

A) General Information



Acronym: VC-81
Title of Project: Detailed sensitivity and selectivity analysis of the new voltage controlled frequency function 81V

TA Call:
Host research infrastructure: D-NAP, University of Strathclyde

Start Date: 10th Dec 2012
End Date: 14th Dec 2012

Lead user: Oscar Ornago - Thytronic S.p.A - Italy
Additional users: None

B) Summary of the project

Integrating Distributed Generation (DG) in the grid is the most important challenge of the near future for power systems in most of EU countries. Actually, DG is a significant contributor to the achievement of high volumes of Renewable Energy Sources (RES) for electric production. Distribution systems are designed for radial operation such that the power flows from upper voltage levels down to customers along the feeders: the presence of DG units at distribution level was not considered at the design stage. Nowadays, small DG units are currently increasing in number, as a consequence of incentives and the simplification of grid access procedures. A high degree of penetration of DG has a considerable impact on operation,

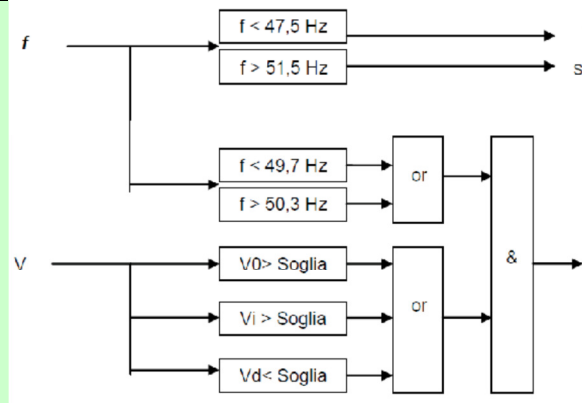


Figure 1 81V function logic

control, protection and reliability of the existing power systems. The outcome of the research should define whether the 81V function can improve the selectivity of the LOM protection so that DG can support the network during transients, with an acceptable percentage of false tripping, or if it is necessary for communication schemes to be added to the LOM protection.

C) Main Achievements

- New protection relay function 81V tested against 12 MV [GB1] internal network faults
- Capability to decide whether 81V function improves the selectivity of LOM protection such that DG can support the network during transients.

D) Dissemination of the Result

The project results will be presented at CIRED 2013

E) Use of resources

- Access days: 5
- Stay days: 6