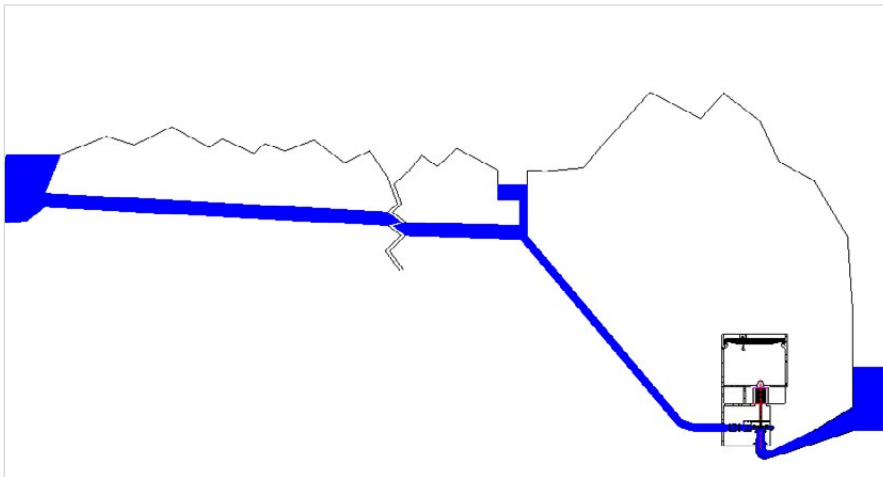


## Background

Using reversible pump turbines to regulate the power in the power market requires a quick change in the operating situation of the machine. This doctoral thesis aims to increase the effectiveness of the change from pump to turbine mode of operation.

Allowing water to be the driving force in changing the operational situation without total shutdown of the machine.

The hypothesis is that this method can be done without bigger strain on the machine than a normal start stop sequence and with lower probability of experiencing instabilities.



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DYNAMICS AND STABILITY  
IN REVERSIBLE PUMP  
TURBINES

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