

Above Ground Geothermal and Allied Technologies Paving the Research Roadmap

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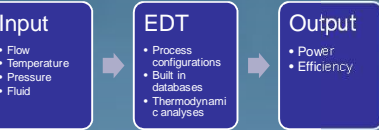
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HERA
Innovation in Metals

TECHNOLOGY CONCEPTS

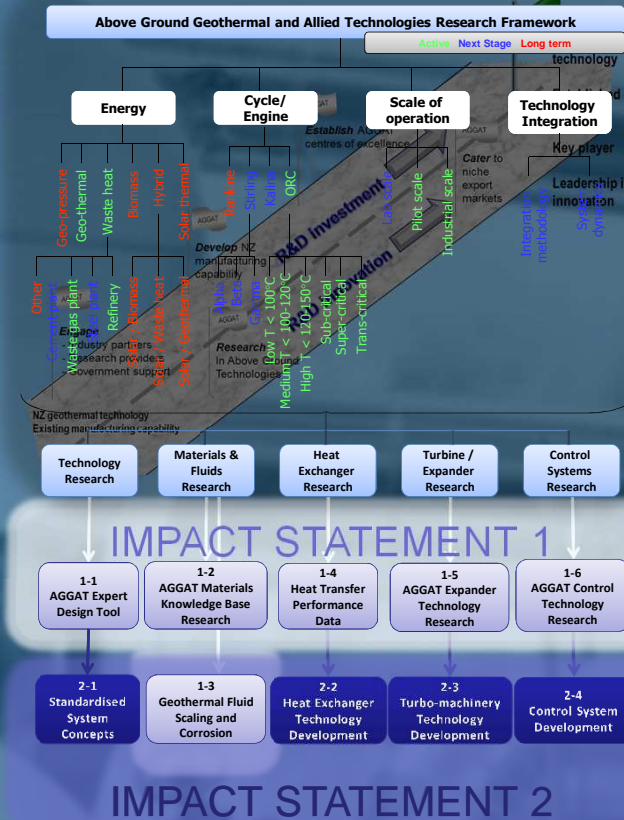
Expert Design Tool

- An online design tool for resource assessment
- An online research collaboration tool
- 1 Masters and 1 PhD project in Engineering



Standardised System Concepts

- 80 – 100kW Waste Heat Resource based Organic Rankine Cycle Pilot Plant
- 100 - 250kW Geothermal Resource based Organic Rankine Cycle Pilot Plant



VISION

"A broad collaboration across research institutions supported by industry will provide a platform of tools, techniques, technologies and capability to support the ongoing development needs of industry. Ongoing research will ensure that products are optimized and features developed. New Zealand will be a research partner of choice in Above Ground Geothermal and Allied Technologies (AGGAT) and will host and operate an AGGAT Centre of Excellence".

CONTROL SYSTEMS RESEARCH

Control Systems Research

- Modelling, controls and optimisation
- 1 PhD project in Engineering

Control Systems Development

- Eco-efficient control systems package
- Remote access, monitoring and control
- Pilot plant based data validation
- 2 Masters projects in Engineering

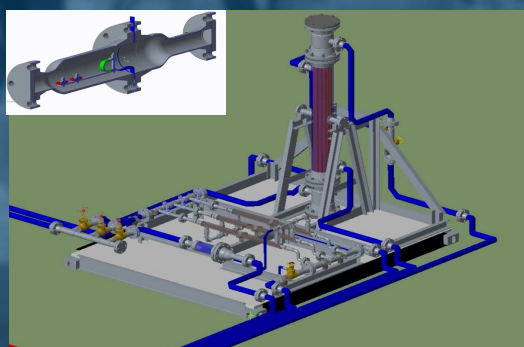
MATERIALS AND FLUIDS RESEARCH

AGGAT Materials Knowledge Base Research

- Purpose-built materials testing facility
- Materials performance database

Geothermal Fluid Scaling and Corrosion

- Purpose Built Scaling and Corrosion Testing Facility
- 2 Masters projects in Engineering



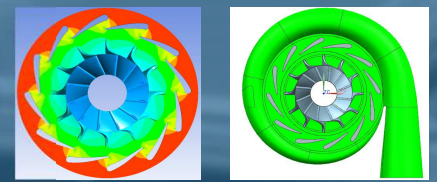
TURBINE RESEARCH AND DESIGN

AGGAT Expander Technology Research

- Turbine selection (PhD project in Engineering)
- International research collaboration in turbine design

Turbo-machinery development

- Turbine manufacturing and testing



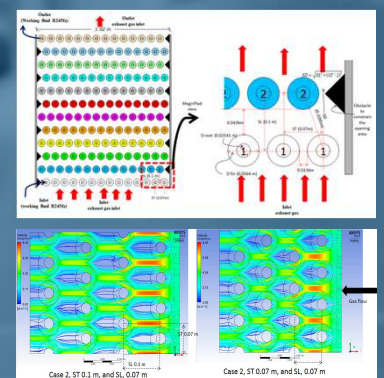
HEAT TRANSFER RESEARCH AND DESIGN

Heat Transfer Performance Data

- Heat transfer test rig development and data collection

Heat Exchanger Technology Development

- Novel design concepts e.g. fin optimisation studies
- Design validations & testing



GOING FORWARD

- Pilot Plant demonstration facilities established
- Turbine design tested
- Novel heat exchanger concepts tested
- Control system implemented
- R&D platform for enhanced collaboration in future activities