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# planet gore

THE HOT BLOG

Monday, September 08, 2008

## Wind Energy's Footprint (Think Concrete Galoshes) [\[Drew Thornley\]](#)

It is increasingly a standard assumption that America can potentially get 20 percent of its energy needs from wind. Just in a state like Texas — one of its most viable locations — what would that look like?

The Electric Reliability Council of Texas projects a total of 374,740,989 mWh of energy in the ERCOT region in 2018. A fifth of this is 74,948,198 mWh. Assuming an average capacity factor of 30 percent for every 1.5-MW turbine, just over 28,519 MW of wind capacity is needed (Texas' current wind capacity is 5,553.1 MW.). That's almost 19,013 1.5-MW turbines.

With regard to the amount of land required: FPL Energy (the nation's Number One wind-energy developer) says 40 acres are needed for every MW of generating capacity, on average. National Wind Watch says the number is 50 acres. Let's split the difference and say 45 acres.

More quick math: 28,519 (MW) x 45 (acres) = 1,283,355 acres. That's over 2,005 square miles. (Flashback: Environment Texas says [30-mile-by-30-mile solar plants](#) in west Texas will power the entire state.) This is how much space will required for ERCOT to get 20 percent of its energy needs from wind energy in 2018.

Oh. And, since each turbine base uses [439 tons of concrete](#): 8,346,707 tons of concrete.

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