Commission for Regulation of Utilities
The Exchange,
Belgard Square North,
Tallaght,
Dublin 24.
(by email to electricityconnectionpolicy@cru.ie)

19th March 2024

RE: CRU Consultation Paper regarding Review of Large Energy Users Connection Policy – CRU/2024001

Dear Commissioners,

Thank you for the opportunity to respond to the CRU Consultation Paper regarding the Review of Large Energy Users Connection Policy (CRU/2024001).

Our response is enclosed.

We are available to discuss any questions which you may have in relation to our submission.

Kind regards

Ronan Kneafsey
EngineNode Limited

1 Introduction

Technology companies are the leading buyers of renewable energy in Europe and the world[1]. Some of the largest of these Corporate Power Purchase Agreements (CPPAs) for renewables are in Ireland, with over 1GW of wind and solar agreements announced to date by global technology companies for Irish-based renewable projects

The services provided by data centre developers are mission critical and support these technology companies and enterprises. Data centres attract billions of Foreign Direct Investment in the construction of data centres and associated power infrastructure in Ireland annually. They are a key part of Ireland's computer services industry, which generated €172 bn of exports in 2021[2], representing 33% of all Irish exports.

Data centre developers operating in Ireland are also active in other parts of the EU and the EMEA region. The scale of investment required to develop data centres and the associated digital ecosystem makes a coherent and transparent approval and application process (both with respect to utility procurement and development) imperative. In the past 27 months, Irish energy policy uncertainty has driven Foreign Direct Investment away from Ireland to other countries across Europe.

The transition to sustainable energy requires the development of large-scale renewable energy projects. LEUs are keen to develop Ireland's infrastructure to enable the renewable transition. The electricity grid needs predictable and stable base load demands to enable the transition to a sustainable future. LEUs, and data centres in particular, represent stable and predictable base load demand. The Climate Action Plan goals of 8GW of new wind and solar cannot be achieved without large base load, which provides stability to the grid when renewable energy production is intermittent.

As outlined in the Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy (July 2022), the Government recognises that data centres located in Ireland are a vital part of the infrastructure underpinning Ireland's and Europe's digital economies, and that they are central to Ireland's status as an international leader in the provision of IT services:

"Data centres represent a core digital infrastructure for both Ireland's and Europe's digital economies and for strengthening Ireland's position as a strategic international location for IT services. This is the infrastructure that lies behind all digital aspects of our social and work lives, including video calling, messaging and apps, retail, banking, travel, media, and public service delivery in areas such as healthcare and welfare…"

Further, it notes that data centres in Ireland

"…have facilitated the digitalisation of our economy, our work lives and many of the online applications, services and platforms widely used across society. During the pandemic, they

[1] https://www.rechargenews.com/energy-transition/microsoft-google-and-renault-in-gigascale-corporate-green-power-deal-bonanza-on-land-and-sea/2-1-1360719
[2] CSO Data: https://www.cso.ie/en/releasesandpublications/ep/p-its/internationaltradeinservices2021/

enabled business and communities to quickly move to a remote model. Data centres also host and deliver entertainment and content services into homes."

This highlights that data centres have enabled multiple new means of working and living that reduce business and personal travel patterns, which contribute to reductions in their carbon footprint associated with transport. According to a report titled "Green Data: A Vision for Sustainable Data Centres in Ireland[3]", the Covid pandemic-enforced restrictions on travel, which forced much of life online, and which involved:

"…a huge increase in working from home and video-conferencing, replacing commuting to offices and travelling to business meetings. This resulted in a 2.7 million tonne reduction in CO_{2e} emissions from the transport and energy sectors in Ireland between 2019 and 2020".

The Government Statement also indicates that:

"…data centres are also the means by which Ireland's major technology companies process and store companies' most sensitive and strategic assets. They are also the means by which they are transitioning their businesses to the cloud…"

Data centre facilities underpin all aspects of Ireland and Europe's digital economy, and have enabled Ireland's leadership as a strategic international technology hub.

Further, data centres that host cloud-based computing and storage infrastructure for enterprises reflect the dominant future state of an evolving enterprise IT landscape in which computing resources are produced at scale and utilised on a vastly more efficient basis when compared to legacy models in which individuals, SMEs and enterprises utilised on-premise, sub-scale infrastructure. Cloud computing is essentially sharing of compute resources, at scale, to enable better, more consistent performance, at lower cost and with dramatically improved energy efficiency.

Recent research suggests that cloud-based data centres can achieve 3.6 times the energy efficiency of legacy, more distributed and fragmented enterprise facilities due inter alia to a more efficient and complete utilisation of servers, leaner electricity infrastructure, and utilisation of improved server technologies. [4]

The 'Green Data' report referenced above highlights the following in relation to the potential for data centres to enable decarbonisation:

- *"They significantly reduce the emissions from computing – they typically use 80% less energy than traditional on-premises servers to do the same amount of work.*
- *They reduce the need for travel and physical goods, lowering emissions from transport and manufacturing.*

[3] https://www.baringa.com/en/insights-news/points-of-view/green-data-a-vision-for-sustainable-data-centres/

[4] Report by Black and White, 2019, Available at: https://d39w7f4ix9f5s9.cloudfront.net/e3/79/42bf75c94c279c67d777f002051f/carbon-reduction-opportunity-of-moving-to-aws.pdf

- *They support digital technology being deployed across the economy to deliver emission reductions and efficiency gains – a study in Germany[5] estimated that rapid digitalisation could deliver half of Germany's target emissions reductions to 2030.*

As such, data centres located in Ireland can deliver meaningful efficiencies and reduced energy consumption as compared to more fragmented legacy enterprise compute and storage infrastructure.

The Government's Statement also highlights the vital importance of Ireland's technology sector to the State:

"Digital Infrastructure such as data centres underpins our technology sector, which is increasingly cloud based. Ireland's technology sector accounts for €52 billion (16%) of gross value added and employs 140,000 people – equivalent to 6 per cent of total national employment with 40 per cent growth over the last five years.

A recent CSO publication[6], highlights the economic contribution of the ICT sector. In 2019, output for the ICT sector amounted to €128bn. Total exports of services from the sector were some €121.4bn from both foreign and domestic firms[7], with domestic ICT companies exporting 37 per cent of their output. Technology companies invested €46bn in fixed capital assets in 2019, with R&D investment of €1.392 bn."

Investments by technology multinationals in large, long-life assets such as data centres further secures the presence of the global technology sector in Ireland."

IDA Ireland's 2021 – 2024 strategy 'Driving Recovery and Sustainable Growth[8]' sets out several areas which have been identified for growth and continued investment including cloud computing and data centres: "*Specific areas of opportunity include cloud computing, artificial intelligence (AI), 5G, big data, disruptive service platforms, advanced manufacturing, cell and gene therapy, connected health, industrial automation and renewable energy*." All of these sectors require data centre infrastructure to service consumers in Ireland and internationally.

[5] Bitkom 2021

[6] Information and Communications Technology: A Value Chain Analysis, CSO 2019

[7] This increased to €172 bn of exports in 2021

[8] https://www.idaireland.com/driving-recovery-and-sustainable-growth-2021-2024

Response to Specific CRU Consultation Paper Questions

2 3.1 Category of LEU to which this policy applies

EngineNode believes that connections policy should not discriminate against any particular industry.

An overemphasis on categorisation and segmentation of user types is not conducive to efficiently, effectively and quickly meeting the decarbonisation agenda and Ireland's economic objectives.

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?).**

   There is an existing definition of a Large Energy User and the CRU have not provided sufficient reason to introduce any new band.

   System operators should categorise types of user as appropriate to best optimise the operation and development of their particular system. For electricity grids, flat demand profiles such as those presented by data centres provide system predictability at scale.

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.**

   The proposed policy should seek to normalise connection conditions for LEUs as a matter of urgency.

3 3.2 Transition period

We believe that requiring LEUs to achieve net zero emissions at time of connection would not be fair nor feasible, and so we welcome a reasonable transition period.

Data centres have unique characteristics that provide a path to decarbonising energy demand:

- On-site power generation can alleviate grid constraints and enable zero-impact utilisation. Once EirGrid resumes grid connections, on-site power generation developed for data centres can provide "Peaking Plant" services, offering critical load stability services essential for renewables-supported power networks
- Data centre developers connected to Gas Network Ireland's gas transmission network can provide a route to market for Biomethane developers that otherwise does not currently exist via private Corporate Power Purchase Agreements (CPPAs)

- Data centre's large baseload requirements means they can offer CPPAs for the entire amount of biomethane produced by a developer. This can offer certainty and meaningfully de-risk the production of biomethane production assets that otherwise would not exist. Data centres are uniquely positioned to provide this relative to other energy users
- Data centre developers can capture waste heat generated by data centre facilities and export to nearby businesses or residences via district heating schemes, which can significantly decarbonise energy use across a given regional network
- If a private wire policy is established, data centres can leverage significant utility infrastructure investments (such as power substations and transformers) to offer cost efficient shared connection capacity (both export and import) with nearby renewable energy producers

However, in order to enable any of the foregoing, data centre developers need both a) an ability to secure utility scale power and b) certainty of policy requirements providing a path to development approval and appropriate jurisdictional oversight.

We believe that any CRU decision regarding connection of LEUs to the electrical or gas networks should be based on an achievable set of targets and timeframes.

A transition period is consistent with the Climate Action Plan and Government policies, which explicitly make reference to a **"transition**" period, as opposed to any immediate obligation to be net zero at time of connection:

"*As we transition to a climate neutral future, we must ensure the pathway to decarbonisation is underpinned by affordability and security in how we access and use energy in our everyday lives…. The exact pathways to achieving longer term sectoral targets will evolve over time, as some technologies mature and become more cost-effective in response to innovation and increased investment, or as new technologies emerge*[9]*."*

Regarding data centres, a transition period is directly compatible with the Government's statement on data centres[10], which clearly states:

"The Government has a preference for data centres developments that can demonstrate a clear pathway to decarbonise and ultimately provide net zero data services."

Therefore, in alignment with the Climate Action Plan and the Government statement on data centres, we believe that LEUs should be allowed an achievable pathway to ultimately reach net zero emissions within an achievable timeframe, rather than to impose a net zero condition at time of connection.

[9] Climate Action Plan 23

[10] Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy (July 2022)

This would also take cognisance of the ongoing development of the biomethane, hydrogen, solar, wind, battery storage systems and other renewable markets over the next 3-5 years.

As such, we note the Government's objective of achieving 80% renewable electricity by 2030, as described in the Programme for Government. We also note the Government's plans for developing at least 5GW of grid connected offshore wind by 2030, and a further 2GW of offshore wind power for additional non-grid use (such as green hydrogen generation)[11]. We welcome the Government's commitments to achieving these ambitions:

"To make these longer-term goals a reality, during the next 12 months we will develop and publish a revised Offshore Renewable Energy Development Plan, an updated National Policy Statement on Electricity Interconnection, a net zero electricity system pathway and a Green Hydrogen Strategy. Work is also underway on developing a long-term future offshore renewables development strategy, with this policy to be consulted upon this year, with a view to publication of an Enduring Regime for Offshore Wind policy, together with a Phase 3 policy, in Q1 2024. Upon completion of these policies, Government intends to develop a specific route to market for floating wind projects within these designated areas. This is scheduled to be opened in 2024."

We also note Gas Network Ireland's objectives for decarbonising gas supply in support of Ireland's net zero emissions target, through a number of initiatives, including development of biomethane and hydrogen markets and enabling infrastructure such as biogas injection points and a hydrogen-ready network[12]

Given these concrete objectives, and plans to achieve them, we suggest that LEUs, rather have to meet an unrealistic net zero emissions threshold at time of connection, should instead be required to be in step with the achieved level of decarbonisation of the electrical & gas grids over time, as both progress towards their emissions targets, as well as Ireland's overall objective of achieving net zero emissions by 2050.

To facilitate large energy users in achieving a pathway towards net zero emissions a vital and urgent enabler is the introduction of Private Wires, which are necessary to facilitate greater penetration of renewable power Corporate Power Purchase Agreements. To that end, we welcome the intention to enable the rapid implementation of private wires as specifically set out in the Government's Climate Action Plan, with a specific commitment to

"develop a policy on 'private wires' and, if necessary, pass any required facilitating legislation by end 2023".

[11] Accelerating Ireland's Offshore Energy Programme, Policy Statement on the Framework for Phase Two Offshore Wind (March 2023)
[12] Our Strategy 2022 – 2035, Gas Networks Ireland

The Government's ongoing Private Wires Public Consultation process[13], while behind schedule, is a welcome step forward in this regard, and we urge the immediate implementation of a workable, practical regime, including any facilitating legislation, for Private Wires to be rolled out within the next 6 months.

Other methods of decarbonization also need to be factored into consideration of LEUs having a clear pathway to achieving net zero, including battery storage systems, future use of hydrogen, the application of fuel cell technologies, provision of heat from LEU operations into existing and future local government district heating schemes and emergent carbon capture technologies.

The CRU should provide optionality to LEUs to ultimately achieve net zero, recognising that there are multiple current and evolving paths to reducing emissions, whether through different clean energy sources (such as solar, wind, and battery storage) or sourcing options (including physical or virtual PPAs, private wire).

Any policy for connection of LEUs into the electrical and gas networks should take into account that data centres are a key enabler of the process of migrating corporate IT infrastructure to more energy efficient platforms, with the associated reduction in emissions. Data centres located in Ireland can deliver meaningful efficiencies and reduced energy consumption as compared to more fragmented legacy enterprise compute and storage infrastructure. Such energy consumption reductions, and the associated reduction in emissions, must also be factored into any assessments of an LEU's pathway to net zero. 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.

In addition, the requirements for real-time net zero accounting, demand flexibility, on-site generation, and the use of waste heat are all challenging to implement, both technically and financially, and there are several current policy gaps that need to be closed before these conditions can be realised on real projects.

The Irish data industry has already suffered years of uncertainty and risks losing its attractiveness to investors. A practical, achievable transition period is absolutely necessary. The end goals need to be realistic and founded on practically feasible solutions.

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.**

Demonstrating net zero at connection stage is impractical, so a transition period in line with Ireland's overall renewable targets is necessary. In addition, any CRU-mandated

[13] https://www.gov.ie/en/consultation/63e1c-private-wires-consultation/

requirements for LEUs to demonstrate a path to net zero have to be aligned with LEU's demand ramping schedule, rather than being solely based on the total requested MIC, reflecting the real-world demand profiles from initial connection.

In addition, it is not practical for all LEUs to be mandated with *real-time* net zero in the short- to medium-term. At present, and for the foreseeable future, much of the renewable generation in Ireland is or will be either wind- or solar-based – geographically, the country is too small to enable real-time net zero as, for example, weather conditions that result in periods of low renewable power generation are likely to be experienced across the whole island at any given time.

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

Net zero, or real-time net-zero will not be appropriate or necessary for all LEUs in order to achieve a highly carbon-free system. Demonstrating a path to net zero as part of an application for a connection agreement could involve the LEU showing commitment to a CPPA or other instrument within, say, 3 years of the grid connection contract execution to account for the time it takes to negotiate a CPPA offtake agreement. Any obligation to deliver an operational project within a fixed timeframe is not practical, as there are many factors, such as planning permission and grid connection timelines, that are outside of the control of the LEU.

Datacentre development timelines are typically 3-4 years from conception, with ramping of demand thereafter. Some projects are further along this path than others. For example, there are projects that have received planning permission and are ready for construction to begin but had their grid applications terminated by the TSO as a consequence of the CRU Decision of November 2021 (CRU/21/124). The CRU policy should prioritise these projects given that they have had significant sunk investment to date, are ready to begin development and the fact that they have already had to navigate a regularly shifting regulatory regime since 2018.

The sector has had years of uncertainty – it needs a clear path to new connections and renewables now in order to enable future growth in line with renewables. It will take 3-4 years for a new LEU connections policy change to take effect in terms of predicted energy demand. Therefore, the any new CRU policy to be implemented today must consider the renewable power penetration in 2027 or 2028 when new demand would actually occur.

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?

Yes, a menu of options should be available to LEUs. The CRU should provide optionality to LEUs to ultimately achieve net zero, recognising that there are multiple current and evolving paths to reducing emissions, whether through different clean energy sources (such as solar, wind, and battery storage) or sourcing options (including physical or virtual PPAs, private wire).

Energy centres and battery storage systems associated with LEUs are complex in how they can contribute to grid decarbonisation. Measures and mechanisms for the fair evaluation of the contribution LEUs make to system-wide sustainability need to be developed and tested before such options can be assessed.

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.**

   Compliance depends on a clear definitions of requirements from the CRU**.** A key approach to helping LEUs meeting decarbonisation objectives and achieving compliance is for the CRU to provide optionality to LEUs, recognising that there are multiple current and evolving paths to reducing emissions, whether through different clean energy sources (such as solar, wind, and battery storage) or sourcing options (including physical or virtual PPAs, private wire) or sharing energy infrastructure investments with renewable generators.

4 3.3 Measuring performance

In terms of renewable matching – making up the difference between demand and supply of renewables should be a system operator responsibility. The grid should introduce mechanisms whereby the system can self-regulate and match supply against demand over time, rather than seek to impose this responsibility on individual LEUs, which is not possible.

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.**

   Certification of the additionality of Corporate Power Purchase Agreements (CPPAs) and renewable gas would be welcome.

   In addition, renewable gas certificates should be acceptable when sourced from other European or UK sites while the Irish market matures.

   We note that GOs are backed by European regulation[14] and Irish primary legislation; GOs are widely recognised as a method to reduce scope 2 emissions in the greenhouse gas (GHG) protocol. LEUs should have the same access to the use of GOs and GO-backed green tariffs as other electricity consumers.

   It is worth noting that the CEN EN16325 standard harmonises principles and essential aspects of the building blocks of this GO system. This standard does not require a time stamp as part of the Obligatory information on a GO.

[14] Renewable Energy directive 2018/2001(EU)

In line with Article 39(4) of RED II, operators of an EU installation can use biogas in countries that have a biogas registry that also act as mass balance system between member states. More particularly, RED II states:

"*Member States shall recognise guarantees of origin issued by other Member States in accordance with this Directive exclusively as evidence of the elements referred to in paragraph 1 and points (a) to (f) of the first subparagraph of paragraph 7. A Member State may refuse to recognise a guarantee of origin only where it has well-founded doubts about its accuracy, reliability or veracity. The Member State shall notify the Commission of such a refusal and its justification*".

We note that there are currently no incentives in place to support uptake of CPPAs, despite the fact that the Climate Action Plan explicitly sets a policy delivering substantial investment in renewable electricity projects through non-subsidised private sector contracts via CPPAs.

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.**

No, LEUs should only be required to match to the renewables penetration for the electrical grid as it increases over time towards the grid's objective of 80% renewable by 2030, enabled through procurement of renewables and storage, if government deliver the required accounting framework.

The CRU policy should provide optionality to LEUs to ultimately achieve net zero, recognising that there are multiple current and evolving paths to reducing emissions, whether through different clean energy sources as applicable or available to such LEU (such as solar, wind, battery storage and hydrogen) or sourcing options (including physical or virtual PPAs, private wire) or sharing the substantial power infrastructure investments with renewable generators.

Corporate goals percolate from their international strategies and each will have different approaches as to how they plan to achieve reduced emissions. The policy should recognise this difference.

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 performance on an annual basis and moving closer to more real time arrangements in incremental steps.**

The policy should support a transitionary period to net zero, rather than requiring having it in place at the time of connection – the CRU policy should allow LEUs connect by demonstrating a clear path towards net zero. The CRU policy should provide a practical, achievable glidepath / transition towards net zero in line with Government policy, which would be significantly in advance of Ireland's overall 2050 target.

This would enable LEUs to connect to the electrical & gas grids while working toward an achievable net zero target in collaboration with Government, the CRU, and the utility operators.

10. **Comments are invited on the use of self-reporting based on best available data/methodology and transitioning to a more robust formal framework over time when it becomes available.**

    Existing self-reporting mechanisms, such as the EU Climate Neutral Data Centre Pact, should be used.

    The EU Energy Efficiency Directive mandates the national collection of efficiency metrics from data centres. The CRU policy should not require the establishment of additional reporting requirements.

11. **Comments are invited on the requirement for indigenous sources of renewable energy e.g. renewable electricity feeding into the Irish system and for gas secure sufficient renewable gas credits feeding into Irish system.**

    Existing mechanisms for tracking cross-border guarantees of origin should be recognised. As stated above, and in line with Article 39(4) of RED II, operators of an EU installation can use biogas in countries that have a biogas registry that also act as mass balance system between member states. RED II states:

    "*Member States shall recognise guarantees of origin issued by other Member States in accordance with this Directive exclusively as evidence of the elements referred to in paragraph 1 and points (a) to (f) of the first subparagraph of paragraph 7. A Member State may refuse to recognise a guarantee of origin only where it has well-founded doubts about its accuracy, reliability or veracity. The Member State shall notify the Commission of such a refusal and its justification*".

    Renewable gas does not need to be indigenous as it achieves the same purpose, regardless of source. Over 75% of Ireland's natural gas is fed from the UK through the Moffat compressor station and pipelines. The UK is connected to the European continent for 40% of its gas.

    Electricity interconnectors (UK and France) will enable more real trading of renewables and should be recognised in measuring net zero credentials.

12. **Comments are invited on how the storage of renewable energy is captured by any measurement system when this stored renewable energy is used.**

    System-wide storage of electricity cannot account precisely for the source of generation. The CRU policy should allow for market mechanisms which incentivise storage when renewable generation is high.

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?

Clearly there is a need to account for the necessary provision of baseload generation in a manner that gives credit to providers of such generation. LEUs providing baseload generation should not be unfairly penalised in terms of sustainability credentials where they are providing a service that helps increase overall renewable penetration on the system.

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

The roles of EPA and SEAI should be clearly delineated in terms of adjudicating on emissions performance.

There are sufficient Existing and planned schemes for measuring data centre energy performance. The EU EED (Article 12) obliges the establishment of an EU performance database for data centres, with national data gathering by government. The EU Climate Neutral data centre pact provides further measurement by data centre operators.

Duplication of systems for measurement should be avoided.

5 3.4 Location of LEUs

The greater Dublin area, which includes counties Dublin, as well as parts of Meath and Kildare, represents a Tier 1 location for data centre connectivity. Cloud service providers have already established Availability Zones and Regions with massive infrastructure investments in the greater Dublin area from which they offer their services. These regions are physically limited by distance – data centres in a region can't be located so far away from each other that network latency becomes an issue, or too close together such that redundancy is compromised.

The greater Dublin area (not Ireland) has established itself over a 20 year period of significant investment in grid, fibre and other digital infrastructure as a reliable zone, driven by network effects[15]. The development of the T50 trunking network around Dublin facilitated this organic growth.

Cloud Service providers also operate from other established European locations (Frankfurt, London, Amsterdam, Paris (FLAP)), the Nordics, and from an increasing number of Tier 2 locations (Milan, Bilbao, Madrid, etc). Business and government customers select which regions to put their data and IT services. These business customers have an absolute requirement that their data and associated processing is located in proven reliability zones.

[15] The Network Effect: The network effect is a business principle that illustrates the idea that when more people use a product or service, its value increases. The network effect significantly applies to digital platforms, dating all the way back to the internet itself.

Customers also need headroom to accommodate their future growth in their chosen locations. Indeed, this is evident in tenders for IT services posted by a number of Irish state agencies, where a Dublin area location has been a qualifying criterium.

Even if new fibre and grid infrastructure were built in a different region in Ireland outside of the greater Dublin area, as a result of the way that hyperscalers deploy their services (based on established availability zones) it does not follow that new regional zones would be established in that region by the hyperscalers.

A new regional cluster, or metro, would require significant forward investment in fibre infrastructure (to compare with T50), and IT infrastructure (exchange services) that have taken over 20 years to achieve in the greater Dublin area.

It is more likely that, if connections to the electrical grid and gas networks in the greater Dublin area are not facilitated now by any new CRU Decision, then projects will move to more attractive markets outside of Ireland, such as to other cities in Europe, as is already occurring. Since the de facto moratorium on new data centre connections since 2021, other data centre regions across Europe have been attracting significant data centre Foreign Direct Investment away from Dublin.

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.

A CRU policy that facilitates electrical and gas network connections immediately for LEUs in close proximity to renewable power generation is a good concept, and should be supported in any CRU Decision.

However, the CRU policy should also recognise that this will not be feasible for the vast majority of LEU developments. Data centres typically depend on clusters with diverse connectivity.

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

We believe Ireland's decarbonisation objectives will be advanced by renewable power generators, who are proximate to a data centre, being able to utilise the substantial power infrastructure investment of that data centre. This is particularly the case for those developments close to the greater Dublin area, where there are more limited opportunities for renewable power generation. This should be factored into the decision to offer a grid connection to a data centre.

More generally, we note that any proposed new regional data centre cluster outside of the greater Dublin area, would require significant forward investment in fibre infrastructure (to compare with T50), and grid infrastructure of the order of 000's of MW to have any chance of succeeding. This is even assuming that there would be customer demand for data centre capacity in any new region in Ireland, which is questionable.

LEUs also need to locate in areas which are attractive to IT workers and technicians.

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?**

    An incentive-based approach would be better in the longer term to allow LEUs to develop organically. Locational requirements should not form part of grid connection policies.

    The CRU policy should take account of the benefit of proximate renewable power generation facilities and data centres being able to share power network infrastructure.

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?**

    We do not believe any arbitrary distance limitations should be set. Any assessment should be made on a case-by-case basis by the TSO, taking account of the nature of the network capacity / constraints in that particular location, including in the greater Dublin area (where the demand exists).

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?**

    System operators should categorise types of user as appropriate to best optimise the operation and development of their particular system, whilst meeting their obligations to meet customer needs. For electricity grids, flat demand profiles such as those presented by data centres provide system predictability at scale.

20. **If introduced on a mandatory basis should locational requirements be implemented using a glide path?**

    Projects which have planning permission and advanced power applications in the Dublin area should be prioritised and allowed to be offered grid connections (the majority of which had their grid applications terminated by the TSO following the CRU Decision of November 2021 (CRU/21/124)) in advance of any expectation of establishing new projects in unproven locations.

6 3.5 Non-firm demand connections

We understand non-firm demand connection requirements can be interpreted in different ways, and would welcome some clarification from the CRU.

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.

Non-firm connections should not be introduced on a mandatory basis. Data centres require certainty of power availability in order to meet the service level agreements they must sign up to with their end customers in order to operate.

Flexibility should be an optional service, made attractive by suitable incentives.

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

Certainty of a pathway to firm power would allow LEUs to make plans as to how they can deploy financially viable system supports. Ideally this would include date(s) specified upfront.

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?

Renewables that are proximate to data centres can benefit from sharing the substantial power infrastructure investments made by those data centres, making more efficient use of grid connection points.

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 portion than this?

Further comment depends on the definition on non-firm and the associated criteria.

25. Comments are invited regarding what incentives could be applied to facilitate non-firm LEU connections. Should these incentives recognise the potential locational value of these?

No comment.

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

Grid-based solutions could offer a meaningful way to achieve the objectives of matching renewables using flexibility and security of supply. They would also represent economies of scale with centralised projects into which LEUs could invest.

Existing mechanisms for electrical grid flexibility have presented operational challenges for LEUs. These include the allowances for maintenance windows, risk of clashes with peak customer demand times and notice periods (currently circa 5 minutes).

Flexibility should be an optional service, made attractive by suitable incentives, not mandatory.

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

The definition of 'islanded' should only apply to those LEUs that intend for the on-site power generation to be the primary source of power on a permanent basis.

The current EirGrid / CRU policy for data centres to connect to the electrical grid includes a criteria that they must have on-site power generation and/or storage to a level that is equal or greater than the Maximum Import Capacity (MIC) sought from EirGrid for the connection. We believe it is for this reason that LEUs have sought to develop on-site power generation. We do not believe LEUs intend permanently power their operations from such facilities.

Those LEUs that intend to migrate to the electrical grid once the grid is ready to accept new connections should not be treated as islanded – the on-site power generation is only for an interim period, and therefore should not be treated as islanded.

Similarly, those that LEUs that intend to source as much as renewable fuels as is feasible in the market should not be treated as islanded (i.e. as part of a broader energy mix, including the likes of wind, solar, battery, biomethane and hydrogen).

7 3.6 On-site generation and storage

Certainty of a future pathway to firm power would allow LEUs to make plans as to how they can deploy financially viable system supports. Ideally this would include date(s) specified upfront.

The electricity grid requires baseload generation to balance the (un)availability of renewable power. Renewables cannot grow without stable demand. The system needs 2,000 MW of dispatchable generation. Where data centres have been required to build onsite dispatchable generation in order to be offered (flexible) grid connections, the contribution their investments make to the national picture should be properly recognised and rewarded.

Energy storage on-site could help with load shedding but the system also needs storage at system-level. LEUs could invest in grid-scale storage at remote sites (centralised or distributed in nature) to support overall balancing of variable renewables. The absence of private wire legislation in the short term is a challenge the CRU should recognise and therefore take this opportunity to facilitate market-based generation and storage projects immediately. A mechanism for LEUs to partner with / finance such projects would unlock growth opportunities.

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.

We believe the CRU policy should prioritise those LEU grid connections that have planning permission and have shown progress towards decarbonisation.

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 generation is a fall-back position in the event that the utility cannot provide power. We are not supportive of placing arbitrary limits on the operational availability of on-site generation. The investment cost for such generation is extremely high so LEUs would struggle to financially justify the construction of such facilities without certainty that they will be allowed to operate.

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

Back-up generation is typically provided by generators that match or exceed the power requirements of the data centre facilities. Some may now run on carbon-free fuel alternatives such as hydrogenated vegetable oil. The generators are test-run on a monthly basis (10-20 minutes at a time) to ensure their availability in a backup situation. Batteries and UPS systems provide the initial support, with generators triggered to provide backup. Facilities usually store 72 hours of backup fuel at full load. It should be noted that the technology used is only designed for limited lifetime run-hours and is sub-optimal for extended grid support.

8 3.7 Demand flexibility

Data centres have limited potential for demand flexibility, and we believe should only be offered non-firm grid connections on a voluntary basis.

Backup generators are designed for occasional use. Demand from the IT customer is tied to service level agreements and the requirement for 100% overall uptime.

Better forecasting of the type and duration of flexibility required would assist in designing flexibility systems. System operators will need to develop smarter systems to signal live flexibility requirements to LEUs. With a central-dispatch system it seems unreasonable to require end users to develop systems whilst remaining blind to the system needs.

We do not support the view that LEUs should be expected to make a higher proportional contribution to the target of 20-30% of electricity demand being flexible by 2030 - LEUs should be expected to make the same proportion of flexible demand as all other sectors.

Not all solutions to flexibility need to be located behind the meter in order to achieve the objective of matching variable renewables. A system-wide market-based approach would provide the most economically viable option. This would encourage investment in technology while not curtailing growth. Utility-scale solutions should not be excluded from flexibility mechanisms.

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.

We are supportive of CRU policy that would incentivise LEUs to leverage batteries and other technologies to provide system support at times of instability on the grid, enabling LEUs to justify the significant additional investments involved.

We do not believe flexibility services by LEUs should be used for decarbonisation, as overall decarbonisation of the gas and electrical grids should be the responsibility of the relevant TSO, who are best positioned to fulfil this function.

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

Large Energy Users (LEUs) can play a valuable role by voluntarily supporting grid reliability with the right enabling framework in place. However, demand flexibility should never be a mandatory requirement for securing a grid connection.

Requiring demand flexibility would put Ireland's competitiveness at risk. Internationally, flexibility is delivered through top-down market-based approaches and price signals – such as attractively priced flexible connection products offered by TSOs and not through bottom-up mandatory demand flexibility requirements.

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

Limiting investments to on-site could constrain the opportunity for LEUs to deploy effective solutions to support decarbonisation and integration of renewables on the electrical grid.

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

Incentives to engage in future flexibility schemes should provide sufficient financial returns to make the investment in flexibility projects viable and/or offer other incentives such as unlocking firm capacity on-site or at other sites owned by the customer.

The existing Single Electricity Market systems are not designed to facilitate optimal flexible on-site generation or Battery Energy Storage Systems in the operation of the electricity market, and this should be prioritised and delivered in advance of requiring LEUs to physically invest in such solutions.

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?

A menu of attractive options should be allowed, instead of mandating flexibility.

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

No, timed / profiled connections should not be introduced. Timed profile connections are not practical for the vast majority of LEUs.

9 3.8 Energy efficiency & District Heating

The EU Energy Efficiency Directive[16] (EED) - Article 12 defines new requirements on member states to collect and report information on data centres operating in their territories. We understand the government are in the process of establishing mechanisms to comply with this requirement.

We do not see how additional efficiency requirements linked to utility connections would add value.

District heating networks need to be built faster. Heat use requires proximity of LEUs to end users, such as residential schemes. Some local authorities already require data centres to facilitate connections for future district heating networks, and data centres have obliged. However, the heat networks remain undeveloped and much of the existing heat resource remains untapped.

The Government's District Heating Steering Group reported in 2023[17]:

[16] DIRECTIVE (EU) 2023/1791 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955 (recast)

[17] District Heating Steering Group Report 2023: https://assets.gov.ie/265549/487f6e25-427d-4ba3-acc8-d3b5e6272b46.pdf

"The absence of developed policy, legislative and regulatory frameworks was identified as a key barrier to the mobilisation of private and public sector investment in district heating. Legislation is required as a priority to support the development and expansion of district heating networks and to attract investment. Primary legislation will be required to ensure that developers of district heating projects have the necessary legal powers (vires) to operate in the sector, and to facilitate regulatory provisions to enable customer protections, as well as putting in place licensing and consenting provisions for district heating operators. Legislation should also mandate that public sector buildings connect to available district heating networks (where technically and economically feasible), and that industrial facilities supply waste heat to district heating where total rated energy input is at least 1MW. Additionally, legislation should provide for a single technical standard that facilitates the growth and strategic interconnectivity of district heating systems and provisions for State ownership of district heating infrastructure in the longer term."

Recommendations from the District Heating Steering Group's 2023 report included:

1. *Legislative framework required to include licensing and technical standards for interconnection of systems.*
2. *Appointment of an oversight entity to form rules for district heating systems.*
3. *Establishment of a centre of excellence.*
4. *Financial / grant supports for end-users of district heat.*

"The Climate Action Plan 2023 commits to implementing the recommendations of the Report and to reach a delivery target of up to 2.7 TWh by 2030, with up to 0.8 TWh by 2025."

Only when these recommendations have been fully implemented, will it be reasonable to place conditions on LEUs to connect to district heating systems.

Any requirement for LEUs regarding to district heating systems must be limited to provision of excess up to the border of their property, with local authorities ultimately responsible for connecting their district heating schemes to the LEUs.

Any district heating policy could also extend to power generation facilities - approximately 60% of the energy used for power generation from fossil fuels is already lost as unrecovered heat.

There is a conflict in terms of locating LEUs close to renewable energy resources, whilst also locating close to heat demand, so a nuanced approach should be taken to district heating support requirements for LEUs.

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

The waste heat availability from LEUs varies from low-grade to high-grade. On-site power generation provides high-grade heat. Waste heat from air-cooled servers provides low-grade heat. Matching the heat source to heat demand requires an appropriate physical interface, often requiring additional energy-using equipment (heat exchangers, heat

pumps, etc) which also push up the electricity demand of the LEU. Thermal energy degrades with distance, and time of use / seasonal profiles need to be properly matched.

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

District Heating networks should be developed and operated independently, most likely by local authorities, with business cases that make sense (with government support as necessary), backup systems, and a clear regulatory regime. Data centre operators have successfully participated in district heating schemes in other European cities, and will do the same in Ireland when the business case is clear.

If there is to be a requirement for LEUs to invest in interfacing with district heating systems up to the edge of their property, there should be a parallel requirement for end users to use available waste heat where available locally. District heating systems need a large anchor demand user.

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.**

Many LEUs will be open to providing free heat to district heating schemes but should not be contractually locked into providing heat 24/7. The inclusion of infrastructure to export heat can reduce the efficiency of the LEU and add cost.

10 3.9 Gas

Gas Networks Ireland is obliged under Section 10A(2)(a) of the Gas Act 1976 to offer to connect all customers seeking to connect to the gas network. The current "pause" on processing applications from data centre customers is discriminatory to the data centre industry and is clearly in breach this section of the Gas Act 1976.

The integration of planned 22 GW of renewable wind and solar power to the grid requires 2,000 MW of gas as a backup to support grid stability. We are supportive of the CRU working with LEUs to successfully deliver the 2,000 MW of required gas in the appropriate fashion, which will enable further LEU connections to the grid and ensure Ireland achieves its Climate Action Plan targets.

GNI are developing the framework for Renewable Gas Certificates. LEUs need to be encouraged to use renewable gas certificates to both help the development of new facilities and reduce the emissions from these units that are required to be based off the gas network.

In addition, renewable gas certificates should be acceptable when sourced from other European or UK sites. Indeed, in line with Article 39(4) of RED II, operators of an EU

installation can use biogas in countries that have a biogas registry that also act as mass balance system between member states. More particularly, RED II states:

"*Member States shall recognise guarantees of origin issued by other Member States in accordance with this Directive exclusively as evidence of the elements referred to in paragraph 1 and points (a) to (f) of the first subparagraph of paragraph 7. A Member State may refuse to recognise a guarantee of origin only where it has well-founded doubts about its accuracy, reliability or veracity. The Member State shall notify the Commission of such a refusal and its justification*".

The assumption that on-site power generation using gas somehow "locks-in" emissions from new developments is fundamentally flawed – for most, if not all, LEUs, on-site power generation from gas is only a transitionary step. CRU should recognise that a majority of LEUs would only implement on-site power generation using gas if they are required to by EirGrid and the CRU decision CRU/21/124 in order to get a grid connection, and would intend to move back towards electrical grid power consumption as the primary source of power as soon as connections to the grid are available again.

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?**

Biomethane has the potential to contribute to the decarbonisation of on-site generation, particularly when on-site generation is only called upon at times of grid constraint. Gas Networks Ireland stated in their 2023 Biomethane Energy Report that the CAP target of 5.7 TWh could be exceeded with production of 14.8 TWh possible by 2030. If realised, demand would likely outstrip supply but uptake of supply depends on subsidies to manage the cost of indigenous supply, and timing of the actual delivery of assumed supply capacity.

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.**

On-site generation using gas (including biomethane) should not be restricted to limited running, in the scenario where the LEU has a grid connection and the on-site gas generation is only being called upon by EirGrid in support of the grid.

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 is a future technology which should not have any bearing on connections policy in 2024.

The National Hydrogen Strategy[18] identifies industrial use of hydrogen as only relevant in a "small number niche applications" up to 2033**.**

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

GNI Should progress with developing the renewable gas certification scheme.

The Irish biomethane market needs time to mature. Physical and virtual Imports of biomethane from EU and UK would help create market-pull, and help to stabilise the price of biomethane by leveraging a more mature market.

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

Alternative fuels could be considered, although it should be recognised that any new technology will need time for implementation.

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.

It is unclear what problem interruptible gas supplies are intended to solve. GNI design every new demand connection to not overburden the network infrastructure, even in a 1 in 50 year worst-case scenario. The concept of interruptible gas supplies overlaps with the natural gas emergency plan already under the remit of GNI.

It will not be possible for LEUs to look to develop with interruptible gas supply contracts because the services provided by data centres to their end users (technology companies and enterprises) are mission critical in nature.

Interruptible supply would be appropriate only where gas from GB was cut off or reduced. This seemed significantly more plausible in the years immediately after Brexit and in the months after the Russian invasion of Ukraine. Since then, the markets have stabilised. More particularly, the Government's commitment to build an LNG facility in Ireland, as announced in its energy security strategy in November 2023, renders the concept of mandatory interruptible gas supply contracts redundant.

In addition, the security of the supply profile for gas is not comparable with that of the electrical grid, with a significantly lower risk.

If priced appropriately, customers may opt for an interruptible supply contract and blend that supply with other technologies to ensure a firm connection. This should however be a product offered at a competitive pricing point, and not be mandated onto any LEU.

[18] The National Hydrogen Strategy: https://www.gov.ie/en/publication/624ab-national-hydrogen-strategy/

Otherwise it is a signal that the Irish system is not capable of providing firm power to consumers and will damage Ireland's competitiveness. Such an approach would risk sending further negative signals to the market about Ireland's energy reliability. Firm gas supply contracts must also be available to ensure customer redundancy and resiliency requirements are met.

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

As a means to provide generation during times of low renewables, the gas system can be a key enabler of more renewables on the grid, contributing directly to decarbonisation, as well as the obvious benefit of supporting the grid.

11 3.10 Connection Considerations / Assessment criteria

There are different types of LEU, and their business models can vary widely. Digital infrastructure is a rapidly evolving sector, as is the energy sector. Overly-prescriptive rules designed for today's problems are likely to become obsolete very quickly. For this reason, we are supportive of optionality for LEUs to contribute positively towards Ireland's decarbonisation objectives.

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.

A menu of options should be available to LEUs. LEUs are corporate entities with individual global decarbonisation commitments and assessment criteria for projects. The CRU should aim to create the conditions whereby LEUs can drive decarbonisation whilst avoiding over-regulation or applying prescriptive solutions that may soon become outdated.

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

Location should not be an assessment criteria. Projects should be assessed on a case-by-case basis, including on how they contribute to decarbonisation goals, regardless of location, including in the greater Dublin area.

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

Progress towards our national renewable energy targets will depend on investment certainty for renewable energy developers. LEU's are best placed to provide certainty of future demand, and to contribute to the flexibility required to integrate these renewable resources into the energy system.

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

Traditionally, grid connections were batch-processed. Projects that have i) planning permission and ii) had their applications terminated following the CRU Decision in November 2021 (CRU/21/124) should be prioritised.

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

No comment.

12 3.11 Roles of other organisations

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

The roles of the local planning authorities, system operators, the EPA, SEAI etc should be clearly identified and delineated as they relate to the proposed policy going forward.

Any assessment against evaluation criteria should be carried out by the entity that is most suitably qualified.

So, electricity and gas TSOs should have responsibility for assessing whether or not the grid or gas capacity sought by an LEU in a connection application in specific location is achievable, as they have always done. The TSOs are the only entities in a position to determine whether and what level of capacity is available to an LEU applicant on a case-by-case basis in a specific location, and so should have clear responsibility for this.

TSOs do not necessarily have the expertise to evaluate other potential criteria.

Applicants that have existing planning permissions, and those that had their grid applications terminated following the CRU decision of November 2021 (CRU/21/2124) should be prioritised.

We are not supportive of a blanket ban by the CRU of grid or gas connections for LEUs in particular geographical locations, as this does not take account of specific locations where there may be some available capacity. Such a measure is a crude regulatory intervention.

Similarly, planning authorities, either councils or An Bord Pleanala, have responsibility and the expertise to make planning decisions, including taking government policy into account, including environmental policy, as they have always done. Planning authorities should not be expected to adjudicate on national energy issues, as they do not have the big picture or the expertise in that space.

Ultimately, there is merit in the government appointing a dedicated minister to oversee the development of Ireland's digital infrastructure to provide an coherent and co-ordinated direction to enable the state to meet its twin objectives of developing the digital

economy and decarbonisation. We do recognise that this is beyond the remit of this CRU consultation.

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.

No comment.

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.

No comment.