



**Geothermal
Association
of Ireland**

RESPONSE TO PUBLIC CONSULTATION



An Roinn Comhshaoil,
Aeráide agus Cumarsáide
Department of the Environment,
Climate and Communications

on

RENEWABLE HEAT OBLIGATION

28th October 2021

Rev B

TABLE OF CONTENTS

- 1. EXECUTIVE SUMMARY3
- 2. The Geothermal Association of Ireland.....4
- 3. Consultation Question Responses.....6

1. EXECUTIVE SUMMARY

The proposed Renewable Heat Obligation consultation document outlines the proposed scope for the introduction of obligations on energy suppliers to provide a certain portion of energy from renewable sources. The objective of such RHO is to help Ireland align its climate ambitions set out in the programme for Government and the requirement under the Renewable Energy Directive (2009/28/EC RECAST). The Geothermal Association of Ireland (GAI) is providing a response to public consultation and the following key points summarise the answers to the consultation questions:

- DECC is actively and publicly supporting the research and development of geothermal energy resources in Ireland. GAI believes that Geothermal Energy should be recognised as a significant renewable option in the RHO consultation document. Geothermal energy is indigenous, sustainable and is a low visual impact source of energy which has a significant part to play in the decarbonisation of the heat sector in Ireland that complements both district heating and renewable electricity roles in decarbonising heat.
- The level of RHO proposed: 260 GWh (0.5%) increasing to 1.6TWh (3%) represents a very small portion of the 55,230 TWh of Ireland's current heat sector demand. The proposed levels do not seem to be aligned with the ambition for the Programme for Government of reduction of emissions by 51% by 2030, nor aligned with the 'Fit for 55' ambition of the European Union. The RHO consultation document highlights the current supports in place for decarbonising of the heat sector and promoting renewables and also demonstrates that despite these measures, our progress compared to the EU average and MSs, has not changed much in the last few years. For this reason greater ambition is required.
- The scheme does not seem to consider the overall CO₂ emission reduction potential of what is proposed (aside from reduction of CO₂ emissions related to transportation) and therefore, might not be favouring lowest carbon footprint options (HPs, geothermal, solar thermal).
- There is no consideration of indigenous natural heat produced from geothermal energy sources for direct/indirect use with no combustion. Currently the consultation appears to only fully support two solutions - Biomass and Wind. The relevant data strongly support Geothermal Energy as having a potentially significant contribution to CO₂ reduction. Geothermal is referenced in the Renewable Energy Directive (2018/2001/EU) as potential source of renewable heat. It also states that the commission should facilitate low environmental impact geothermal where it results in lower GHG emissions compared to non-renewable sources.
- Cooling is not considered at all and you cannot only look at processes where we just offset heat loss, we need to consider the use of energy to offset heat gain also. The need/want in this regards is on the increase and will continue to rise.

2. The Geothermal Association of Ireland

The Geothermal Association of Ireland (GAI) was formed as a not for profit association in 1998 to promote the development of geothermal energy in all its forms in Ireland. GAI is committed to education and awareness building to promote the use of geothermal as a sustainable energy system in Ireland.

The GAI is affiliated to the European Geothermal Energy Council (EGEC) and the International Geothermal Association (IGA).

Our Goals

The GAI promotes the development of geothermal energy in Ireland. We aim to:

- Improve the understanding of clean geothermal energy
- Support our membership and our communities to deliver geothermal energy to the highest standards
- Represent our membership: we are the voice for the Irish geothermal industry domestically and internationally.

Our Vision for Geothermal Energy

During 2021, the GAI has developed a strategy document to share a vision for the potential for development of geothermal resource in Ireland.

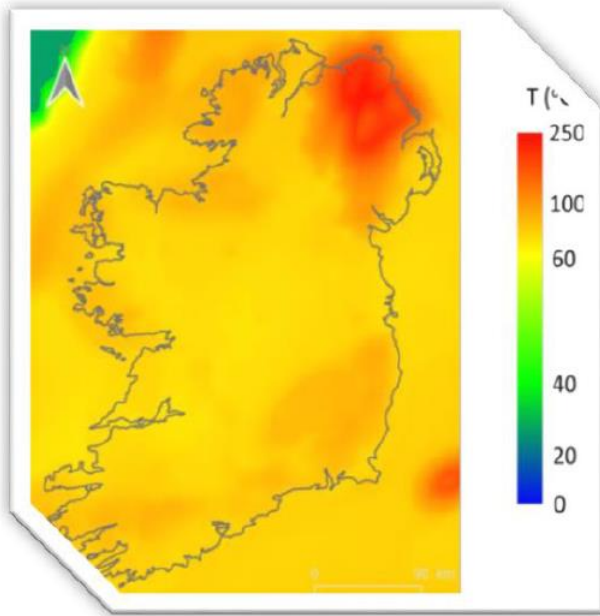
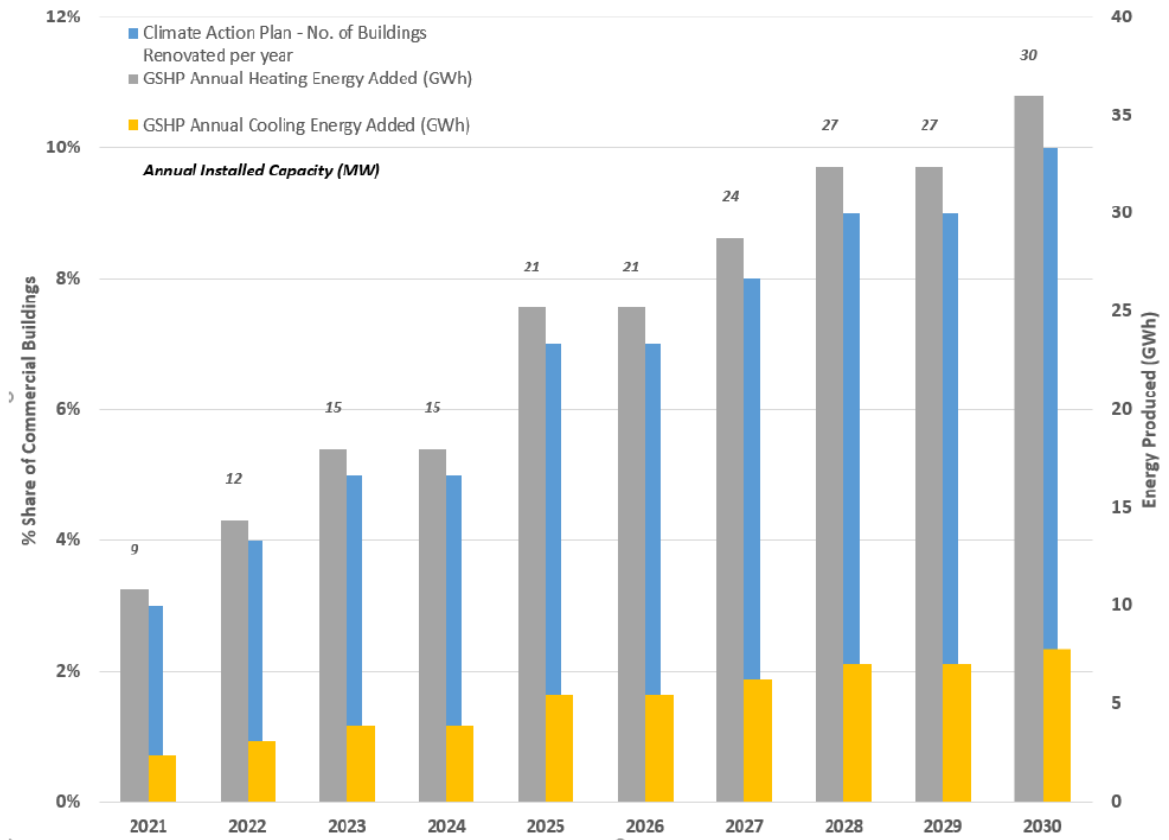
Geothermal energy has the potential to facilitate the decarbonisation of the Heat sector in Ireland. The current installed capacity of 191 MWth is delivered through Ground Source Heat Pumps (GSHP) installations exploiting shallow resources. GAI's vision for the development of the geothermal sector in Ireland to 2030, is based on targets set out in current government policy based on the European Member State Commitments to implementing the European Green Deal, the Renovation Wave and addressed in the Climate Action Plan (DCCAE, 2019).

The cornerstone of this strategy is for geothermal energy to make a significant contribution to the decarbonisation of the heating and cooling sector in Ireland through the use of ground source heat pumps and deep geothermal energy (GAI, 2021). The main vision for the geothermal sector in Ireland and its contribution to Ireland's energy can be summarised as follows:

Ground Source Heat Pumps –increased growth rate from 5% to 10% annually by 2030, with installations focussed on heating and cooling applications in buildings. This growth rate would represent a share of 11% of heat pumps in commercial buildings and contribute an increase of 30GWh of heating and 8GWh of cooling each year.

Deep Geothermal Heat – 5 MWth of deep geothermal under development (pre-drilling stage) by 2023, with at least 5 MWth in production by 2025 and a further 20 MWth developed by 2030, with a potential to produce a minimum of 96 GWh of energy for larger commercial and industrial use and integration into district heating.

GSHP Ireland Market Share to 2030



Source: GSI, 2020

3. Consultation Question Responses

Q1: Do you think that a Renewable Heat Obligation is an appropriate measure to introduce?

Yes, the introduction of a Renewable Heat Obligation (RHO) is an appropriate measure to promote the uptake of renewable energy technologies such as geothermal energy and to disincentivise the use of fossil fuel based technologies. However, the introduction of the RHO should be focussed on maximising the potential reduction of CO₂ emissions from the heat sector in Ireland, in order to support the ambitions set out in the programme for government for reducing CO₂ emissions by 2040.

Q2: If not, what alternative measures would you consider appropriate to increase the use of renewable energy in the heat sector?

Alternative m

Alternative measures to further support the deployment of indigenous renewable energy technologies such as geothermal energy should also be considered. Additional measures should be focussed on incentivising end-users in the installation of such technologies (eg tax credits, green finance) aside from the current measures being implemented (Heat Pump System Grant – residential, SSRH – commercial). The current grant scheme provides support for the implementation of renewable heat solutions, however the level of uptake to date remains below the targets set for the decarbonisation of heat and the reduction of CO₂ emissions in The Climate Action and Low Carbon Development (Amendment) Act, July 2021.

Q3: Do you agree that the obligation should apply to all non-renewable fossil fuels used for heating as set out above?

Yes in principle, however, the consultation document makes reference to the use of biomass, biogas and bioliquids as acceptable alternatives. The RHO should be focussed on the reduction of CO₂ emissions in line with current Government and EU objectives (National Energy Action Plan, 2020 – ‘Fit for 55’), and discourage the use of combustion based heating systems as much as possible.

Q4: It is intended that electricity used for heating purposes and renewable/waste district heating systems would be exempt from this obligation, do you agree with this approach?

Yes, GAI agrees with the proposed exemption to the RHO for electricity and renewable and waste district heating systems.

Q5: Do you agree that the portion of fossil fuel input used in CHP plants to generate heat would be considered to be part of the obligation?

Yes, GAI agrees that fossil fuel fired CHP plants should be considered part of the scheme, whilst other renewable source such as deep geothermal CHP should exempt from RHO.

Q6: Are energy suppliers the most appropriate bodies to become the obligated parties in the heat sector?

Yes, energy suppliers seem to be appropriate but the obligations under the RHO and the proposed monitoring and enforcement of the scheme would have to be further outlined.

Q7: Is the 400 GWh of energy supplied an appropriate level for a supplier to become obligated?

No. The threshold of 400GWh is too high and would only impose obligations on large energy suppliers. If the objective of the RHO is to facilitate the reduction of CO2 emissions and discourage the use of fossil fuels, then the obligation should be imposed to a lower threshold based on energy produced per annum and to cover other smaller scale installations (community energy schemes, energy coops and small escos) which would otherwise not be encouraged to use non-fossil fuel based technologies. The same could be true of large-scale heat users who may wish to consider generation from own sources of heat. If both space heating and commercial utilisation were considered with the proposed above threshold, the following scenarios could result in an exemption from the RHO based on the following simple assumptions:

		<u>Assumption</u>	
• Space Heating plant	400 GWh	55% utilisation	<83 MW _{th} capacity (exempt)
• Commercial/Industrial	400 GWh	80% utilisation	<57 MW _{th} capacity (exempt)

Q8: Do you agree with the 2023 start date for the obligation?

Yes. GAI agrees the obligation should start in 2023 at the latest

Q9: In terms of the obligation rate, do you agree with the proposed initial level of obligation of 0.5%?

No. GAI does not believe the 0.5% level of obligation proposed is appropriate. The level of RHO proposed: 260 GWh (0.5%) represents a very small portion of the 55,230 TWh of Ireland's current heat sector demand. The proposed levels do not seem to be aligned with the ambition for the Programme for Government of reduction of emissions by 51% by 2030, nor aligned with the 'Fit for 55' ambition of the European Union. The RHO consultation document highlights the current supports in place for decarbonising of the heat sector and promoting renewables and also demonstrates that despite these measures, our progress compared to the EU average and MSs, has not changed much in the last few years. For this reason greater ambition is required.

Q10: In terms of ambition for a 2030 target, what level of ambition do you think is appropriate?

3% minimum

5% medium ambition

10% higher ambition

Other?

The proposed RHO level ambition to increase to 3% or 1.6TWh of heat by 2030 is too low. Aside from the reasons stated above, the document highlights how changes in building regulations will result in decreases in energy demand in buildings, however the proposed ambition for the RHO target in 2030 will not be significant enough to fast track the uptake of renewables, discourage the use of fossil fuel based heating and allow for Ireland to have a meaningful chance to achieve the government policy and EU ambitions for CO2 emission reduction to compared to 2019 levels. A minimum starting level of 10% with a potential for

increases to higher percentages (5%) over phased annual basis beyond 2030 should be considered.

Q11: Do you agree with the first obligation period being multiple years 2023-2025 to give the industry time to develop supply lines?

No. GAI believes that increase in supply chain requirement will be proportional to the increase in the RHO obligation. Many renewable energy technology supply chains (with the exception of district heating and green hydrogen) are established in the heat sector in Ireland and have not had an opportunity to grow due a lack of incentivisation against the fossil fuels. The use of a 2 year period for the initial RHO obligation would mean that the obligation would not be calculated until 2026. The deferral is not warranted and a more effective process to supply chain development would be to start at a lower percentage rate and increase this over the initial 2 year period to allow for demand and supply to ramp up gradually towards the first two years rather than seeing the supply chain development only by 2026 as proposed in the consultation document.

Q12: Once the first period 2023-2025 expires, do you agree with the obligation then becoming an annual obligation?

The proposed RHO obligation should be an annual requirement from 2023 onwards, without the initial 2023-2025 period.

Q13: Do you agree with suppliers being able to trade credits in order to meet their obligation?

Yes

Q14: Do you agree with allowing 10% carry over of renewable credits to be used in the following year's obligation?

Yes

Q15: What are the sustainable energy sources likely to meet the Renewable Heat Obligation at an obligation rate of (i) 3%, (ii) 5%, (iii) 10% by 2030?

The GAI vision for the sector (GAI, 2021) outlines the development of geothermal resources in Ireland through a combined use of GSHPs and deep geothermal heat. The proposed strategy focusses on the development of the necessary supply chains for delivery of this vision.

The current growth rate of GSHP system in Ireland has closely mirrored the European growth rates and GAI believes that with the ability to deliver both simultaneous heating and cooling in buildings, this growth rate would increase from 7% in 2022 up to a minimum of 10% by 2030. The ambition with respect to buildings, would be for GSHPs to provide the heating and cooling needs of up to 11% of the commercial building stock by 2030 (refer to section 2 of the response).

The development of Council led DHN schemes in urban centres and the development of smart cities, exploiting direct use of deeper geothermal resources for heating as

well as combined with HP technology could see a minimum of 20MWth in production in Ireland with a minimum of 96 GWh of energy produced by 2030.

Additional potential in the development of interseasonal ground storage with combinations of both shallow and deep geothermal technologies and the integration with other renewables (PV and solar thermal) could deliver a significantly greater portion of energy.

It is important for the reader to note that the above utilisation, is supply and demand driven based on the current market knowledge and does not represent the technical potential to exploit geothermal energy which is considerably higher.

Q16: Will there be enough sustainable indigenous supply to meet this demand?

Yes – please refer to the question above

Q18: Which option do you think should be applied for renewable energy that is indirectly supplied (e.g. via the natural gas grid)?

An RHO based on the carbon emissions of the proposed fuel supplied –in this case this would encourage green hydrogen but discourage combustion from high CO₂ emission fuels. The obligation would need to consider the indigenous production and reduced CO₂ emission from transport compared to fossil fuels but consider the overall CO₂ emissions per unit of fuel.

Q19: Do you think the costs set out above are reflective of likely costs?

[The question asks for an opinion on the cost structure proposed in the document based on the 3 scenarios (level of ambition) provided and on an assumption of variation in costs between 8c/kWh to 10c/kWh increases to the consumer.

Whilst it is hard to judge the choice of the 3 reference scenario costs presented, the proposed increases (raised in the response to Q20) do not seem to be a sufficient incentive to end users to switch from fossil fuel based technologies (or suppliers). For example:

Costs – 2 reference scenarios (residential and industrial) with 3 No. cases (Low-8c/Med-10c/High-12) are presented.

- o **For the residential case**, the projected energy demand (between 9,000 & 13,000 kWh) falls within Gas band D2 (cost of 7.02 c/kWh) if gas is considered as the lower counterfactual. Assuming appliance efficiency of 90%, a residential customer would be paying c. 1004 Euro per annum for gas. The proposed increases with the obligation rate (2023 – 0.5% & 2030 – 3%) would result in cost increase of 5.90 Eur (low cost year 2023) to 53.12 Eur (high cost 2030) per annum.

A customer with a similar consumption using a HP (assume COP of 3) will likely be paying 22.91c/kWh. The above cost proposal and RHO increase would not appear to dis-incentivise combustion based heating and reduction of CO₂ emissions for the residential sector, which remains the largest share to be tackled to decarbonise heat in Ireland despite the potential c in building

regulations that can be expected to result in increased efficiencies and overall energy reductions.

- o **For the commercial case**, the same could be argued – a gas customer would be paying between 5.98c/kWh (band I1) to 3.46c/kWh (band I3) for gas with a potential increase of between 0.75% (Low cost 2023 case) and 6% (high cost 2030 case) compared to any other fuel alternative (eg electricity) which would be considerably more expensive (electricity band ID 12.78 c/kWh to band IF 9.74c/kWh)

Q20: Are these costs reasonable to impose on consumers?

Yes but the increases proposed are not a sufficient incentive for consumers to switch to geothermal energy solutions including GSHPs, deep geothermal or district heating with a deep geothermal component.

Q21: Do you agree with the intended position in relation to penalties for non-compliance?

Yes - GAI agrees in principle, however the details of the impacts and enforcement of non-compliance need to be further clarified.

Q22: Do you think the proposed obligation poses a significant risk to increased energy poverty?

No - if the increases proposed represent an opportunity to incentivise fuel switching to lower CO2 emission alternatives such as GSHPs and geothermal energy through the use of other incentives for consumers (subsidised increases in energy efficiency, technology installation supports), this should alleviate fuel poverty.

Q23: How best could the impacts on energy poverty be minimised?

See response above