

CRU Large Energy User Connection Policy

About Cloud Infrastructure Ireland

Cloud Infrastructure Ireland (“CII”) is a trade association within Ibec focused on the infrastructure policy issues that affect cloud providers. Ireland’s cloud infrastructure enables much of the Irish and global digital economy worth billions and is responsible for tens of thousands of jobs. A thriving cloud infrastructure is vital to Ireland’s economic success, as a growing number of businesses locate in regions with well-developed cloud infrastructure. CII seeks partnerships with national and local governments to protect and nurture cloud infrastructure to enhance Ireland’s global economic standing.

Executive Summary

On the 15th of January 2024, the CRU published a consultation on the review of Large Energy Users connection policy. This consultation forms part of the National Energy Demand Strategy, being led by the CRU, which seeks to reduce the carbon intensity of energy demand in Ireland as we continue to grow our economy. The aim of this review is to provide a new pathway for Large Energy User connections to the electricity and gas systems which minimises the impact on national carbon emissions while considering capacity of the system in relation to supply of energy and grid infrastructure. CII member companies all are long term investors in Ireland. Our companies and others have grown their infrastructure, investment, and technical employee base here, making the cloud industry a leading employer and contributor to the Irish economy while bringing additional renewable energy to the system and taking steps to support the Irish grid. Industry needs certainty around connection timelines in the context of the current circumstances and call for a commitment to a clear timeline for making firm capacity available, while simultaneously formulating a workable policy on LEU connections. Any assessment of new connections must take into account existing and future CPPAs and the longer-term decarbonisation strategies of different companies operating under different business models.

We recognise that the goal of the CRU is to create a connection policy that limits LEU growth in the mid-term in order to manage the security of supply challenges facing the Irish system. We support that effort and believe the CRU can accomplish this goal by setting a high bar for clean energy that limits growth in the mid-term while aligning with Ireland’s climate ambitions and statutory requirements.

We previously proposed:

- A definition of net-zero emissions that we believe is consistent with Irelands climate goals and will limit load growth through this period of system constraint. We believe this can accomplish the goals of the CRU until offshore wind is online and the system has returned to stability and is able to provide firm capacity for new investments. This approach will allow a slow and moderated amount of demand growth along a manageable trajectory that is aligned

with the projections outlined in EirGrid's Shaping Our Electricity Future plan, which has been endorsed and supported across Government

- We also wish to stress the importance of ensuring that LEUs have certainty about the terms of their connection agreements and that previously agreed terms do not subsequently change. Any new connection rules should only apply to new connection agreements and should never be applied retroactively to existing agreements
- At the time that an LEU submits a connection application there should be absolute clarity about the terms they are entering into, including what is required of the LEU
- Introducing future milestones (through the proposed 'glide path') where these requirements could change for existing connection agreements creates an unacceptable level of uncertainty for LEUs
- We also stress that access to firm connection capacity should not be linked to a consumer's ability to transition to an evolving set of requirements as proposed in the call for evidence
- As above, the CRU should set a sunset date by which firm capacity will be made available to all LEUs

Ahead of responding to the questions below, CII reiterates that the approach outlined in the call for evidence is atypical. In European electricity markets the responsibility for ensuring that adequate, clean generation capacity is added to the grid does not rest with electricity consumers. The regulatory model established by the past four EU energy packages appoints National Regulatory Authorities (NRAs) as responsible for ensuring sufficient resource adequacy, and ensuring a functioning market is in place to deliver the resources needed. CII believes that requiring LEUs to take responsibility for adding new generation to the grid diverts from this practice. CII encourages the CRU to ensure this approach does not become common practice and is sunset after it is no longer necessary. Furthermore, CII notes that Section 9 (1b) of the Electricity Act of 1999 requires that the CRU, "ensure a level playing field where electricity undertakings are subject to transparent, proportionate, and non-discriminatory rules, fees and treatments." While we understand the need to take unconventional actions for a short period of time to manage the situation, we strongly encourage the CRU to establish sunset dates for policies that may be discriminatory against one set of customers (LEUs) as part of a connection policy.

3.1. Category of LEU to which this policy applies

Q.1: Comments are invited from interested parties on the categories of LEU in electricity and gas to which this policy should apply (e.g. for electricity is DG10, DTS-T is appropriate, should DG6-DG9 be included, should the definition focus on capacity or usage, should a combination of criteria be applied?).

We recommend that any customer with a maximum import capacity (MIC) of 0.5MW or greater is classified as an LEU. If the CRU is going to create a specific class for XLEUs, we recommend that it be set at 5 MW of MIC.

Q.2: Please provide views on whether this proposed policy should apply to capture smaller LEUs in due course, and if so which categories of LEU and on what timeline should this occur. Please provide rationale for any views shared.

See above - any customer with a maximum import capacity (MIC) of 0.5 MW or greater should be classified as an LEU. CII believes that rules for LEUs should be uniform across the system.

3.2. Transition period

Q.3: Comments are invited from interested parties on the proposed use of a transition period/glide path in relation to (i) the changing requirements at time of connection on the transition to zero real time emissions, and (ii) once connected, the changing requirements as the project transitions closer to real time zero e.g. from non-firm connection to firm connection linked to milestones.

CII members all have sustainability goals to reach net zero carbon emissions across their businesses along a similar timeline, or faster, than Ireland. CII is supportive of the CRU's efforts to reduce carbon emissions from the grid and believe that the national power system needs a glide path and transition period to meet that target. That responsibility belongs to the grid operator and the regulator and should occur across the entire power system for the benefit of all customers. It is far more cost effective for the grid to decarbonise through a centralised planning and procurement process rather than a distributed requirement imposed on individual customers seeking to invest in Ireland. To CII's knowledge, the model being proposed by the CRU is novel and has never been attempted before. Therefore, it is a high-risk approach that may fail to achieve the goals of the climate action plan.

CII has previously proposed two parallel tracks by which LEUs connecting to the grid can result in net zero emissions at the time of connection. This requirement should only apply to new load that has not yet received a grid connection.

- The scope should be limited to operational emissions arising from electricity at the facility (i.e. scope 2 emissions as defined by the 2015 GHG Protocol corporate standard guidance)
- Net zero emissions can be achieved by either demonstrating a 100% annual renewable energy match, or by achieving a 100% hourly carbon-free energy match for the anticipated new electricity demand. This is the approach adopted under the Climate Neutral Data Centre Pact as mentioned in the Government Statement on Data Centres.
- In order to encourage the deployment of a diversity of clean energy resources, account for the contribution of the resources below in the following way:
 - In a given year, each MWh of carbon-free electricity sourced by the operator from a project located on the island of Ireland counts as a MWh of net-zero electricity consumption

- o In a given year, each MWh of carbon-free electricity sourced by the operator from a project located in a neighbouring country with interconnection capacity with Ireland counts as a MWh of net-zero electricity consumption (with an appropriate cap on the contribution such projects can make, see response to question 4)
- o In a given year, each MWh of electricity demand shifted by the operator from an hour with high fossil fuel generation to an hour with high levels of carbon-free generation/lower fossil fuel generation contributes a MWh of carbon-free electricity consumption towards the operator's target (provided this shift can be demonstrated by the LEU)
- o In a given year, each MWh of carbon-free electricity stored and discharged in a storage asset on the island of Ireland which the operator contracts with, contributes a MWh of carbon-free electricity consumption towards the operator's target (provided that the asset is certifiably charged with carbon-free energy)
- o A company may measure the level of renewable energy or carbon-free energy they source in accordance with a publicly available methodology
- Clean electricity may be sourced through either a physical PPA, a financial PPA, other energy supply contract, or through direct investment in generating assets (including on-site generation) and shall count equally regardless of sourcing instrument. Guarantees of Origin are the most appropriate means of demonstrating adherence and avoiding double counting.
- We recommend that demonstrating net zero as part of an application for a connection agreement should require the LEU to show commitment to a PPA or other instrument within 3-years of the approval of the application to account for the time it takes to negotiate an offtake agreement. An obligation to deliver an operational project within a fixed timeframe is not practical, as many factors such as permitting, and grid connection timelines are outside of the control of the LEU.

CII continues to recommend this approach for determining if an LEU is resulting in net zero emissions for the purpose of securing a connection agreement. We believe this approach can help ensure Ireland meets the ambitious decarbonisation goals set out in the Climate Action Plan while also enabling economic investment. We believe this approach can be implemented now until the period of time that offshore wind comes online, and firm connections can be offered to customers without additional requirements. We stress the need to establish a clear timeline for returning to a connection policy that can facilitate firm connections for new investments.

Allowing the two options outlined above recognises the diversity of approaches taken by businesses to achieve net-zero emissions. Within the data centre (DC) industry alone there are dozens of sustainability standards, regulations, and voluntary schemes that different operators subscribe to depending on their business model, customer needs, or where they are located. These include the Climate Neutral Data Centre Pact Self-Regulatory Initiative, EU Green Public Procurement criteria for DCs, the Blauer Engel standard for DCs, CEEDA, ENERGY STAR, BREEAM and many more. For business more generally there are many other widely used standards for emissions accounting the primary example being the GHG Protocol Corporate Standard. Many corporate buyers are committed to achieving a 100% annual renewable energy match, and some energy consumers are pursuing hourly carbon-free energy, matching their demand with carbon-free supply from the same grid in every hour. These schemes recognise that there are many different ways that corporates can contribute to reducing their operational emissions. The approach taken for defining net-zero emissions for LEUs

should not therefore be limited to a single approach and should recognise the diversity of sustainability programmes undertaken by businesses.

Therefore, we call for decoupling the ability for LEUs to have a firm connection from their ability to satisfy an evolving set of rules as proposed in the call for evidence. We also find that it is difficult to answer the proposed question in detail without further information from the CRU. For example, the CRU has not proposed a draft methodology or definition for an LEU to be “real-time” net zero. Without such information, it is difficult to model what is needed to meet such a target or determine which technologies would be required to meet such a requirement. Furthermore, GOs are not time stamped or stamped with emissions data, adding a further policy complication to what the CRU is suggesting. It is difficult for CII to provide feedback on a regulatory proposal that lacks the policy foundation to be implemented. We strongly recommend the CRU focus on deploying a connection policy that can be implemented immediately. At this time, LEUs have been without a functional connection policy in Ireland since July 2021. That marks nearly three years since any large business has had clarity about how to be supplied by power in Ireland despite the decarbonisation commitments of some LEUs in terms of CPPAs.

Q.4: Please provide views on the proposed timing of different options.

The proposal provided by CII in response to the previous RFI is achievable today. New DCs can work to secure PPAs to annually match with renewable energy – or hourly match with carbon free energy - new facilities connecting to the grid. Whereas achieving real-time zero emissions is not commercially viable for most LEUs today and it is difficult to predict when the technologies, contractual instruments and supporting elements (e.g. time-stamped Guarantees of Origin) will become available. It is also important for the CRU to consider that not all carbon-free technologies are available in Ireland, which further limits the ability of an LEU to meet such a requirement

The timeline for making solutions for achieving 100% hourly carbon-free energy matching available to all LEUs is uncertain. Requiring this as a condition of connection would therefore introduce significant uncertainty for LEUs regarding their ability to satisfy this future requirement. LEUs require clarity and certainty about what is expected of them (including the estimated financial impact) at the time of submitting their connection application to inform these important investment decisions. Introducing such a requirement without a well-defined timeline that LEUs are confident they can meet will create an unacceptable level of uncertainty in the connection process for many LEUs.

As we stated above, it is difficult for CII members or any LEU to fully assess the CRU’s proposal because no standard for real-time, hourly, or even annual matching has been proposed by the CRU. However, without a formal standard, it is not possible to provide a concrete reply to this question and fully understand what is being proposed. This is especially true in the case of meeting a “real time net zero” requirement, for which we are not aware of any published standard by which to measure results.

Q.5: Should optionality be maintained in allowing a menu of different options to perspective LEUs, with the end net zero emissions target becoming more binding as the glide path advances?

Regarding optionality, yes, CII has proposed a two-option pathway in our response from August and is repeated in response to question #3 above. CII also believes the overall glide path goal should be towards a net zero power system that provides carbon-free power to all customers being supplied by the Irish power system. The Government's own projection is that the power system could achieve net zero emissions by 2040, when up to 20GW of offshore wind have come online. The CRU and grid operator should work together to deploy market-based policies that will achieve that goal. Requiring individual customers to achieve net zero emissions is not an effective long-term policy for achieving this goal.

Furthermore, it is important for the CRU to recognise that the Government has already put in place the Data Centre Policy Statement, which imposes further requirements on a subset of LEUs. These requirements, already imposed on Data Centres, are determined by planning authorities and provide strict rules for sustainable data centres while avoiding the uncertainty inherent in the proposal set out in this call for evidence.

Q.6: Comments are invited on how compliance and enforcement with required provisions can be effectively implemented in the operation of a transition period/glide path approach.

Any compliance requirements created by the CRU should also be managed and enforced by the CRU. However, as noted above, it is important to note that no formal standard exists for an LEU to assess performance against a real-time net zero requirement. Therefore, the CRU would need to clearly define any such standard before imposing such a requirement on LEUs. Such standards should also be created, consulted on, and approved before the CRU can embed such a requirement in a new connection policy.

3.3. Measuring performance

Q.7: Comments are invited on the approaches used to account for net zero emissions. This could include timestamped GOs or renewable certificates. Please provide reasons and rationale for any views provided.

At this time, there are several methods for companies to account for carbon emissions. The most widely used is the Greenhouse Gas Protocol, which is also referenced in the EU's Corporate Sustainability Reporting Directive and is also referenced by the International Sustainability Standards Board. However, this standard is for the purpose of reporting emissions at a company level and is not necessarily designed for a regulatory requirement imposed on individual facilities. The CRU would need to adopt such a standard that is specifically fit for purpose in order for such a requirement to be implementable and enforceable. If such a standard is to be developed, we reiterate that it must allow flexibility for LEUs that ramp into power consumption and the unpredictability of renewable energy deployment timelines.

Updating the Guarantees of Origin system to include hourly / sub-hourly time-stamping would be a welcome step to help enable those consumers who are following an hourly matching approach to track and demonstrate their level of real-time supply-demand matching. However, requiring LEUs to source time-stamped GOs to validate the matching of all of their demand with carbon-free generation, and a condition to access a firm connection, creates a very high bar for LEUs to meet, and again introduces uncertainty within the connection process. Hourly energy certificates have been trialled¹ in Europe, however, to date no European registries have implemented time-stamping, and the timelines to delivering this and creating liquid marketplaces to trade granular GO are uncertain.

To reiterate our point above, our proposal for an optionality approach is implementable today, but taking these steps to time-stamp GOs would help more LEUs to operationalise this approach.

Q.8: Should the end target/goal be real time zero emissions? Do respondents have other suggestions as to how this can be demonstrated? Please provide reasons and rationale for any views provided.

The end target should be a decarbonized power system in Ireland that provides carbon-free power to all customers – new and existing – to support the goals of the Paris Agreement, the EU’s climate law, and Ireland’s Climate Action Plan.

Q.9: Comments are invited on the use of a glide path to implement the basis on which net zero emissions are determined. This could entail starting with measuring net zero Ad performance on an annual basis and moving closer to more real time arrangements in incremental steps.

At the time that an LEU submits a connection application there should be absolute clarity about the terms of that connection agreement, including what is required of the LEU. Introducing future milestones (through the proposed ‘glide path’) where these requirements could change for existing connection agreements creates an unacceptable level of uncertainty for LEUs. Any glide path, in which the net zero expectations change, should only be applied to *new* connection applications. If that route was chosen, then it would be crucial for the System Operator to provide in a transparent way how much capacity could be secured where and by when. A good example for that can be found in Finland, where the TNO provides an up-to-date overview of available connections for different timeframes².

¹ Nord Pool, Afry, Granular (2022) *About time: how incorporating timestamped energy certificates into electricity markets could accelerate the energy transition* [[link](#)]

² [Karttapalaute \(fingrid.fi\)](#)

Storage should be treated as equal to generation. A MWh of storage capacity should be treated the same as a MWh of generation from a new carbon-free power source, such as wind or solar.

Q.13: Comments are invited on whether the electricity and gas measuring and tracking systems should be integrated to help avoid double counting? If so, how might this be achieved?

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Q.14: Comments are invited on who should have responsibility for measuring LEUs emissions and emissions abatement performance?

Under the Climate and Low Carbon Development (Amendment) Act 2021 and associated Climate Action Plan, the CRU is responsible for reducing emissions from the power system by 75% from a 2018 baseline by 2030. The CRU should be responsible for meeting this goal and should focus on achieving this goal at the grid level. Attempting to measure performance against this requirement at the individual customer level is inefficient, may not lead to achieving the goal, and is not the role of the CRU.

3.4. Location of LEUs

Q.15: Should new LEUs be located close to areas of renewable generation and/or storage or within energy parks? Please provide reasons and rationale for any views provided.

CII has previously recommended that the CRU create market-based policies that send price signals to encourage the location of demand to certain areas of Ireland. This allows customers to make choices based on economics rather than a requirement being imposed on customers. We continue to recommend such an approach. Such policy tools are commonly used to ensure that electricity prices reflect the cost to serve based on the location of load on a grid. CII understands that Ireland is a small market but the CRU can still use price-based tools to differentiate regions and create dynamic locational pricing that encourages loads to locate in certain areas of the grid that are close to generation. While we understand that the creation of bidding zones may not be the ideal fit for the Irish market, we believe that the CRU can use network charges to send price signals to customers through their rates. This approach is simpler and requires no changes to the wholesale market. Furthermore, such a market-based approach would align with the Government's Data Centre Policy Statement, which calls "data centre developments that make efficient use of our electricity grid...". The CRU could also go further by creating a faster connection policy process for projects near energy parks, sources of generation, or unconstrained areas of the system. However, this should not be interpreted to mean that other connections should be delayed in any manner.

It is essential that flexibility is maintained for LEUs regarding where they locate. This is particularly the case for data centres, where the complex, multi-dimensional infrastructure requirements behind cloud services can render options to expand outside of cloud regions (such as Dublin) limited for infrastructure serving businesses based in those cloud regions. Other relevant factors when it comes to site-selection for LEUs include proximity to workforce and customers.

It is also difficult to answer this question in the midst of the current policy uncertainty around private wires. Without a complete understanding of how private wires might be permitted within the Irish market, it is difficult to completely assess how demand customers might locate near sources of generation or storage.

Q.16: What type of measures to facilitate this approach could be introduced to encourage new LEUs to locate close to renewable generation.

As stated above, we have consistently encouraged the CRU to use market-based approaches to facilitate locational decisions and encourage LEUs to locate in certain areas based on price signals. We have additionally encouraged the CRU to create a voluntary non-firm connection policy that could be used as a further price-signal that could entice LEUs to locate in certain locations on the Irish grid. CII also welcomes the CRU creating a firm/non-firm connection offer that would allow an LEU to secure a portion of its Maximum Import Capacity (MIC) through a firm connection and a portion of its MIC as non-firm which the LEU could then firm through resources the LEU can manage behind the meter. The CRU could structure the pricing of such an offer as to value the firm portion of the connection based on the location of the LEU on the grid and offer the non-firm portion of the connection at a steeply discounted rate to encourage LEUs to accept the greatest portion of their overall MIC as non-firm.

Q.17: Should there be any exemptions to locational requirements for certain LEUs? How could this be assessed? If so what type of connection conditions/requirements might these require?

If the CRU creates a market-based approach that applies to all defined LEUs then such an exemption should be unnecessary. LEUs can choose to avail themselves of the market-based benefits of locating in certain areas or accepting non-firm connections. A market-based approach does not require any LEU to locate in certain areas or accept a type of connection. Rather, it uses system-based price signals to encourage behaviours that benefit and reduce the operational costs of the power system.

As previously noted, it is essential that flexibility is maintained for LEUs regarding where they locate for the reasons outlined above. Therefore using a market-based approach to incentivise co-location with renewables should instead be favoured.

Q.18: Comments are invited from interested parties on the level of proximity between LEUs and renewable generation? How should this be measured? Should this value apply across the board or be determined on a case-by-case basis?

CII recommends that the CRU develop a market-based approach that sends price signals to customers to encourage LEUs to connect in certain locations on the grid. Such a system should assess the system value and system cost savings realised by not having to transmit power across long distances. This might be most simply applied at the nodal level, whereby an LEU locating on the same node as a source of generation could be offered a reduced network charge.

If LEUs are limited to deploying renewables in close proximity to their location, this will significantly limit the contribution that LEUs can make to Ireland's energy transition. Renewable projects should be located where the best resources are available, and LEUs can support the development of additional new generation in these regions through PPAs. Additionally, an individual LEU could have considerable electricity demand - sourcing very high volumes of renewables in close proximity to the facility could prove impossible especially if they are in a location not suitable for siting renewables.

Q.19: If locational requirements are introduced, there is a need for better integrated planning of the network, generation and demand. What are the roles of the System Operators and enterprise agencies in supporting/facilitating this?

NA

Q.20: If introduced on a mandatory basis in order to recognise that any locational requirements LEU demand may require time to be facilitated, should locational requirements be implemented using a glide path?

CII does not support mandatory requirements for LEUs to be forced to locate on certain areas of the grid. That would send a signal to the market that a portion of Ireland is closed for new investment and business growth. In practice, this would create a moratorium on new LEUs connecting to the system in specific areas of the country. Such a moratorium could inadvertently limit the consumption of new offshore wind by new LEUs locating in Ireland.

3.5. Non-firm demand connections

Q.21: Should non-firm LEU connections be introduced? If so, should these non-firm connections be made on an enduring basis? Please provide reasons and rationale for any views provided.

Yes, CII has previously recommended that voluntary market-based non-firm connections should be offered to customers as long as firm connections are also available to LEUs. We have additionally encouraged the CRU to create a voluntary non-firm connection policy that could be used as a further price-signal that could entice LEUs to locate in certain locations on the Irish grid. CII also welcomes the CRU creating a firm/non-firm connection offer that would allow an LEU to secure a portion of its Maximum Import Capacity (MIC) through a firm connection and a portion of its MIC as non-firm which the LEU could then firm through resources the LEU can manage behind the meter. The CRU could structure the pricing of such an offer as to value the firm portion of the connection based on the location of the LEU on the grid and offer the non-firm portion of the connection at a steeply discounted rate to encourage LEUs to accept the greatest portion of their overall MIC as non-firm.

Q.22: If non-firm LEU connections are implemented on a temporary/non-enduring basis what should trigger these connections being made firm? Examples could include date(s) specified upfront or linked to certain requirements. Please provide reasons and rationale for any views provided.

Non-firm connections and firm connections should be market-based and use price signals to encourage LEUs to efficiently use the grid, which is in line with the Government's Data Centre Policy Statement. Under a market-based approach, an LEU should be allowed to transition a non-firm connection (or the portion of its MIC that is non-firm) to a firm connection by paying the cost difference for the firm connection.

Q.23: If non-firm LEU connections are mandatory in certain parts of the system, should there be any exemptions for certain LEUs? If so what type of connection conditions/requirements might these require?

CII does not support mandatory requirements for LEUs to be forced to only accept non-firm connections. That would send a signal to the market that Ireland is incapable of providing firm power for new investment and business growth.

Q.24: Comments are invited regarding the proportion of the LEU demand that would be connected on a non-firm basis. For example, would a non-firm connection apply to 100% of the connection, or would it apply to smaller proportion than this?

As stated above, CII welcomes the CRU creating a voluntary, market-based firm/non-firm connection offer that would allow an LEU to secure a portion of its Maximum Import Capacity (MIC) through a firm connection and a portion of its MIC as non-firm which the LEU could then firm through resources the LEU can manage behind the meter. The CRU could structure the pricing of such an offer as to value the firm portion of the connection based on the location of the LEU on the grid and offer the non-firm portion of the connection at a steeply discounted rate to encourage LEUs to accept the greatest portion of their overall MIC as non-firm.

Q.25: Comments are invited regarding what measures could be applied to facilitate non-firm LEU connections. If so, should these measures to facilitate recognise the potential locational value of these?

As stated above, we recommend the use of price signals to encourage LEUs to seek out non-firm connections or to seek out the greatest portion of their MIC as non-firm.

Q.26: How should the SOs deploy this flexibility provided by non-firm demand?

NA

Q.27: Should non-firm/flexible electrical connections be provided to islanded LEUs in order to facilitate flexibility between the electrical and gas systems?

NA

3.6. On-site generation and storage

Q.28: Comments are invited on the use of renewable generation and storage on-site. Should this be used to match LEUs demand on-site or to provide flexibility services to the system? Please provide reasons and rationale for any views provided.

In response to the questions above about offering non-firm connections, CII recommends that non-firm connections be offered as a market-based mechanism to encourage LEUs to accept non-firm connections.

If such a policy is developed, it is likely that LEUs will leverage onsite storage or generation to balance a non-firm connection and ensure a stable supply of continuous power. LEUs may also leverage private wires to connect to renewable or storage assets that are not on-site but nearby and directly connected into the LEU. Any on-site storage or renewable energy generation is unlikely to match the entire demand needed by an LEU due to size and space limitations. It is far more likely that an LEU can procure such resources to provide flexibility services to the system in the form of demand response, demand side management, or as a way to accept a non-firm connection.

Q.29: Should the use of on-site dispatchable generation using only renewable fuels have limited run hours, to reflect limited availability of an indigenous renewable fuel? Please provide reasons for any views provided.

On-site dispatchable generation must comply with air emission limits set by the EPA and the Industrial Emissions Directive. Further, LEUs must procure renewable fuels in the market, whereby scarcity increases pricing for such fuels. Those mechanisms already impose the appropriate limitations on the run hours of backup generators relying on renewable fuels.

Q.30: Do LEUs require back-up generation for operational reasons? If so, what is the typical annual running hours of this back-up generation?

Yes, some LEUs that provide essential services require back-up generation for operational reasons. With the exception of testing, run hours for such generators is ideally zero hours annually. Back-up generators are in place to provide a layer of reliability when the grid is unavailable.

3.7. Demand flexibility

Q.31: What should demand flexibility services provided by new LEUs be used for, system support, decarbonisation or both? Please provide reasons and rationale for any views provided.

NA

Q.32: Should demand flexibility services be mandatory or voluntary for new LEUs? Please provide reasons and rationale for any views provided.

As CII has previously commented in response to the August RFI, mandatory flexibility would send a signal to the market that Ireland is unable to provide power to new business investment.

Flexibility is regularly procured on energy grids around the world through market-based mechanisms. The CRU should deploy flexibility solutions through market-based mechanisms to encourage LEUs and all customers to offer flexibility to the system. Such flexibility products should be based on the value provided to the system and price accordingly to encourage participation. The CRU could look to the market for demand flexibility that has been created in the UK and is considered successful. In that market, aggregators bring customers together to provide flexibility which benefits the system. The aggregators manage the contracts and the offering the services into the system and then manage the relationship with the LEUs. This removes the effort required by the LEU and allows the system to procure the greater quantity of flexibility from customers by leveraging a market-based mechanism to value and procure the flexibility.

Q.33: Should LEU connections in certain parts of the network be required to provide demand flexibility services? Is this measure justified?

No, as stated above. CII believes flexibility should be offered through market-based mechanisms and should not be required of any customer or required for specific locations. That would send a signal to the market that Ireland is incapable of supporting new investment or business growth in certain locations.

Q.34: If demand flexibility is voluntary for new LEUs, what type of incentives could be introduced to encourage the adoption of these services?

Flexibility should be valued based on the benefit it provides to the system. This is not an incentive. Instead, it is valuing flexibility for replacing the costs of procuring new forms of dispatchable generation, substituting investments in grid upgrades, or delaying investments. Flexibility should be treated as an energy asset, in the same manner as a new renewable energy project, and offered a price based on the value of the attributes that asset offers to the system. Such an approach will ensure that flexibility offerings are fairly priced and durable over time.

As CII has previously shared, Ireland should develop tailored demand response products that take into account the performance and reliability constraints that many LEUs have. As an example, many large industrial facilities cannot adjust their output (and corresponding electricity demand) at the very short notice periods required by some ancillary service products; in addition, LEU's load profile – and in the case of DCs, composition of IT workloads that are shiftable – change over time, and onerous pre-set capacity requirements can be a deterrent. Many also face limits on the frequency and duration of demand reduction events they can accommodate. In order for many large consumers to plan a shift in output (and corresponding electricity demand), an activation notice of the order of several hours to a day can be required. Such products must accommodate consumers who need to change the level of available capacity as well as the number and duration of events.

Q.35: If demand flexibility is mandatory for new LEUs, should there be any exemptions for certain LEUs to having to provide these services? How could this be assessed? On what basis could these exemptions be applied?

CII does not support mandatory requirements for LEUs to be forced to provide flexibility. That would send a signal to the market that Ireland is incapable of providing firm power for new investment and business growth. The ability of any given DC to provide demand flexibility services is highly dependent on a range of factors, including the operator's customers, business model, facility design and permitting limitations.

Q.36: Should timed/profiled connections be introduced? Please provide reasons and rationale for any views provided.

NA

3.8. Energy efficiency & district heating

Q.37: Comments are invited from interested parties on the use of waste heat from LEU sites.

In some cases, LEUs may be able to provide waste heat to district heating systems or other end users. However, such arrangements are complex. If the CRU is going to create locational preferences for DCs to connect to the system in certain places then it could consider overlaying system needs with district heating opportunities too. However, at this time, given the health of the power system, it would add further complexity for the power system to have to manage.

Q.38: Comments are invited on the use of waste heat from LEUs to feed district heating networks or other processes.

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Q.39: Should provisions to use waste heat from new LEUs in suitable locations to feed district heating or other processes be mandatory or voluntary? Please provide reasons and rationale for any views provided.

LEUs should not be required to provide waste heat to district heating or other end users. CII members have already provided waste heat to end users in Ireland and other locations in Europe. We will continue to look for opportunities to provide our waste heat to end users at every opportunity. However, while CII members are pleased to provide waste heat to end users, it is often difficult or impossible to find an end-user for waste heat. In many cases, a district heating system or other end user is not available or accessible from the location of the LEU. Furthermore, installing waste heat collection equipment in an LEU is an energy intensive technology. Waste heat collection equipment uses energy and reduces the energy efficiency of the LEU. Therefore, if an LEU is “waste heat ready” but cannot identify an end user then it would be building an inefficient asset that is unnecessarily consuming power. Under the EU’s Energy Efficiency Directive, Ireland is required to work with data centres to create a cost-benefit analysis for the waste heat potential from new data centres. We support such an approach and believe it will lead to considerably more DCs providing waste heat across Europe and potentially in Ireland too – depending on other location factors created by the CRU.

3.9. Gas

Q.40: Comments are invited from interested parties on the use of biomethane towards decarbonisation of LEU demand. Do respondents have a view on the volume of indigenous biomethane that can be produced annually? Do respondents have a view on the scalability of using biomethane towards the decarbonisation of LEU demand?

Q.41: Comments are invited on what running profile should be adopted by onsite gas generation which is being run on a limited supply fuel like biomethane e.g. should it be limited running for back-up and/or flexibility purposes, or baseload (islanded LEU)? If for flexibility services what would be a typical capacity factor?

CII questions whether regulating backup sources of power used by LEUs to provide reliability when the power system is unavailable is within the CRU’s remit. The CRU should further define the scope of its role in this area so that respondents can better understand the nature of the question in order to provide a considered reply.

Q.42: Comments are invited from interested parties on the use of green hydrogen towards decarbonisation of LEU demand and the timelines in which this might be viable. Please provide reasons and rationale for any views provided.

Green hydrogen offers an opportunity to decarbonise industrial emissions from hard to abate sectors. At this time, CII believes that application should be the priority use case for green hydrogen. Burning green hydrogen to convert the energy back into electrons is not efficient or cost effective and should only be considered once other hard-abate applications have been realised.

Q.43: Comments are invited from interested parties on the renewable gas certification scheme.

NA

Q.44: Are there other options for decarbonisation of gas demand that should be considered?

NA

Q.45: Comments are invited on the introduction of non-firm/interruptible gas connections for LEUs (at exit point). Do respondents have a view on whether these non-firm/interruptible connections can help alleviate emissions? Please provide reasons and rationale for any views provided.

NA

Q.46: How can demand flexibility services on the gas system provide a benefit for both system support and decarbonisation?

NA

3.10. Connection considerations

The following questions have been addressed in our responses above

Q.47: Comments are invited from interested parties on maintaining optionality in what provisions an LEU must meet as part of its net zero emissions requirements.

CII has provided a recommended two-path approach for LEUs to be net zero at the time of connection. We have repeated that recommendation above and continue to urge that approach.

Q.48: Comments are invited on how a new LEUs location may inform what criteria it may need to meet.

NA

Q.49: Comments are invited on how a transition period may inform an evolving net zero target and demand flexibility services that could be provided.

NA

Q.50: Respondents are welcome to suggest alternative approaches in how criteria is selected.

NA

Q.51: Respondents are welcome to suggest any additional approaches for LEUs to help meet net zero requirements not considered in sections above

NA

3.11. Roles of other organisations

Q.52: Comments are invited from interested parties on the roles of other organisations in the different approaches considered in this paper.

NA

Q.53: Comments are invited on what functions should be carried out by who, in the context of potentially real time net zero emissions for LEUs going forward.

NA

Q.54: Feedback is requested from stakeholders on other mechanisms that may need to be considered for the implementation of SECs and who should be responsible for delivering them.

NA

Conclusion

CII thanks the CRU for putting forth the consultation and requesting stakeholder feedback. As large energy users, buyers of renewable energy, and innovative solution providers, the future of the Irish grid is important for our business growth and development.