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## Town Rock Energy – Projects and Services

The purpose of this document is to outline the projects that Town Rock Energy (TRE) are currently contributing consultancy services for. The associated services which may be of relevance to the East Midlands Produced Water project are highlighted. This is not a definitive list of TRE's services.

### Hartwood Mine-water District Heating Project - North Lanarkshire, Scotland

A grant of £50k has been received on behalf of a consortium consisting of James Hutton Ltd (trading arm of the James Hutton Research Institute), North Lanarkshire Council, British Geological Survey and Town Rock Energy. The consortium, who have now added Scene Consulting, Ramboll and Holymoore Consulting, proposes to develop a fully operational mine-water geothermal district heating system as a proof of concept with a view to replication across the UK. The proposed site at Hartwood Farm has been identified by the consortium as a typical central belt farm which could act as an exemplar of how to transform farm economics and transfer benefits to local communities.

TRE are acting as Project Manager which includes management and evolution of the scope of work and Gantt chart. This has also involved identifying and contracting partners, including hydrology experts, engineering companies and drilling contractors, and organising and facilitating multi-disciplinary team meetings.

The technical tasks TRE are contributing are well design, pump and heat pump design, district heating scoping, heat demand evaluation, heat supply characterisation and evaluation and more. TRE's main task is to compile all surface and subsurface information from subcontractors and in-house experts, to facilitate an options appraisal of eight possible system design options. TRE will also be responsible for compiling the feasibility study, which will be used to acquire funding for phase two which will perform test drilling as part of a study which will lead to the development of an investment ready business case. The project is progressing on time and on budget.

### Grangemouth Energy Project – Falkirk, Scotland

The Grangemouth Energy Project aims to design a sustainable energy system for the Grangemouth industrial area, identifying and appraising all renewable heat and electricity options for the area. TRE have been commissioned by Synergie Environ, lead engineering contractor, and Mace are managing the project.



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TRE have almost completed their input to the project, which has elapsed over the summer of 2015. This has involved the extensive use of energy and land-use datasets in Geographical Information System (GIS). TRE have conducted a widespread spatial analysis of heat demand for residential, public and commercial buildings to inform supply and DHN decision-making for the study area. In addition, dozens of bespoke maps have been drafted for key stakeholder presentations that display multitudes of different datasets, with a focus on district heating design options, network infrastructure, land constraints and renewable heat options appraisal.

TRE are also performing a technical and economic evaluation of the potential for extracting warm water from abandoned mines underlying the site, so mine-water geothermal can be appraised as an option alongside the other renewable heat technologies. Mace and Synergie Environ have been very impressed with the competency and speed of delivery of TRE's small team, and have expressed an interest in continuing to work with them on future projects.

#### [Guardbridge HSA Project – Fife, Scotland](#)

An application from University of St Andrews for £42,835 grant has been received on behalf of a consortium including the British Geological Survey, Town Rock Energy, Iain Todd (a renewable energy consultant), Ramboll, Eden Estuary Energy Ltd, Fife Council and Resource Efficient Solutions Ltd (a limited liability company owned by Fife Council).

The consortium proposes to explore whether a geothermal system which accesses the hot sedimentary aquifer resources underlying a brownfield site at Guardbridge can be developed in a cost-effective manner to provide heat for the Guardbridge site and to the local community. The old Guardbridge paper mill is owned by the University of St Andrews and is currently being transformed into a major low-carbon energy innovation centre.

TRE have been commissioned to provide geological and petrophysical expertise to the project using existing in-house datasets compiled as part of a regional Hot Sedimentary Aquifer (HSA) play fairway analysis, which was funded internally as a key business development strategy during the early stages of the companies operation. TRE are also inputting a series of ca. 1000 m well designs for a CAPEX and cost-of-heat-supply analysis, as well as expertise in potential reservoir stimulation processes.



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### [Banchory Granite Project – Aberdeenshire, Scotland](#)

A grant of £48,900 has been awarded to Cluff Geothermal Ltd on behalf of a consortium including Hill of Banchory EScO, Jigsaw Energy, University of Glasgow, British Geological Survey, University of Aberdeen, Town Rock Energy, Aberdeen Heat and Power Company Ltd, Aberdeenshire Council and Ramboll.

The consortium proposes to undertake a comprehensive desk-top analysis to produce a robust model of the geology below Banchory. In addition, a detailed operational model will be constructed to verify the compatibility of the existing Hill of Banchory biomass district heating network with the geothermal heat supply and assess whether the overall system makes commercial sense for its customers and the operators. Adding geothermal energy to the existing renewable heat network that is already serving the local communities, would eliminate the need for gas as a back-up energy source.

TRE have been commissioned to collect fresh plug samples from the relevant granite outcrops at the Hill of Fare, and test them for thermal conductivity in their geothermal energy laboratory, housed at the University of St Andrews. TRE will work with other technical partners to integrate the thermal conductivity with partner's datasets to refine the heat potential assessment for the granite resource. TRE are also facilitating a risk identification session and report, for the project, and additionally for the general concept of developing these projects across the Scottish Highlands.

### [Awards for David Townsend – Town Rock Energy](#)

May 2015:	Heriot-Watt Scottish Energy News "Researcher of the Year" <b>Energy Entrepreneurship</b> - £500
May 2015:	Young Professionals Green Energy Awards <b>Pioneer</b> and <b>Entrepreneur Finalist</b>
Jan 2015:	Entrepreneurial Sparks <b>Entrepreneur of the Year</b> - £5000
Nov 2014:	Edinburgh Centre for Carbon Innovation's "Ideas Lab" – 1 year office space, 2020 Climate Group mentors, £1000
June 2014:	Grampian Business Awards <b>Innovation Finalist</b>
June 2014:	Scottish Young EDGE - GlobalScot mentor, £10,000
July 2013:	Scottish Institute for Enterprise's "Young Innovators Challenge" - Business mentor, £50,000

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