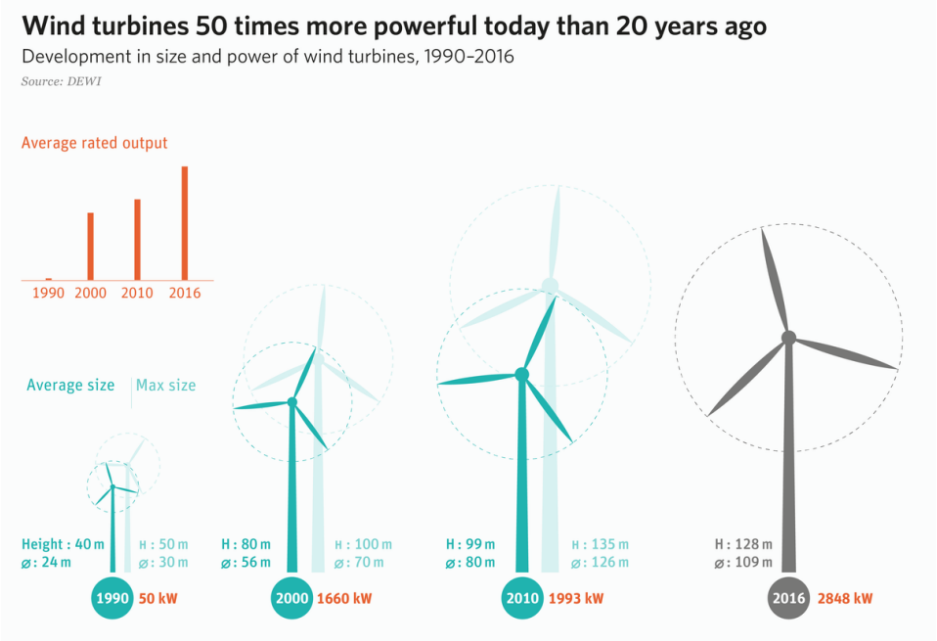
A Brief History of Wind Turbines

For centuries, people have harnessed the wind's energy. After all, wind-driven wheels were used by the Greeks in the first century to power machines. The concept of using wind to produce electricity is more recent though, but not as much as one would think. The first known wind turbine used to produce electricity was built in Scotland during the year 1887 by Prof James Blyth of Anderson's College, Glasgow. At the time, he offered the surplus electricity to be used by his municipality; however, Blyth's offer was turned down because, at the time, many people thought electricity was "a work of the devil". Crazy! [1]

During the mid-50s, Danish inventor Johannes Juul built a horizontal-axis wind turbine with a diameter of 24 meters and 3 blades very similar in design to wind turbines still used today. The 200kW, three-bladed turbine inspired many later turbine designs, and Juul's invention (emergency aerodynamic tip breaks) is still used in turbines today. [2]

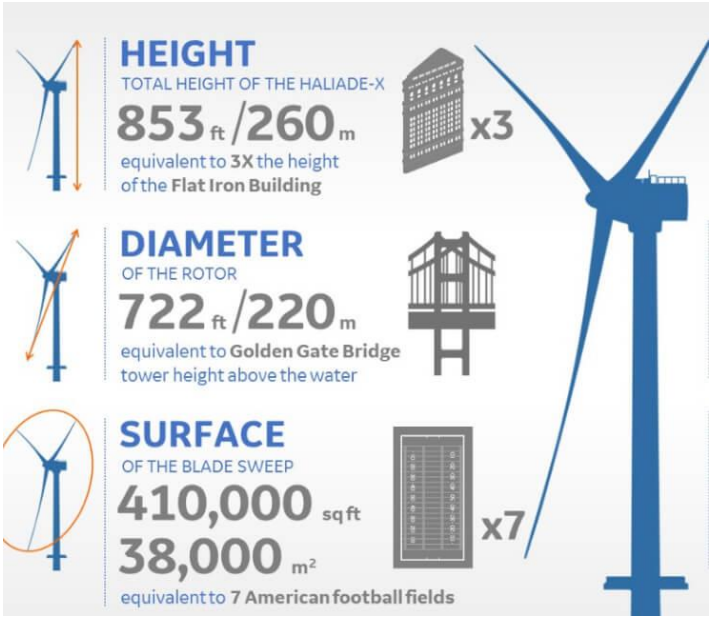
Fast forward almost 70 years and the development in size and power of wind turbines has exponentially grown. Between 1990 and 2010, the average diameter of a commercial wind turbine jumped from 24 meters to a staggering 80 meters, and the maximum diameter available on the market grew from 30 meters to 126 meters! [3]



Development in Size and Power of Wind Turbines from 1990 to 2016 [3]

Another key feature of a wind turbine is its height. That is because wind speeds are slower close to the Earth's surface and faster at higher altitudes. Nowadays, the average hub height of modern wind turbines is 88 meters. As you can imagine, the development of taller and bigger structures enabled a significant increase in the energy efficiency of modern wind turbines: they are 50 times more powerful today than 20 years ago! [3]

Today, there is a lot of competition between the biggest players in the market for the title of "Most Powerful Wind Turbine Ever Manufactured''. This "honor'' is currently held by GE's Heliade-X offshore turbine, which features a 220-meter rotor, 107-meter blades, and can generate up to a 14 MW of capacity! [4]



Heliade-X Insane Stats [4]

References:

[1] Article: History of wind turbines
(https://www.renewableenergyworld.com/storage/history-of-wind-turbines/#gref)
[2] Article: Timeline: The history of wind power
(https://www.theguardian.com/environment/2008/oct/17/wind-power-renewable-energy)
[3] **(https://energytransition.org/)**
[4] Haliade-X offshore wind turbine
(https://www.ge.com/renewableenergy/wind-energy/offshore-wind/haliade-x-offshore-turbine)