

Peer Review Report

Review Report on Nurturing a new industry rooted in geoscience: stakeholder insights on minewater thermal in Scotland

Original Research, Earth Sci. Syst. Soc.

Reviewer: Hazel Napier

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EVALUATION

Q 1 Please summarize the main findings of the study.

Overall, the paper demonstrates that it is important to engage with a range of stakeholders on many different aspects of shallow geothermal energy/thermal energy from mine water.

The paper identifies some key stakeholders from different sectors who are either potential clients of geothermal energy, regulators or companies likely to be engaged in design, development and construction of infrastructure.

The paper shows that use of mine water as a thermal energy source is complex and whilst some views are common across all stakeholders, in some areas, views differ and vary widely. It shows that there is greater commonality of view when considering the potential benefits of mine water thermal energy use, and much less so when considering potential disadvantages and barriers to the technology.

Key positives include its potential for storage of thermal energy for district heating networks, local community benefits, making use of legacy mining infrastructure and low impact at surface. Negatives and barriers include cost of the technology (high risk) and perceived cost of mine water energy, unproven nature of the technology, lack of demand for this type of energy and lack of local benefits such as job creation.

The paper also considers and reports on wider issues highlighted by stakeholders, that whilst not directly related specifically to mine water energy, are nonetheless important views to capture.

Q 2 Please highlight the limitations and strengths.

Limitations

The activity included a relatively small sample size of 12 individuals

The research team was unable to identify a representative from a Local Authority

The work may have been strengthened by inclusion of the decision maker/policy maker aspect

Strengths

The small sample size covered a good breadth of stakeholder types offering a variety of view points

Inclusion of wider responses not directly related to mine water energy provides context and useful basis for further work

Q 3 Please comment on the methods, results and data interpretation. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

The methods and rationale for choice of participants was very clear. Results were clearly presented and the interpretation of the data made sense. Figure 3 on page 22 helps the reader understand the relationship between all the different themes that were identified and it was easy to cross reference between the diagram and the results Tables.

Q 4 Check List

Is the English language of sufficient quality?

Yes.

Is the quality of the figures and tables satisfactory?

Yes.

Does the reference list cover the relevant literature adequately and in an unbiased manner?

Yes.

Are the statistical methods valid and correctly applied? (e.g. sample size, choice of test)

Not Applicable.

If relevant, are the methods sufficiently documented to allow replication studies?

Yes.

Are the data underlying the study available in either the article, supplement, or deposited in a repository? (Sequence/expression data, protein/molecule characterizations, annotations, and taxonomy data are required to be deposited in public repositories prior to publication)

Yes.

Does the study adhere to ethical standards including ethics committee approval and consent procedure?

Yes.

If relevant, have standard biosecurity and institutional safety procedures been adhered to?

Not Applicable.

Q 5 Please provide your detailed review report to the editor and authors (including any comments on the Q4 Check List):

This article is current and highly relevant to geoscientists engaging in thermal energy research. It provides valuable insight into views of stakeholders who are key to successful implementation of thermal energy schemes.

Suggestion – line 200 indicates four topics to be analysed in more detail. It would be useful to list those here. Then suggest in the results that the four topics are numbered. This would provide greater clarity on what subsequent sections are referring to.

Note that there is limited reference to issues of policy, or lack of, around mine water thermal energy. The need for regulation, and the challenging of developing this regulation, is highlighted and there is reference to the need for a long term vision and specific mine water policy (p15), however it would be good to see how this links to positioning mine water thermal energy as a viable source in the future.

Reference is made to the need for geoscientists to provide information to developers that would support mine water thermal uptake and the need for them to actively listen, communicate effectively and work collaboratively with other heat providers etc. I whole heartedly agree with this. It is really good to see that this point is also made up front in the abstract and is a useful way of encouraging geoscientists to see themselves as part of this interdisciplinary approach to stakeholder engagement. Regarding the reference in the main text, it would be useful to provide a bit more context to these suggestions – reference to geoscientists appears a little 'out of the blue'. Perhaps some ideas about how this could be facilitated would be useful to geoscience readers i.e. how they might be enabled to engage effectively with a range of audiences. Perhaps this could be the subject of future work.

The reference on p16 to issues of capacity with lack of available places on relevant courses, and reduced numbers of students applying, is something that has been recognised in other studies and is an important issue to highlight.

Inclusion of wider responses not directly related to mine water energy are key findings and it is good to see them included here e.g. the need for a long term view and recognition of what is reality for many – cost of living, fuel poverty etc.

QUALITY ASSESSMENT

Q 6	Originality	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Q 7	Rigor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Q 8	Significance to the field	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Q 9	Interest to a general audience	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Q 10	Quality of the writing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Q 11	Overall quality of the study	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>