Flex Power Solutions
INDUSTRIAL DECARBONISATION

Response to Consultation on the **Introduction of a Renewable Heat Obligation** by the Department of the Environment, Climate and Communication

This response is non-confidential.
Flexible Power Solutions Ltd ("FlexPower") welcomes this opportunity to respond to the Introduction of a Renewable Heat Obligation consultation.

Introduction:
Flex Power Solutions are the agent for Parat Halvorsen AS (Norway), specialising in flexible electrification of high temperature heat in Irish Industry. Norway has for decades had ample renewable electricity due to their abundance of hydropower, therefore electrification of heat occurred naturally there. Flex Power Solutions has teamed up with Parat to bring the Norwegian Electrode boiler to Ireland to solve a new problem unique to our small island. We intend installing numerous electrode boilers that convert excess renewable electricity into useful heat on industrial sites. By operating these boilers flexibly, we help our clients to achieve significant carbon reduction while saving money. Using our proven technology in new ways we maximise the use of existing grid infrastructure to minimise dispatch down of wind turbines, while providing valuable zero carbon services to the Transmission System Operators.

Wind is Ireland's best natural resource to help tackle the climate change emergency as part of the energy revolution. Ireland's success in wind generation is unmatched anywhere in the world. This low-cost indigenous energy will benefit our economy as we move towards a net zero carbon future. In time, the gigawatts of offshore power will be used to produce green fuels and we will become an exporter of energy on a huge scale. In the meantime, towards 2030, our resource can be used to support Irish jobs in cities and rural economies alike. The integration of flexible electric steam will give the dairy, pharmaceutical, drinks and other industries a competitive advantage, thereby securing jobs in Ireland.

Overleaf please find our key message and responses to the 29 questions.
I am at your service to discuss further how our high temperature power-to-heat solution can help you reduce GHG emissions in the heat sector.

Kind regards,
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Key Message:

CHP:
The RHO should not hinder future investment in CHP.
The largest industrial heat users in Ireland have long been on a decarbonisation journey. Many have already produced significant GHG saving in the heat sector. Fuel switching from oil to gas has brought big benefits, significant Primary Energy Savings are attributed to investment in high efficiency CHP installations, which utilise waste heat from the power sector, as well as constant investment in energy efficiency. Without energy efficiency the scale of the drive to net zero would be too much to overcome.
High efficient CHP is the lowest carbon form of reliable power generation in Ireland and should not be disadvantaged.

Carbon leakage
We suggest the EU ETS sector (and any Energy Intensive Industry not in the EU ETS) should be excluded from any Renewable Heat Obligation.
Many of the large heat users of Ireland are part of the EU ETS and are therefore already on their decarbonisation journey. The costs associated with the RHO would act as double taxation and result in carbon leakage and overall increase in global GHG emissions as manufacturing is moved to countries with lower environmental standards.
It should be noted that EU ETS participants are excluded from the current Support Scheme for Renewable Heat (SSRH)

Energy Efficiency First principle:
The EU fit for 55 is looking to enshrine in legislation that energy efficiency is the fist tool towards a net zero future. Flex Power Solutions suggest GHG savings in Irelands heat sector would be better achieved with additional investment in energy efficiency. When energy efficiency is optimal then decarbonisation of the fuel is logical. Our feasibility studies show that power-to-heat is the cheapest and most sustainable decarbonisation of heating fuels.

Renewable Heat:
Irelands best indigenous carbon free fuel is wind. The potential of electricity from our wind is vastly more than our economy needs and will, in time, turn Ireland into an energy exporting nation. At times there is excess generation and our wind turbines are turned off. This is a waste of our energy and a poor return to the citizens of Ireland who have invested in wind turbines through their PSO levy. The turning off of wind turbines makes the Governments challenge to reach 70% renewable power by 2030 all the more difficult and will require the construction of additional turbines.
However, this is an opportunity for the heat sector to decarbonise. Flexible dispatchable electrode boilers can provide high temperature heat using electricity which would otherwise be turned off. Power-to-heat is no longer confined to servicing low temperature heat as indicated in the consultation paper.
Flex Power Solutions will demonstrate how industrial heat users can eliminate their carbon for heat in times of high wind generation. As we approach 2030 and a tripling of the wind turbine fleet this will be a very substantial reduction in the heat sector. What is more the flexible nature of the technology ensures it does not add to the generation shortages currently experienced on the Irish grid.

Consultation Questions:

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

No.

The Renewable Heat Obligation is not appropriate for Industry already governed by the EU ETS as a route to a decarbonised future.

As this consultation is written Flexible Electrode Boilers would not be supported. The obligation is technology specific and does not give best value to Irish citizens. If the object is to reduce GHG of the heat sector then any technology which provides this should be acceptable.

Q2. If not, what alternative measures would you consider appropriate to increase the use of renewable energy in the heat sector?
An auction for GHG reduction would decarbonise our country quicker and at less cost to Irish citizens. The auction could stipulate minimum requirements for the heating sector. It could be funded by the exchequer, by carbon taxes or an alternative levy on citizens.

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

No.
Industry who are on the EU ETS decarbonisation path should not be included.
Provision to protect the economy should be considered for Energy Intensive Industry.

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 we agree power-to-heat should be exempt.

Further switching from fossil fuels to electricity to produce heat be recognised as decarbonisation of the heating sector. Power-to-heat conversion should qualify for green certification as part of a suppliers obligations. Wind generation is arguably Irelands best indigenous energy source. It must be a central contributor to the decarbonisation of our heat sector.

The consultation suggests power-to-heat is not practical for higher temperature solutions, we would welcome more detail on this. Heat pumps can decarbonise some applications. Electrode boilers can decarbonise higher temperature industrial applications (up to approx.. 276c)

Our feasibility studies show electrode boiler are much more cost efficient than alternative decarbonisation of heat technologies.

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?

High-efficient CHP

The Energy Efficiency Directing is being recast as part of the 'Fit for 55' package to reduce EU GHG emissions by 55% by 2030. In it, the 'Energy Efficiency First Principle' is to be applied in policy and investment decisions. High-efficient CHP is the best in class use of energy to produce electricity and heat. This obligation should not deter investment in energy efficient upgrades.

Every year SEAI publish a report to highlight the benefits of Irelands CHP. This obligation should not act to undermine the Energy Efficiency first principle. Without first reducing our energy use the scale of the challenge to convert to zero emission fuels will be too great. Both must complement each other.

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

We would prefer a more transparent and open instrument to decarbonisation of the non-EU ETS heat sector. An auction for GHG reductions would be more appropriate and would not create barriers to certain technologies.

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

There is a risk of creating a lot of suppliers just under the 400 GWh threshold.

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

Yes, if electrode boilers are accepted. They are available off the shelf and can be delivered within 6 months.

It would not be possible to create an Irish green liquid/gas fuel industry of the scale required by 2023.

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

A cost benefit analysis should be carried out before fixing the targets, including the alternatives to reducing GHG emission in heating such as energy efficiency and power-to-heat.

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 cost for bio fuels would be a large disincentive. For Energy Intensive Industry it might render the business uncompetitive.

Q11. Do you agree with the first obligation period being multiple years 2023-2025 to give the industry time to develop supply lines?
No comment

Q12. Once the first period 2023-2025 expires, do you agree with the obligation then becoming an annual obligation?
No. Renewable electricity is variable. Multi year obligations are more appropriate.

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

Q 15. 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 Renewable Energy Directive encourages using sustainable agricultural and organic farming methods on land which is currently devoid of agriculture. We would welcome more details on how the RHO can be designed to avoid interfering with agricultural land resulting in other carbon intensive feedstocks being imported to offset the biofuel.

Ireland's most sustainable and cheapest green fuel is wind powered electricity. 99% efficient electrode boilers can convert this into heat in times of high wind.

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

The Renewable Energy Directive encourages cross boarder participation in RHO. The current Biofuels Obligation Scheme, for road transportation fuels, is 100% sourced and mixed in other member states. How can the RHO be better designed to foster an indigenous industry? The emission associated with transport mentioned in the consultation are immaterial compared to the potential energy they could offset, policy makers should not expect this alone to deter the importation of the biofuels from more mature markets across Europe.

Q17. Do you agree that for renewable fuel delivered directly to a consumer that this will be the point of supply?
Not enough detail to comment

Q18. Which option to you think should be applied for renewable energy that is indirectly supplied (e.g. via the natural gas grid)?
Not enough detail to comment

Q19. Do you think the costs set out above are reflective of likely costs?
No. We believe the cost to large energy intensive industry would be greater than the consultations estimate. This would be prohibitive to sustainable manufacture and result in carbon leakage.

Q20. Are these costs reasonable to impose on consumers?

The costs are not reasonable if cheaper alternatives are available. Any scheme should be technology neutral with a single clear objective, to reduce GHG emission in the heat sector. The costs are not reasonable to impost on Energy Intensive Industries (EII) who are on the EU ETS decarbonisation path.

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

It might be better to collect the penalty in the form of levy and use the funds collected to demonstrate GHG reduction technology for the heating sector. Similar to a carbon tax or a PSO levy ring fenced for the heat sector.

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

Yes, fuel poverty is a concern as well as food poverty if the RHO interferes with land use.

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

No comment

Q24. Do you agree with the outlined approach for additional support for green hydrogen?

No

Green hydrogen is not currently available at scale anywhere in the world and is not economically viable. It would be better to support green hydrogen with grant aid to develop our first large scale green hydrogen facility. Once the technology is available then the RHO could be amended to consider it. Doubling the certificates for one technology over another does not appear to be good value to Irish citizens. We would prefer policy makers not to specify any technology. An auction to reduce GHG in heating would delivery faster results at less cost to Irish citizens. Industry is better placed to develop the most economic technology to satisfy the objectives of the Obligation.

Using green hydrogen to offset relatively clean natural gas is a poor use of the fuel. One of the biggest benefits of hydrogen is its ability to be stored and transported. Irelands GHG reduction efforts would be better served if hydrogen was targeted at transport and oil heating.

Q25. Do you think that offering multiple credits for green hydrogen in the heat sector might have unintended consequences for supply in other sectors such as transport?

Yes. Green fuels should rationally be used to offset higher carbon fossil fuels in the transport sector. Double credits in the RHO might result in green fuels offsetting comparatively low carbon natural gas. This would reduce Irelands overall GHG reduction.

Appendix 1: Electrode Boiler Specifications:

Flexible operation
Dispatchable by the TSO using existing communications
Zero Carbon Steam
High pressure steam up to 85 barg
0MW up to 60MW (90tph steam) in one unit
From cold to full load in less than 5 minutes
0.2Second POR turn down
Compact foot print
Minimum maintenance required
Steam and/or hot water (combined in one unit)
Low load capability
6 kV - 24kV
Pure resistance load
Superheater option
Electrical grid regulation