

Potential Steel Demand in New and Expanding Energy Markets

- Projections for steel demand if wind power reaches 6% of the U.S. energy supply by 2020 is for as much as 13 million tons of steel.
- The average high-voltage transmission tower includes about 40,000-60,000 pounds of steel.
- The American Electric Power (AEP), a major investor-owned utility with regulated power companies serving customers in eleven states, and the American Wind Energy Association (AWEA) have partnered to create a vision of what a nationwide transmission superhighway would look like. One potential transmission build-out scenario that would allow the U.S. to obtain 20% of its electricity from the wind would include 19,000 miles of new 765-kilovolt (kV) transmission lines, for an estimated price tag of \$60 billion.
 - A 765-kV line is a high-voltage power line that can carry larger amounts of electricity – and with significantly higher efficiency – than most older transmission lines in use today; such lines, therefore, can serve as a “backbone” in a modern grid.
- Transmission wire contains steel. For a 1455 ACSR, weight per 1,000 ft. is approximately 1,600 lbs., with the weight from steel at 270 lbs. Demand is growing for electrical steels to serve this market.
- An estimated 40 metric tons/MW for steel intensity in the nuclear market
- For coal, demand is roughly 90-95 metric tons/MW for coal plants.
- The U.S. Department of Energy (DOE) recently released a report titled “20 Percent Wind Energy by 2030.” The DOE identified in this report transmission limitations as a chief roadblock to realizing the enormous economic, environmental and energy security benefits of obtaining 20% of our electricity from the wind.

Steel used in a wind tower (est'd)	Percent Weight (from 20% Report)	Tons Total Weight	Percent Steel (from 20% Report)	Tons of Steel
Rotor				
hub	6%	13.74	100%	13.74
blades	7.20%	16.488	2%	0.33
Nacelle				
gearbox	10.10%	23.129	96%	22.20
generator	3.40%	7.786	65%	5.06
Frame	6.60%	15.114	85%	12.85
Tower	66.70%	152.743	98%	149.69
TOTAL	100%	229		203.87