

From: [REDACTED]
To: [GSPD](#)
Subject: Consultation on Geothermal Policy
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Dear Sir /Madam

Thanks for the opportunity to respond to this.

Underground Thermal Energy Storage

Ireland has very large variable renewable energy resources, that can often be producing very low cost heat that could be stored underground.

This can be a true 'Circular Economy' activity, stopping the depletion of deeper geothermal heat reserves entirely, or increasing their seasonal heating capacity.

Some geological strata and shallower strata could lend themselves to this. e.g. Aquifer Thermal Energy Storage, or storage in 'fracked' bodies of rock.

Deeper and more expensive drilling may not be necessary for this, but it is best done at larger scale so that heat losses at the perimeter of a cooled body of rock or soil are smaller relative to the heat stored.

There is more wind energy available in winter, so that heat produced by electric heat pumps could be stored over a few weeks to meet the heat demands for many homes.

Seasonal Thermal Storage and Hot Climates

Air Conditioner evaporators with electric fans are much less efficient than water to water heat pumps, and end up overheating the densely populated urban areas they are installed to cool.

Underground storage of heat and coolth, and water filled street distribution pipes, provides a blueprint that can be usefully copied by countries where overheating is a matter of life and death.

Heat Metering and aggregation of heating loads.

Providing heat metering services will make a variety of lower carbon heating options available for buildings in Ireland.

e.g. CHP systems complement the use of electric heat pumps and wind energy, but are more economic in large sizes so that the heat output should be shared between users.

Heat networks can more easily be switched to geothermal energy over time. e.g As more affordable homes are built.

A system of regulated investment in urban heat networks, as for power and fossil gas, and in country-wide heat metering, would complement the development of geothermal energy resources.

Ensuring ground loops remain appropriately sized.

Techniques for re-heating of ground loops should be trialled to increase heating capacity relative to the ground area. e.g. Solar re-heating, using heat pipes to bring heat up from depth in mid-winter.

Such retrofitted systems can correct for mismatches between a surface ground source and actual heat demands, which vary massively with different user preferences, or can allow the connection of more homes.

Good luck in this important work.

Yours faithfully.

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