BACKGROUND

Ian Marnoch conducted his own research on sustainable power generation and by 2005 had committed to the idea of developing a product that could reuse waste heat before it is released into the atmosphere.

Marnoch developed the first prototype of the heat engine, which captures waste heat and converts it into usable electricity. To become marketable, the model required improvements to the transmission and valves. These were necessary to improve the internal energy loss during the transfer, which would make the engine more economically viable. He required proper lab facilities and a team with expertise on electrical engineering and thermodynamics.

Through funding from the ARC Initiative, Dr. Greg Naterer arranged to have his students work on the engine’s transmission and valves using knowledge they gained from their classroom experiences. Ryan Naughton, who recently completed his Master in Applied Science in Electrical and Computer Engineering degree, was responsible for all of the electrical components of the heat engine. Pooya Saneipoor, a PhD student in Mechanical Engineering, was responsible for all of the formulas, designs and tests related to the mechanical aspects of the engine.

OUTCOMES

The heat engine is able to recover 10 to 20 per cent of waste heat, which means that the heat engine has the potential to have a positive environmental impact. The technology is currently being marketed for use by companies who emit waste heat into the environment on a large scale. Further commercialization and development could lead to the heat engine’s use in residential areas.