

FRP Pole in Telecommunication Market Report: Trends, Forecast and Competitive Analysis to 2030

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Abstracts

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FRP Pole in Telecommunication Trends and Forecast

The future of the global FRP pole in the telecommunication market looks promising with opportunities in the industrial, commercial, and residential markets. The global FRP pole in telecommunication market is expected to grow with a CAGR of 6.5% 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 the growing focus on sustainability and environmental regulations.

Lucintel forecasts that, within the material category, fiber is expected to witness higher 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 Telecommunication Market

There are several emerging trends currently reshaping the FRP pole in the telecommunications market that include technological development, sustainability, and expansion of 5G globally. Those trends are helping devise new ways of making FRP poles some of the most pivotal components in the modernization of the communication infrastructure towards enhanced efficiency and resiliency.

Rapid 5G Deployment in the Telecommunication Market: The 5G network has contributed to the FRP pole market and continues to take a lead in the quest to deploy the infrastructure. Pole manufacturer projects that no telecommunication enterprises would be lacking poles since; there is advancement of telecom companies seeking for columns that are malleable, and antirust columns to buttress 5G antennas and communication towers. FRP poles possess the appropriate strength and durability and can be simply installed and maintained.

Sustainability and Eco-friendly Solutions: Due to environmental reasons, telecom companies are trying to find alternative materials for their structural developments that are in line with sustainability. The materials that are used to make FRP utility poles can be recycled so that their lifespan does not have a significantly negative effect on the setting.

Telecommunication Infrastructure in Remote Rural Areas: Different countries are making efforts to expand telecom coverage to remote or unmarked areas. Due to lightness and durability, FRP poles are often used in such regions since they save on the cost and hassles involved in transportation and installing this equipment to difficult places. This trend especially matters in countries such as India and China where connecting the hinterland is a challenge.

Integration with Smart Technologies: One more trend that appears is the combining of telecommunications systems with smart technologies. There is a growing demand for FRP poles in Smart cities and IoT networks as these networks are deployed for data capturing and transmission which requires poles for installation of various sensors. Moreover, FRP poles can also be embedded within lots of different systems such as telecommunications, smart grid applications, and environmental monitoring systems.

Resistance to Harsh Weather and Geometrical Accidents: FRP poles' resistance to become damaged during the years of storms or bad weather conditions is an upcoming trend that is very important to countries subjected to

earthquakes, floods, and stormy weather like Japan and the USA. These poles will withstand high winds, floods, corrosion, and lightning to provide users with telecommunications services during and after devastating incidents.

This scenario emphasizes a spurt in the FRP pole in the telecommunication market across the geography. The increasing emphasis on 5G rollout, sustainability, and the ability to withstand extremes of weather and natural disasters are propelling FRP pole usage as one of the core requirements for modern telecommunication networks.

Recent Developments in the FRP Pole in Telecommunication Market

The FRP poles in the telecommunications market have also undergone several recent changes as companies and, even, states have begun improving the resilience, reunifications, and efficiency of telecommunications. These developments concern performance enhancement and cost-cutting of FRP poles which will assist in increased usage in the future across the world.

Enhanced Composite Material Introduction: The last few years of usage of composite material technology have brought stronger and more economical FRP poles. Special new resins and new types of fiber reinforcements are proven to enhance FRP pole durability and load-bearing capacity performance. Hence, the poles will require lower maintenance and replacement costs which are encouraging for telecommunication industries.

Smart Pole Integration: The smart pole integration has witnessed the extension of the application of FRP poles blurring the boundaries of the telecom industry and other industries. Telecom companies are willing to apply smart sensors and wireless communication technologies to FRP poles for the implementation of smart city concepts and IoT networks. Such poles can control the environmental conditions, collect data, and facilitate self-healing, which enhances the quality of telecommunications services.

Cost-Effective Manufacturing Techniques: The cost of producing FRP poles has relatively decreased as a result of the introduction of new methods such as automated filament winding and pultrusion. Due to these advancements, the cost of FRP poles relatively decreases and enhances their attractiveness concerning implementing large-scale civil works like infrastructure in developing economies. The enhanced job lunch is also addressed equally with high

productivity during construction activities so that the telecommunication infrastructures that are coming in high demand can be supplied.

Expansion in Rural and Remote Markets: The application of Facebook's success especially in terms of rural expansion looks huge in your dimensions this has been attained by the transition from using wooden poles to FRP poles. For this purpose suitable as they can be easily transported and installed and are also resistant to corrosion and temperature extremes. This is more pronounced in countries like India and China which still have an enormous gap in rural coverage connectivity.

Support Provided By The Government, Regulations In Poles With FRP: Governments all over the world have started to appreciate the advantages of FRP poles in telecommunications and stringent regulations have been established that promote such adoption. This consists of offering other states or countries within the United States that use FRP, projects tax breaks, and making available aid to environmentally friendly projects.

The recent activities in the economic development of telecommunication poles made of FRP showcase potential improvements to performance, cost targets achievement, and product range expansions. With the integration of smart pole technologies, cost-effective manufacturing processes, and increased support from the government, poles made of FRP will be an integral part of telecommunication infrastructure.

Strategic Growth Opportunities for FRP Pole in Telecommunication Market

The FRP pole in the telecommunications market has plenty of growth strategic opportunities which are a result of technical changes in infrastructure, encouragement by law, and a growing need for infrastructure that is more dependable and long-lasting. These prospects are especially pertinent from the perspective of growing 5G networks, rural connectivity initiatives, and smart city projects.

Expansion of 5G Network: The level playing field among nations is an accelerating trend of the 5G networks, thus, if there are ways that the FRP poles can be put to meet the requirements, then this would turn out to be a huge opportunity. FRP poles have been able to provide the necessary weight, endurance, and simplicity in the erection of shrunken cells and tower linings sufficient for a 5G network. Telecom companies in a bid to satisfy so much

demand for improved existing services are already adopting the usage of FRP poles.

Rural Connectivity Projects: There is a chance of growth for FRP poles largely in rural areas, especially in developing countries such as India and Africa. These are useful for distant locations where normal infrastructure could be hard to implement. The affordability, strength, and versatility of FRP poles render them a practical option for the extension of the telecom facilities in these regions.

Smart City Developments: With the smart infrastructure being developed in countries around the globe, the emergence of the FRP poles will be paramount. Such poles would house not only the telecommunications equipment but also IoT and sensors, lighting, and CCTV systems thus forming a robust structure upon which smart city technologies can be built. Because of this capacity, FRP poles are tailor-made for today's urban scenarios.

Disaster-Resisting Infrastructures: In areas that face extreme weather conditions, such as earthquakes, floods, or storms, FRP poles make it possible to design more disaster-resistant telecom towers. Because of the high resistance of these poles to corrosion, extreme temperatures, and mechanical impact, they facilitate dependable connection even when a disaster strikes and after.

Government-Supported Infrastructure Programs: Both developed and developing countries' governments seem to be paying more attention to investments in digital infrastructures. It includes interventions regarding the enhancement of 5G coverage, rural penetrations, and green infrastructure. For governments determined to meet their connectivity goals with sustainability objectives, FRP pole construction materials have since become an attractive prospect and an area of focus for public-private partnerships.

Strategic growth opportunities in the FRP pole in the telecommunications market are directed by the advancement of 5G, improvement of rural communications, smart city construction, and the ability to withstand disasters. These opportunities will provide different dynamics to the telecommunication business providing room for increased acceptance of FRP poles for telecommunication auxiliary infrastructure.

FRP Pole in Telecommunication Market Driver and Challenges

The telecommunications-derived strategic growth opportunities in the FRP pole market are driven by the advancement of 5G, the improvement of rural communications, smart city construction, and the ability to withstand disasters. These opportunities will introduce new dynamics to the telecommunications business, providing room for increased acceptance of FRP poles for telecommunications auxiliary infrastructure.

The factors responsible for driving the FRP pole in the telecommunications market include:

Rising Demand for Telecom Infrastructure: The unsatisfied demand for broadband services, especially high-speed and high-performance internet, and the 5G FRP pole market are projected to drive market expansion. The world is currently implementing digitization; thus, telecom service providers are increasing their network infrastructure to allow for high bandwidth and low latency transmission. It is worth noting that FRP poles are specially designed to enhance communication industrialization in urban, rural, and remote areas, thanks to their strength, durability, and resistance to climatic corrosion.

Durability and Low Maintenance: Compared with wood and steel materials, FRP poles are more durable. They do not corrode, wear out in extreme weather conditions, or get damaged by wild animals, making them ideal for outdoor placement of telecommunications equipment. These characteristics lower replacement and maintenance costs, which is very appealing to telecommunications companies that want to reduce their operating costs.

Weight Without Sacrifice to Performance: FRP poles are much lighter than their steel or concrete counterparts, which makes distribution and erection more efficient. This minimizes labor costs and the man-hours required for installation, a factor that is important when procuring equipment for large telecom networks. Also, in areas with harsh geographical topography, the porosity of the poles makes it easier to carry and position them, making them favorable to telecom providers.

Sustainability and Environmental Considerations: As every industry focuses on sustainability, FRP poles are especially commendable for their environmentally friendly properties. They are produced from materials that can be recycled and emit less carbon during production than steel and concrete. Given the increasing eco-policies and practices among telecom operators and governments, the

demand for eco-friendly infrastructure solutions like FRP poles has been growing.

Technological Advancements in FRP Manufacturing: Development strategies in the manufacturing of FRP poles, such as the development of better resin systems and composite materials, have improved the quality and reduced the cost of FRP poles significantly. These advancements make FRP poles more competitive in the market as they enhance strength, stiffness per unit weight, environmental stress resistance, and general performance.

Challenges in the FRP pole in the telecommunications market include:

High Initial Costs: While FRP poles offer lower maintenance costs and higher durability in the long run compared to wood or concrete poles, their initial costs are much higher than those of traditional materials such as wood and concrete. This may pose a significant challenge for telecom service providers, especially those in areas with budget constraints or lower volumes of telecom infrastructure.

Supply Chain and Manufacturing Constraints: The global FRP pole market faces raw material supply issues, manufacturing capacity challenges, and supply chain disruptions. The production of FRP poles requires specialized materials, such as fiberglass and resin, which can be easily impacted by price volatility and shortages in supply management.

Regulatory and Safety Standards: The FRP pole market varies from one country to another due to differences in regulations and relevant standards governing FRP poles. In some regions, traditional materials like wood and steel may meet established standards, while FRP pole standards have only recently been developed, if at all. Such differences in standards can create problems for manufacturers and telecom firms in terms of operational compliance and obtaining approvals from regulators.

The telecommunications segment of the FRP pole industry is expected to experience growth driven by technology, environmental concerns, and the demand for strong infrastructure. However, issues related to high upfront expenses, supply chain constraints, and regulatory challenges must be addressed to fully exploit these

opportunities. For the global telecom market to find efficient sustainable, cost-effective FRP poles, these challenges must be overcome.

List of FRP Pole in Telecommunication 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 telecommunication 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 telecommunication companies profiled in this report include-

RS Technologies

Creative Composites Group

Valmont Industries

Geotek

Strongwell

Elseswedy Electric

Highland Industries

Petrofisa do Brasil

Jiangsu Jiuding New Material

NOV

FRP Pole in Telecommunication by Segment

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

FRP Pole in Telecommunication Market by Material [Analysis by Value from 2018 to 2030]:

Fiber

Resin

FRP Pole in Telecommunication Market by Manufacturing Process [Analysis by Value from 2018 to 2030]:

Pultrusion

Filament Winding

Centrifugal Casting

FRP Pole in Telecommunication Market by Application [Analysis by Value from 2018 to 2030]:

Industrial

Commercial

Residential

FRP Pole in Telecommunication 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 Telecommunication Market

The demand for fiber-reinforced plastic (FRP) poles is rising in the telecommunications market due to the high need for strong, lightweight, and anti-corrosive structures for growing 5G networks, wireless communication towers, and other telecommunications services. FRP poles provide resilience under overload conditions caused by winds and erosion and do not require extra maintenance expenses, unlike conventional materials such as steel and wood. These advantages are increasingly being embraced in the United States, China, Germany, India, and Japan.

United States: In recent years, the utilization of FRP poles in the telecommunications industry in the United States has increased due to the ever-growing 5G network. As consumer demand for better and faster internet capabilities increases, telecommunications companies are modernizing older towers and poles by replacing them with FRP ones. These poles offer good resistance to extreme weather, corrosion, electromagnetic interference (EMI), and other adverse conditions – factors that are crucial in ensuring minimal disruptions in communication networks.

China: China has embarked on an ambitious expansion of its 5G network, and the development of FRP poles is becoming significant for telecommunications growth. FRP poles are replacing conventional steel and wooden poles in both urban and rural areas because they are much more durable, do not rot due to corrosion, and can withstand high-temperature fires. This transformation is supported in China, particularly due to the heavy emphasis placed on green technologies, including FRP poles. Such changes are especially noticeable in remote and hilly areas where transportation of traditional materials is difficult.

Germany: The German telecommunications network is changing rapidly as the country adopts 5G and IoT technologies. One of the main requirements for infrastructure in the contemporary economy is up-to-date telecommunications networks. German telecommunications companies are increasingly relying on FRP poles, which offer strength, reliability, and durability in both urban and rural settings. Moreover, since the German government also emphasizes environmental sustainability and energy efficiency, the use of these poles has been encouraged as they replace steel and wood.

India: In India, FRP poles are of great interest due to the growing demand for better telecommunications infrastructure, driven by the increasing use of mobile

internet and the government's push for 5G. These poles are particularly useful in rural and underserved areas where conventional poles are either costly to install or difficult to deploy. They are also lightweight and corrosion-resistant, which is helpful given the wide variety of temperatures in India, ranging from high humidity to extreme heat.

Japan: Japan is one of the leading countries in using FRP poles for telecommunications towers. After natural calamities like earthquakes and tsunamis, there is a strong need for construction that is more resilient and disaster-resistant, and FRP poles meet these requirements perfectly. They are not only lightweight and durable but also corrosion-resistant, which is especially useful for communication in unfavorable weather conditions, as they prevent disruption.

Features of the Global FRP Pole in Telecommunication Market

Market Size Estimates: FRP pole in telecommunication 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 telecommunication market size by material, manufacturing process, application, and region in terms of value (\$B).

Regional Analysis: FRP pole in telecommunication 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 telecommunication market.

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

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

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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 telecommunication 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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