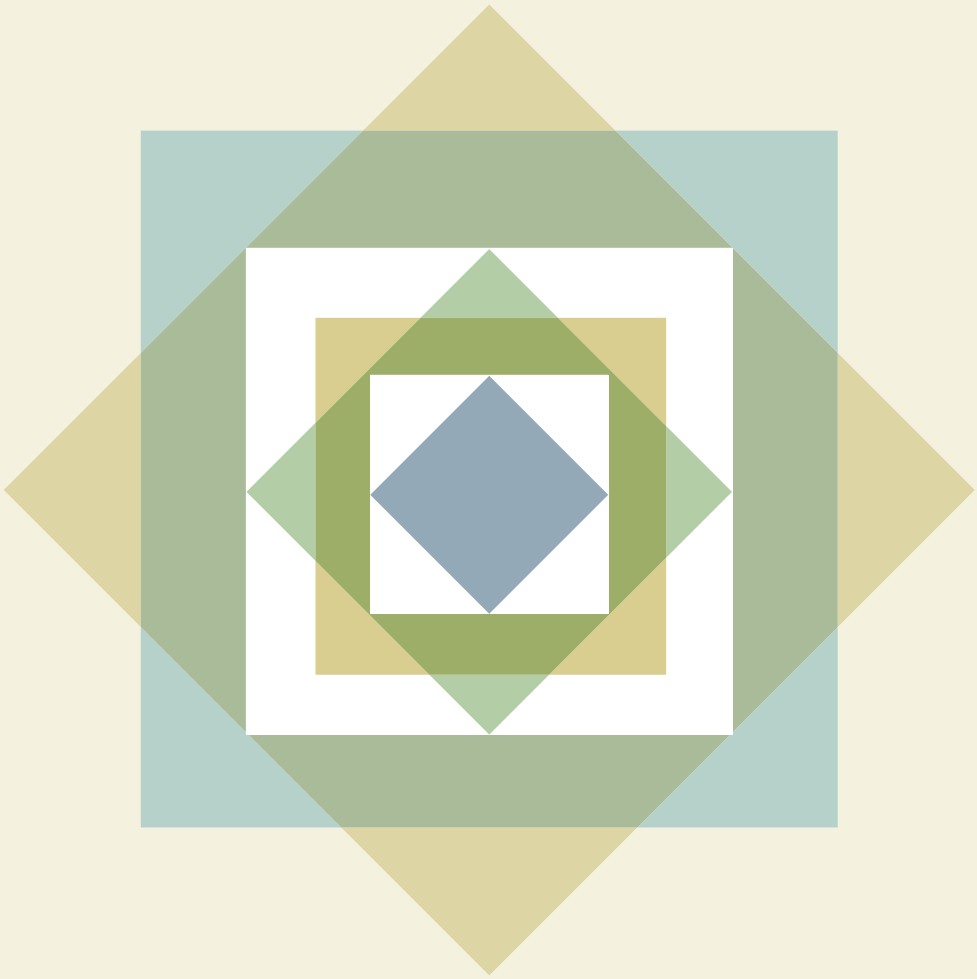
SECTOR INTERSECTION



Benjamin van Loon
Editor-in-Chief
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While the commercial real estate sector has been a longtime energy consumer (and subsequent source of innovation for energy management), new technologies and innovative partnerships with the energy sector could lead to a new industry convergence.

One of the basic laws of nature is that energy can neither be created nor destroyed; only transformed.

While this fundamental law of conversation describes the physical universe, it's also a useful analogy for industry: business can neither be created nor destroyed; only *transformed*.

And with the ongoing evolution of the commercial real estate sector—and its broader social, economic, and technological symbiosis—we are witnessing transformation in real time at the increasingly critical intersection of energy and the built environment.

Importantly, this transformation goes beyond the core ethos of "sustainability" that has dominated the conversation around innovation and management of real estate over the past two decades. The utility and fiscal importance of LEED, BREEAM, DGNB, and other building standards have concretized the priority of sustainability in commercial development, and their compliance continues to generate measurable, positive impacts for our cities and communities. But aside from some of the more futuristic sustainability targets (e.g., Living Building Challenge, PassivHaus, etc.), these standards are largely intended to reposition or minimize the consumptive footprint of real estate.

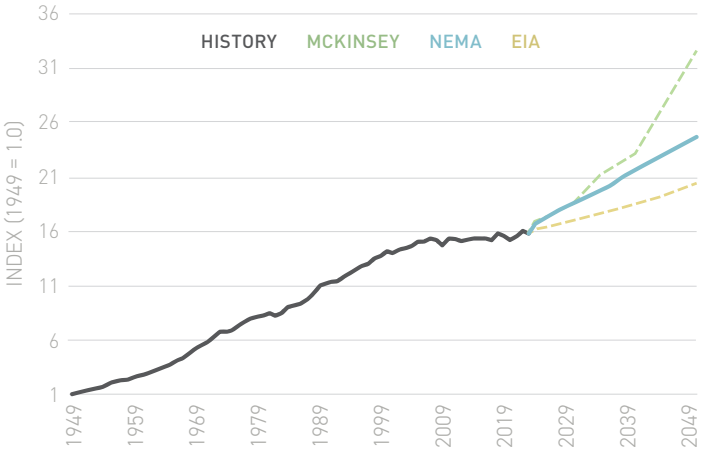
Meanwhile, the energy sector sets in own pace, using the real estate sector as one of many points of input for guidance in the ongoing global "energy transition." But the input from commercial real estate for transition planning, and energy sector-specific investment in particular, often frames real estate as merely consumptive—rather than as a potential (and asset-rich) partner for expediting and streamlining the transition.

Despite the occasional plaints from a diminishing pro-fossil fuel cohort, this transition will come one way or another. And commercial real estate, with its established sustainability practicum and well-documented list of benefits (that go far beyond ideology), is well-positioned to partner with the energy sector and the next era of the built environment.

TIDAL RISE OF ENERGY DEMAND

With the current data center boom underway, and the accelerating US transition to electric vehicles, the National Electrical Manufacturers Association (NEMA) recently forecasted a 2% annual increase in electrical demand in the US, with a total 50% increase by 2050 *(Exhibit 1)*.[1]

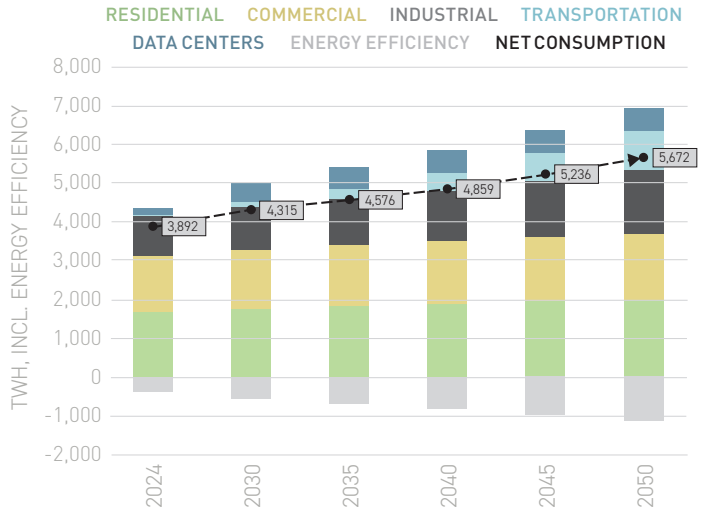
EXHIBIT 1: ELECTRICITY DEMAND FORECAST, 1949–2050



Source: National Electrical Manufacturers Association

This forecast—which splits the difference between a more liberal outlook from McKinsey[2] and more conservative outlook from US Energy Information Administration[3]—assumes a 300% growth in data center energy consumption over the next decade, and 9000% growth in "e-mobility power consumption" through 2050 *(Exhibit 2)*.

EXHIBIT 2: DATA CENTERS AND TRANSPORTATION LEAD DEMAND GROWTH THROUGH 2050

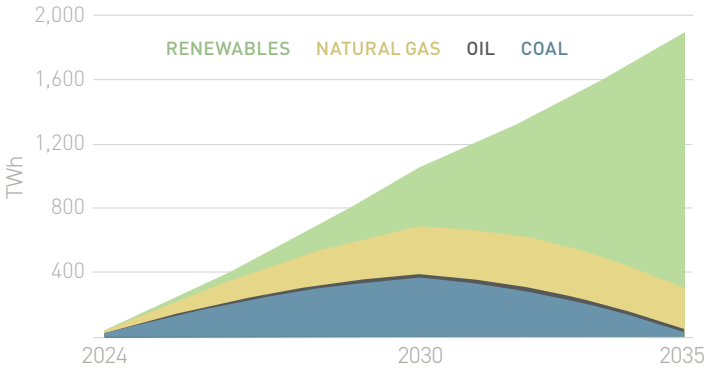


Source: National Electrical Manufacturers Association

Electricity demand growth in the US is largely consistent with similar global forecasts, which expect a 34% increase in global energy consumption by 2050, driven by increased regional manufacturing and evolving living standards.[4] This same forecast posits that the growth in demand will outpace advances in energy efficiency, putting increased stress on existing energy infrastructure and outmoded electricity supply methods (e.g., oil and coal), especially in the US.

While this increased stress exposes systemic flaws, especially in the disjointed US power grid, it has already opened opportunities for innovations in renewable energy investment and development. According to the 2024 World Energy Outlook from the International Energy Agency, capacity from new renewables could be substantially increased over the next decade to meet nearly 85% higher electricity demand.[5] And with solar and wind energy increasingly affordable, these sources are poised to boom *(Exhibit 3)*.

EXHIBIT 3: INCREASE IN GLOBAL ELECTRICITY SUPPLY BY ENERGY SOURCE, 2024–35



Source: International Energy Agency

The commercial real estate industry, as a whole, recognizes the challenges posed by the confluence of increased energy demands, the inadequacy of current energy sources to meet these demands, and the potentialities of renewable energy (realized as more affordable energy, or even self-generated energy, as discussed elsewhere in this issue of *Summit*). Data from the recent AFIRE Spring 2025 Investor Survey underscore this priority, as approximately 95% of respondents agreed that energy infrastructure, reliability, and cost will be increasingly important factors for market selection over the next five years. And 15% of those same respondents are already prioritizing increased investment in markets powered by renewable energy.[6]

The energy industry is poised to develop increased generation and distribution—but it faces some of the same roadblocks to development as any other commercial real estate development (i.e., permitting timelines, litigation procedures, planning and siting complications, NIMBYism, etc.). At the end of 2023, for example, the Federal Energy Regulatory Commission reported a backlog of nearly 12,000 power generation projects in the US.[7] With exponentially increasing electricity demand, this backlog is expected to grow.

And yet, despite their shared challenges, the two sectors have fought similar battles from separate fronts. (History is partly to blame here, with the energy sector as relatively "new" and real estate having several centuries' head start.) But with identical external trends now defining and intertwining the futures of both sectors, a new convergence might be in order.

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The US could serve as a unique testing ground for this approach, with its 16 billion square feet of commercial properties that account for nearly 19% of all energy usage.

TWO SIDES OF THE SAME COIN

When the frustrations of the energy sector are placed alongside the frustrations of, the multifamily sector with its well-documented backlog of millions of homes in the US, or the data center sector, with its well-documented (and deeply regulated) appetite to meet exponentially growing demand—the overlap is clear.

The performance of commercial real estate is driven by the same external trends bounding energy sector performance and so there is good reason to see both sectors as two sides of the same coin.

A recent policy position from the Commercial Real Estate Development Association (NAIOP) addresses this convergence, arguing that "lack of future availability of electricity is hindering the commercial real estate development needed to support industries in a rapidly transforming economy."[8] NAIOP advocates for federal policies that can incentivize regional coordination and cooperation by utilities and local jurisdictions for larger transmission projects, with the assumption that a less inhibited energy sector will thus accelerate stalled commercial real estate development. Or in other words, if energy can move, commercial real estate can be activated in kind.

But as innovations in renewable energy evolve, will this order of events still be necessary? Could the energy and real estate sectors form a united front for the next era of development?

The US could serve as a unique testing ground for energy innovation, with its 16 billion square feet of commercial properties that account for nearly 19% of all energy usage. Through various energy strategies, derived from the assets themselves—such as demand-side energy management, distributed energy resources, energy efficiency, and so forth—a recent white paper from CPower Energy argues that "CRE organizations with distributed [energy] resources at their facilities [. . .] are therefore in a position to reap significant financial benefits."[9]

These benefits differ based on the market and the supply/utility landscape in a given region—which is also part of the challenge.

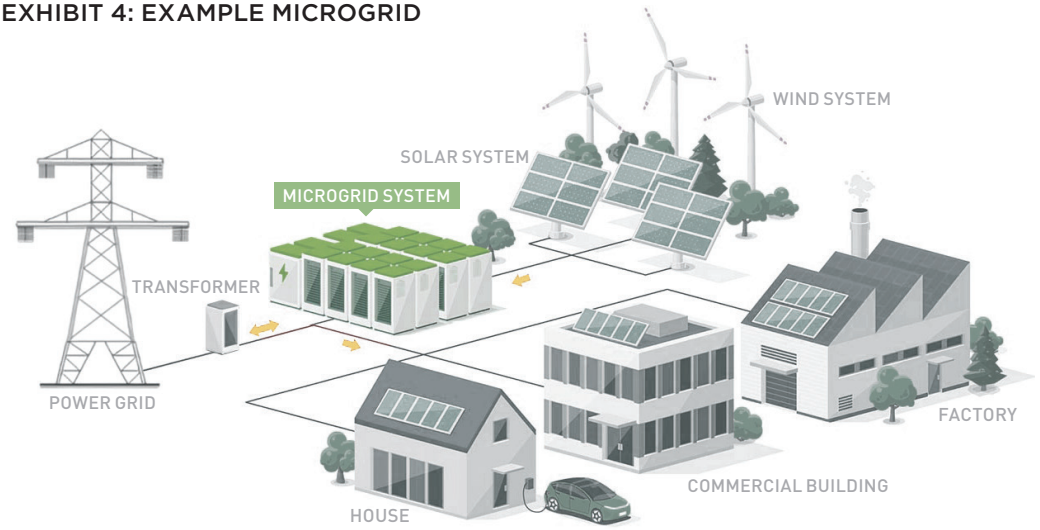
RETHINKING INFRASTRUCTURE AND ENERGY AS A SERVICE

The other part of the challenge is the infrastructure itself. The majority of the US grid over the past century was built around coal plants, which are on track to mostly retire within the next five years. Next-generation nuclear and enhanced geothermal energy are nascent but facing regular and substantial physical and legislative roadblocks to replace coal at scale.

Jake Elder, Senior Vice President of Research and Innovation at Energy Impact Partners (an investment platform focused on the energy transition), recently wrote in *Urban Land* that this particular moment of transition, especially in the US, "is shaping up to be a generational opportunity for the whole electric power sector. If navigated correctly, utilities can deepen partnerships with their customers, help them decarbonize, and grow their business."[10]

Elder points to "microgrid" technologies as one such generational opportunity for collaboration, or "distributed hubs that could take themselves off of the centralized power grid during outages" *(Exhibit 4)*. Rooftop solar is a simple example of this, as are lithium-ion batteries, fuel cells, linear generators (which use chemical energy from both clean and standard fuels), and other technologies.

EXHIBIT 4: EXAMPLE MICROGRID



Source: Flyfine Battery

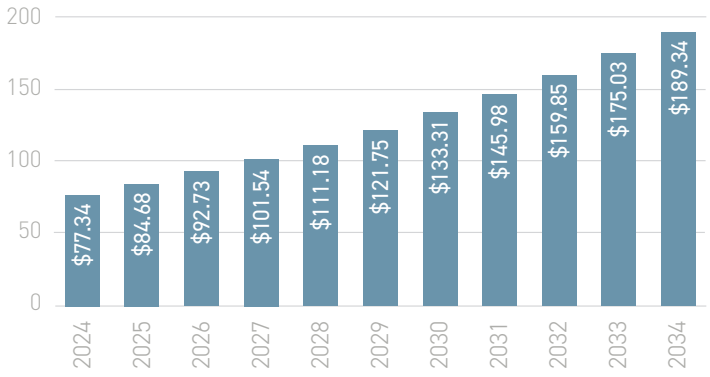
Other technologies are posed to be more revolutionary and may not need to be reliant on extant grids in any form. For example, Simon Treacy, former CEO of Private Equity Real Estate for CapitaLand Investment, a Singapore-based firm, recently launched a new energy venture: PolarBlue is developing technologies to "engineer energy into a self-scaling cloud-based service—a replicable array of smart infrastructure—deployable anywhere, continuously optimized."

PolarBlue owns "the entire energy technology stack—including invented breakthroughs in materials, conversion, and distribution — allowing its platform to scale direct-to-user across homes, industries, and communities worldwide."[11]

Treacy and PolarBlue's approach is part of a broader turn to "Energy as a Service" (EaaS), which allows building owners and users to subscribe to energy through a service contract—like Apple Cloud Storage or Netflix. This model allows subscribers to get energy and predictable rates based on their consumption, with less exposure to fossil fuel markets, weather events, or geopolitical tensions.

Additionally, the energy itself comes from carbon-free sources (e.g., solar, wind, battery-backed systems, microgrids, etc.), which can be deployed quickly without the need for extensive permitting, mining, or primary grid connections. As such, the infrastructure is "software-defined and hardware-light," like cloud computing, and could use real-time data, algorithms, and AI to manage supply and demand.

EXHIBIT 5: ENERGY AS A SERVICE (EAAS) MARKET SIZE AND GROWTH, 2024–34

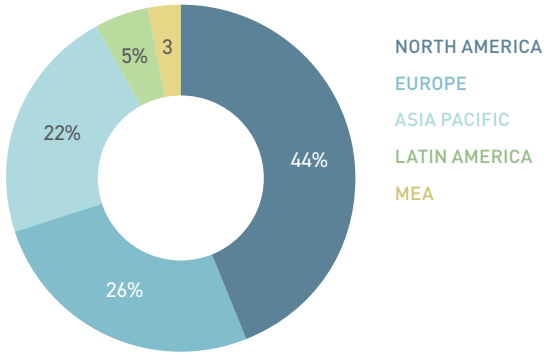


Source: Precedence Research

According to Precedence Research, the global EaaS market is calculated at approximately $85 billion in 2025, with a forecast to reach nearly $190 billion by 2034 *(Exhibit 5)*.[12] The US is currently driving most EaaS demand, especially in the commercial sector, where adoption is being fueled by initiatives aimed at improving energy storage efficiency and reducing operational costs *(Exhibit 6)*.

Performance-based approaches facilitated by EaaS—such as pay-for-performance models (which are based on the measured energy savings achieved, rather than a fixed rate)—can further incentivize energy savings at scale, particularly for industrial applications, which account for more than a third of the EaaS market share.

EXHIBIT 6: ENERGY AS A SERVICE (EAAS) MARKET SHARE BY REGION, 2024



Source: International Energy Agency

The revolutionary dream of emergent EaaS providers and adjacent technologies may eschew visions of collaboration between the energy and real estate sectors but are still based on partnership. All cloud-based solutions demand a physical footprint, but rather than coopting utilities and regulations to fit modern energy demands (and waiting for legislation to meet the moment), real estate owners have a growing set of tools to take command of the energy transition themselves—from something as familiar as solar arrays and on-site energy storage to more revolutionary approaches that reframe energy from "utility" to "service."

Or as Simon Treacy has said, "When energy becomes abundant and predictable, everything changes. Industry grows without destruction. Families thrive without sacrifice."

FINDING OURSELVES AT THE FOREFRONT

Over the past few decades, the real estate industry has gone from skepticism about sustainability, to fetishism, to balance, and eventually, to responsible fiscal practice. The engineering, architecture, and planning sectors have followed apace—even as legislation has been mesmerized by the bumbling dance between economic responsibility and populist apathy on the same path.

Meanwhile, the energy and utility sectors are trying to respond to twenty-first–century pressures with twentieth- (and nineteenth-) century tools, with or without the collaboration from the owners and investors of the broader built environment. Some patchwork policy solutions and public-private partnerships have emerged from this disconnect, but as the forces affecting energy and real estate converge, these sectors will be well-served to do the same.

ABOUT THE AUTHOR

Benjamin van Loon is the Editor-in-Chief of Summit Journal and Managing Director of AFIRE.

NOTES

[1] "US Electricity Demand Will Grow 50% by 2050: Electrical Manufacturer Study." *Utility Dive*. Accessed May 23, 2025. https://www.utilitydive.com/news/us-electricity-demand-will-grow-50-by-2050-electrical-manufacturer-study/744575/; "Grid Reliability Study." *Make It Electric*. April 2025. https://www.makeitelectric.org/wp-content/uploads/2025/04/grid-reliability-study-nema-deck.pdf.

[2] "Global Energy Perspective." *McKinsey & Company*. Accessed May 23, 2025. https://www.mckinsey.com/industries/energy-and-materials/our-insights/global-energy-perspective.

[3] Annual Energy Outlook." *U.S. Energy Information Administration (EIA)*. Accessed May 23, 2025. https://www.eia.gov/outlooks/aeo/.

[4] "EIA Expects Global Energy Consumption to Increase through 2050." *Institute for Energy Research*. Accessed May 23, 2025. https://www.instituteforenergyresearch.org/international-issues/eia-expects-global-energy-consumption-to-increase-through-2050/.

[5] *World Energy Outlook 2024*. International Energy Agency, 2024. https://iea.blob.core.windows.net/assets/140a0470-5b90-4922-a0e9-838b3ac6918c/WorldEnergyOutlook2024.pdf.

[6] "Pulse Survey 2025." *AFIRE*. Accessed May 23, 2025. https://www.afire.org/survey/pulse14425/.

[7] "FERC State of the Market Report: Need for Transmission." *Federal Energy Regulatory Commission*. Accessed May 23, 2025. https://ferc.gov/news-events/news/ferc-state-market-report-need-transmission.

[8] "Energy." NAIOP: *The Commercial Real Estate Development Association*. Accessed May 23, 2025. https://www.naiop.org/advocacy/legislative-priorities/energy/.

[9] *Monetizing Energy Assets in the Commercial Real Estate Industry*. CPower Energy Management, May 2018. https://cpowerenergy.com/wp-content/uploads/2018/05/Monetizing-Energy-Assetst-in-the-Commercial-Real-Estate-Industry.pdf.

[10] "A Perspective on the Energy Transition and Opportunities for Real Estate." *Urban Land Institute*. Accessed May 23, 2025. https://urbanland.uli.org/resilience-and-sustainability/a-perspective-on-the-energy-transition-and-opportunities-for-real-estate.

[11] "Article i2smAs45." *Polar Blue*. Accessed May 23, 2025. https://www.polarblue.com/news/article?article_id=i2smAs45.

[12] "Energy as a Service Market." *Precedence Research*. Accessed May 23, 2025. https://www.precedenceresearch.com/energy-as-a-service-market.