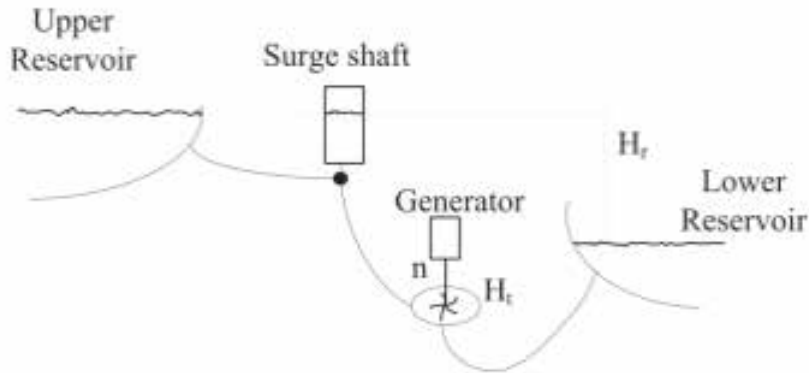


Background and objective

Reversible pump turbines (RPTs) are hydraulic machines that can operate both as pumps and as turbines, thus being able to switch between storing and delivering energy like a rechargeable battery. Today this change of operation is mainly done on a seasonal basis. In the future power market, RPTs are expected to play an increasingly important role because of the ability to balance the energy production, and a rapid transition from one mode of operation to another constitutes a crucial field of investigation.

The objective of this master thesis is to establish a simulation model of Tevla power plant in Meråker and the RPT at the Waterpower Laboratory at NTNU, and to analyse the dynamic behaviour of the systems when the RPT goes directly from pump mode to turbine mode of operation. The simulations are carried out in Matlab, and will be verified by experimental measurements.



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Dynamic analysis of a
system with RPT

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