The impact of wind farms on frequency stability of Syrian electrical power system*

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ABSTRACT

This study aims to analyze the effect of the wind farms on frequency stability of the electrical power network, and the description of the performance of Syrian Electrical Power System with integration of wind farms in several regions in Syria (Al-Quenetera – Al-Hejana - Ghabagheb) through the evaluation of frequency stability of the power system and the Critical Clearing Time (CCT).

The effect of wind farms on the frequency behavior of Syrian network and factors related will be investigated such as generation technology by replacing the power-generated source by two main types of induction generators, changing the location of wind farms and increasing gradually the rate of wind power.

The simulation analysis will be applied on Syrian Electrical Power System 230KV – 400KV, by using program NEPLAN, which gives access to an extensive library of grid components, and relevant wind turbine model.

Key words: Critical Clearing Time, Frequency stability, Wind turbines.

*For the paper in Arabic see pages (171-193).

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