

Wind turbines need good exposure to the wind to generate lots of power. This means getting away from and above obstacles such as trees and buildings. The higher you go, the more wind you will have. Towers can easily cost the same or more than the cost of the turbine, and taller ones are more expensive. So there is a balance between a tall expensive tower and a short tower that generates less power.

A simple rule of thumb is to be at least 10 meters above any obstacle. So for example in an area with strong winds, few trees, and single storey buildings, you could install a 12-meter tower. In Auroville – we are installing 20-30 meter towers because trees are 10 meters, and winds are low.

If enough land is available you can use a cheaper tubular tower with steel guy-wires. If space is tight, a tubular steel tower like street lamps, or a pyramidal lattice tower.

Roof-top installations are possible, but not usually advised. The building itself creates turbulence so a taller tower becomes needed, and cost is added by the systems needed to dampen vibrations so they don't damage the building and create annoyance.

Soil conditions will affect the type of anchoring system used. If the soil is loose such as sandy soil near the ocean then you need to do a good anchoring with steel reinforced, or pre-cast cement beams. In other locations with hard soil you can use simpler screw-in anchoring. In special rocky locations you may drill bolts into rock that can be used as anchors. Anchoring must be sufficiently stable during the monsoon. In Auroville during the monsoon season the typically rock-hard soil becomes loose and many trees topple with high winds caused by occasional cyclone-induced storms. You must account for the worst conditions and assume a good safety factor in order to have a safe and reliable installation.

For example a 12-meter lattice tower welded together to form a triangular structure and held by guy wires can cost Rs. 25,000 (US\$ 550) or more. A 3 inch 18 meter tubular tower can cost about the same because there is less welding.

Your MinVayu certified Village Partner will be able to determine the proper way to install the

turbine, and has access to the engineering capabilities of the main office to handle any challenges.