

NQGETS™ July 2026 Reconstitution: Expanding Exposure to Global Electrification Innovation

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At a Glance:

- Electrification remains a long-term structural growth theme. NQGETS delivered strong performance in H1 2026, benefiting from growing investment in electrification infrastructure driven by AI data centers, electric vehicles, and the ongoing energy transition.
- The July 2026 reconstitution expanded NQGETS' opportunity set, strengthening exposure to global innovators and increasing representation of Chinese companies.
- China's representation increased substantially, reflecting its growing role in grid infrastructure, energy storage, renewable energy integration, and broader electrification innovation.
- Key additions included 3M, Qualcomm, CATL, China Yangtze Power, and China Tower

Introduction: The Growing Importance of Electrification

Global demand for electricity is accelerating, driven by the increase in AI data center investment, adoption of electric vehicles, and the transition to cleaner energy systems. Meeting this rising demand will require significant investment across the electrification value chain, including grid infrastructure, transmission networks, energy storage systems, and advanced power management technologies.¹

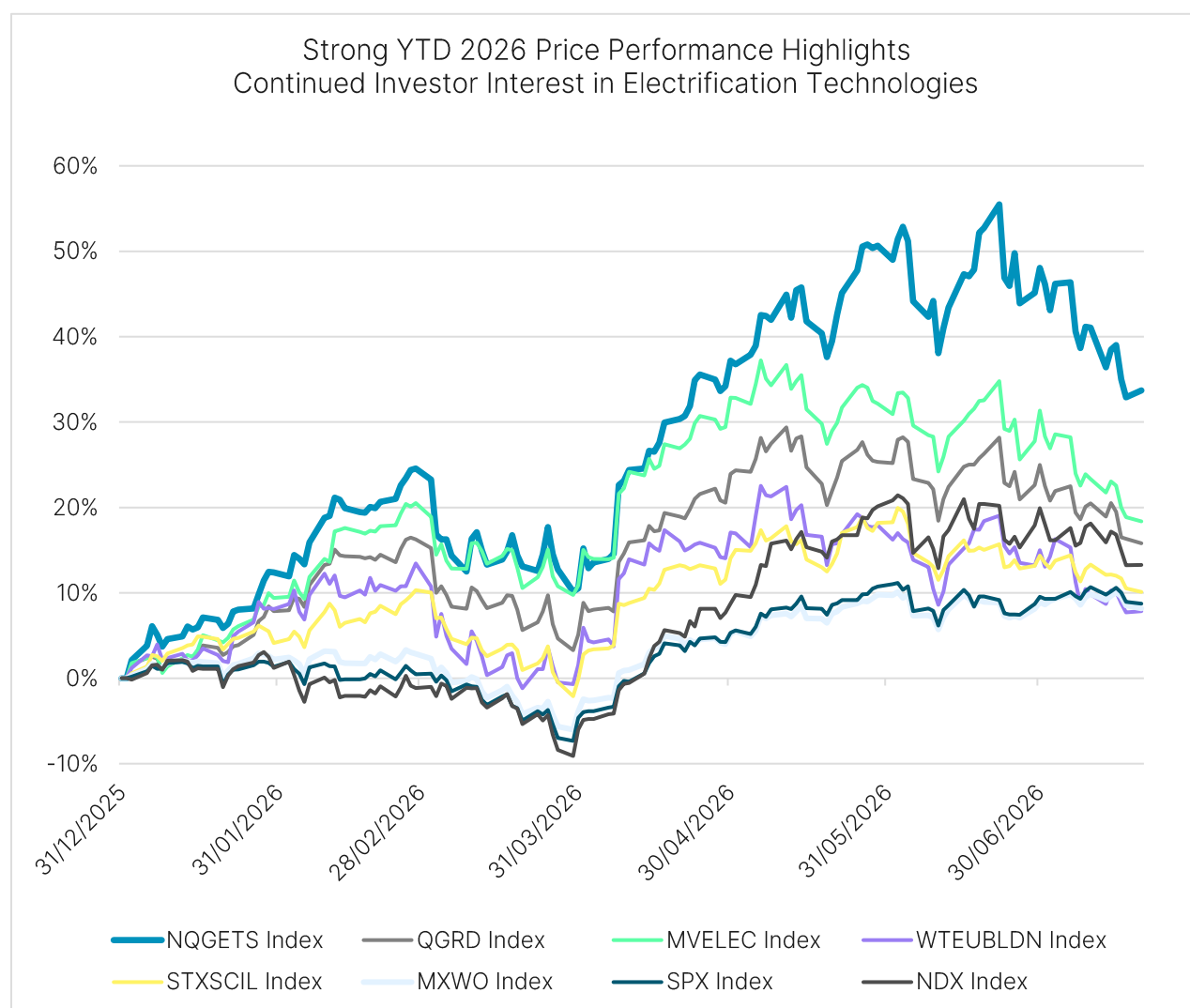
The Nasdaq Global Electrification Technologies and Smart Grid™ Index (NQGETS™) is designed to track the performance of companies developing and deploying technologies that support this transformation. Through its patent-driven methodology, the index seeks to identify innovators across a range of electrification-related themes, including Smart Grid, Smart Energy Transmission, Smart Grid Components, Smart Metering, Stationary Energy Storage, Clean Energy, and Nuclear Power.

As electrification becomes an increasingly global investment theme, innovation is emerging from a broader range of technologies and regions. Against this backdrop, the July 2026 reconstitution

¹ For a more detailed discussion of the electrification investment theme and the technologies underpinning the transition, please refer to [The Age of Electricity: Powering the Next Global Transformation](#)

marked an important evolution of the index methodology. In this article, we examine the key methodology enhancements. We begin by exploring the methodology changes, with particular focus on the expansion of the eligible universe and its implications for capturing global electrification leaders, including a growing number of companies from China. We then provide an overview of the underlying patent universe, analyze the impact of the reconstitution on index composition, and conclude with company spotlights highlighting innovative businesses contributing to the modernization of electricity networks and the broader electrification value chain.

Electrification Remains a Long-Term Structural Theme



Source: Bloomberg. Cumulative USD Price Performance. Data from December 31, 2025 to July 20, 2026
 QGRD™ = NASDAQ OMX Clean Edge Smart Grid Infrastructure™ Index, MVELEC = MarketVector Electrification Index,
 WTEUBLDN= WisdomTree Europe Infrastructure UCITS Index, STXSIL= STOXX Global Smart City Infrastructure Index,
 MXWO = MSCI World Index, SPX= S&P 500 Index, NDX® = Nasdaq-100® Index

The investment case for electrification remained firmly in focus during the first half of 2026. Growing electricity demand from artificial intelligence, electric vehicles and industrial electrification

continued to support investment across the broader power ecosystem, from grid infrastructure and transmission networks to energy storage and power management technologies.

Against this backdrop, the Nasdaq Global Electrification Technologies and Smart Grid™ Index (NQGETS™) delivered a price return of approximately 34% between December 31, 2025 and July 20, 2026, outperforming both global equities and several electrification and infrastructure-related benchmarks.

While market leadership rotated throughout the period, the relative strength of NQGETS suggests that investors continue to view electrification as a long-term structural theme rather than a short-term cyclical opportunity. This backdrop provides important context for the July 2026 index reconstitution, which introduced methodology enhancements designed to broaden the index's exposure to companies participating in the evolution of the global electricity system.

Key Methodology Enhancements

The July 2026 reconstitution introduced a number of methodology enhancements. Key changes are summarized below. For more information, please refer to the [index methodology](#).

1. Broadening Security Eligibility

The most significant enhancement was the expansion of the eligible universe. Eligible securities are now required to be constituents of the Nasdaq Global Disruptive Technology Benchmark2™ Index (NYDTB2™), replacing the previous reference universe.²

In addition to screening securities included in the Nasdaq Global™ Index and those listed on major U.S. exchanges, the NYDTB2 universe can incorporate eligible China A-Shares accessible through the Shanghai-Hong Kong and Shenzhen-Hong Kong Stock Connect programs. As a result, the updated framework broadens the opportunity set available for constituent selection and enhances the index's ability to identify companies contributing to electrification technologies across global markets.

The impact of this enhancement significantly increased the index's exposure to China, with the weight of Chinese companies rising from approximately 3% to 22%.³ This change reflects China's growing importance across the electrification value chain, supported by significant investment in electricity infrastructure and grid modernization, as well as leadership in areas such as energy storage and renewable energy integration. As a result, the index is better positioned to capture innovation occurring across an increasingly global electrification ecosystem.⁴

² Nasdaq Global Disruptive Technology Benchmark™ Index (NYDTB™)

³ Data based on EOD weights as of June 30, 2026 and on SOD weights as of July 20, 2026

⁴ For a more detailed discussion of China's growing role across the electrification value chain, including grid infrastructure, electricity-grid innovation, energy storage and renewable energy integration, see [China's Expanding Role in Electrification: Infrastructure, Innovation and the Evolution of NQGETS](#)

2. Enhancing Index Responsiveness: New IPO Addition Policy

To improve the index's ability to reflect developments across the innovation landscape, the methodology now allows qualifying initial public offerings (IPOs) to be added between semi-annual reconstitutions.⁵ Under the updated methodology, qualifying IPOs can be considered for inclusion through dedicated review windows in April and October, rather than waiting for the next scheduled semi-annual reconstitution in January or July.⁶

This enhancement reduces the lag between a company's public listing and potential index inclusion, helping ensure that emerging innovators can be reflected in the index more quickly following their entry into public markets.

3. Other Changes - Subsector Cap and Security Eligibility Changes

The July 2026 review also removed the constituent cap that previously limited any individual subsector to a maximum of ten companies. Under the prior methodology, highly innovative companies could be excluded from the index simply because their subsector had already reached its maximum allocation. By eliminating this constraint, the updated framework allows constituent selection to more closely reflect the underlying patent landscape and the distribution of innovation across the electrification ecosystem.

Finally, the methodology was simplified through the removal of the multiple-share-class eligibility rule.

July 2026 Reconstitution Deep Dive

NQGETS' patent-driven selection process now begins with the Nasdaq Global Disruptive Technology Benchmark2™ Index (NYDTB2™), a broad universe of companies with patent activity across 39 disruptive technology themes, including artificial intelligence, robotics, automotive innovation, healthcare innovation, new energy & environment, electrification, the Internet of Things, future mobility, and data computing & processing. As of the July 2026 reconstitution, this universe comprised 3,286 securities.

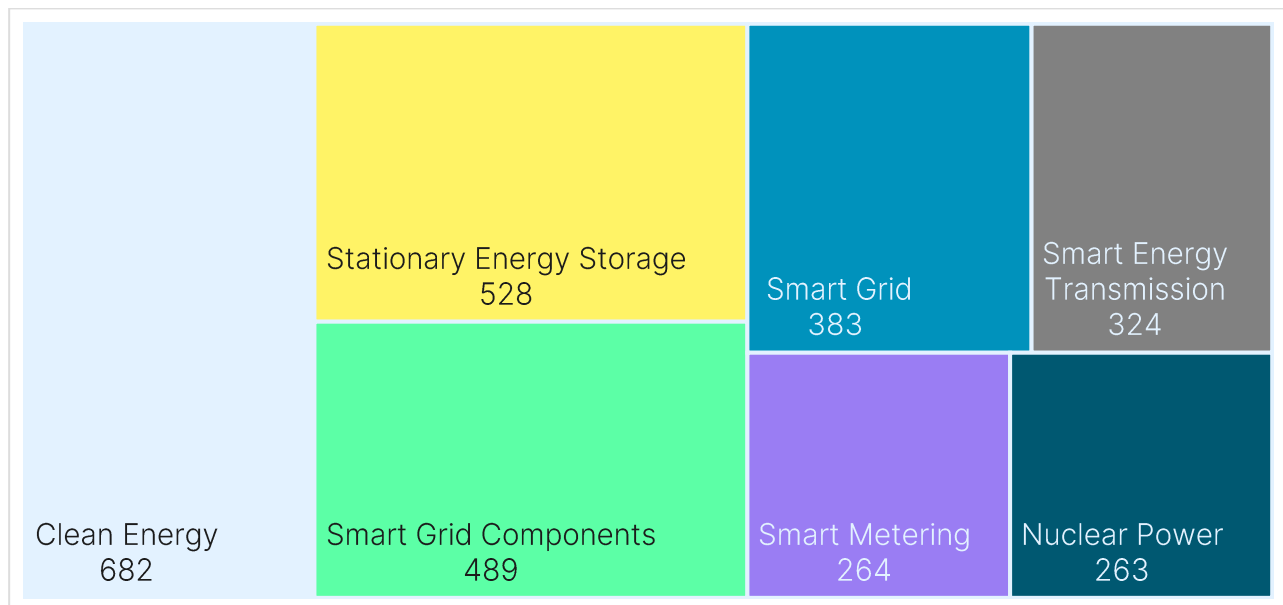
1. Mapping the Electrification Innovation Universe

Within the broader NYDTB2 universe, 1,179 companies exhibited patent activity across one or more patent sub-themes identified as relating to NQGETS.

⁵ NQGETS is reconstituted and rebalanced on a semi-annual basis in January and July. During each review, all eligible securities are reassessed against the index's selection criteria. The constituent selection process is applied using data as of the end of November for the January review and the end of May for the July review.

⁶ To be eligible, a company must satisfy the index's security eligibility criteria as of the last trading day of February or August, be included in NYDTB2 effective at the market open on the first trading day following the third Friday of April or October, respectively, and have a float-adjusted market capitalization of at least \$25 billion. If selected, an IPO is added at the market open on the first trading day following the third Friday of April or October. Its initial weight is determined based on float-adjusted market capitalization, subject to a maximum weight of 4.5%, with existing constituent weights adjusted pro rata to accommodate the new addition.

NQGETS Eligible Constituents: Count of Companies with Patent Activity per Sub-Theme



Source: Nasdaq. Patent data as of May 31, 2026. Note - the totals shown for each patent sub-theme are not mutually exclusive and therefore do not sum to the total number of patent-active companies. A company may exhibit patent activity across multiple sub-themes and can therefore be counted more than once.

The distribution of patent-active companies highlights the breadth of innovation occurring across the electrification value chain. Clean Energy is the largest NQGETS patent sub-theme, with 682 companies exhibiting relevant patent activity, reflecting continued innovation in technologies supporting the transition toward lower-carbon energy systems. Stationary Energy Storage (528 companies) and Smart Grid Components (489 companies) also represent significant areas of activity, underscoring the growing importance of technologies that enable the storage, management and efficient delivery of electricity.

Patent activity is also well distributed across Smart Grid (383), Smart Energy Transmission (324), Smart Metering (264) and Nuclear Power (263), reflecting the diverse technologies required to generate, transmit, distribute and manage electricity across modern power systems.

While innovation spans a broad range of electrification technologies, it is more concentrated from a geographic perspective. China, the U.S. and Japan collectively account for approximately 78% of all patent-active companies identified across NQGETS' sub-themes. According to Nasdaq patent data, China alone accounts for 572 patent-active companies, significantly ahead of the United States (195) and Japan (147).

Importantly, China's leadership is not confined to a single area of electrification. The country has the largest number of patent-active companies across every NQGETS sub-theme, including Clean Energy, Stationary Energy Storage, Smart Grid Components and Smart Grid technologies, highlighting innovation activity that spans generation, storage, transmission and grid infrastructure.

This broad-based innovation footprint is consistent with the conclusions of our recent research, [China's Expanding Role in Electrification: Infrastructure, Innovation and the Evolution of NQGETS](#), which highlighted how China's growing investment in electricity infrastructure, grid modernization and renewable energy integration has been accompanied by increasing innovation activity across the electrification value chain. The strong representation of Chinese companies across the NQGETS patent universe reflects this broader trend and helps explain why the expansion of the eligible universe had such a significant impact on the index's geographic composition.

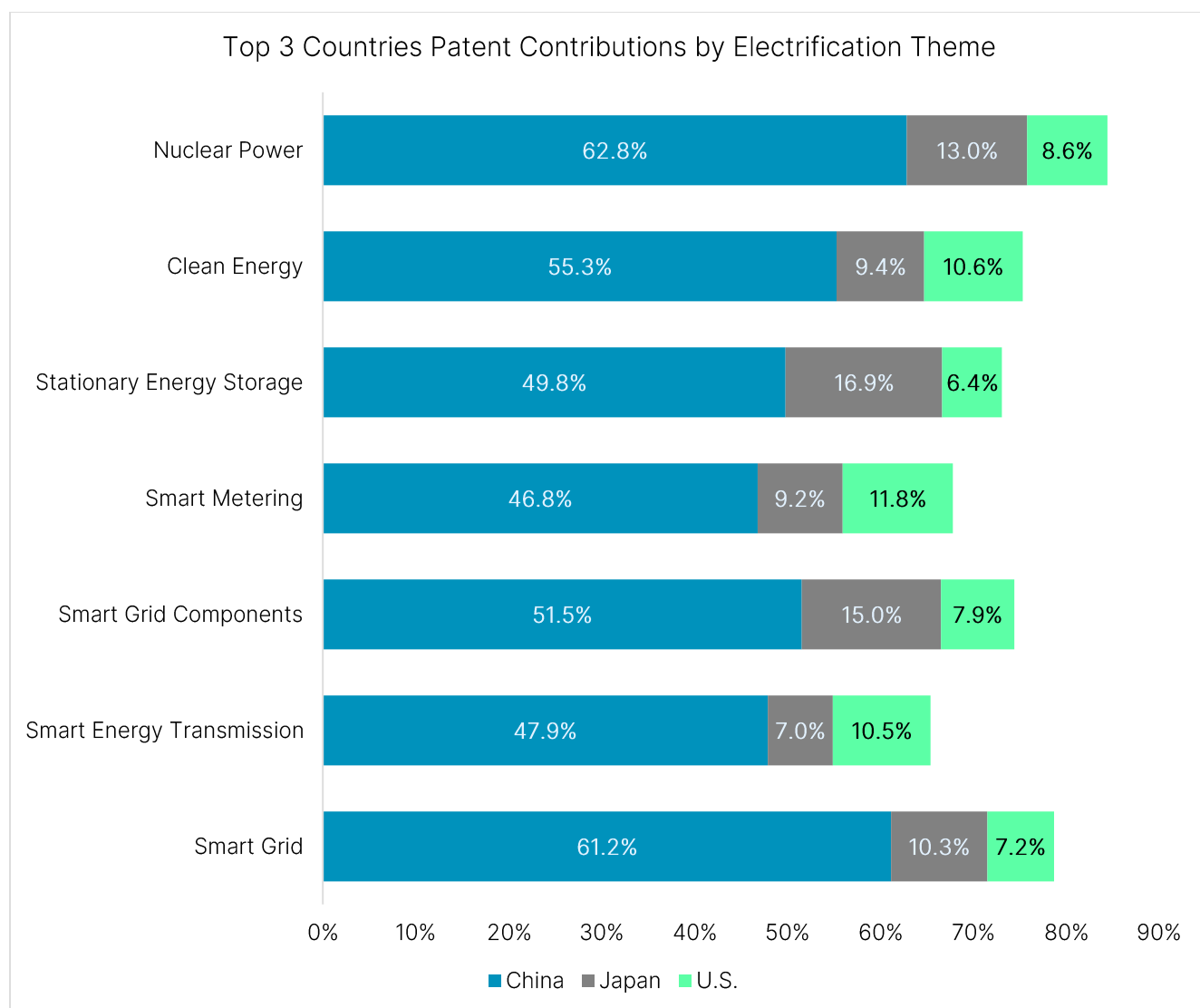
	# Patent-active companies	Smart Grid	Smart Energy Transmission	Smart Grid Components	Smart Metering	Stationary Energy Storage	Clean Energy	Nuclear Power
China	572	196	169	247	127	250	332	146
U.S.	195	57	48	76	43	80	113	31
Japan	147	46	37	55	37	69	89	38
Total # companies	914	299	254	378	207	399	544	215

Source: Nasdaq. Patent data as of May 31, 2026. Note - the totals shown for each patent sub-theme are not mutually exclusive and therefore do not sum to the total number of patent-active companies. A company may exhibit patent activity across multiple sub-themes and can therefore be counted more than once.

The patent contribution-score data further highlights China's significant presence within the NQGETS patent universe.

A company's contribution score measures its relative importance within a given technology area by assessing its share of recently filed and approved patents compared with other companies active in the same sub-theme. Higher scores indicate a greater contribution to overall innovation activity within that field.

According to Nasdaq patent data, China accounts for the largest share of patent contribution across every electrification sub-theme, with particularly high concentrations in Nuclear Power, Smart Grid, Clean Energy and Smart Grid Components. While Japan and the U.S. remain important contributors in selected areas, these findings reinforce China's central role in the development of technologies supporting generation, storage, transmission and grid modernization across the electrification value chain.



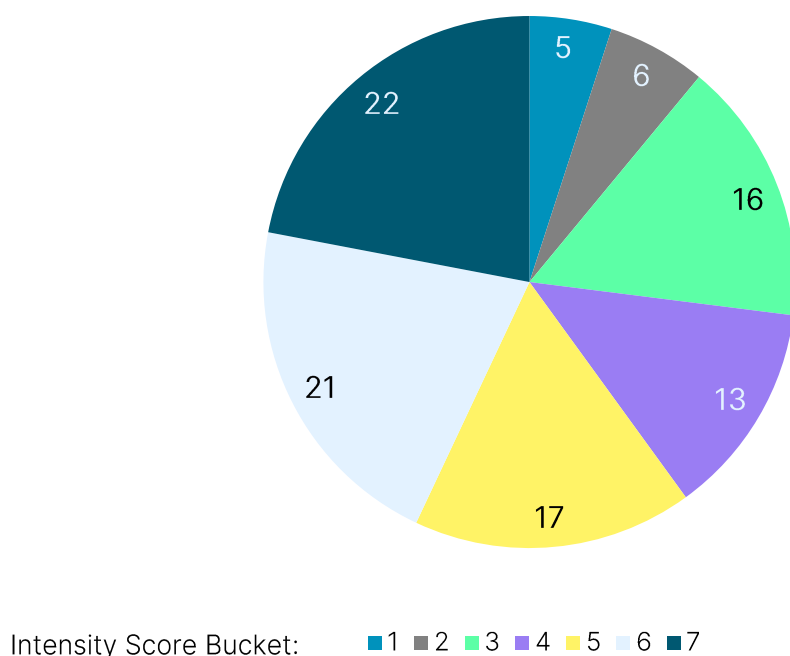
Source: Nasdaq. Patent data as of May 31, 2026

2. Measuring Breadth of Innovation: Intensity Score

A useful way to deepen the patent discussion is to introduce the Intensity Score, which provides a useful lens for assessing the breadth of patent activity across NQGETS constituents. The Intensity Score measures the number of sub-themes (i.e. relevant technologies with patent filings) with a level of involvement (max score = 7, min = 1).

Of the 100 index constituents, 89 have patent activity spanning at least three sub-themes, while 60 score five or higher. Notably, 22 constituents achieved the maximum score of 7, indicating patent activity across all electrification-related sub-themes. Examples of companies achieving the maximum score include GE Vernova, China Tower Corporation, Nari Technology and Siemens Energy.

NQGETS: # of Constituents per Intensity Score (IS)



Source: Nasdaq. Patent data as of May 31, 2026.

Note: The intensity score is based on the number of sub-themes in which a company demonstrates relevant patent activity across the initial universe. It does not reflect the number of sub-themes for which a company meets the minimum contribution and pure score thresholds used in the constituent selection process.

These results suggest that the index is not only capturing companies with exposure to individual technologies, but also businesses whose innovation activity spans multiple segments of the electrification ecosystem.

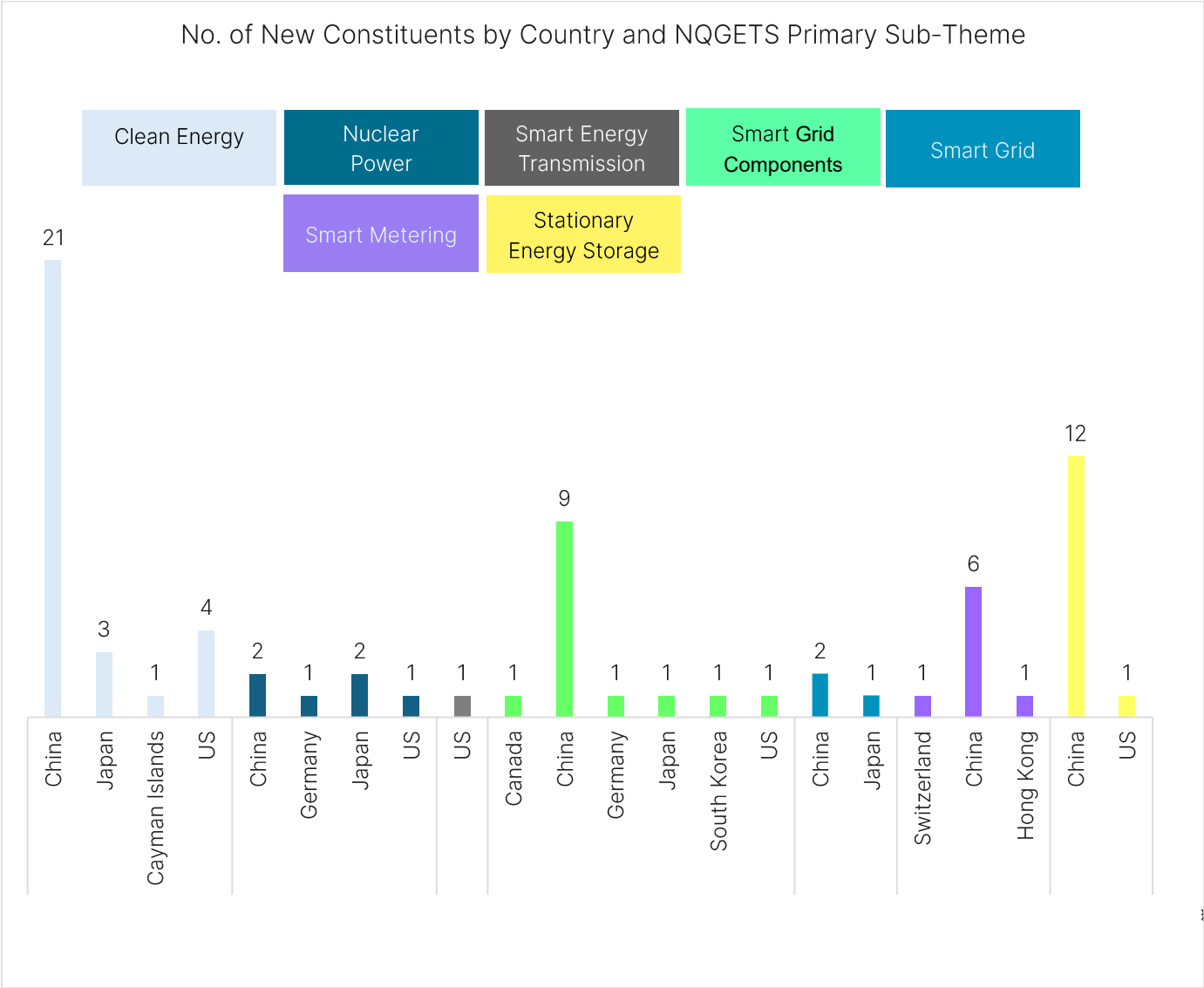
Having examined the innovation universe that underpins NQGETS' selection process, the next step is to evaluate how the index's patent-driven selection framework - including the July 2026 methodology enhancements - translated these insights into the final index portfolio.

3. Key Changes Following the July 2026 Reconstitution

The July 2026 reconstitution resulted in 74 additions and 16 deletions, reflecting the broader opportunity set introduced through the methodology enhancements and the updated NYDTB2 universe.⁷

⁷ The deletion count includes a change associated with the spin-off of Honeywell Aerospace Inc. from Honeywell International Inc. (HON). Effective June 29, 2026, Honeywell Aerospace became a separate publicly traded company and was added to the index in accordance with Nasdaq's treatment of spin-off events. As a result, this change reflects a corporate action rather than a constituent removal driven by the July 2026 reconstitution methodology or patent evaluation framework.

The most visible effect of the universe expansion was the increased representation of Chinese companies within the index. China accounted for 52 of the 74 additions and approximately 18.4% of index weight at the reconstitution effective date (July 20, 2026). By comparison, the U.S. contributed eight additions representing approximately 14.0% of index weight, reflecting the larger market capitalizations of many U.S. constituents.



Source Nasdaq. Patent Data as of May 31, 2026

Looking beyond the headline figures, the composition of additions provides further insight into how the expanded universe reshaped the index. Consistent with the broader patent landscape discussed earlier, Chinese additions were concentrated in Clean Energy, Stationary Energy Storage and Smart Grid Components.

Among the most significant additions by weight were 3M and Qualcomm, both of which entered the index's top 10 holdings following the July 2026 reconstitution. Smart Grid Components was

identified as 3M's primary patent sub-theme, while Smart Energy Transmission was identified as Qualcomm's primary patent sub-theme.

The reconstitution also introduced several leading Chinese companies, including China Yangtze Power, a major hydroelectric power producer; Contemporary Amperex Technology (CATL), one of the largest manufacturers of electric vehicle batteries and energy storage systems; Sungrow Power Supply, a major provider of solar inverters and energy storage systems; China Tower Corporation, the world's largest telecommunications tower infrastructure company;⁸ and EVE Energy, a manufacturer of lithium batteries serving electric vehicle and energy storage markets.

4. The Final Index Portfolio

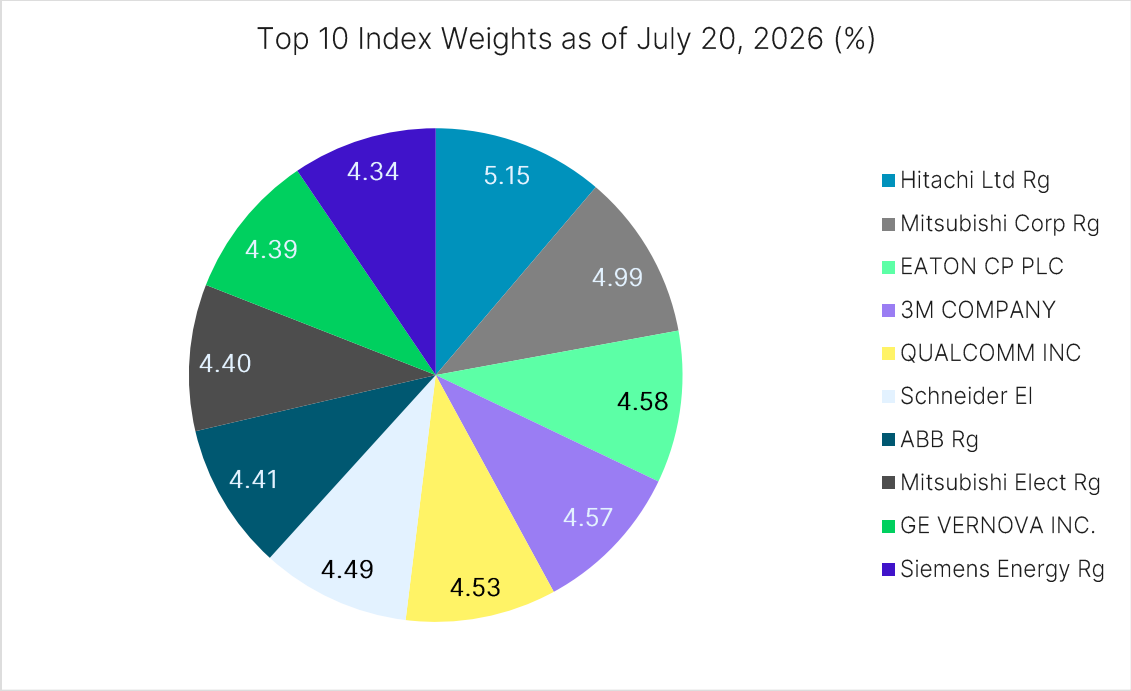
The top 10 constituents comprise approximately 46% of the index weight and provide insight into the types of companies identified by NQGETS' patent-driven framework. The largest positions included Hitachi, Mitsubishi Corporation, Eaton, 3M, Qualcomm, Schneider Electric, ABB, Mitsubishi Electric, GE Vernova and Siemens Energy.

The composition of the top 10 illustrates that electrification extends well beyond power generation. Many of the index's largest constituents are positioned in the infrastructure layers required to support growing electricity demand, including grid equipment, power management, transmission networks and industrial automation. Companies such as Eaton, ABB and Schneider Electric benefit from investment in modernizing electricity networks, while Siemens Energy provides exposure to the expansion of transmission infrastructure needed to connect new sources of generation and deliver power to end users.

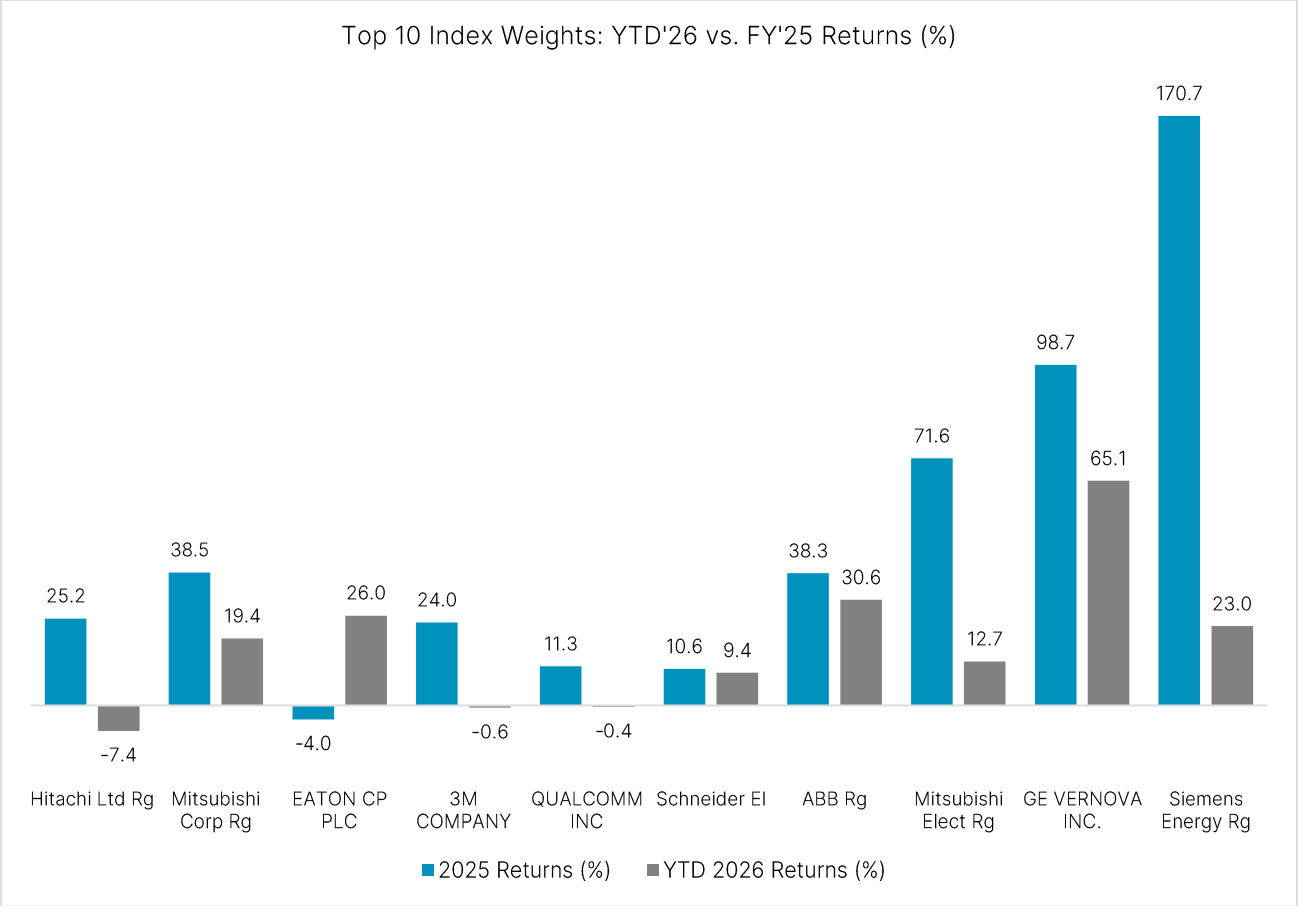
Performance among the top holdings varied considerably. Siemens Energy was among the strongest performers in 2025, gaining approximately 170%, followed by GE Vernova and Mitsubishi Electric. Momentum remained positive into 2026, with GE Vernova delivering roughly 65% YTD and ABB approximately 30% YTD (as of July 20, 2026). By contrast, returns were more mixed for companies such as Hitachi and Eaton, illustrating the diverse performance drivers across the electrification value chain.⁹

⁸ China Tower Corporation is an example of Wildcard security – a “high-relevance” security within the NQGETS framework. Although the company is not classified within an ICB Subsector most directly associated with electrification, its patent profile and thematic relevance allow it to be captured by the index's patent-driven methodology, which is designed to identify companies contributing to electrification irrespective of conventional industry classifications.

⁹ FactSet. Data as of July 20, 2026



Source: Nasdaq. Data as of July 20, 2026

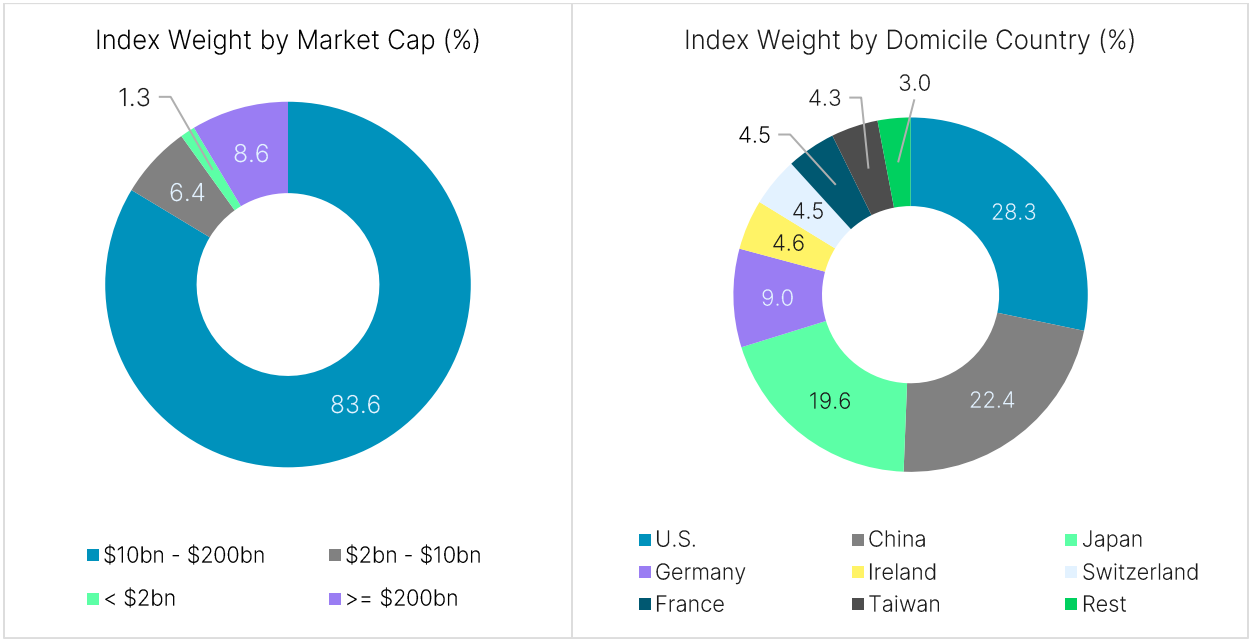


Source: Nasdaq, FactSet. Data as of July 20, 2026

Beyond individual holdings, examining the portfolio's market-cap, geographic, and sector allocations provides additional insight into how NQGETS' patent-driven framework translates innovation exposure into index construction.

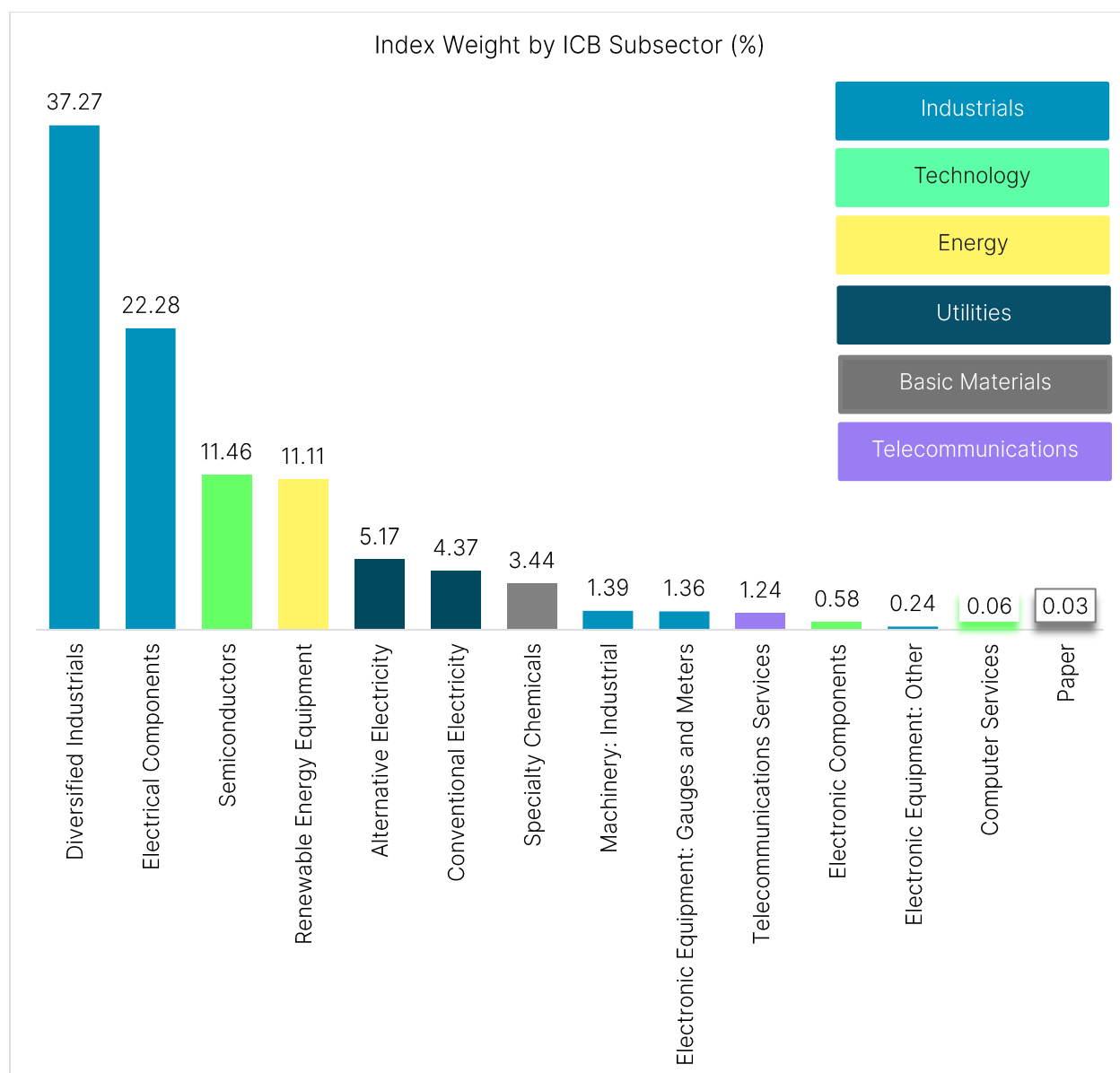
NQGETS is predominantly weighted toward large-cap companies. Following the July 2026 reconstitution, companies with market capitalizations between USD 10 billion and USD 200 billion represent approximately 83.6% of index weight, while mega-cap companies account for a further 8.6%. Smaller companies below USD 10 billion represent less than 8% of the portfolio, reflecting the index's focus on established participants in the electrification ecosystem.

The U.S. remains the largest country exposure at approximately 28.3% of index weight, followed by China at 22.4% and Japan at 19.6%. Germany accounted for a further 9.0%, while Ireland, Switzerland, France and Taiwan represented smaller allocations. The updated country profile reflects the broader opportunity set introduced through the expanded universe and highlights the increasingly global nature of electrification innovation.



Source: Nasdaq. Index data as of July 20, 2026. Market Cap data as of June 30, 2026

Importantly, China's larger representation within the index should be viewed alongside the continued importance of established electrification leaders in Japan, Europe and the U.S. Companies such as ABB, Schneider Electric, Siemens Energy, GE Vernova and Hitachi continue to occupy prominent positions within the NQGETS portfolio, reflecting their strong positions across grid infrastructure, electrical equipment, industrial automation and power management technologies. As a result, the index provides exposure not only to China's growing role in electrification, but also to companies that have long been at the forefront of electricity-network modernization and grid innovation.



Source: Nasdaq. Data as of July 20, 2026

The sector allocation further highlights the infrastructure-intensive nature of the electrification opportunity. Industrials represent approximately 62.5% of index weight, far exceeding any other sector exposure. Technology accounted for 12.1% of the portfolio, while Energy and Utilities represented 11.1% and 9.5% of index weight, respectively.

The prominence of Industrials highlights an important characteristic of the electrification theme: meeting growing electricity demand requires not only new sources of generation, but also significant investment in the infrastructure needed to transmit, distribute, manage and store electricity efficiently. As a result, many of the companies best positioned to benefit from electrification are equipment manufacturers, automation providers and infrastructure suppliers rather than traditional energy producers.

Company Spotlight

To illustrate how the index captures innovation, the following company spotlights provide a deep dive into the patent activity of new additions Qualcomm, 3M, Contemporary Amperex Technology, China Yangtze Power, and China Tower Corp. By examining their patent profiles and selected patent examples, we can gain a better understanding of the technologies and innovation trends that contributed to their inclusion in the index.

1. Qualcomm

Qualcomm is best known as a wireless communications and semiconductor company. Historically, its core business has been designing chips and technologies used in smartphones, particularly cellular modems, application processors (Snapdragon), and connectivity solutions (5G, Wi-Fi, Bluetooth).

Today, Qualcomm is increasingly positioning itself as an "intelligent edge" company, extending its expertise in connectivity, low-power computing, and on-device AI beyond smartphones into automotive, industrial and consumer IoT, and other edge applications.

Within the electrification and smart-grid space, Qualcomm participates indirectly, as a component and platform supplier rather than a dedicated grid or energy company. Its cellular IoT chips, connectivity modules, and edge-compute/edge-AI platforms can be embedded by third parties into devices such as smart meters, grid sensors, inverters, batteries, and EV chargers. When integrated into these systems, Qualcomm's technology can help enable real-time monitoring, fault detection, and distribution-automation functions, and can support the communication needs of distributed energy resources (solar, storage, EVs).¹⁰

Qualcomm	Smart Grid	Smart Energy Transmission	Smart Grid Components	Smart Metering	Stationary Energy Storage	Clean Energy	Nuclear Power
Pure Ratio ¹¹	0.01%	0.61%	0.01%	-	0.01%	0.01%	-
Contribution Ratio	0.05%	3.67%	0.03%	-	0.03%	0.02%	-

Source: Nasdaq. Patent data as of May 31, 2026

The relevance of these technologies to energy infrastructure is also visible in Qualcomm's patent portfolio. Among its energy-related innovations, Smart Energy Transmission is the most significant sub-theme, with a 0.61% pure ratio and 3.67% contribution ratio, while the company also maintains

¹⁰ <https://www.qualcomm.com/internet-of-things/industries/utilities>
<https://in.marketscreener.com/quote/stock/QUALCOMM-INCORPORATED-4897/news/Qualcomm-and-Gridspertise-Collaborate-to-Transform-the-Electric-Grid-Unleashing-a-New-Era-of-Smar-39611106/>

¹¹ The Pure Score measures how strongly a company's patent activity is concentrated in a particular sub-theme relative to its overall patent portfolio. Higher Pure Scores indicate that a larger share of the company's patent activity is associated with a given technology area and therefore provide insight into its relative areas of innovation focus.

patent exposure to Smart Grids, Smart Grid Components, Stationary Energy Storage, and Clean Energy.

One example is Qualcomm's patent titled "Techniques for enabling secure communications or energy transfer operations" which describes a method that allows wireless devices to request either energy transfer or security-related communications from another device or network node. After receiving the request, the network selects the appropriate frequency range and wireless technology, and then transmits a signal to the device. That signal can then be used either to harvest energy or to generate encryption keys that secure future communications. The patent is primarily concerned with how wireless resources are allocated and managed to support these functions efficiently across different wireless networks.

While the patent is primarily focused on wireless network resource management, it is relevant to electrification through its support for wireless power transfer and energy-harvesting applications.¹² By enabling small sensors and IoT devices to harvest energy from radio-frequency signals, the technology could reduce reliance on batteries and support the deployment of low-power connected devices. Such capabilities may be particularly valuable in distributed monitoring environments, where large numbers of sensors require reliable power and secure connectivity. The patent therefore illustrates how Qualcomm's core expertise in wireless communications can contribute to the broader digitalization and modernization of energy infrastructure.^{13,14}

2. 3M

3M is a diversified industrial company that develops products used across electronics, transportation, healthcare, industrial manufacturing, and energy. While best known for products such as adhesives, abrasives, films, coatings, and safety equipment, the company also plays an important role in electrical infrastructure.

Within the electrification value chain, 3M is best known for its cable accessories, connectors, insulation products, and grounding systems that help utilities and energy developers build, connect, and protect electrical networks.¹⁵

For renewable energy applications, 3M supplies medium- and high-voltage cable splices, terminations, separable connectors, grounding kits, electrical tapes, and underground utility marking systems that support the reliable transmission of electricity from wind and solar installations to the grid.¹⁶ The company also offers specialized solutions for wind turbines, including blade protection

¹² RF energy harvesting is the process of capturing ambient electromagnetic energy from radio waves and converting it into usable electrical power. Although radio signals are most commonly associated with the transmission of information – such as Wi-Fi, cellular, or Bluetooth communications – they are simultaneously carriers of physical energy. Under conventional circumstances, the majority of this energy dissipates into the surrounding environment. RF energy harvesting seeks to recover a portion of this otherwise wasted energy and repurpose it to power electronic devices.

¹³ <https://patents.justia.com/patent/12634685>

¹⁴ In simple terms: smart grids rely on thousands of distributed sensors that need both power and secure communication – two challenges this patent addresses wirelessly. Since wiring or replacing batteries on sensors in remote or hazardous locations is costly and maintenance-heavy, RF energy harvesting lets sensors draw power from ambient radio signals, enabling "install once and forget" deployments that make grid digitalization more scalable.

¹⁵ https://www.3m.com/3M/en_US/power-generation-us/

¹⁶ In simple terms:

materials and fire suppression technologies designed to improve equipment longevity and operational resilience.¹⁷

This role as a provider of critical infrastructure materials is reflected in 3M's patent portfolio. Smart Grid Components is the company's most significant energy-related patent sub-theme, with a 0.82% pure ratio and 0.30% contribution ratio. 3M also maintains patent exposure to Smart Grid, Smart Metering, and Smart Energy Transmission technologies.

3M	Smart Grid	Smart Energy Transmission	Smart Grid Components	Smart Metering	Stationary Energy Storage	Clean Energy	Nuclear Power
Pure Ratio	0.27%	0.09%	0.82%	0.27%	-	-	-
Contribution Ratio	0.15%	0.05%	0.30%	0.30%	-	-	-

Source: Nasdaq. Patent data as of May 31, 2026

One example of 3M's innovation in smart-grid infrastructure is its patent titled "Sensored Insulation Plug". The technology is designed for medium- and high-voltage power distribution networks and integrates voltage-sensing functionality directly into an insulating plug used in separable cable connectors. The invention incorporates an energy-harvesting coupling capacitor, enabling the device to derive power from the electrical line while measuring voltage through an integrated sensing capacitor. By embedding sensing capability within a component already used in grid connections, the technology can help utilities gather voltage data from more points across the network, supporting grid monitoring, digitalization, and more informed maintenance and operational decisions.¹⁸

3. Contemporary Amperex Technology (CATL)

Contemporary Amperex Technology (CATL) is one of the world's leading EV and energy storage battery manufacturers. The company plays a critical role in electrification by supplying advanced lithium-ion and sodium-ion batteries for electric vehicles and energy storage systems.

Beyond its leadership in EV batteries, CATL is becoming an increasingly important player in utility-scale energy storage. The company's battery systems are used to store excess renewable electricity, balance fluctuations in power supply and demand, and provide services that improve grid stability.

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- Cable splices: join two power cables together.
 - Terminations: safely connect a power cable to equipment such as transformers, switchgear, or substations.
 - Separable connectors: plug-and-play connectors that allow equipment to be connected or disconnected without replacing cables.
 - Grounding kits: provide a safe path for fault currents and help protect equipment and people.
 - Electrical tapes: insulate, seal, and protect electrical connections.
 - Underground utility marking systems: help utilities locate and identify buried power cables and other infrastructure.

¹⁷ <https://multimedia.3m.com/mws/media/1460747O/3m-electrical-solutions-renewable-energy-brochure.pdf>

¹⁸ <https://patents.google.com/patent/US12066464B2/en>

One notable example is CATL's partnership with Dutch energy company Alfen, announced in 2026, to deploy 5 GWh of sodium-ion battery storage systems across Europe. The project is designed to support renewable energy integration by storing electricity generated from intermittent sources such as wind and solar, while also helping utilities manage grid congestion and improve energy security. The deployment is particularly significant because it demonstrates growing commercial adoption of sodium-ion technology, which offers a lower-cost and more abundant alternative to lithium-based batteries for stationary energy storage.¹⁹

This positioning is reflected in CATL's patent portfolio, where Stationary Energy Storage stands out as the company's most significant area of innovation, with a Pure Ratio of 3.28% and a Contribution Ratio of 8.30%.

CATL	Smart Grid	Smart Energy Transmission	Smart Grid Components	Smart Metering	Stationary Energy Storage	Clean Energy	Nuclear Power
Pure Ratio	0.51%	0.13%	1.04%	0.07%	3.28%	0.48%	-
Contribution Ratio	2.54%	0.65%	3.49%	0.69%	8.30%	0.94%	-

Source: Nasdaq. Patent data as of May 31, 2026

This focus is reflected in the patent titled “Energy Storage System and Microgrid System”, which describes an energy storage architecture that improves space utilization within containerized battery systems by optimizing the arrangement of battery clusters, control electronics, and support equipment. The design increases energy density while simplifying maintenance and thermal management, making large-scale battery storage more efficient for renewable energy integration, microgrids, and grid stabilization applications.²⁰

4. China Yangtze Power

China Yangtze Power is one of the largest listed hydropower companies and operates major hydroelectric assets along the Yangtze River, including the Three Gorges Dam and several other large-scale hydropower stations.

The company plays a central role in China's clean energy transition by generating large volumes of renewable electricity from hydropower. Its portfolio forms part of the world's largest clean energy corridor, supplying low-carbon electricity to population and industrial centers across China. In addition to providing renewable power, its hydropower assets help support grid stability and electricity balancing, making the company an important contributor to both clean energy generation and the modernization of China's power system.

¹⁹ <https://www.pv-magazine.com/2026/07/16/alfen-catl-to-deploy-5-gwh-of-sodium-ion-battery-storage-in-europe/>

²⁰ <https://www.patents-review.com/a/20260155511-energy-storage-system-microgrid-system.html>

Patent data reflects the company's focus not only on renewable power generation but also on the technologies required to operate an increasingly complex electricity system. China Yangtze Power exhibits patent activity in areas such as smart grids, energy transmission, smart metering, and stationary energy storage, underscoring its interest in improving grid efficiency and supporting the integration of renewable energy. Together, these innovations complement the company's hydropower assets and reinforce its role in China's broader energy transition.

One example is the company's patent titled “Real-time reconstruction method and system for multiple physical fields of dam based on fusion of finite element and AI proxy model”, which uses data from finite-element simulations to train an AI model.²¹ This model reconstructs a dam's physical fields - such as stress, seepage, and temperature - in real time from live sensor data. The system enables continuous monitoring and anomaly detection, and automatically retrain itself when errors arise, improving reliability under sudden operating conditions and supporting dam safety and the flexibility of hydropower in modern power systems.²²

China Yangtze Power	Smart Grid	Smart Energy Transmission	Smart Grid Components	Smart Metering	Stationary Energy Storage	Clean Energy	Nuclear Power
Pure Ratio	1.02%	0.70%	1.02%	0.32%	1.47%	4.60%	-
Contribution Ratio	0.80%	0.55%	0.53%	0.49%	0.58%	1.41%	-

Source: Nasdaq. Patent data as of May 31, 2026

5. China Tower Corporation

China Tower is China's largest telecommunications infrastructure company, operating 2 million telecom towers and related communications assets across the country. The company has expanded beyond its traditional telecom infrastructure operations to build a diversified energy business focused on distributed energy services. Leveraging its expertise in power assurance, nationwide maintenance capabilities and monitoring systems, the company aims to become a leading distributed energy operator. Its energy activities are organized around two core areas: Energy Operation and Battery Recycling.

The Energy Operation business encompasses power backup, emergency power generation, energy storage, distributed photovoltaic solutions, EV charging infrastructure, and battery exchange services, serving commercial, industrial and mobility-related customers across China.²³

China Tower achieved the highest intensity score in the dataset, reflecting a strong focus on electrification-related innovation. Its patent portfolio is led by the Clean Energy theme, with

²¹ Finite-element simulation is an engineering technique that divides a structure into thousands or millions of small elements and calculates how each responds to forces, temperature, and water pressure. In this patent, finite-element models are used to generate training data for an AI system that can rapidly reconstruct the internal state of a dam and detect potential abnormalities in real time.

²² Nasdaq and <https://finance.sina.com.cn/stock/aigc/zt/2026-05-14/doc-inhxvpqg8758615.shtml>

²³ <https://ir.china-tower.com/en/business/energy.php>

additional strength in Smart Energy Transmission, Stationary Energy Storage, and Smart Grid technologies, underscoring the company's growing role in supporting smarter and more efficient energy infrastructure.

China Tower	Smart Grid	Smart Energy Transmission	Smart Grid Components	Smart Metering	Stationary Energy Storage	Clean Energy	Nuclear Power
Pure Ratio	2.50%	2.78%	1.94%	1.94%	2.78%	2.78%	0.28%
Contribution Ratio	0.45%	0.50%	0.23%	0.69%	0.25%	0.20%	0.10%

Source: Nasdaq. Patent data as of May 31, 2026

One example of China Tower's innovation activity in clean energy is its patent titled "Hydrogen Fuel Cell Power Generation Device". The invention introduces a cooling system designed to manage heat more precisely within hydrogen fuel-cell power systems. Rather than cooling the entire unit uniformly, the technology can direct cooling to an individual cell when that specific cell begins to overheat. This targeted approach helps protect cells operating under heavy load, improves overall thermal management, and supports greater system reliability and a longer operating life.²⁴

²⁴ <https://patents.google.com/patent/CN118970104A/en>

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