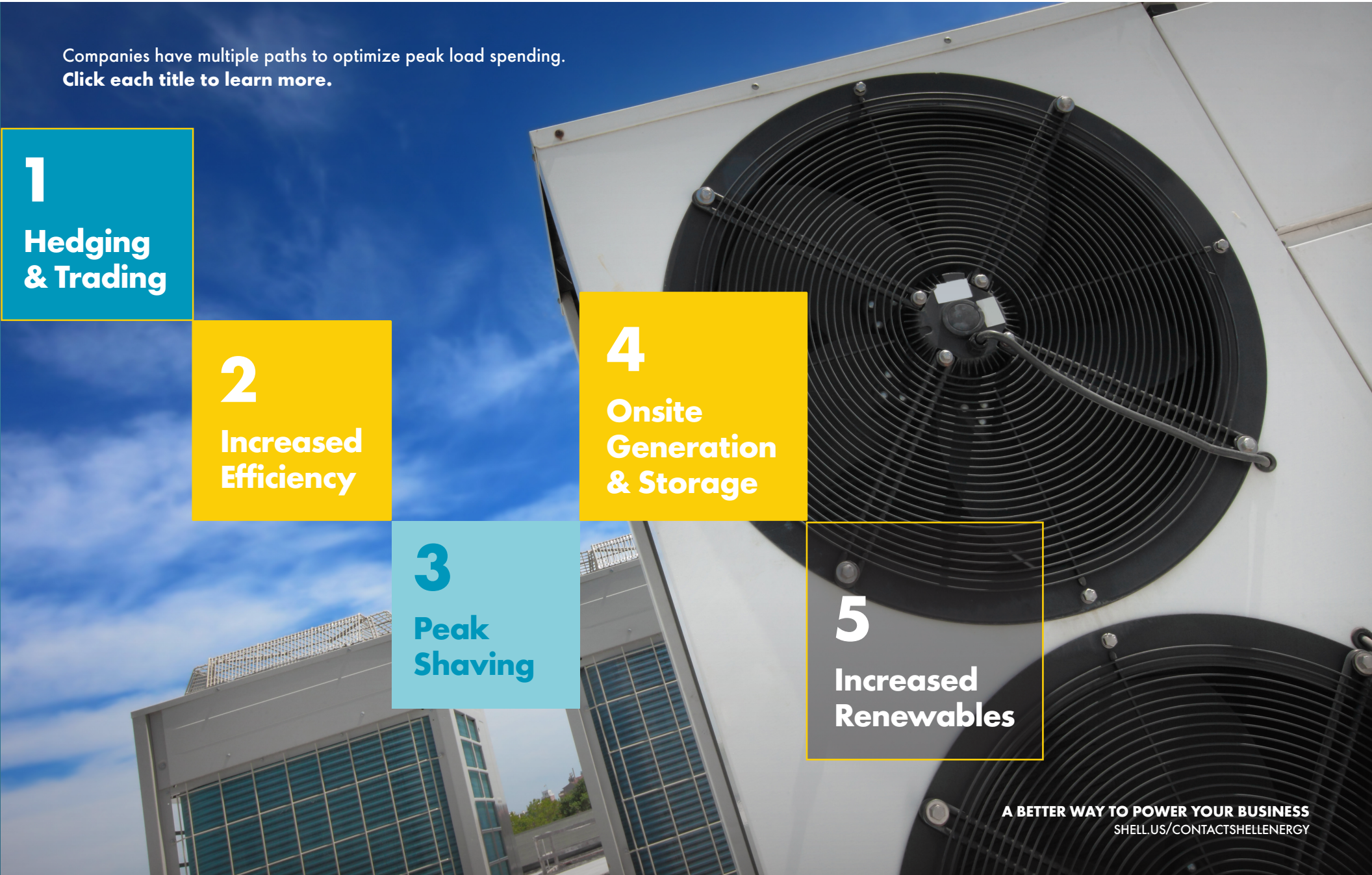

Companies have multiple paths to optimize peak load spending.
Click each title to learn more.

1 Hedging & Trading

2 Increased Efficiency

3 Peak Shaving

4 Onsite Generation & Storage

5 Increased Renewables

A BETTER WAY TO POWER YOUR BUSINESS
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1 HEDGING & TRADING

Nearly all mid-to-large size commercial and industrial facilities may benefit from working with an energy trader to leverage procurement options that aren't typically available through local utility companies. While utilities typically bill base rates with non-negotiable demand and energy charges, accessing the energy markets grants a greater ability to self-determine risk exposure and the potential for rate changes.

These options are available for both power and gas, but the exact mechanisms differ between markets. For example, facilities may choose to leverage fixed rates of various term lengths to balance retaining flexibility with taking advantage of forward energy prices. They may also consider structured hedging products, such as opting for fluctuating market prices with targeted fixed price procurements or changing bandwidth provisions, to lock in lower rates prior to price spikes.

Solution Spotlight

A responsive trade desk with market expertise is instrumental in determining the bespoke products to fit your goals. Shell Energy works with brokers and end users to provide 24/7 market access and expertise about financial and physical hedging, procurement mechanisms, and ancillary services.

2 INCREASED EFFICIENCY

Increased efficiency saves on energy all the time, not just during periods of peak demand. It also supports sustainability goals and may be incentivized or mandated by cities and states. Lighting represents the largest single use of energy in commercial buildings,[2] while heating and cooling are also major consumers. It follows that improving lighting and HVAC system infrastructure can translate into significant energy savings.

Energy companies may assist with this effort through energy efficiency (EE) offerings. EE portfolios vary, but many include smart, high-efficiency lighting, HVAC, or other infrastructure improvements. These upgrades often include smart features such as sensors and live monitoring to reveal usage spikes and inefficiencies as they occur, empowering management to take action quickly. EE projects can be particularly high-impact for organizations with multiple locations, as the benefits are compounded.

Solution Spotlight

EE solutions can provide increased efficiency without an up-front investment. Shell Energy Inside is a program that provides behind-the-meter energy solutions on a subscription model with no upfront cost. Through Shell Energy Inside, facilities can obtain the most efficient and reliable equipment without the stress of asset ownership and maintenance, since Shell Energy provides preventative and reactive maintenance and a functional guarantee.

3 PEAK SHAVING

Peak shaving is the practice of taking short-term operational responses to manage monthly or annual demand-related charges. Even with fixed rate supply, it's wise to curb peak usage because it can contribute to and increase overall year-over-year capacity expenses. In most deregulated markets, capacity charges are a function of peak load.

Note that peak shaving differs from load shifting. Load shifting is the practice of moving power usage to off-peak times to save on energy costs. For example, manufacturers may choose to run certain industrial operations in the middle of the night instead of during peak hours, when energy is less in demand and more affordable. While peak shaving is a viable cost reduction strategy for many commercial and industrial energy users, a smaller group of energy users can financially benefit from load shifting. Many facilities have operational energy needs that can't be shifted, or wouldn't be worthwhile to shift in today's markets.

Peak shaving and demand response program participation is made easier through aggregated distributed energy resources (DERs) and energy management systems.
In addition to efficiency insights, the real-time information generated allows users to actively or automatically manage load imbalances and swap power sources.

Solution Spotlight

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4 ONSITE GENERATION AND STORAGE

Onsite generation and storage is a powerful option for peak shaving. In some areas, it's even possible to monetize it.

While it's possible to use traditional means such as natural gas or diesel generators, onsite renewable generation is a more progressive option that better supports sustainability goals. Onsite solar panels create energy while the sun shines, which is stored behind-the-meter. Facilities can then avoid drawing energy from the grid during peak load times by tapping into their own reserve of energy generated onsite, cutting costs in the process. The greater the generation and storage capacity, the greater the potential savings.

In some areas, it's possible to capitalize on onsite natural gas or diesel generation, and even batteries, through demand response programs, which grant organizations the ability to sell stored energy back to the grid during periods of peak demand.

Solution Spotlight

MP2 Energy is a wholly-owned subsidiary of Shell Energy offering customized load reduction strategies and demand response solutions for large-scale customers throughout ERCOT and PJM. To explore further, see this case study about the first net-zero elementary school in Texas.

5 INCREASED RENEWABLES

Energy cost uncertainty is rooted in the marginal cost of the power and gas markets: when demand is higher, the cost increases. Renewable energy, such as solar and wind, has comparatively negligible marginal cost.[3] Adding renewables into the energy mix can therefore add a degree of |predictability to peak season spend.

In other cases, the sheer volume of energy usage, during peak load days or otherwise, may jeopardize the satisfaction of external requirements or internal sustainability goals. Greening the energy mix supports these goals and prepares businesses for the energy transition.

These offsite renewables are often procured through retail-delivered Renewable Power Purchase Agreements (PPAs) or Virtual Power Purchase Agreements (VPPAs), which collectively provide solutions for a wide variety of C&I facilities, enabling a greener energy mix conveniently and cost effectively, especially when bundled with retail supply.

Solution Spotlight

Shell Energy's managed, owned, and contracted renewable projects add 11,000 GWh of carbon free energy to the grid each year, representing robust opportunities for commercial and industrial users to easily add renewables to the energy mix. Additionally, Shell Environmental Products allow end users to offset emissions that can't be avoided.

A BETTER WAY TO POWER YOUR BUSINESS.

Talk to Shell Energy about your organization's energy goals. Supported by field offices around the country, we're your local link to global energy assets and trading power. We'll guide you toward the structured products, efficiency services, and demand response options that will help you achieve them.

SOURCES

[1] https://www.sacbee.com/news/california/article245048140.html

[2] https://www.eia.gov/energyexplained/use-of-energy/commercial-buildings-in-depth.php

[3] https://doi.org/10.1016/j.rser.2017.09.002

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C&I SOLUTIONS AT A GLANCE

SHELL ENERGY PRODUCT GUIDE

TALK TO AN EXPERT

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