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Spring 2018

Pressure pulsations at Smeland power plant

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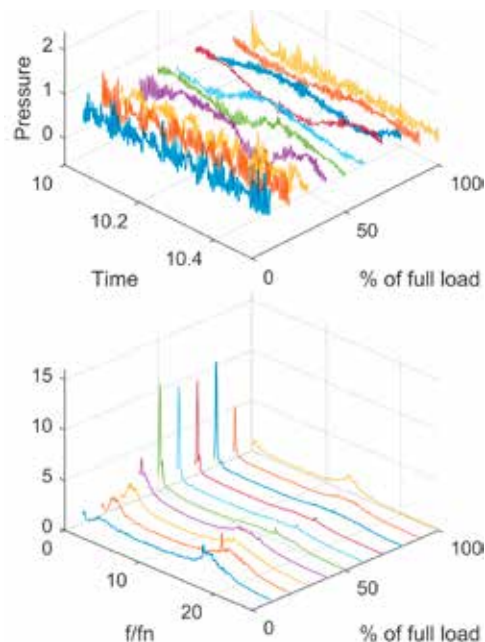
Background

In recent years Agder Energi have been struggling with pressure pulsations in the Francis turbine at Smeland power plant. The pulsations appear above BEP, and seems to be in the 1 Hz order of magnitude. The purpose of this thesis is to perform pressure measurements and evaluate the results in order to identify the root cause and severity of the problem.



A crane used as a fixed reference to demonstrate the vibrations during a visit in October 2017

Through measurements done on the turbine at the inlet, draft tube and the leakage pipe, the dominating frequency can be identified through spectral analysis in MATLAB.



Results from a spectral analysis of measurements done at Santa Rosa II in late November 2017