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**Rock traps in pumped
storage and peaking
power plants**

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Background

Several rock traps in Norwegian power plants are not working as expected today. Many power plants have gotten new turbine runners with higher capacity, which increases the discharge through the headrace tunnel and rock trap. The rock traps may not be dimensioned for the higher discharge, and may therefore lead more sediments through to the turbines, which causes higher erosion on the turbines. This is a problem that must be solved.

Research

Therefore, research is done to get a better understanding of the functionality and design of rock traps, and to find solutions for improving the existing rock traps without large costs. The research methods to achieve this are physical model tests and CFD modelling combined with field tests for validation.

Pumped storage and peaking power plants

This work contributes to make our power plants better suited to being used as pumped storage plants and peaking power plants. For pumped storage, we need to be sure that the rock trap will work with water flowing both ways. Maybe the reversed flow can be used as a flushing mechanism? For peaking power plants, we must prevent turbulence or free surface flow from whirling up the settled sediments.

