Technology Offer

Improvement of Under-frequency Relay Setting for Local UFLS Protection

Field of use
Power-systems protection

Current state of technology
Off-line simulation tested

Intellectual property
Patent pending

Developed by
University of Ljubljana, Faculty of Electrical Engineering

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Contact
Faculty of Electrical Engineering
Urban.Rudez@fe.uni-lj.si
Knowledge Transfer Office, University of Ljubljana
Simona Rataj
Phone: +386 1 2418 533
E-mail: gospodarstvo@uni-lj.si

Background

The operation of under-frequency load shedding (UFLS) protection in power systems suffers from the lack of flexibility to different operating conditions. Wide-area solutions harvesting the fast developments in communication technology solve this issue, but at the same time have negative impact on robustness, transparency and reliability. In power-system protection field, this is usually unacceptable. Local solutions are therefore preferred, but not until now were they able to guaranty the high level of efficiency in variety of operating conditions.

Description of the Invention

The invention relates to improving current load-shedding criterion in under-frequency relays. Newly developed characteristic enables fine tuning of load-disconnection amount by implementing simple yet creative criterion based on locally measured Rate-of-Change-of-Frequency (RoCoF).

Main Advantages

Invention enables achieving high level of efficiency compared to wide-area solutions and at the same time avoiding long-lasting and comprehensive re-setting procedures of existing UFLS protection schemes. Due to its local operation, no additional time delays are needed as already available signals within protection relays are used. Possibilities of over-shedding and consequential unacceptably high frequency over-shoots are completely avoided.