

DEFENCE OF PH.D. THESIS

The missing link in sustainable energy: Techno-economic consequences of large-scale heat pumps in distributed generation in favour of a domestic integration strategy for sustainable energy

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The thesis assesses the consequences of integrating large-scale heat pumps with distributed cogenerators in favour of a domestic integration strategy for handling intermittency towards a sustainable energy system.

It is found that large-scale transcritical compression heat pumps are suitable and ready for integration with existing cogenerators, but that system-wide energy, environmental, and economic benefits are very sensitive to actual concepts of integration.

The thesis provides new metrics, the relocation coefficient, for evaluating the wind-friendliness of distributed generators, and the cost-effectiveness hereof, and offers a new interactive modelling framework that allows for researchers and local operators to interact on evaluating options for domestic integration with respect to energy, environmental, and economic consequences.

The Department will host a reception after the defence