

12/17/2015 | 3 MINUTE READ

[MARKETS](#) | [WIND/ENERGY](#) | [ENERGY STORAGE](#) | [AUTOMOTIVE](#) | [REINFORCEMENTS](#)

For carbon fiber, the future certainly looks bright

CompositesWorld's annual Carbon Fiber conference last week included an upbeat outlook for the supply and demand of carbon fiber, with particularly strong growth expected in automotive, pressure vessels and energy development.

[#f-35](#) [#airbus](#) [#777x](#)



Chris Red, principal at Composites Forecasts and Consulting LLC, speaking during CompositesWorld's Carbon Fiber 2015 conference in Knoxville, TN, US.



See Who's Speaking

Top Shops Expo features exclusive presentations of the Top Shops 2021 Benchmarking data alongside a lineup of industry experts and thought leaders, presenting technical sessions on topics ranging from CNC machining to additive manufacturing; injection molding to parts finishing.

[View the Agenda](#)

Composites Forecasts and Consulting LLC (Mesa, AZ, US), spoke last week about global demand at CompositesWorld's annual Carbon Fiber conference in Knoxville, TN, US. Presentations are highly respected and closely scrutinized as they typically provide a clear view of the market is behaving and trending. This year's presentation was no exception.

In Chris' presentation, speak for themselves, but there are some things you should

	2015	2020	2024	CAGR
	14,830	16,740	18,620	2.3%
	15,460	22,100	21,650	3.4%
	52,800	118,490	178,920	13%
	83,090	157,320	219,200	10.2%

fast, metric tonnes

First, Chris divides the carbon fiber industry into three sectors: Aerospace, consumer/recreational and industrial (which includes automotive and energy). As has been the case for several years now, a vast majority (75%) of the world's carbon fiber is consumed by the industrial sector, and going forward this is where most carbon fiber growth will occur.

Year	Nameplate Capacity	Actual Output (est.)
2015	143,595	93,171
2020	180,600	129,965

Global carbon fiber supply forecast, metric tonnes

Second, although aerospace remains an important sector, with the Boeing 787, the Airbus A350 XWB and the F-35 Lightning II in production, and with the 777X wing program near production, there is no large aerocomposites program on the horizon to spur substantial carbon fiber manufacturing expansion. The next major programs — beyond the horizon — are replacements for the Airbus A320 and the Boeing 737. These are expected in the 2025-2030 timeframe and likely will be fabricated, at least in the wings, with carbon fiber. It remains to be seen whether carbon fiber will be chosen for the fuselage. The question is whether, in 10 years, composite fuselage fabrication processes will be sufficiently fast enough to meet the throughput requirements of a single-aisle aircraft program. Also unknown is if a single-aisle aircraft fuselage made with carbon fiber can efficiently withstand the runway rash and other impacts that a smaller (compared to the 787 and A350 XWB) plane must endure.

Market	2015	2020	2024	CAGR
Commercial aircraft structures	5,545	8,880	8,293	4.1%
Automotive	10,056	23,456	47,011	13.7%
Pressure vessels	5,364	19,519	39,955	22.24%
Wind energy	15,000	30,000	32,643	8.1%

Global carbon fiber demand forecast, critical end markets, metric tonnes

Third, it appears that — finally — automotive is poised to become the carbon fiber juggernaut that we have been hoping it would be. Consensus at the conference was that automotive OEMs will likely take a material-agnostic, all-of-the-above approach to vehicle development, employing a mix of steel, aluminum and composites, applied as mechanical requirements demand and as cost allows.

Fourth, carbon fiber composite pressure vessels for storage and transport of compressed and liquefied natural gas in automotive and fleet applications is expected to drive substantial carbon fiber growth, particularly in Asia, South America and parts of Europe.

Carbon fiber in wind energy, you will notice, is forecast to grow steadily (8% CAGR), but at a rate slight less than the average for the entire carbon fiber industry (10.2% CAGR). This might be subject to change, however, given that the US Congress, on Dec. 16, passed a new budget plan that includes renewal of the renewable energy production tax credit (PTC) for five years. This represents an unprecedented window of PTC stability that might drive a wave of wind turbine installations in the US.

As we expect, in about 2020, that carbon fiber demand will exceed supply. This likely will require carbon fiber manufacturing expansion in the 2018-2019 timeframe.

Don't get too far in these numbers as the carbon fiber growth trajectory seems to be on very solid ground.



See Who's Speaking

Top Shops Expo features exclusive presentations of the Top Shops 2021 Benchmarking data alongside a lineup of industry experts and thought leaders, presenting technical sessions on topics ranging from CNC machining to additive manufacturing; injection molding to parts finishing.

[View the Agenda](#)