Flex Power Solutions

INDUSTRIAL DECARBONISATION

Dear DECC,

Thank you for giving us the opportunity to give our feedback to this Electricity Interconnection Policy Consultation.

Flex Power Solutions are the agent for Parat Halvorsen AS (Norway), specialising in flexible electrification of 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, only in times of ample generation. By operating these boilers flexibly, we can 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 Irelands 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.

However, there are barriers. Legacy charging structures and levies hide the true wholesale price of electricity from new flexible consumption. Realignment of charging structures with the government's 2030 ambitions can lead to the rapid deployment of multi megawatt scale electrode boilers while reducing Irelands reliance on imported fossil fuels. Leveraged on the success of wind generation this existing technology can reduce carbon in the heat sector and help us reach our 2030 emission targets. Further electrical interconnection could delay Irelands decarbonisation if it resulted in increased tariffs charged to consumers of electricity,

Overleaf please find our response to some of the questions in your consultation.
I am at your service to discuss further how our technology can help achieve Irelands decarbonisation goals using indigenous energy.

Kind regards,

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Question:

To what extent would a commitment by Government on delivery of further interconnection capacity, beyond the proposed Celtic and Greenlink interconnectors, impact achievement of Ireland's 2030 and post 2030 energy objectives?

Additional interconnection beyond the current proposals will have reducing benefit on delivering energy objectives and due to the tight time line will have no impact on 2030 targets. Flex Power believe excess renewable power would be better used to reduce Irelands reliance on imported fossil fuels by decarbonising our heat and transport sector. Increased interconnection, if funded by network tariffs, would result in a delayed decarbonisation of the Irish economy and higher cost to Irish citizens. Ireland must incentive decarbonisation by increased electrification in times of excess generation.

Part of the National Energy Security Framework (NESF) seeks to reduce our dependency on imported fossil fuels, in the context of the phasing out of Russian energy imports across the EU and managing the financial impact of the resulting high energy prices. We in FPS believe the best way forward for Ireland is the use of indigenous wind power to decarbonise the heat sector and reduce imports of fossil fuels. We can do this in large scale by allowing industrial heat users to consume more electricity in times of ample generation (high SNSP). One of the existing barriers to the efficient delivery of this is the application of network tariffs with no regard to the SNSP level. We fear increased tariffs may act against the objectives of the NESF by compounding Irelands reliance on imported act fossil fuels.

EU Regulation 2019/94320, aims to provide final customers – household and business – with safe, secure, sustainable, competitive and affordable energy. The regulation also seeks to remove distortions in markets which have negative consequences to innovation and discourages active-consumers playing their part in facilitating renewable generation. In the future, customers need to be enabled to fully participate in the market on equal footing with other market participants and need to be empowered to manage their energy consumption. Art. 18 "The network charges shall not discriminate either positively or negatively against energy storage or aggregation and shall not create disincentives for self-generation, self-consumption or for participation in demand response". We suggest that legacy network tariff structures discriminate against flexible technology which is capable of integrating additional renewable generation.

Question:

In the context of Ireland's increased climate and energy ambition, should Government establish future minimum interconnection targets, with capacity to be delivered by a specific point in time? If so, what should these targets be?

No, the Government should not have a minimum interconnection target.

While interconnectors can help mitigate the dispatch down of our wind generation fleet there are other more cost-efficient solutions such as the use of Parat electrode boilers to replace fossil fuel boilers in high temperature industrial applications or district heating applications.

There is a risk that over delivery of interconnection would result in increased import of electricity in times of high renewable generation in Ireland. This is because our neighbours have similar weather patterns to Ireland and have a more aggressive electricity market. The more aggressive UK electricity market could also lead to a worsening of stress periods when Ireland may suffer generation shortage.

Through sector coupling, of the electricity sector and the heat sector, Ireland can decarbonise faster. The electricity sector will in times have excess generation which is a problem for the sector. At the

same time the heat sector is looking for options to decarbonise and remove the reliance on imported fossil fuels. The heat sector can act as a virtual interconnector to mitigate against turning off indigenous renewable power by consuming power in times of excess. By sectoral-coupling we can accelerate decarbonisation of our economy and reduce our reliance on imported fossil fuels.

Industry the Virtual Interconnector

Funding of electrode boilers can be cost neutral, does not need Government support and does not assign additional risk or cost to electricity users.

Question:

Regarding the location of future interconnection, should priority be given to developing further interconnection with Great Britain or the EU IEM, or both?

Neither. Government should not prioritise any location over another.

Question:

What are the primary benefits associated with increased interconnector capacity? For instance, would the primary benefit relate to enhanced security of electricity supply or de-risking future renewables development?

Additional interconnection may not enhance security of supply (SoS), it could worsen SoS if the electricity power was to flow out of Ireland during a stress period or if a neighbouring Transmission System Operator is forced to reduce interconnector flow to preserve their own SoS.

Additional interconnection could worsen renewable development if electricity power was to flow into Ireland in times of high wind generation. We have already seen this happen in the Irish market.

If Government or the Regulator were to support interconnector developers there would be an opportunity cost to Irish citizens from not following more cost efficient alternatives such as diverting excess electricity into the heat sector. Any support should be technology neutral and targeted at the most efficient provider of carbon reduction. Government and Regulator should avoid trying to choose the best future technology, this is best done by experts in innovation and development.

Question:

Is the existing legislative framework contained in the 1999 Act appropriate to secure future development of interconnector capacity?

What amendments, if any, do you consider necessary to the 1999 Act?

Interconnectors should not be considered part of the electricity transmission system. There is a strong risk that the increased non-energy charges applied to electricity consumption will hamper Irelands decarbonisation. The electricity sector will be the main route to decarbonisation of the heat and transport sectors. If policy and regulation increase network tariffs on electricity it will make it harder to justify electrification of heat and transport.

Suggested amendments:

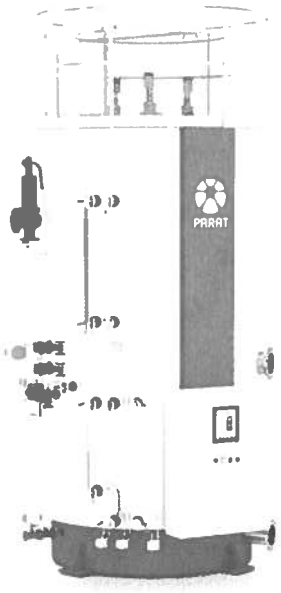
- Remove Section2A. future interconnectors should not be funded from network charges
- Section 16 should mandate that CRU perform a detailed cost benefit analysis of any future interconnector, including it's ancillary onshore reinforcement costs, and consult with the public. In addition, the CRU should be mindful of the opportunity cost associated with the additional investment in interconnectors. The CRU should represent not just the interests of the final electricity customers but of the Irish citizens which include heat users, and transport users.

Question:

What of the above three regulatory models offers the most viable route for development of future interconnection between Ireland and neighbouring countries?

Merchant is the best regulatory model for Irish citizens. The alternative assigns an unnecessary cost and risk onto Irish citizens which is not in their best interest. Developers in interconnectors should bear the full cost of their investment and recover the costs from energy markets. Future interconnectors should not result in increased network tariffs.

Appendix 1: Electrode Boiler Specifications:

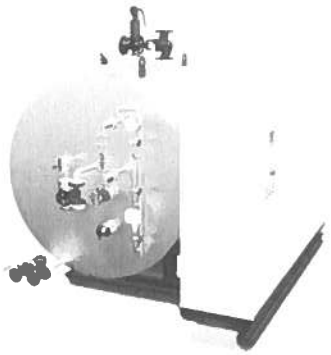


PARAT IEH

High Voltage Electrode Boiler for Steam and Hot Water

- 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
- 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

Appendix 2: Electric Element Boiler Specifications:



PARAT IEL

Electric Element Boiler, Low Voltage

- Zero Carbon Steam
- 0 to 5MW (0 to 7.5tph) in one unit
- Compact and robust design
- Boiler and power cabinet are separated
- Constructed in accordance with PED 2014/68/EU
- Steam and/or hot water
- Low load capability
- Supply voltages: 230V, 400V and 690V
- Pure resistance load
- Electrical grid regulation