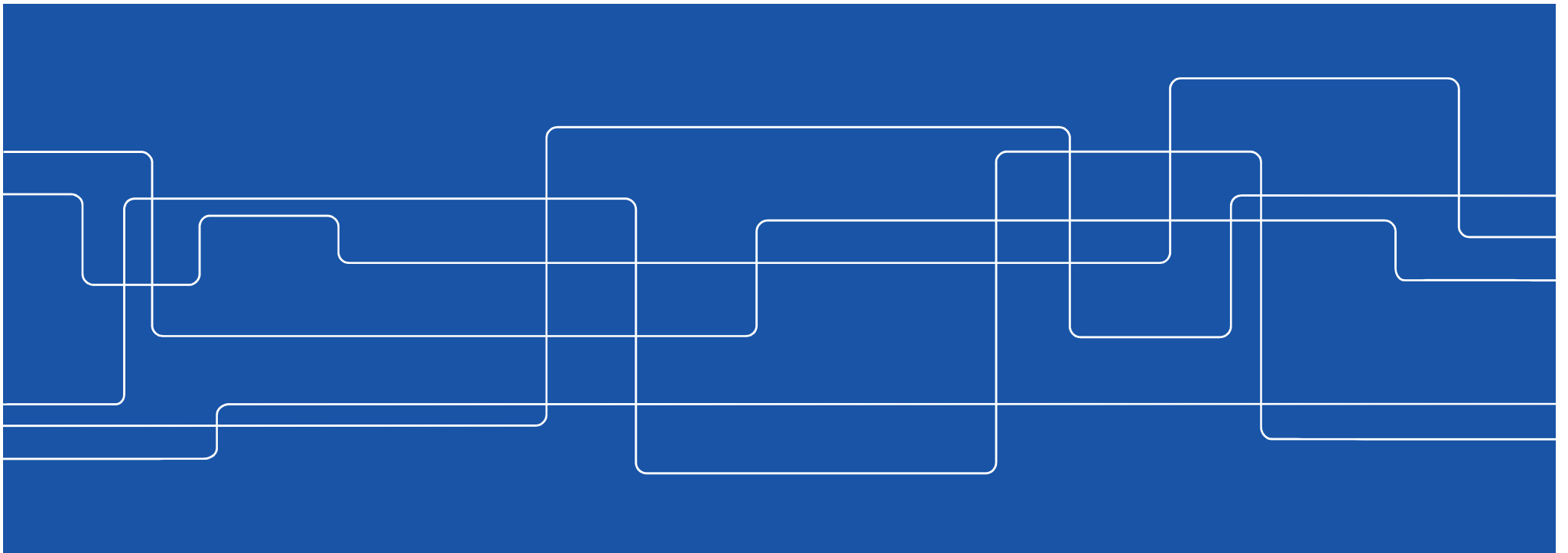




3rd Nordic Workshop in Power System Protection and Control

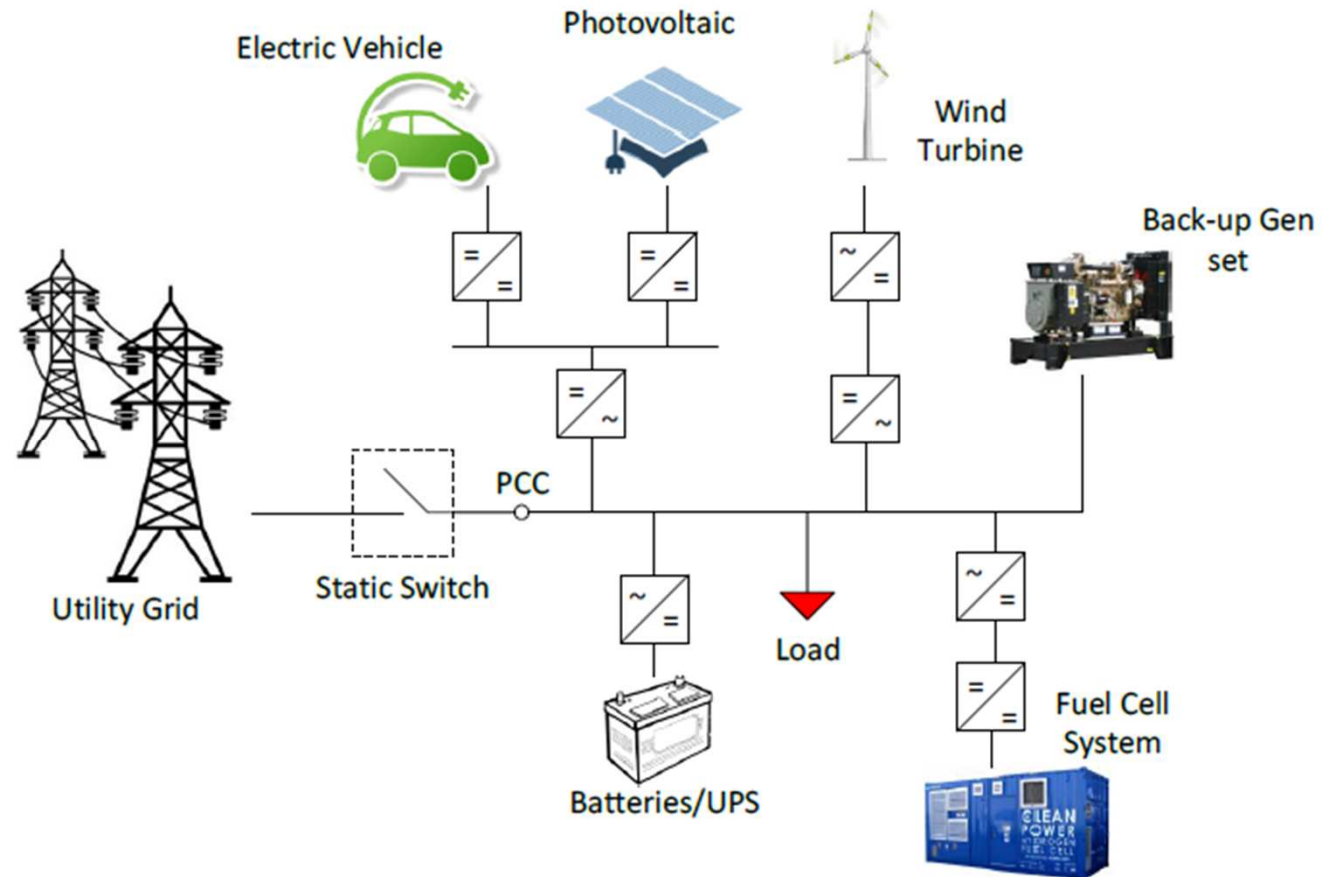
Protection Strategy in Low Voltage Microgrid

by: Aryudha Duta Hartono

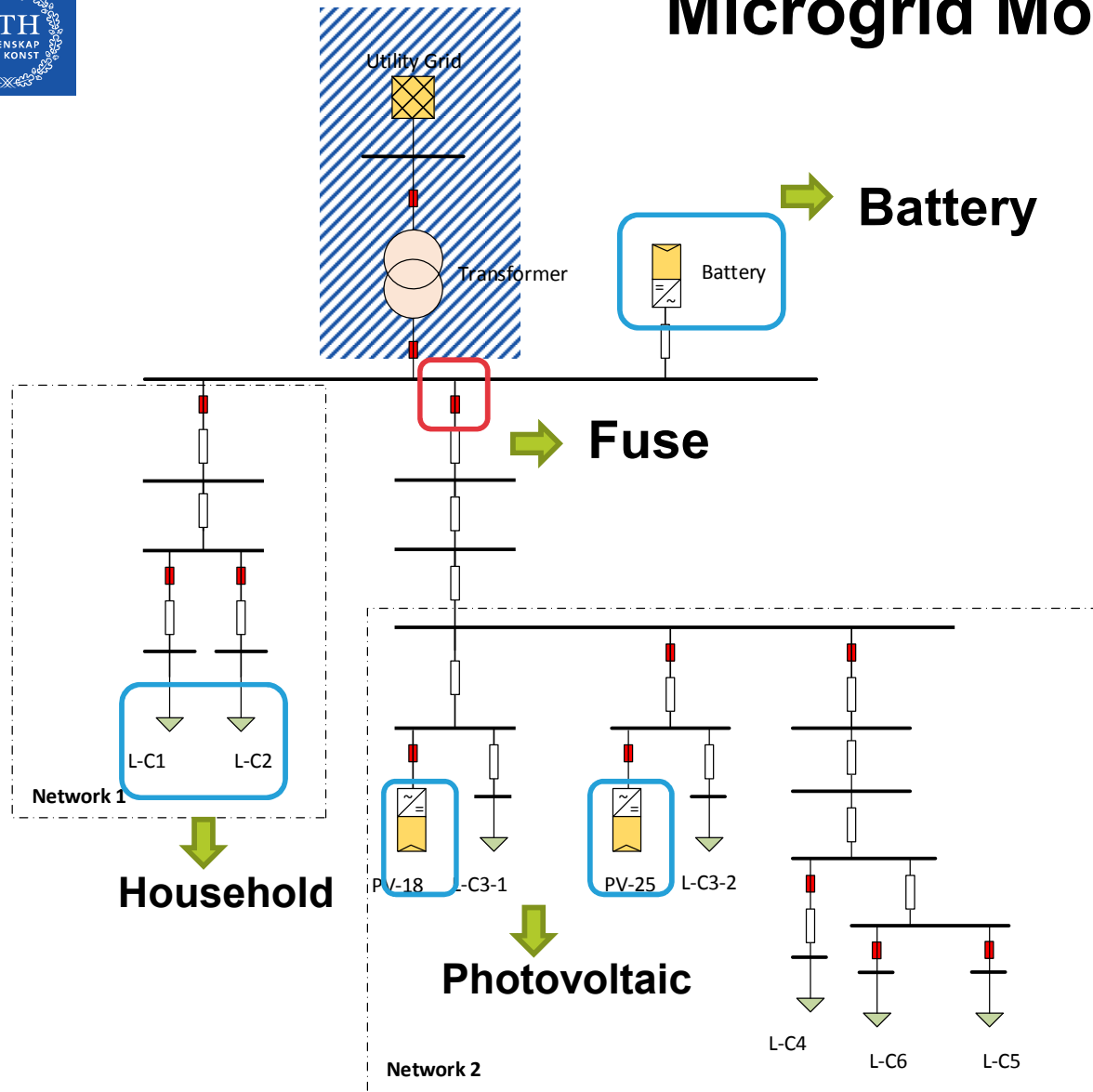


Background

- The higher penetration of local generation, especially related to the power electronic/inverter-based, bring technical challenge to the protection topic
- These local generation also provide bidirectional power flow which modify the fault current

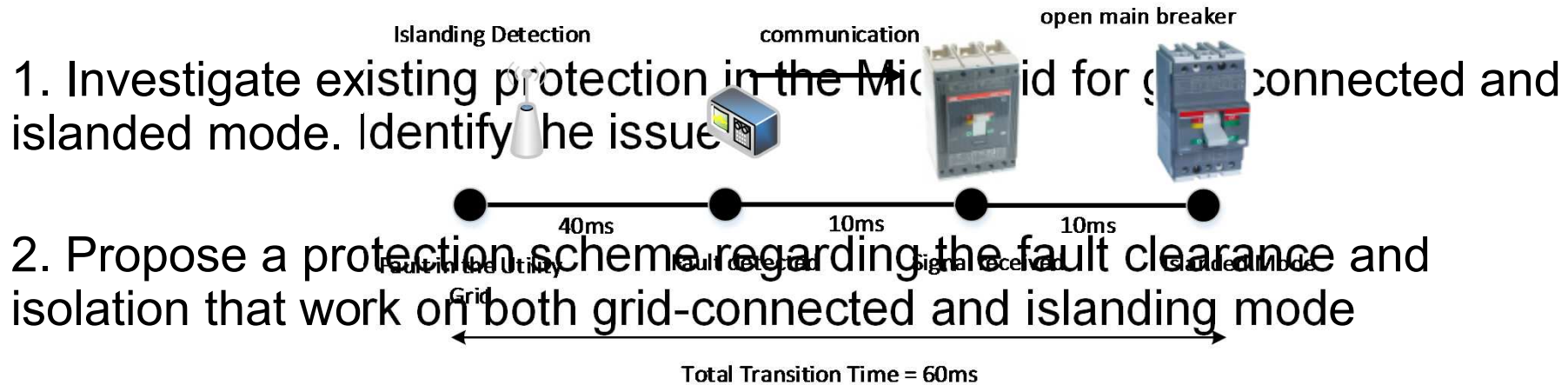


Microgrid Mode



- Grid-connected mode, the local grid is connected with the utility grid
- Islanding mode when the utility grid is disconnected
- The inverter-based sources in this case are photovoltaic and battery

Aim of the Thesis



Note:

If there is a fault in LV Microgrid, and there is a need to clear and isolate the fault (i.e. safety reason) then there is a need to replace fuse to an IED (intelligent electrical device)

However, this thesis focus on how to clear and isolate the fault by implementing IED in the simulation.



Future Recommendation

Be out of the box apart from technical challenge

- Available solution in the market is depending on the IED and it comes with a price. Is it really worth in the low voltage distribution grid?
- Another thesis focus on how is the possibility to have a fault in a stiff connection in LV grid (earth leakage leading to electrical shock, underground cable being excavated, flash over in the connection, etc) so that the DSO can decide whether replacing fuse with an IED is a better option. More to safety analysis
- Define more priority. is there any important LV customer that needs undisruptable connection?



Questions?

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