Active network management and microgrids

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Introduction

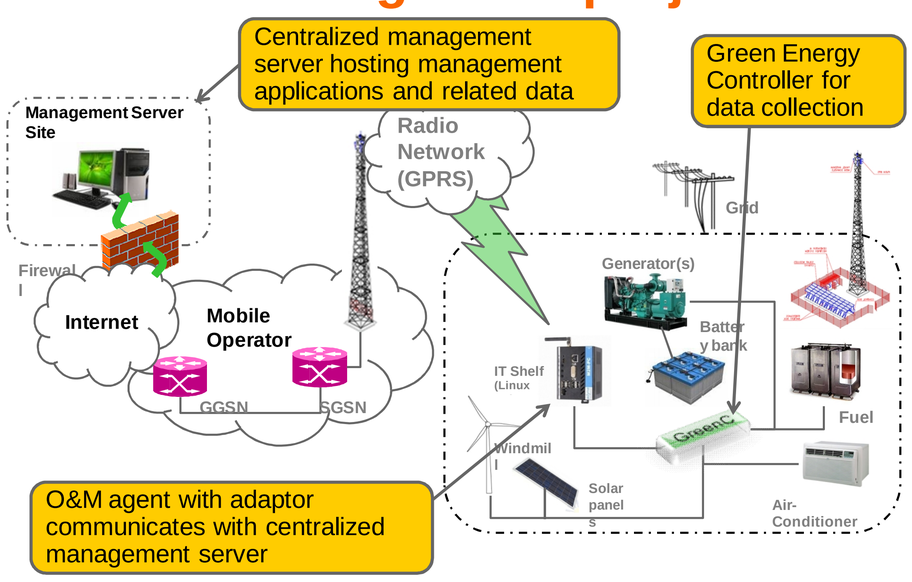
Active network management is a concept to manage network by utilizing active resources

Microgrid is another concept focusing on the management of selected network area

Difference is the ability of microgrid to self-support itself by utilizing internal resources

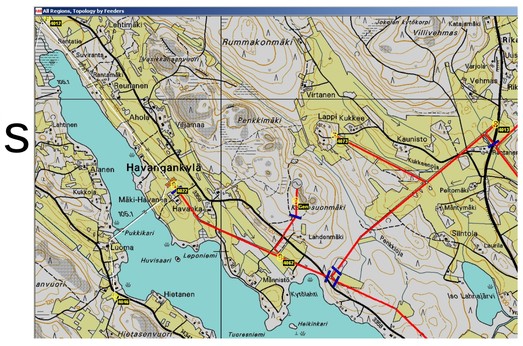
Results so far (2FP)

Total site management project

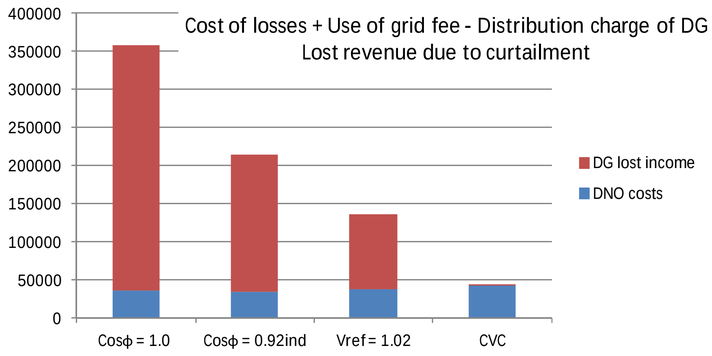


DER in DMS

- Analysis of island loads
- Model for DER technology adoption



Coordinated voltage control (CVC)



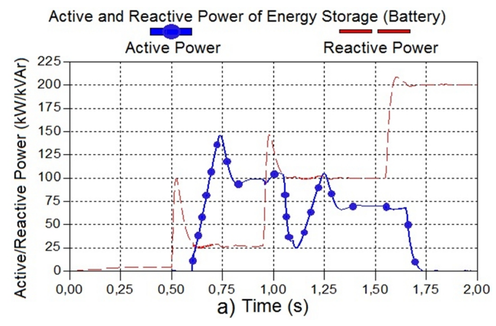
CVC provides a cost effective option to connect DG into weak MV network

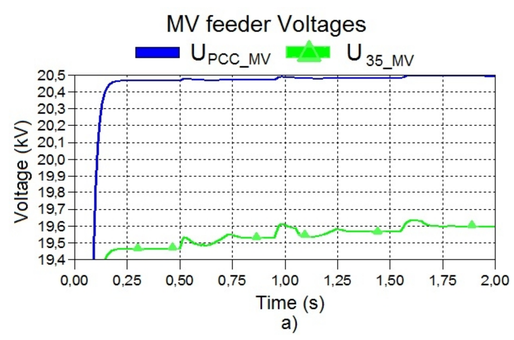
Results so far (2FP)

PSCAD Energy centre microgrid model

Active participation of LV microgrid to Smart Grid voltage control

- voltage level can be affected in MV as well as in LV network by active and reactive power feeding or absorbing of a battery based energy storage





Plans for the 3rd Funding Period

- DMS to support DER and microgrids (modelling, DER applications for restoration, adaptive size of island)
- DER related value chains, benefits and business opportunities for a DNO
- Further developing the microgrid concept considering the technical and business aspect arising from the participation to the active network management of smart grids
- Centralized CVC based on optimization
- Benefits of CVC
- Island operation controls (automatic load shedding and virtual inertia)

Outcome of the workshop

Defined use cases

- Microgrid management on different states
- Microgrid voltage and frequency support
- Microgrid protection when in island mode
- UPS device summer cottage
- Using DG in power restoration
- Voltage control in distribution network (Local, centralized and decentralized)