

## A single-stage dry/wet dephlegmator: development, performance evaluation and application in a hybrid ACC at CSP or NGCC scale

The study is based on previous research conducted on the hybrid (dry/wet) dephlegmator (HDWD) which was undertaken at Stellenbosch University. This study aimed to advance the technological readiness and corroborate the advantages of the hybrid ACC which incorporates a HDWD as a wet-cooled secondary condenser in a thermal power plant. This was accomplished by proposing and validating correlations with experimental work to develop and validate a discretised single-stage HDWD model. The hybrid ACC model was used for a detailed thermal performance analysis and to examine the techno-economic feasibility of the hybrid ACC coupled to a ~238 MW steam turbine.