

You may have heard people claim that wind energy is not environmentally perfect because it requires mining for the rare earth elements used to make magnets inside the generators.

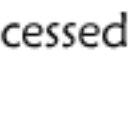
That is correct.
No energy resource is completely benign.

But...

Let's put this into perspective



One 3.5 megawatt wind turbine
requires mining about



32 tons of rare earth ore
(represented here by **one** mining cart)
which is then processed into usable materials

That turbine will produce about

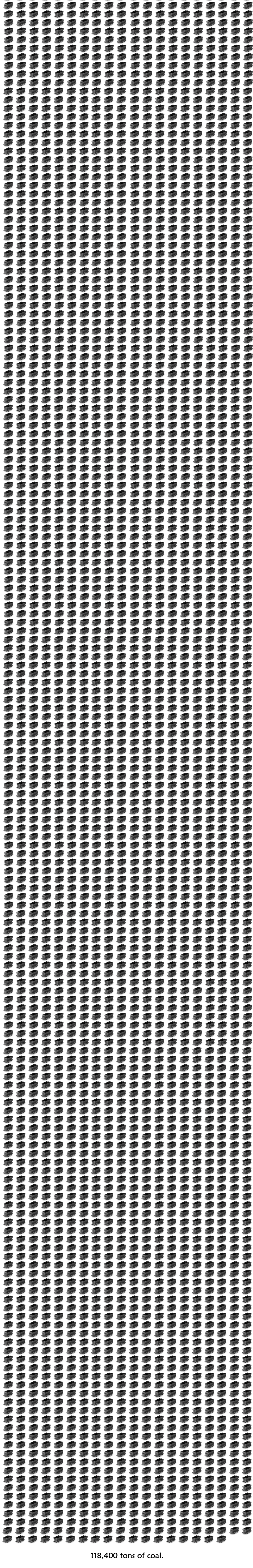
230 TWh of electricity
over its 25-year life

To produce the
same amount of electricity from coal,



requires mining and burning

(scroll down...)



118,400 tons of coal.

The Mining Report Card

Rare earth ore vs. coal mining

For the same amount of electricity

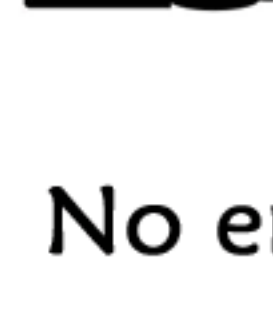


Wind
requires about

32 tons
of mining for ore



material can be
Recycled



Coal
requires about

118,400 tons
of mining for coal



material is
Burned

**No energy source is environmentally perfect,
but some are closer than others.**

Sources:
MIT - <http://web.mit.edu/news/office/2012/rare-earth-alternative-energy-0409.html> - for rare earth usage per turbine
Reuters - <http://in.reuters.com/article/2010/11/14/dlIndia-5276722010114> - for range of rare earth yield from one
ore mined range from 4 to 56 tons per turbine using numbers in above listed sources
EIA - <http://www.eia.gov/tools/faqs/faq.cfm?id=667&t=2> - for coal usage
Assumes a 30% net capacity factor for wind