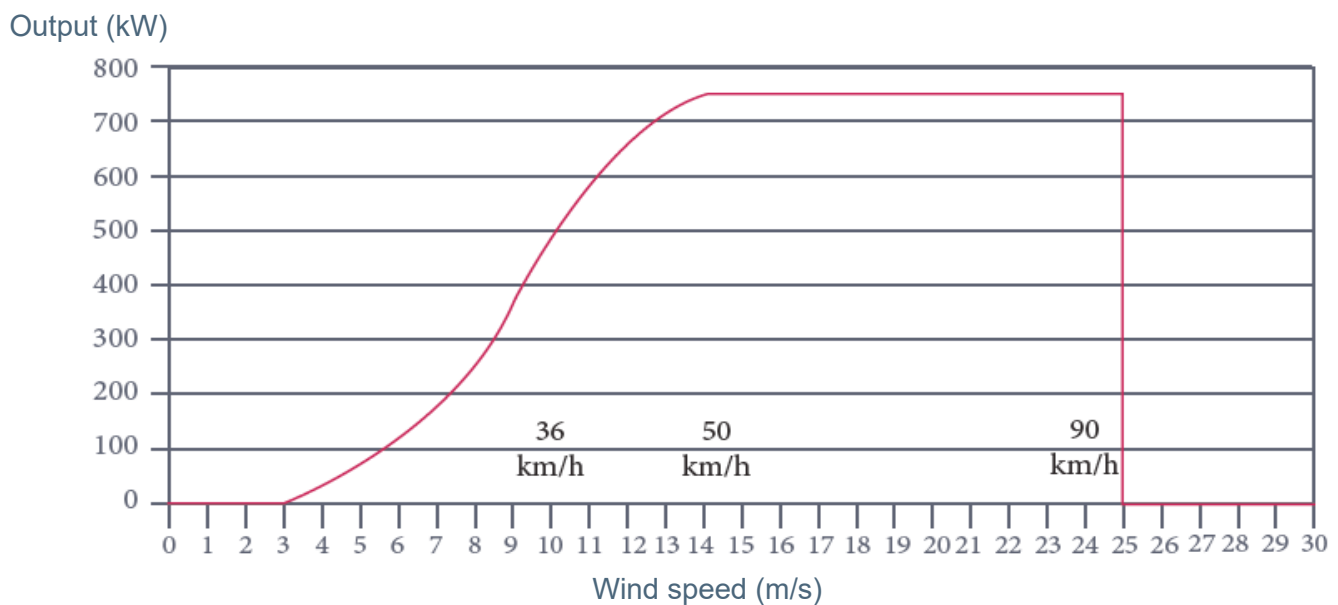


Exercise Level 1

Reading Simple Line Charts: *The Example of a Wind Turbine*

A wind turbine will not turn when wind speeds are low, i.e., below 3 m/s or around 10 km/h, or else it is disconnected from the grid owing to its overly irregular output. The stronger the wind blows, the more power the turbine generates. But the increase in output does not continue indefinitely, as wind turbines have limits depending on their size and technology.

Take the example of a 0.75 MW wind turbine. Models like this have a mast that is around 75 meters high and a blade span diameter of 40 meters. When the wind speed exceeds approximately 50 km/h, the power generated by the turbine levels out. At dangerous wind speeds of around 90 km/h or more, the turbine is stopped for safety reasons and power output drops immediately to zero.



Question level 1 :

At what wind speed does a wind turbine reach half its maximum output?

7.5m/s

8.5m/s

9m/s

Answer: At 9 m/s or around 32 km/h. However, the chart gives just a rough overview. The actual figures vary according to atmospheric pressure, temperature and the wind turbine's position in relation to the wind.