



# AUGHINISH ALUMINA LIMITED

(Registered in Ireland No.59982)

## Submission to DECC relating to the Consultation on the Introduction of a Renewable Heat Obligation

This response is non-confidential.

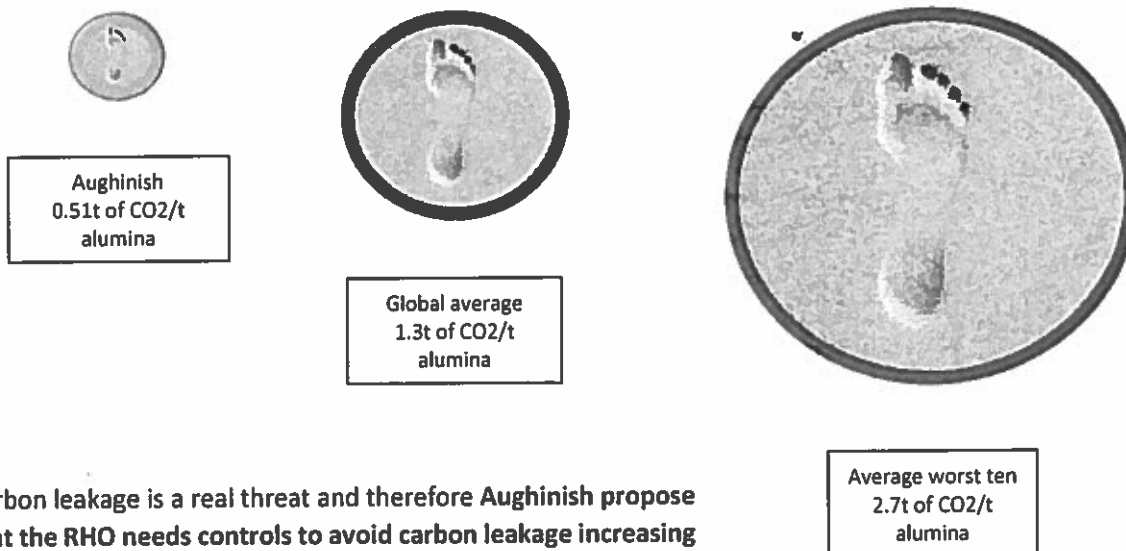
Aughinish Alumina Limited ("Aughinish") welcome this opportunity to respond to the Department's Consultation on the Introduction of a Renewable Heat Obligation (2021). Aughinish supports Ireland's current climate ambitions as laid out in the Programme for Government 2020, the Climate Action Plan and Ireland's National Energy and Climate Plan to reduce its overall greenhouse gas emissions by 51% by 2030 and achieve net zero emissions by 2050.

The proposed Renewable Heat Obligation (RHO) could form part of a suite of measures to reduce GHG emissions from the heating sector. However, any such RHO implemented as proposed must recognise the significant additional cost this would create on Energy Intensive Industry (EII) in Ireland and the probable closure of the Aughinish Alumina plant in Askeaton with the loss of skilled jobs to the local economy.

### Carbon leakage

The EU emissions trading system (ETS) explains "carbon leakage refers to the situation that may occur if for reasons of costs related to climate policies businesses were to transfer production to other countries with laxer emission constraints. This could lead to an increase in their total emissions. The risk of carbon leakage may be higher in certain energy-intensive industries."

Alumina and aluminium are commodity product sold on world markets and must be competitive on price. Most of our competitors are located in China and still rely on cheap carbon intensive coal. Energy costs are a significant input and any additional costs will directly and adversely impact viability of alumina plant in Ireland.



**Carbon leakage is a real threat and therefore Aughinish propose that the RHO needs controls to avoid carbon leakage increasing global GHG emissions and damaging Ireland's economy.**



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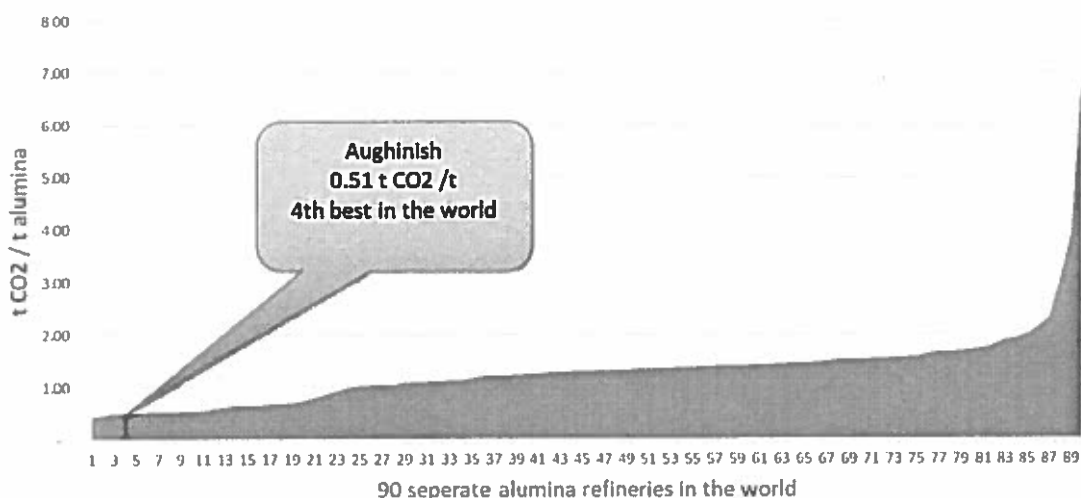
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### The EU ETS

The EU ETS is the cornerstone of the EU's policy to combat climate change and its key tool for reducing greenhouse gas emissions cost effectively. It covers around 40% of the EU's greenhouse gas emissions and it is the world's first major carbon market and remains the biggest one. Under the EU ETS Aughinish has been decarbonising our heat load for decades through an ongoing energy efficiency programme as well as a 100% migration from heavy fuel oil to natural gas. Whilst Aughinish is a climate change leader in the Alumina industry we have ambitious plans to decarbonise further.

The Aughinish alumina plant operating with its high efficient CHP is one of the most efficient operating refineries in the world, it produces 30% of EU alumina supply and therefore it is vital to the security of alumina supply in the EU. Aughinish alumina production is therefore strategically important to the economy of Ireland and the EU as it produces a product which is a key element in the transformation to a circular net-zero carbon economy in providing recyclable goods for the electricity, EV and other industries. Energy costs contribute over 40% of our production costs and the imposition of an 10% RHO on Aughinish could result in an additional cost of up to €83m pa which is not viable for the continued operation of the plant.

### Aughinish is 4th worldwide in minimising carbon emissions



The imposition of additional RHO costs would delay the decarbonisation journey of EUETS industry. The costs would divert scarce investment away from more efficient decarbonisation options.

The Support Scheme for Renewable Heat excludes EU ETS participants from availing of supports to decarbonise. Aughinish proposes that EU ETS participants who are already on their decarbonisation journey should be excluded from the RHO.

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## AUGHINISH ALUMINA LIMITED

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### Energy Efficiency First (EE1st)

EE1st as a key pillar of EU policy. Energy efficiency is an important pillar of the European Union (EU) and EE1st is embedded in the Regulation on Governance of the Energy Union and Climate Action (2018/1999) as well as the revised Energy Efficiency Directive (2018/2002). Moreover, in the fit for 55 package adopted in July 2021 in which the EC proposes to mainstream the implementation of EE1st via the Energy Efficiency Directive Recast, a new article, Article 3 – sets an obligation for EU countries to ensure that energy efficiency solutions are considered in energy system and non-energy sectors planning, policy and investment decisions.

Aughinish welcome the promotion of Energy Efficiency further with the publication of the Principle to Practice<sup>1</sup> (28 Sep 2021) and the Commission Guidelines<sup>2</sup> (28 Sep 2021) aimed primarily at policy makers and regulators at European, national and local levels.

EE1st principle aims to treat energy efficiency as the “first fuel” that is a source of energy in its own right and in which the public and the private sectors can invest ahead of other more complex or costly energy sources (“save before you build”).

The best value to citizens of Ireland in decarbonising the heat sector is to reduce consumption. Policy to promote GHG reduction in the heat sector should not exclude tried and tested technology to achieve that goal. Similarly, policy should not exclude new innovative technology which has potential to achieve the desired outcomes quicker and at less cost to citizens.

**Aughinish propose that the RHO cannot exclude energy efficiency measures to achieve the objection of GHG reduction of the heat sector. This is especially true if energy efficiency is also the most cost-effective solution.**

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<sup>1</sup> [https://ec.europa.eu/energy/sites/default/files/eef\\_recommendation\\_ref\\_tbc.pdf](https://ec.europa.eu/energy/sites/default/files/eef_recommendation_ref_tbc.pdf)

<sup>2</sup> [https://ec.europa.eu/energy/sites/default/files/eef\\_guidelines\\_ref\\_tbc.pdf](https://ec.europa.eu/energy/sites/default/files/eef_guidelines_ref_tbc.pdf)



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### Alternative fuels for heat sector

Moving away from fossil fuels in the heating sector is important.

One alternative fuel is: high temperature, wind following, Power-to-heat.

In Ireland our onshore wind power generation sector is outperforming all other EU member states (we are number two behind Denmark if we include offshore wind). The government have targets to triple the existing fleet by 2030, this means in times of high wind we will be able to produce over 12GW of zero carbon power despite having demand of approximately half that. Renewable energy is already being wasted, 1,008GWh was dispatched down in 2019<sup>3</sup>, this is a problem for the wind industry which can also be viewed as an opportunity for the heat sector.

Aughinish will install high temperature dispatchable electrode boilers to support the wind industry and decarbonise our heat. Our EU ETS Innovation fund selection<sup>4</sup> to construct a 25MW Electrode Boiler at the alumina plant is a good example of a demand-side solution utilising the EE1st principles. This project is part of our ongoing continuous efforts to deliver renewable high temperature heat with zero emissions. Indigenous zero carbon wind generation is Ireland's most sustainable fuel. In time this will transform Ireland into a net exporter of fuel. In the meantime Aughinish are pioneering this new technology to help solve wasted wind energy from being dispatched down in times of excess generation. We will use it to offset fossil fuels in our high temperature heat requirement and to provide Eirgrid with vital system services further reducing their need to constrain on fossil fuel generators.

Further developments in storage of renewable energy in the form of very high temperature heat would be the next phase in utilising Ireland's wind resources more efficiently than any other technology we have considered. Aughinish will need Government support to bring this new technology to Ireland. Legacy fee structures for electricity consumption are regulatory barriers to wind-following power-to-heat and we ask that DECC consider how fees, levies and loss factors can be redesigned to deliver our net zero carbon future using resources which are unique to Ireland.

Policy decisions should be assessed in view of future technological development which should consider Ireland's energy holistically and should encourage innovations that help realise Ireland's environmental, social and economic objectives.

**Aughinish propose that the RHO cannot exclude wind following power-to-heat measure to achieve the objection of GHG reduction of the heat sector.**

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<sup>3</sup> <http://www.eirgridgroup.com/site-files/library/EirGrid/Annual-Renewable-Constraint-and-Curtailment-Report-2019-V1.2.pdf>

<sup>4</sup> Project 26 on



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### Alternative fuels: other

Potentially with future development of green hydrogen at competitive prices there may be opportunity post 2030 timeframe to re-power CHP and gas boilers with green hydrogen gas. However, any significant investment in alternative technology must be a viable proven solution and competitively priced to ensure long term viability.

The Consultation paper clearly states that RHO is a “supply side” measure, this can only succeed if supply-side solutions are available and feasible in the proposed time frame. Aughinish does not believe the technology exists over this time period to deliver a feasible renewable liquid/gas solution as proposed by the consultation. We propose that Aughinish and the Department work together towards a long-term feasible solution as part of our roadmap towards delivering renewable heat to the alumina plant.

**Aughinish would welcome alternative biofuels/hydrogen when it is the most cost-efficient solution to the decarbonisation of heat.**

Aughinish’s proposal that EUETS participants should be excluded from the RHO does not remove the incentive for Aughinish to drive towards delivering renewable heat to the plant. The EU ETs is designed to give investment signals to move towards sustainable carbon reduction.

We would welcome the Department to visit our plant here in Askeaton, Co. Limerick to see directly the efforts we are pursuing as part of our decarbonisation plan.

Our detailed response to the Consultation questions along with more background information about Aughinish and the operation of the alumina plant is presented in the following pages.

Yours sincerely

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### Detailed Response to the RHO Consultation Questions

Aughinish believe that the EUETS Scheme is the appropriate vehicle for EII to deliver their carbon emission reductions and therefore the RHO proposed should exempt participants in the EUETS scheme from paying any charges under this scheme. As explained in the previous section of this response exemption from the RHO will maintain the industry competitiveness whilst undergoing the transition towards net-zero carbon.

Looking at the specific questions raised in the RHO Consultation Aughinish responses are as shown below.

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

In Principle yes, but:

- Exclude EU ETS Energy Intensive industry
- Incorporate energy efficiency obligations
- Incorporate power-to-heat both low and high temperature technologies

However, where alternative technologies are unproven or unlikely to be feasible in the time frame then an RHO is not the correct approach. Aughinish recognises that decarbonisation of heat is an essential requirement of Irelands climate change strategy. The objective of RHO obligations must be to stimulate available and proven renewable fuels solutions e.g. residential, non-intensive industry, agricultural and services.

Aughinish suggest that the first priority of any RHO scheme should be Energy Efficiency First – If heating demand is not reduced by implementing energy efficiency measures then the scale of the decarbonisation challenge will be too great. The current policy instrument, the Support Scheme for Renewable Heat (SSRH) managed by SEAI should be a key policy within the RHO measures to ensure that the scheme can deliver its targets.

As part of this process Ireland also should apply the Article 23 Renewable Energy Directive recognition, that Member States where waste heat and cooling is not intensively used the increase shall be limited to 1.1% annual average. This figure should not be applied unilaterally but each sector should be given a specific industry figure to reflect their requirements and obligations.

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

We would welcome information on the feasibility of the scheme and on what alternatives might be considered such as using indigenous renewable electricity to decarbonise the heat sector. We fear that policy selecting the technology to decarbonise is not the most efficient solution.



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For energy intensive industry such as the alumina plant in Aughinish it is not feasible to switch to renewable liquid/gas fuel to generate useful heat for the refinery within the timeframe. It is more realistic to support continued participation in ETS system as a proven method of carbon reduction.

For non-EUETS participants perhaps an auction for GHG reduction solutions would decarbonise the heat sector more efficiently and at less cost to Irish citizens than the RHO proposed. The auction could stipulate minimum requirements for the heating sector, financing this could be through some form of levy paid by the suppliers or through some form of general energy tax.

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

No, energy intensive industry with high temperature heat applications and HE CHP that participate in the EUETS should not be included in RHO scheme.

4. 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, Aughinish supports the proposal that certain sectors should be exempt and as long as the electricity used for heating purposes comes from RES, we agree power conversion -to- (useful) heat should be exempt.

Further switching from fossil fuels to electricity to produce heat should be encouraged and be recognised as decarbonisation of the heating sector. Any such power-to-heat conversion should qualify for green certification as part of a suppliers' obligations.

The consultation suggest 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. Aughinish is currently developing a 25MW pilot power-to-heat solution for our high temperature heating application, this is a demonstration scale project and has potential to be material in decarbonisation of Ireland's heat and in solving some of the curtailment issues facing the wind generation industry today.

While a nationwide deployment of dispatchable high temperature power-to-heat will require EU/ETS/Government support our feasibility studies show it is much more cost efficient than alternative decarbonisation technologies.



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5. 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?

Every year SEAI publish a report to highlight the benefits of Ireland's CHP fleet. Aughinish has Ireland's largest CHP plant which is certified by CRU as HECHP operating at 80% efficiency reducing Aughinish carbon emission by over 330,000t per annum.

Aughinish strongly supports the Directive on Energy Efficiency (recast)<sup>5</sup> published on 14<sup>th</sup> July 2021, which promotes the EU Principle of "Energy Efficiency First" and we welcome the Commission Guidelines<sup>6</sup> (28 Sep 2021) and the Principle to Practice<sup>7</sup> (28 Sep 2021) on how these principles can be put into practice.

The EE1st guidelines acknowledge HECHP as a key energy efficiency solution and Aughinish believe that our gas fired HECHP is the best available technology available for the alumina sector.

Therefore, Aughinish does not support the current RHO proposal applying to CHP as this would penalise participants utilising the best available technology for decarbonisation of industrial heat and power. The proposed RHO obligation should not act to undermine the Energy Efficiency First principle and must recognise the substantial primary energy saving delivered by CHP across the heat and power sectors.

6. 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. However, if this alternative is not acceptable then suppliers are the most appropriate participants to be the obligated parties in the heat sector.

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

We believe this is a complex area in which Aughinish is not qualified to determine what the appropriate level is.

However, in a similar process in the UK for their revised Renewable Heat Incentive and the introduction of a new Green Gas Support Scheme (GGSS) to increase the proportion of green gas in the grid with a levy placed on licenced suppliers the UK Government decided that initially (until 2024-25 or later) levy is to be collected on a "per meter basis" rather than through a volumetric approach. The reasons cited for this were:

- Less complex to apply and provides certainty to suppliers; and
- Impact on EIs competitiveness, minimise cost to consumers and simple to deliver

<sup>5</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0558>

<sup>6</sup> [https://ec.europa.eu/energy/sites/default/files/eef\\_guidelines\\_ref\\_tbc.pdf](https://ec.europa.eu/energy/sites/default/files/eef_guidelines_ref_tbc.pdf)

<sup>7</sup> [https://ec.europa.eu/energy/sites/default/files/eef\\_recommendation\\_ref\\_tbc.pdf](https://ec.europa.eu/energy/sites/default/files/eef_recommendation_ref_tbc.pdf)





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We would only suggest that suppliers and the Department determine what the appropriate level should be and if a per meter basis could also apply here in Ireland for the initial phase?

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

Aughinish understands that Ireland will need to move ahead quickly in order to make progress with obligations under the climate change plan and EU commitments. Therefore, we support early start where feasible alternative fuels are available and applicable taking into account the likelihood that many of the renewable heat fuels could be sourced outside Ireland and this needs further consideration.

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

Yes we agree that the RHO must be gradually introduces to allow suppliers and market to develop and source alternative fuels.

We would urge that the government introduce industry sector reductions linked to agreed energy efficiency measures and we also believe the RHO should not exceed 1.1% (Article 23 RES Directive) to reflect Irish's dependence on imported energy and thus allow industry time to find suitable alternative RES-h solutions.

10. 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?

Since 2015, energy prices in Ireland have increased by 6.7% in real terms compared with an average increase of 1.6% in OECD (Organisation for Economic Co-operation and Development) Europe and a 1.4% decrease in the United States over the same period based on data from the IEA. In 2019 overall energy prices in Ireland were 4.3% higher than in 2018 compared with an increase of 1.1% in OECD Europe and a 3.9% decrease in the US. (Energy in Ireland 2020 Report, SEAI).

The risk of Carbon Leakage for EITs is real, if the level is set too high Aughinish believes that Ireland could lose jobs, diminish the economy and risk increasing global GHG emission if obligations were applied to Energy Intensive Industry who trade in a world market. For our part Aughinish have been decarbonising our heat demand for decades and the Aughinish alumina plant is one of the lowest carbon intensity alumina plants in the world.

Even though aluminium demand is projected to grow by 50% by 2050 as new coal fired alumina plants come online in China, the competitiveness of Aughinish's alumina plant is always under threat and any increase in energy costs will have an impact on the viability of the plant.

As stated previously Ireland should limit the level to 1.1% average as permitted under Article 23 of the RES Directive and EITs participating in the EUETS scheme must be exempt from the RHO.



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

No comment

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

No, renewable electricity is variable. Aughinish would suggest multi-year obligations are more appropriate to allow some certainty for suppliers to source alternative fuels and technology.

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

Yes, Aughinish would support flexible measures that facilitate trading in order to meet obligations we believe this is essential for the success of the RHO.

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

Yes, or at any other percentage to reflect the objectives of the scheme.

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?

Sustainable wood chip products, waste food, Tallow, Biomethane are currently available and likely to increase for residential / agricultural heating uses and possible for small scale business and industrial heating.

In future years green hydrogen may become available as an alternative renewable fuel for large combustion and energy intensive industries. However, in the proposed RHO timeframe for Aughinish an EII with high temperature heat requirements where energy is > 40% of conversion costs there is no feasible renewable bio fuel available. The only potentially feasible renewable fuel is indigenous wind powered electricity.

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

Ireland will face significant challenges in developing and sourcing indigenous supply and may require flexible systems to ensure importation of EU sourced renewable fuels is enabled.

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.



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Wind powered electricity is Ireland’s most sustainable indigenous fuel source. In time it will transform Ireland into a net exporter of energy. The RHO must recognise that power-to-heat (low temperature heat pumps and high temperature boilers & storage) must be a major contributor to the GHG reduction of the heat sector.

17. Do you agree that for renewable fuel delivered directly to a consumer that this will be the point of supply?

Yes

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

Not enough detail to comment, this need more discussion with fuel suppliers. The principle of option B appears appropriate.

19. 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 consultation’s estimate. This would be prohibitive to sustainable manufacture and is likely to result in the closure of the alumina plant (and possibly other industrial plants in Ireland).

If EIs are not exempt from the RHO and using the values presented in the Consultation, then the impact on Aughinish is catastrophic especially if there is no 1.1% cap.

		Cost of BioFuel range from consultation		
		8 CENT	10 CENT	12 CENT
Amount of blending obligation in consultation	1%	€ 2,781,244	€ 3,476,555	€ 4,171,866
	3%	€ 16,687,463	€ 20,859,328	€ 25,031,194
	10%	€ 55,624,876	€ 69,531,095	€ 83,437,314

This RHO charge would be additional costs over and above the PSO levy and the EUETS carbon costs. Other countries recognise the asymmetrical cost burden that environmental charges place on EIs and take pro-active measures in assisting EIs to reduce their carbon emissions whilst ensuring they remain competitive. As explained above alumina is a global commodity and based on these projections the alumina plant would not be competitive in the global market and would most certainly be shut down.



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As an EII operating HECHP, a participant in the EUETS we believe the RHO is not applicable to this sector and hence the RHO should not apply.

### 20. Are these costs reasonable to impose on consumers?

Aughinish accept that the RHO needs to deliver real carbon emission reductions and that all consumers should pay a fair and affordable contribution to this process. We believe the 1.1% cap should apply and regular reviews of the scheme should be undertaken to ensure that fairness and affordability remain as a key drivers within the RHO scheme, this occurs under the EUETS scheme and would be appropriate for this RHO scheme.

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

There needs to be some form of penalty 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.

Alternatively, failure to comply penalties should reflect the cost of carbon in the EUETS scheme with a multiplier reviewed on an on-going basis, this would send an appropriate relevant signal based on the cost of carbon.

### 22. 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.

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

No comment

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

Aughinish support all available technologies to help the decarbonisation of heat and the Irish economy. Emerging new technologies should be supported with grant aid or minimum floor prices to give investors some security. Policy and supports should be technology neutral and supports should be assessed based on cost per GHG reduction.

### 25. 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 and higher cost fossil fuels in the transport sector. Credits and multiple credits which apply to the heat sector and not the transport sector would have unintended consequences.