PROLOGIS®
ENERGY SOLUTIONS

MARCH 2026

Powering Growth:

How Businesses and Utilities Meet Surging Electricity Demand

Executive Summary

Electricity demand is surging worldwide. The International Energy Agency projects global consumption will rise about 4% annually through 2027, equal to Japan's yearly electricity use. In the United States, forecasts from The Brattle Group suggest peak demand could grow by 24% by 2030 (roughly 175 GW) and 36% by 2035, with total energy consumption increasing by more than 50% over the same period.

This growth is concentrated in three sectors reshaping modern economies: data centers powering AI and cloud workloads, zero-emission transportation fleets and highly automated logistics facilities. Each represents a new class of large, continuous demand that is driving new models for how energy is produced and delivered.

Utilities are modernizing the grid, but these projects can take years to complete. To bridge the gap, businesses are deploying on-premises power and distributed energy systems in partnership with utilities. This approach accelerates growth, ensures reliability and adds flexibility while long-term upgrades are underway.

Data Centers and Artificial Intelligence: A New Scale of Utilization

The digital economy is one of the largest drivers of electricity demand growth. Data centers support everything we do, from telehealth and online banking to public safety systems. They are crucial for helping today's communities thrive.

At the same time, intelligence-driven systems are transforming how goods move, spaces operate and networks adapt. By uncovering hidden patterns in supply and demand, they enable more resilient planning, smarter energy use and new efficiencies. Together, these advances are reshaping logistics real estate, moving it beyond location into a dynamic platform for sustainability, innovation and global commerce.

Data centers worldwide are expected to consume 536 TWh in 2025—roughly 2% of global electricity—and could surpass 1,000 TWh by 2030. In the U.S., these critical facilities used approximately 176 TWh in 2023—already 4%–5% of national demand—and could reach 6.7%–12% by 2028.

Even at smaller scales, operators are adding behind-the-meter generation to ensure uptime. The U.S. Department of Energy has emphasized that flexible onsite power and storage are key to improving resilience while supporting grid operations. The DOE emphasizes load flexibility, storage integration and utility collaboration as critical to aligning data centers with electricity system needs. Reflecting this shift, the data center generator market is projected to double by 2032, surpassing $2.1 billion annually.

As data centers support nearly every facet of our daily lives, hyperscale campuses are growing in size. A single hyperscale campus might need 50–100 MW of capacity. Right now, there are major interconnection backlogs. Some facilities may wait up to seven years for service while utilities expand capacity. Globally, as many as 20% of planned projects could face delays for lack of timely power access.

In response to the need for reliable, uninterrupted power, operators are adopting power generation at unprecedented levels. A developer in Pennsylvania has proposed a 4,500 MW natural gas facility solely to power data centers, while Indiana's 1,080 MW Merom coal plant signed a deal to serve a single large customer. OpenAI's proposed Stargate project envisions 10 data centers, each with about 1,000 MW of dedicated capacity.

Fleet Electrification: Heavy-Duty Charging at Scale

The transition to zero-emission freight vehicles is another driver of concentrated demand. Global sales of medium- and heavy-duty electric trucks grew 35% in 2023, reaching about 54,000 units, with the U.S. market expected to scale from a few thousand vehicles today to tens of thousands per year by the late 2020s. Across the U.S., new policies are steering the heavy-duty truck market toward electrification—with roughly a third of new trucks expected to be zero-emission by the early 2030s.

Heavy-duty electric trucks require charging capacities on the order of 300 kW to 1 MW per vehicle, compared to 7–150 kW for passenger EV chargers. When aggregated at charging depots, simultaneous charging can create localized demand in the 10–20 MW range. This type of load density highlights the importance of integrated planning and supplemental power strategies—such as onsite generation, storage and load management—that can accelerate near-term deployment while aligning with long-term grid modernization.

Meeting this demand with grid infrastructure can take years, particularly when upstream transmission upgrades are needed. Utilities are working on these projects while supplemental power helps fleets move forward sooner. In Los Angeles, however, the Denker Avenue charging hub demonstrates an alternative path. Completed in just five months, the project integrates 2.75 MW of hydrogen-ready natural gas generation with 18 MWh of battery storage to deliver 9 MW of charging capacity—enough to charge 96 trucks at once. The hub was designed to complement utility service, bridging demand while long-term upgrades move forward.

Automated Warehouses and Logistics Facilities: Always-On Operations

Logistics facilities are undergoing rapid electrification and automation to meet consumer demands and expectations. Robotics, automated workflows, high-speed conveyors and electrified forklifts demand more electricity. Cold storage warehouses, with their continuous refrigeration requirements, are even more power-intensive.

The result is a new generation of “high-power warehouses” capable of drawing several megawatts at peak demand. According to the U.S. Energy Information Administration, energy use in distribution centers has shifted. Once dominated by lighting and heating, most consumption now comes from process and auxiliary equipment, including automation and charging systems. These critical investments improve speed, accuracy and reliability across supply chains. Sustaining this momentum requires one constant: reliable power.

Even short outages can halt sortation systems or damage perishable goods. Many facilities now deploy backup generation or uninterruptible power systems, and some integrate solar-plus-battery or cogeneration units for additional resilience. Building energy management systems (EMSs) with submetering allows operators to monitor and optimize usage, shifting flexible loads like AGV charging to off-peak times.

As with fleets and data centers, warehouse operators increasingly use temporary generation to bridge gaps while utilities complete grid upgrades. This hybrid approach ensures facilities remain operational while utilities complete necessary upgrades.

Grid Challenges and Utility Partnerships

Grid infrastructure faces unprecedented strain as utilities work to expand and modernize it. Transmission projects often take 5–10+ years to complete, while distribution network upgrades require multiple years. Lead times for high-capacity transformers have doubled in recent years, creating additional bottlenecks.

Utilities acknowledge these pressures and are investing in solutions: expanding renewable portfolios, streamlining interconnection processes and piloting AI-driven planning tools that can cut study timelines from years to months. These efforts show utilities' commitment to meeting customer needs, with distributed resources playing a supporting role.

On-premises power complements these efforts by acting as a safety valve. It allows businesses to grow while utilities complete long-term projects and provides resiliency and reliability once the utility has connected. Flexible, distributed systems not only provide resilience at the facility level, but can also support utilities during peaks or outages, reinforcing the partnership between customers and providers.

OnPrem Power in Practice

On-premises power encompasses several approaches:

Permanent onsite generation such as turbines, CHP plants and solar-plus-storage provides immediate capacity and operational autonomy.

Standby and backup systems ensure continuity during outages and peaks. The commercial standby generator market, valued at $7a.3 billion in 2024, is projected to grow at 7.6% annually into the 2030s.

Temporary and portable systems bridge short-term needs, from construction to seasonal peaks. The global power rental market, worth $10.5 billion in 2023, is expected to reach $15.8 billion by 2030.

These approaches do not replace grid service; they support and complement it. A facility microgrid, for example, may draw from the grid during normal operation, switch to batteries for short fluctuations and use onsite generation during peaks or outages. Such systems not only improve resilience but can also help utilities by reducing peak loads and providing demand response.

Conclusion

With electricity powering so much of what we do every day, the demand is growing at levels once unimaginable. AI, the demand for zero-emissions trucks and the need for more automated warehouses are reshaping power consumption patterns.

Utilities remain the backbone of reliable supply. Their investment in a more modern grid takes time to complete. Distributed, OnPrem Power solutions provide a complementary pathway, ensuring businesses have the electricity they need today while giving utilities the time and flexibility to deliver tomorrow's infrastructure.

Case studies from the Denker Avenue microgrid to distributed energy–powered data centers demonstrate that these solutions are not theoretical. They are being deployed now, building a more resilient, efficient and secure energy system. In an electrified economy, partnership between utilities and distributed resources will be essential to sustaining growth.

Prologis
Pier 1, Bay 1
San Francisco, CA 94111
United States
+1 415 394 9000
www.prologis.com

PROLOGIS® ENERGY SOLUTIONS