The flexible hydropower unit – Power system analysis and balancing control impacts

Adaption of Optimal Power Flow (OPF) in day-to-day operation of a Hydroelectric dominated power system as in Norway.

Motivation: The possibility to optimize production of reactive power to minimize transmission network losses.

The study work will be executed on offline network models to show how OPF will affect transmission losses.

The study will contain:

- A description / study of what adaption has to be included in Control Centre software system to operate OPF.
- An evaluation of the control chain from Control Centre to the HPUs.
- Evaluations on requirement about an increased flexibility / utilization of the HPU in balancing of the power system including dispatch of reactive power from OPF.

Guidelines for the further development of the control chain for the Flexible HPU should then be proposed.

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The Flexible Hydro Power Unit

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