

FRP Pole in Power Transmission & Distribution Market Report: Trends, Forecast and Competitive Analysis to 2030

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Abstracts

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FRP Pole in Power Transmission & Distribution Trends and Forecast

The future of the global FRP pole in the power transmission & distribution market looks promising with opportunities in the industrial, commercial, and residential markets. The global FRP pole in the power transmission & distribution market is expected to grow with a CAGR of 6.0% from 2024 to 2030. The major drivers for this market are the increasing demand for lightweight, durable, and corrosion-resistant infrastructure solutions, the growing emphasis on grid modernization and the adoption of renewable energy sources, and advancements in composite material technologies.

Lucintel forecasts that, within the material category, fiber is expected to witness the highest growth over the forecast period.

Within the application category, industrial applications are expected to witness the highest growth.

In terms of regions, APAC is expected to witness the highest growth over the forecast period.

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Emerging Trends in the FRP Pole in Power Transmission & Distribution Market

The FRP pole in power transmission and distribution market is witnessing some trends that are said to be Increasing in scope and functioning and in general, the leaning is towards more performance and scenery than technology amongst utilities and energy companies as well as improving infrastructure. There is a sense of unmet needs that drives the development of T&D systems that also address the economy.

Adoption of Smart Grid Technologies has Increased: Currently, FRP poles are being fitted to smart grid technologies to boost energy efficiency and also support the grid. Smart sensors in these FRP poles are capable of performing load monitoring, fault detection, and even counter-reporting on a timely basis which enhances the grid's responsiveness while minimizing chances of outages. This trend is increasingly putting advanced FRP pole solutions in great demand.

Disaster-Resilient Infrastructure: There is a high demand for the construction of power infrastructures that are stronger and can withstand hurricanes, fires, earthquakes floods among other natural disasters. Based on how FRP poles can best withstand fire, wind, and water, FRP poles have been designated for new installations and replacement of old infrastructures. This trend is common in places like the U.S. Japan and other parts of Europe where extreme weather conditions are experienced.

Sustainable Materials are used in this New Construction: Given the target of energy companies around the world to cut their carbon activities and make more sustainable utilities, FRP poles are viewed as an improvement from ordinary wooden or steel materials. FRP poles help design a green consumer power network as they afterward lessen the number of resources used in the manufacturing processes and extend the service time.

Cost Reduction from Enhanced Manufacturing Processes: New measures are being put in place to develop new types of inexpensive ways of constructing the FRP poles. With the pace at which the manufacturing processes are changing, the pole manufacturing industry may optimize its processes using cheaper FRP materials. As a result, more of them are being used in new regions as well as regions where consideration is made in respect of the price.

Growth of Renewable Energy Infrastructure: The more there is a shift towards

renewable energy sources – wind and solar in particular – the more the need for FRP poles. Well, these types of poles are best suited for wind towers and solar farms as well as grid extensions in renewable energy. They are light, can resist wear and tear, and are strong; therefore, are a solution for energy systems that are highly reliable and do not need a lot of maintenance.

These developments point toward the increasing significance of FRP poles in the power transmission and distribution market. Whether integrating along with smarter grids, more resilient systems, empowered approaches, or all of those to enable energy transmission in the future, these FRP poles emerge as the most convenient materials.

Recent Developments in the FRP Pole in Power Transmission & Distribution Market

The FRP pole in the power transmission and distribution market has also experienced some key developments that are improving the efficiency, reliability, life span, and overall economy of operation of such poles. These improvements are making FRP poles at the forefront among utilities across the globe.

Resin Technology Enhancements: Fabrication of advanced resin systems such as epoxy and vinyl ester resins, has introduced tremendous advantages in the mechanical properties and anti-corrosive characteristics of FRP poles. These materials are used more often in applications involving extreme weather conditions, thereby improving the service life of FRP poles.

New Blossom of Automation: Alternatively, new manufacturing processes of poles including filament winding and pultrusion have revolutionized the way FRP poles are cast increasing their strength and uniformity. These processes bring down the production expenses and increase the size of the market for FRP poles making it more appealing for large-scale development projects.

More Stress on Sustainability: The rising focus on cleaner energy and infrastructure has resulted in the increased use of materials such as fiberglass-reinforced plastic (FRP) poles. These poles are made of materials that can be recycled and tend to last longer than wood or steel poles hence cutting down on waste and the frequency of replacements.

Offshore and Remote Area Applications: Fiber Reinforced Plastic is efficiently and increasingly utilized in offshore installations and in remote areas that pose

constraints for the transportation of materials and maintenance. Due to weight and accelerated corrosion resistance, these materials are used where ordinary materials are inadequate due to location.

Collaboration between Utility Companies and Manufacturers: As they look for FRP pole manufacturers, utility companies are on the other hand looking to create partnerships with these manufacturers in a bid to find solutions for specific regions. This trend is helping in the integration of FRP poles in areas that experience extreme weather conditions such as high humidity, saline, and seismic activities.

These improvements are making FRP poles in the power transmission and distribution market. With the improvement of the efficiency of production processes and the growing concern over the usage of FRP poles is expected to spread more in the developed economies and developed adverse conditions.

Strategic Growth Opportunities for FRP Pole in Power Transmission & Distribution Market

Rapid urbanization and population growth are creating the rising potential for the FRP pole in the power transmission and distribution market. By focusing on certain applications, the manufacturers may even increase their market share and leverage such trends.

Offshore Energy Infrastructure: The most prominent opportunity for the growth of the market for FRP poles is in offshore wind energy and solar energy generation. These poles provide a perfect solution as they are resistant to corrosion and are therefore suited even in water bodies where most materials fail. With the global demand for renewable energy increasing, offshore infrastructures will require the use of FRP poles more often than not.

Rural Electrification in Emerging Markets: In areas where there is low production of insulating materials such as remote rural regions of Africa, Southeast Asia, and Latin America, FRP poles provide a cheap and reliable solution to electricity supply challenges. Due to their lower weight, they can be easily carried and erected in those places which are not easily accessible thereby helping to close the energy access gap.

Improvement of Urban Infrastructure: As civilization progresses in developing new power transmission grids there is a high potential market lying on the FRP Poles in the city. These poles can be used in replacement for old wooden and steel poles as they are more durable to weather conditions, corrosion, and environmental hard like pollution and traffic-heavy vehicles.

Disaster Resistant Infrastructure projects: Floods, wind storms, wildfires, and earthquake-prone areas create demand for disaster-resistant infrastructure. In those areas, FRP poles possess fire and weather the properties' strong selling attributes. This creates a great potential market in the US, Japan, and some parts of Europe.

Further Development and Adaptation of Smart Grids: Another segment of the FRP pole-oriented development is pro-built poles for smart grids equipped with monitoring devices. These poles are capable of collecting, transmitting, and analyzing data related to the grid such as grid performance, grid faults, energy flows, and energy-sending resources, thereby making it possible for utilities to enhance and reduce the time spent in actions.

These growth opportunities further envisage the critical role that FRP poles in the power transmission and distribution market. Concentrating on such application areas as renewable energy, rural electrification, and disaster-proof infrastructure will help producers promote market and segment development and reach new horizons.

FRP Pole in Power Transmission & Distribution Market Driver and Challenges

Several technological, economic, and political factors affect the FRP pole market for power transmission and distribution. These drivers and challenges significantly impact the direction of market growth.

The factors responsible for driving the FRP pole in the power transmission and distribution market include:

Corrosion Resistance and Longevity: The unique feature of FRP poles is that they are more corrosion-resistant than other conventional materials and can therefore be used in extreme conditions. Their reliability and long service life reduce the need for repairs and replacements over short periods, thereby enhancing their acceptance across countries.

Cost-Effectiveness concerning Maintenance: Wooden and steel poles require a lot of maintenance, but FRP poles need little attention. Their low operating costs over the long term make them more appealing to utilities that need to reduce maintenance expenses.

Social Awareness and Environmental Policies: In every country, stricter laws against pollution have been implemented, and utilities are responding by using less harmful materials. Since FRP poles are recyclable and made from environmentally friendly materials, they help organizations achieve their goals.

Advancement in Composite Materials: Resin and fiber systems have witnessed dramatic modifications in their technological designs, and as a result, the performance levels of FRP poles have greatly improved. These materials increase the strength of FRP poles, allowing them to bear more loads even during extreme weather conditions.

Rising Demand for Renewable Energy: The development of renewable energy sources such as solar and wind is driving the market for FRP poles. These poles will be useful in building solar power stations, wind turbine towers, and other renewable energy structures.

Challenges in the FRP pole in the power transmission and distribution market include:

High Initial Cost: Although FRP poles are cost-efficient in the long run, some companies hesitate to use them due to the high initial cost of purchasing them, as opposed to using traditional materials.

Limited Awareness in Certain Regions: In many places, many utilities are still unaware of the benefits of using FRP poles. Their use needs to be promoted if widespread adoption is to occur.

Competition from Alternative Materials: Material choices such as wood, steel, and even concrete remain competitive, especially where cost is a primary consideration. It is therefore necessary for manufacturers to emphasize the long-term benefits of FRP poles to enhance sales.

Most of the factors dictating the growth of the FRP pole market in power transmission and distribution include clean technology upgrades, efficient cost approaches, and regulations on pollution. However, the market still faces challenges such as high initial costs and competition from conventional materials.

List of FRP Pole in Power Transmission & Distribution Companies

Companies in the market compete on the basis of product quality offered. Major players in this market focus on expanding their manufacturing facilities, R&D investments, infrastructural development, and leverage integration opportunities across the value chain. Through these strategies FRP pole in power transmission & distribution companies cater increasing demand, ensure competitive effectiveness, develop innovative products & technologies, reduce production costs, and expand their customer base. Some of the FRP pole in power transmission & distribution companies profiled in this report include-

RS Technologies

Creative Composites Group

Valmont Industries

Geotek

Strongwell

Elsowedy Electric

Highland Industries

Petrofisa do Brasil

Jiangsu Jiuding New Material

NOV

FRP Pole in Power Transmission & Distribution by Segment

The study includes a forecast for the global FRP pole in power transmission & distribution by material, manufacturing process, application, and region.

FRP Pole in Power Transmission & Distribution Market by Material [Analysis by Value from 2018 to 2030]:

Fiber

Resin

FRP Pole in Power Transmission & Distribution Market by Manufacturing Process [Analysis by Value from 2018 to 2030]:

Pultrusion

Filament Winding

Centrifugal Casting

FRP Pole in Power Transmission & Distribution Market by Application [Analysis by Value from 2018 to 2030]:

Industrial

Commercial

Residential

FRP Pole in Power Transmission & Distribution Market by Region [Analysis by Value from 2018 to 2030]:

North America

Europe

Asia Pacific

The Rest of the World

Country Wise Outlook for the FRP Pole in Power Transmission & Distribution Market

There has been a growing trend in the power transmission and distribution (T&D) market for the use of fiber-reinforced plastic (FRP) poles across the globe, owing to the progress of fiber-reinforced polymers as lightweight, stronger, and corrosion-free materials. As utilities and energy companies aim to improve resilience in infrastructure, there are many benefits to using FRP poles in comparison to traditional replacements like wood and steel. Some of these benefits include a longer lifespan, lower upkeep costs, and better performance under extreme weather conditions.

United States: In the United States, the trend of using FRP poles in power transmission and distribution has been on the rise due to the ever-increasing demand for infrastructure refurbishment and an emphasis on disaster-resistant networks. Utilities in extreme weather states, such as California and Florida, which face hurricanes and wildfires, are increasingly shifting to FRP poles. Composite poles are immune to the elements, fire, and weather damage, unlike conventional wooden or steel poles. Additionally, research and development of better composite materials and manufacturing systems are making affordable and high-strength FRP poles possible.

China: China, the largest waterworks market in the world, has been spending a significant amount of resources to upgrade its power supply networks. The application of FRP poles has also been adopted in rural areas and for the installation of transmission lines in regions with severe weather conditions. With many infrastructure-building projects underway, there is an increasing demand for long-lasting FRP pole materials that require little upkeep. Moreover, the country's officials are in favor of promoting green energy trends and using ecologically friendly materials.

Germany: The German power transmission and distribution system has been undergoing improvements in recent years as part of the country's energy transition. The country is using FRP poles to strengthen and improve the efficiency of the grid, aiming for rural electrification and enhancing resilience in forests and other storm-prone areas. There are also plans to increase the production of FRP poles in Germany, aligned with the so-called 'Renewable

Energy Future,' as the use of wind and solar energy rises.

India: The growing energy demand, which parallels the expansion of the grid, presents a huge market for FRP poles in the power T&D sector. Electric utilities in India are using FRP poles in rural and remote areas where access to conventional materials is difficult. These poles are especially useful in areas with high humidity and salt exposure, offering better corrosion resistance. Furthermore, the demand for FRP poles is further boosted by advancements in technologies, particularly the development of smart grids and various renewable energy projects, especially solar power, in India.

Japan: Japan is one of the early adopters of FRP poles in power transmission lines, especially in earthquake-prone and coastal regions, where high-performance materials are essential. The rehabilitation of the electrical grid with FRP poles has become a crucial part of post-earthquake recovery in Japan. These poles are lightweight, can withstand extreme temperatures, and are resistant to corrosion. A Japanese company manufactures FRP poles and, using its technology continues to innovate and enhance the design of FRP poles for urban and rural applications.

Features of the Global FRP Pole in Power Transmission & Distribution Market

Market Size Estimates: FRP pole in power transmission & distribution market size estimation in terms of value (\$B).

Trend and Forecast Analysis: Market trends (2018 to 2023) and forecast (2024 to 2030) by various segments and regions.

Segmentation Analysis: FRP pole in power transmission & distribution market size by material, manufacturing process, application, and region in terms of value (\$B).

Regional Analysis: FRP pole in power transmission & distribution market breakdown by North America, Europe, Asia Pacific, and Rest of the World.

Growth Opportunities: Analysis of growth opportunities in different material, manufacturing process, application, and regions for the FRP pole in power transmission & distribution market.

Strategic Analysis: This includes M&A, new product development, and competitive landscape of the FRP pole in power transmission & distribution market.

Analysis of competitive intensity of the industry based on Porter's Five Forces model.

If you are looking to expand your business in this or adjacent markets, then contact us. We have done hundreds of strategic consulting projects in market entry, opportunity screening, due diligence, supply chain analysis, M & A, and more.

This report answers following 11 key questions:

Q.1. What are some of the most promising, high-growth opportunities for the FRP pole in power transmission & distribution market by material (fiber and resin), manufacturing process (pultrusion, filament winding, and centrifugal casting), application (industrial, commercial, and residential), and region (North America, Europe, Asia Pacific, and the Rest of the World)?

Q.2. Which segments will grow at a faster pace and why?

Q.3. Which region will grow at a faster pace and why?

Q.4. What are the key factors affecting market dynamics? What are the key challenges and business risks in this market?

Q.5. What are the business risks and competitive threats in this market?

Q.6. What are the emerging trends in this market and the reasons behind them?

Q.7. What are some of the changing demands of customers in the market?

Q.8. What are the new developments in the market? Which companies are leading these developments?

Q.9. Who are the major players in this market? What strategic initiatives are key players pursuing for business growth?

Q.10. What are some of the competing products in this market and how big of a threat do they pose for loss of market share by material or product substitution?

Q.11. What M&A activity has occurred in the last 5 years and what has its impact been on the industry?

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