Name: Ruan Engelbrecht

Title: Numerical Investigation of Fan Performance in a Forced-Draft Air-Cooled Condenser

The candidate used computational fluid dynamics to develop and validate a numerical air-cooled condenser (ACC) model consisting of an axial flow fan and heat exchanger in OpenFOAM. These ACCs find application in both large coal-fired - and smaller concentrated solar power plants. As such their optimal performance is essential for reducing the water consumption of South Africa's power supply infrastructure. The model was used to determine the performance of ACCs with different fan configurations and layouts in windy conditions. A novel approach to the on-site measurement of fan flow rate was also evaluated numerically.