FMI

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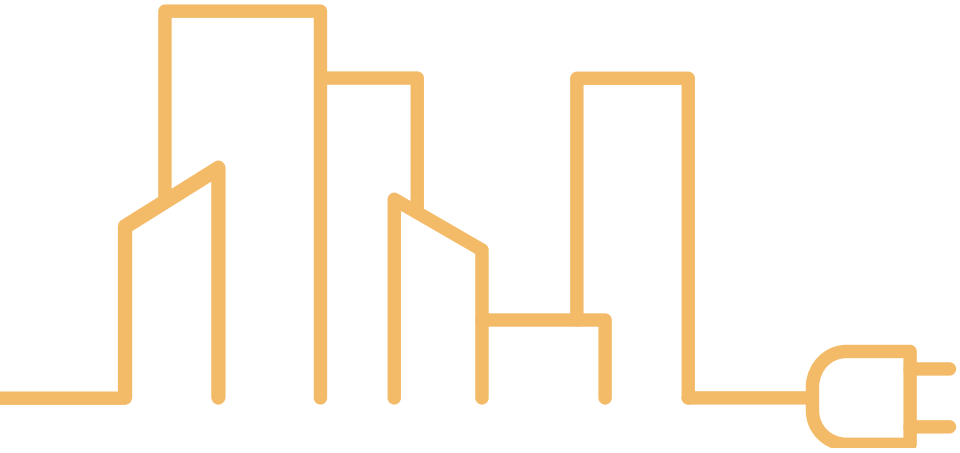
HOW PRIVATE EQUITY CAN CAPITALIZE ON ELECTRIFICATION

TRENDS IN THE BUILT ENVIRONMENT



U.S. electricity consumption is expected to increase by as much as **15%** by 2050.

The electric power space continues to evolve as demand increases (largely driven by technology and manufacturing), generation moves to renewable energy sources and transportation increasingly uses electric power. Investment opportunities span a wide spectrum — from supply to demand and utility scale to behind the meter — across which there are thousands of lower-middle-market firms operating.

On the generation side, renewable energy, including solar, wind and hydropower, continues to expand rapidly. In 2023, renewable energy sources accounted for approximately 25.7% of the net electricity generation in the U.S. This marks a significant increase from 7.8% in 2001. During the same period, coal's contribution to electricity generation declined from 51% to 15%.

This increase in alternative sources, along with growth in traditional fossil fuel generation in the U.S., is pushing electric outputs higher. Natural disasters have also led to an increased focus on distributed energy resources, microgrids and the resiliency these solutions can provide. Rekindled interest in nuclear and a potential energy-first agenda from the incoming administration are expected to spur growth in electric generation and the firms that serve this portion of the market.

At the other end of the spectrum, demand for electricity isn't slowing. U.S. electricity consumption is expected to increase by as much as 15% by 2025, according to the U.S. Energy Information Administration. The rise of data centers, semiconductor manufacturing in the U.S. and electricity demand within buildings requires expansion and modernizing of the electricity grid to keep up with these power-intensive industries. This extends within the building as well, including controls, automation and a greater densification of electrical infrastructure. Around 80% of buildings in cities today will still be standing in 2050. That aging infrastructure continues to be a core driver of electrification solutions in facilities.

In a sector that is highly fragmented and primed for professionalization, investors willing to grasp the nuances of varying geographies and markets will find ample opportunities to invest and create value. Here we explore some of the trends in electric power and how smart investors can take advantage of the momentum.

ELECTRIFICATION TRENDS CREATE OPPORTUNITIES

When it comes to opportunities in the electric power space, there are several themes that investors should consider.

TREND 1
REDUCING CONSUMPTION AND IMPROVING ENERGY EFFICIENCY

While most every aspect of the U.S. economy is increasing power demand, approximately two-thirds (61%) of total electric power consumption in the U.S. can be attributed to the industrial and commercial sectors, indicating that heavy machinery, manufacturing and powering commercial buildings significantly contribute to total electricity usage. Many owners in the commercial and industrial sectors are working to reduce consumption and upgrade electric infrastructure to meet clean energy goals and cut costs.

Heating, ventilation and air conditioning (HVAC) systems, components and lighting consume nearly 80% of a commercial or industrial building's power. Electrical service providers with expertise in controls and building management systems can help building owners optimize these systems, leading to reduced costs and lower energy consumption.

TREND 2
GROWING GOVERNMENT INVESTMENT

State and federal government investment in and incentives for clean energy, grid resiliency, energy-efficient buildings and advanced manufacturing are strategically designed to accelerate the transition to a lower-carbon economy while meeting demand needs and supporting sustainable infrastructure development.

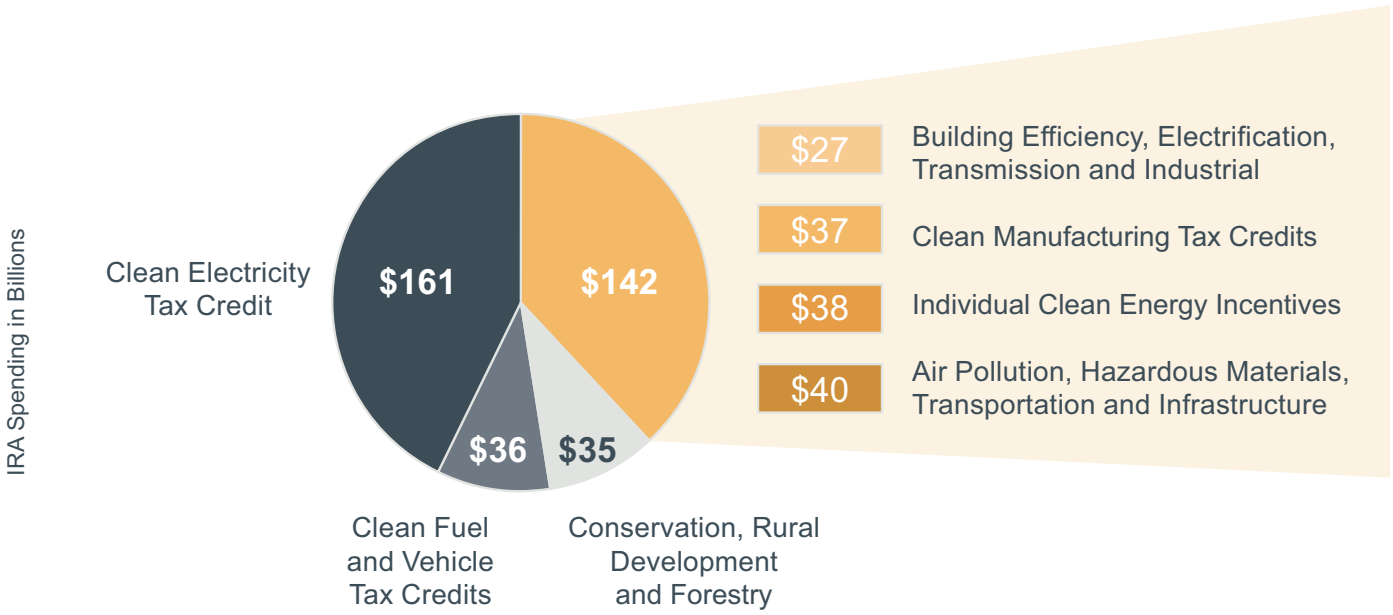
The Inflation Reduction Act (IRA) allocated $161 billion in clean electricity tax credits, $36 billion to clean fuel and vehicle tax credits, and $35 billion to conservation efforts. And the Infrastructure Investment and Jobs Act (IIJA) provides the largest infrastructure and economy investment in U.S. history, with more than $1.2 trillion in spending through 2026.

Of the total funding, approximately $73 billion will go to power infrastructure and grids. While these funds have already been allocated, the incoming administration could put restrictions on spending. It is unlikely that funding will be retracted since this would require congressional action and the discontinuation of projects that have economic benefits for many states.

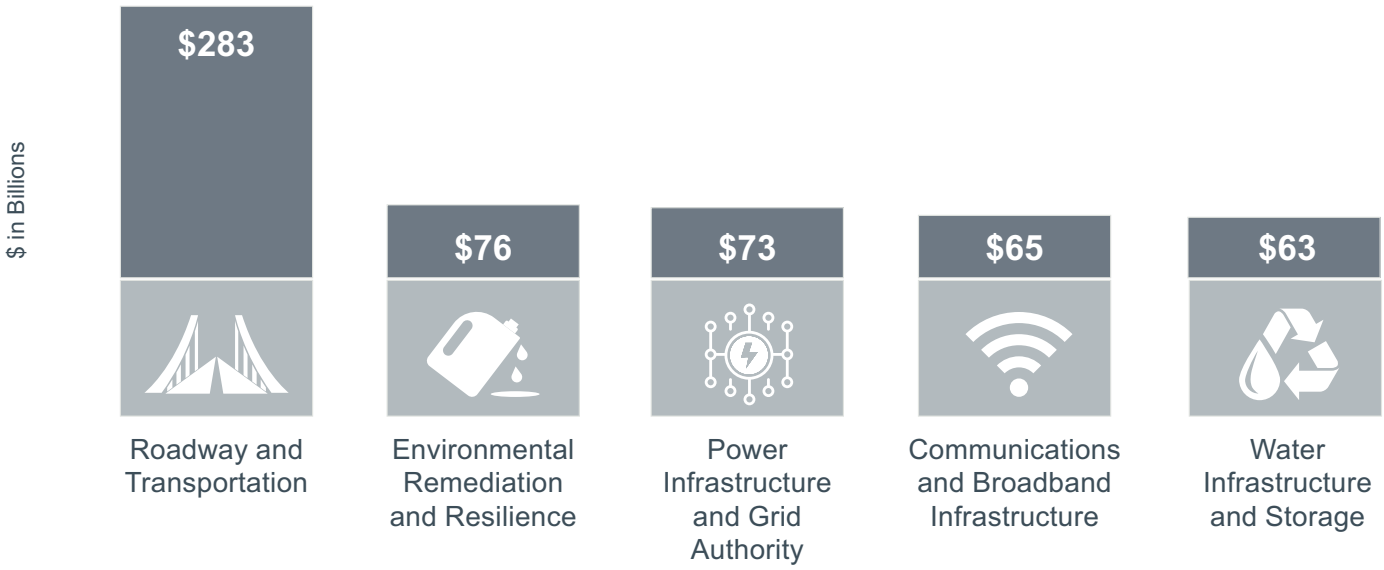
Complementing these federal initiatives, many states have launched ambitious electrification programs, including direct funding, utility incentives and progressive energy mandates, aimed at accelerating deployment at the local level. Furthermore, state-specific policies and programs have added billions more to these initiatives, emphasizing regional priorities and driving innovation tailored to local conditions. These short-term funding allocations have long-term implications for the electrical installed based of electricity, and will spur more demand for services for decades.

Understanding how these dollars will be allocated can help investors make strategic decisions about the locations and types of companies they pursue. There are also tax deductions and other incentives intended to drive investment and speed up the shift to cleaner energy.

INFLATION REDUCTION ACT (IRA)



BIPARTISAN INFRASTRUCTURE LAW (BIL)/IIJA



Sources: FMI Analysis, U.S. Government, Energy.gov

Experts in the U.S. estimate that the network will need to grow **60%** by 2030 and triple by 2050 to accommodate the rapid changes within the energy sector.

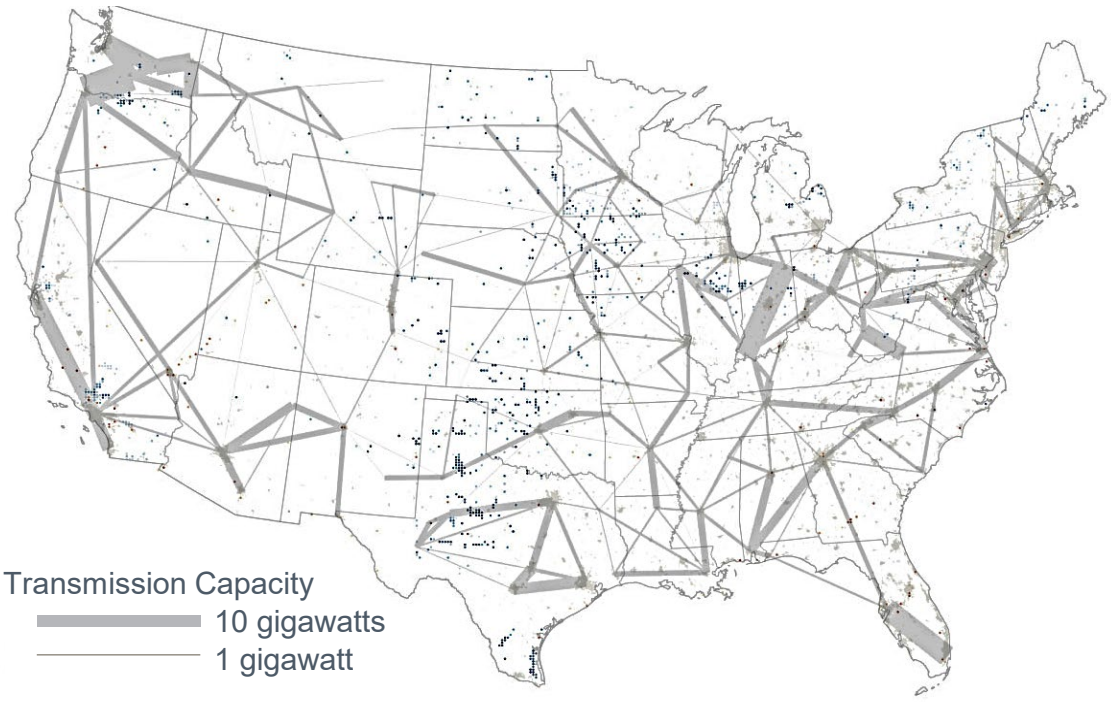
TREND 3
IMPROVING THE ELECTRICAL GRID

The Building a Better Grid initiative enables more than $13 billion in federal funding to be directed toward the modernization of the electrical grid network. This comes at a time when experts in the U.S. estimate that the network will need to grow 60% by 2030 and triple by 2050 to accommodate the rapid changes within the energy sector.

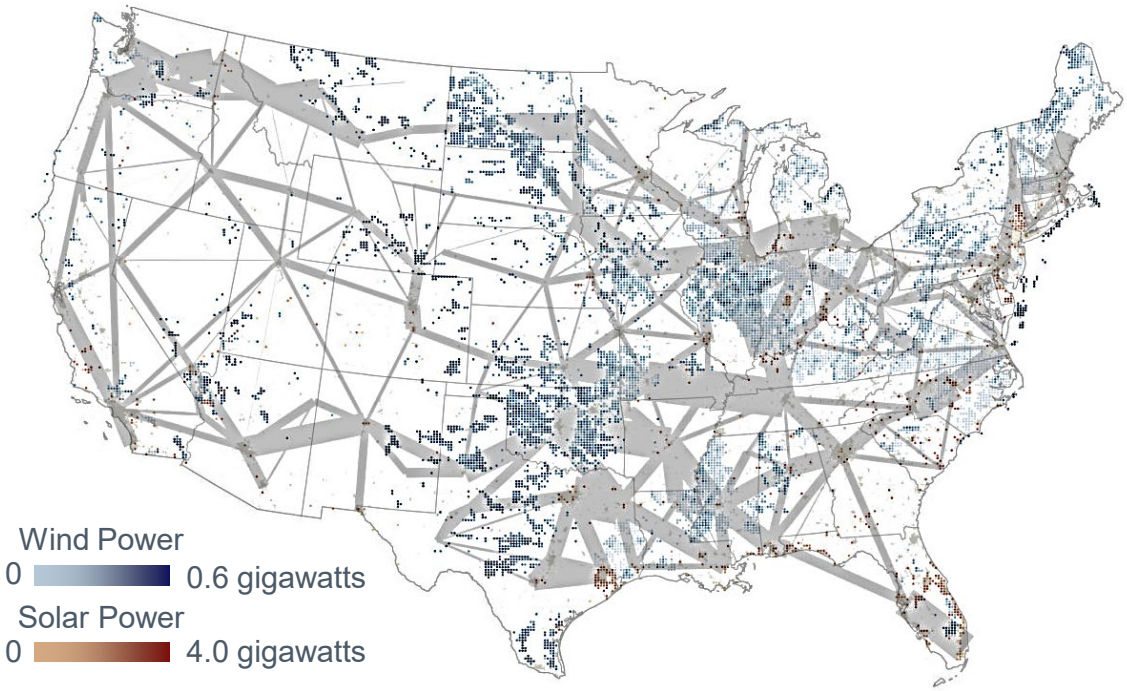
Upgrading transmission and distribution infrastructure is essential to meet the growing demand and to seamlessly integrate higher amounts of renewable energy into the grid. Strategic investments in smart grids, energy storage and grid flexibility allow electrical providers to effectively address the evolving requirements of electrification, support clean energy initiatives and achieve emissions reduction targets while ensuring reliable and sustainable power supplies.

Because transmission and distribution lines already carry substantial energy loads and substations are often located on the outskirts of urbanized areas, there is clear need to prioritize upgrades, maintenance and restoration work on the electrical infrastructure. The lack of capital and necessary labor force coupled with the extensive timelines for major transmission projects further emphasizes the need to efficiently and intelligently expand the grid. Power system engineering providers and software solutions sit at the forefront of this massive development effort.

CURRENT RENEWABLE ENERGY PROJECT AND INTERREGIONAL TRANSMISSION CAPACITY



ESTIMATED NEED FOR REACHING 100% CLEAN POWER BY 2035



Sources: FMI Analysis, DOE, American Public Power Association

TREND 4
SHIFTS IN DEMAND FROM DATA CENTERS AND MANUFACTURING

The rise of artificial intelligence (AI) and the data centers and other technological infrastructure needed to support it continues to be a major driver within the electricity sector. New data center space totaling more than 21 million square feet is being developed in the 10 largest U.S. zip codes, with northern Virginia leading with 1,900 megawatts of capacity.

The typical data center requires about 1,000 kilowatt hours per square meter per year to operate, mostly due to cooling systems and server demand. As more data centers come online, the energy needs continue to compound, necessitating more efficient power distribution, better reliability and a greater abundance of distributed energy resource options.

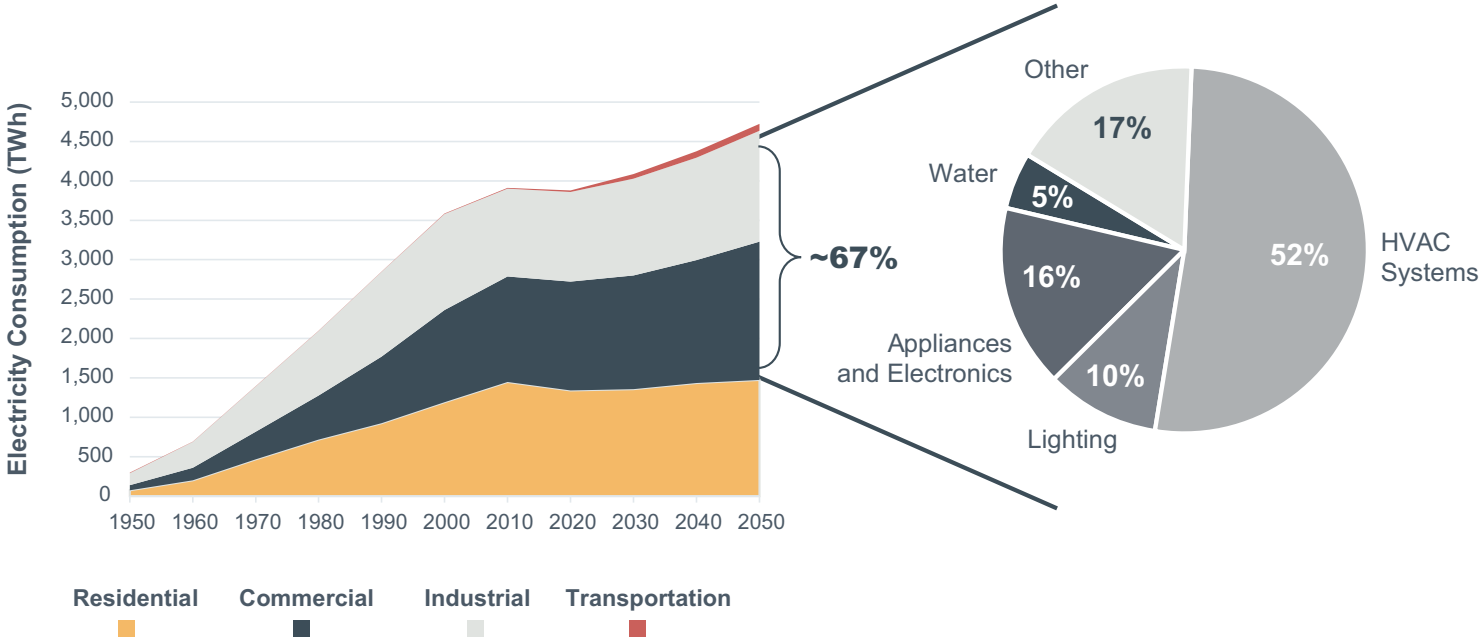
But it's not just data centers driving the increase in consumption. The surge in industrial facility construction directly ties into the broader trend of electrification, particularly in semiconductor manufacturing. As firms like Samsung, Micron and Taiwan Semiconductor Manufacturing Company commit to building new plants, the demand for advanced electrical infrastructure — such as transmission and distribution lines and substations — skyrockets. Manufacturing-related construction has grown more than 300% since 2020, and these electric-intensive buildings will require maintenance and upgrades to remain viable.

This shift not only supports the electrification of manufacturing processes but also stimulates local economies through the need for extensive electrical upgrades and technology services. These advancements are crucial for the industrial manufacturing sector, as they enable more efficient and sustainable production practices. Furthermore, situating these facilities outside major metropolitan areas increases the need for regional electrical infrastructure improvements, which can drive local development and strengthen resiliency in communities.

Buildings across various sectors are increasingly adopting electrification initiatives to boost energy efficiency and sustainability. Facilities are transitioning to electric HVAC systems and advanced LED lighting with smart controls and integrating renewable energy sources like solar panels. They are also installing electric vehicle charging stations and employing smart technologies and energy storage solutions to improve management. In more specialized applications like health care and manufacturing, innovative electrified solutions are coming to market to reduce the environmental impact and improve operational efficiency.

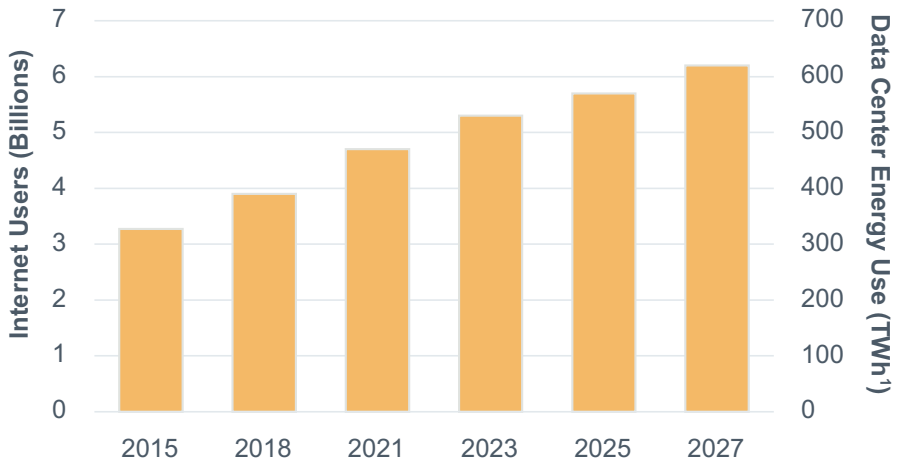
ELECTRIC POWER CONSUMPTION BY SECTOR

COMMERCIAL/INDUSTRIAL BUILDING ENERGY CONSUMPTION BY END USE



Sources: FMI Analysis, EIA, DOE, NREL

DATA CENTER ENERGY CONSUMPTION



Sources: FMI Analysis

[1.] A terawatt hour (TWh) is a unit of energy equal to outputting one trillion watts for one hour.

WAYS TO LEVERAGE THESE THEMES

Across the spectrum, the electricity space is ripe for consolidation since it is highly fragmented with a diverse array of solutions and providers. Value creation opportunities are plentiful as most firms serving this broad landscape are often founder-led and lack the resources to grow with the expanding market. Investors can target geographic expansion or consolidation, service/product line growth and high-quality talent acquisitions.

Electrical service firms. These firms are the front-line providers across the entire spectrum and range from utility-focused providers dedicated to the electrical grid to service firms operating within facilities. These labor-intensive firms are in high demand as infrastructure becomes more complex and the need for services outpaces labor supply. The result for many firms has been increased margins and a greater ability to compete on value instead of price. This increased demand has also paved the way for smaller firms to move upmarket and accelerate their growth.

Value creation opportunities with these firms:

- Increased scope of services and ability to be a turnkey solution provider
- Geographic expansion and consolidation (e.g., buy and build)
- Conversion of new installations to service revenue (e.g., growing service revenue mix)
- Expanded engineering and integration capabilities

Product and equipment distribution. Firms serving this slice of the market are the key connection point between equipment manufacturing and installation, offering a wide range of opportunities to capitalize on the macro trends without having exposure to labor or installation. Firms within this category are diverse and can be focused on highly engineered systems, more commoditized products or somewhere in between. Often these firms specialize in one portion of the electrical market continuum (e.g., generation, grid) and have a unique go-to-market approach that caters to it.

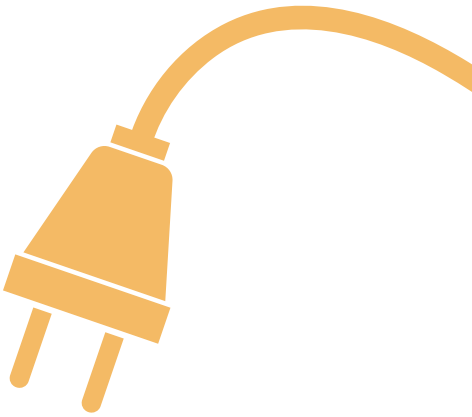
Value creation opportunities with these firms:

- Provision of greater value-added services, including engineering support, prefabrication and kitting
- Geographic expansion and consolidation (e.g., buy and build)
- Expansion to other product categories or manufacturers
- Synergies through increases in scale and buying power

Equipment Manufacturers. The broader supply chain for construction-related materials has largely returned to pre-pandemic conditions except within the electrical market. The significant demand generated from larger utilities, data centers and the manufacturing sector have filled the backlogs for major original equipment manufacturers (OEMs), thus creating long lead times that threaten project schedules. This has created significant growth opportunities for lower-middle-market electrical manufacturers that can provide an alternative to the large OEMs, often offering a customized solution with better lead times and improved customer service. These manufacturers make products ranging from transformers to switchgear and controls, to commodity products and everything in between.

Value creation opportunities with these firms:

- Customized solutions and integration support
- Enhanced sourcing of inputs and economies of scale
- Organic or inorganic product line expansion
- Geographic growth from regional to national and international scale
- Diversified raw material supply chains



CAPITALIZING ON OPPORTUNITIES

For private equity investors seeking opportunities in the built environment, the electric space offers many ways to deploy capital. Those seeking quicker turnarounds can consider vertical or horizontal integrations of companies and service providers to create value at scale. Others — those who may desire longer-term investments — can take advantage of evolving demand and how electricity is provided to invest in new technology providers and means of generation.

Investors need detailed information to make decisions that are right for their strategies. Understanding relevant trends and their long-term effects on the electricity space, including the nuances of where these companies operate, how they connect to the electrical market and where they provide value, can help you craft strategic consolidation plans or determine how best to add value.

AUTHORS

PAUL GIOVANNONI partners with private equity firms to help develop strategic insights into businesses and market opportunities within the built environment. Paul concentrates on providing commercial and operational diligence studies to support transactions in the industrial sector as well as post-close value creation activities by leveraging FMI's relationships in the industry and a nuanced understanding of how businesses in the sector operate and win.

Segments in which Paul has direct experience include infrastructure services, engineering, building products and distribution, industrial services, energy and cleantech, HVAC services, construction materials, construction technology, utility services, specialty trade contractors, general contractors, and construction equipment and tools.

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