

## **Decarbonising Heat With Renewable Thermal Energy: A Case Study of the proposed Taupo East District Thermal Energy System.**

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Alongside electrical vehicles, decarbonisation of heating is a key component of the electrification transition. Traditional heating systems mostly burn fossil fuels in the form of gas, kerosene, diesel, coal etc. Aside from the carbon and methane emissions, fossil fuel sourced heating systems can have a health impact associated with particulates.

Renewable thermal energy is a concept that provides a decarbonised alternative to these traditional fossil fuel sourced heating systems. In the renewable energy sector, electrical (energy) potential determines the design of renewable electrical energy systems (*ie* solar, wind etc) at any given location.

Similarly, thermal (energy) potential relates to the available thermal energy in a given location that can be utilised for heating / cooling a building or group of buildings. This thermal energy can also be renewable. It can be used directly (eg geothermal) or indirectly using heat pumps.

This presentation utilises the work of a recent case study for a District Thermal Energy System (DTES) for the Taupo East Development to outline the technical and economic case for renewable thermal energy as a way of accelerating decarbonisation.