

The Future of Carbon Fiber

The potential of carbon fiber is almost limitless. The properties of the material itself are already established as industry leading: low-weight, high-strength, cost-efficient, conductive to electricity, corrosion and heat resistant; so the future of carbon fiber becomes heavily dependent on the way the world's innovators choose to use it.



Future Carbon Fiber Applications

Alternate Energy: [Wind turbines](#), compressed natural gas storage and transportation, fuel cells

Fuel Efficient Automobiles: Currently used in small production, high performance automobiles, but moving toward large production series [cars](#)



Future Carbon Fiber Applications

Construction and Infrastructure: Light weight pre-cast concrete, [earth quake protection](#)

Oil Exploration: [Deep Sea drilling platforms](#), buoyancy, umbilical, choke, and kill lines, drill pipes



The Future By The Numbers

It has taken the industry **15 years** to add **40,000 MT** of carbon fiber manufacturing capacity

Global sales of carbon fiber reinforced plastics (CFRPs) forecast to reach **\$28.2 billion** by 2015 and **\$48.7 billion** by 2020

"The global demand for carbon fiber tow will grow from 46,000 tons in 2011 to 140,000 tons in 2020"

Sales of carbon fiber tow will increase from **\$1.6 billion** in 2011 to **\$4.5 billion**

All carbon fiber tow types will grow by **45%** by 2020

The wind energy market will increase from **10,440 tons to 54,270 tons** by 2020 and be **46%** of total market

Demand (by weight) in the aerospace/defense sector will grow from **7,694 tons to 18,462 tons** by 2020

"Plant capacity will increase from 102,000 tons in 2011 to 129,000 tons in 2015 and potentially to 185,000 tons in 2020"

The Role of Carbon Fiber Manufacturers

The future of carbon fiber is undoubtedly on a positive course. However, the speed at which carbon fiber integrates into larger commercial markets and more and more common applications is largely dependent on the capabilities of existing carbon fiber manufacturers. Carbon fiber manufacturers need to continue to increase their capacity and actively shift the industry mindset to be firmly committed to the concept of commercialization.

The carbon fiber industry will reach its vast potential if carbon fiber manufacturers:

- Target new applications
- Develop new and lower cost technology
- Reinvest profits with long term objectives in mind, essentially eliminating the low volume, high price mentality.
- Fully understand supplier's costs and future strategy
- Identify and focus on market driver's
- Work to aggressively reduce costs
- Consolidate so that weaker players help strengthen the stronger ones
- Share incremental improvements to help support market growth
- Understand that the primary competitors to carbon fibers are other materials, not other carbon fiber manufacturers

All of the above a primary goals for ZOLTEK in the coming years. One of our largest advancements derived from embracing the above is the development of ZOLTEK [Recycled Carbon Fiber](#), which reduces waste and cost-inefficiencies within the existing carbon fiber industry. Learn more about the sustainability and cost-savings possibilities of [ZOLTEK Recycled Carbon Fiber here](#).