

The proliferation of DER into the power system leads to a change in dynamic characteristics of power system, inertia decreases in the power system. A decrease in inertia leads to an increase in frequency deviations and the rate of frequency change (RoCoF) for power imbalance events.

That is, in the conditions of the proliferation of DER, more advanced devices for monitoring the parameters of the electrical regime are needed, the development of technologies for monitoring the system inertia of the power system and monitoring changes in the characteristics of the elements of the power system. The variations in frequency of certain aggregated regions are also important to determine inter-area oscillations. As the power system evolves to accommodate larger contributions of converter-interfaced generation (CIG) the need for cleaner frequency measurements increases.

These tasks can be performed using PMU data.

If we are talking about the task of controlling the operating mode of the power system, then to monitor the parameters of the mode, it is enough to install a PMU on each feeder connecting the wind farm to the power system.

At present time according to the requirements of the national standards PMU are installed on power stations ($P \geq 500$ MW), substations ($U \geq 500$ kV) in:

- transmission lines ($U \geq 330$ kV);
- transmission lines and autotransformers in control sections $U \geq 220$ kV;
- generators (more than 200 MW) and hydrogenators (more than 100 MW).