OPERATING PRINCIPLE OF WIND MEASURING COMPLEX

WHY DO WE NEED TO MEASURE WIND CHARACTERISTICS?

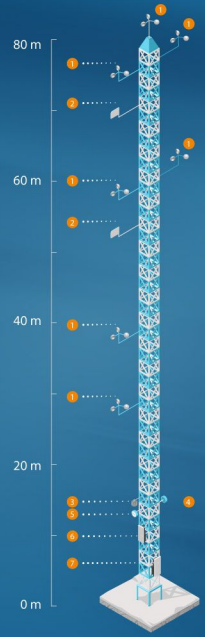
WIND IS THE SOURCE OF ENERGY FOR WIND FARMS AS FUEL FOR THERMAL POWER STATIONS.

Wind speed changes influence the quantity of energy produced by a wind farm. The more energy produced, the more efficient it is.

BEFORE DESIGNING A WIND FARM, THE COMPANY STUDIES THE WIND SPEED AND DIRECTION AT THE SITE WHERE THE WIND FARM IS TO BE CONSTRUCTED. THIS DATA HELPS TO OPTIMIZE CONFIGURATION AND EVALUATE THE PAY-BACK AND OTHER ECONOMIC INDICATORS OF THE OBJECT.

HOW ARE MEASUREMENTS PERFORMED?

To measure the wind potential with the highest accuracy, a wind measuring complex (WMC) or few of them are installed at site.
For extended periods of time (a year or more) the complex collects information wind data at a different heights, according to project specification. These data make it possible to evaluate and predict seasonally fluctuated wind parameters.



Configuration of the wind measuring complex installed at prospective wind farm site

1 ANEMOMETER

Measures horizontal wind speeds. As wind speeds are different at various heights, anemometers are installed at several heights.

2 VANE SENSOR

Determines the wind direction: this parameter ensures the optimal positions of wind turbines.

3 TEMPERATURE SENSOR

Installed at a 10 m height to avoid influence of the heat emitted by the ground surface on obtained values.

4 HUMIDITY SENSOR

Helps to assess risks of ice formation at place of measurements.

5 PRESSURE SENSOR

Like other sensors, it is resistant to weather changes and works independently of the power grid.

6 DATA LOGGER

Collects data from all sensors and calculates average values per a 10-minute interval.

7 POWER SUPPLY CABINET

Contains a data logger, a communication system, components for power supply and any other accessories.

NovaWind