Waterford Institute of Technology

WALTON Institute for Information and Communication Systems Science

t: +353 51 302920
f: +353 51 341100

e:info@waltonistitute.ie

w:www.waltoninstitute.ie

Commission for the Regulation of Utilities
The Exchange,
Belgard Square North,
Tallaght,
Dublin 24

Submitted via email: **CEPinfopapers@cru.ie**

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Submitted by: **Sean Lyons, WIT Project Lead for the RegEnergy Project**

Contact: **sean.lyons@waltoninstitute.ie**

In Response to: **Consultation on Energy Communities and Active Consumers**

Reference: **CRU/21028**

Introduction

The Walton Institute (formerly TSSG) is the Information and Communications Technologies (ICT) research arm of Waterford Institute of Technology (WIT). We carry out a wide spectrum of industry-informed research in ICT, particularly technologies enabling communications and information services and has a team focused on solutions in the smart grid energy space. RegEnergy is a Northwest Europe Interreg programme and WIT, as one of the project partners, is developing technology to enable smart grid initiatives such as Peer to Peer (P2P) energy trading which will facilitate the evolution of prosumers who will form the heart of Energy Communities.

The EU has developed the Clean Energy Package (CEP) that will help the EU meet its 2030 climate and energy objectives. In particular, the Renewable Energy Directive and the Internal Electricity Market Directive contain provisions that establish a supportive EU legal framework for community ownership. In preparation for the transition to these new energy systems, WIT is developing an Optimisation software platform with the potential of being the hub of energy clusters such that supply and demand profiles can be balanced in a local, distributed manner and facilitate Energy Communities. WIT, through the RegEnergy project, is trialing technology at a number of commercial and industrial sites and envisages the data and learnings that emanate from them may inform decisions going forward and become part of the consultation process.

CRU/21028 requests feedback from stakeholders and the following is the WIT response under the following headings.

1. **Do you have any comments on the approach the CRU is proposing to take to use these energy activities listed above to form the basis for which a regulatory framework is applied to market actors engaged in these activities?**

We agree with listing all activities such that regulatory requirements for each activity can be catered for and made to suit the level of activity.

2. **Are there any additional energy activities which should be included in the list**

above?

The list appears complete.

3. **Which option do you consider to be the best approach to apply regulatory oversight to market actors who offer services related to new energy activities outlined in the CEP?**

We feel there is a necessity to apply regulatory oversight to market actors who offer services related to new energy activities. However, it should reflect the scale of the activity this actor is engaged in. For all actors, particularly smaller ones, the option to engage with an existing supplier with a license should be present. Therefore, Option C may present the most flexible option where guidelines can be followed for the activity you are involved in. We feel it would be necessary that all actors would have a legal standing such that their license depends on conforming to set rules. This would also provide an entity to engage with the market on behalf of the community in relation to spill levels, support schemes, capacity issues, etc. and act as a contact point with 3rd party services. Oversight can also be applied to the governance of the community in relation to decision making, fair and reflective remuneration among all members, etc. This legal designation for the type of actor also plays a role to ensure there is no crossover with any support schemes. For instance, an active consumer who is availing of a Microgeneration support scheme and subsequently joins an Energy Community may need to change their designation through its legal entity.

4. **Can you identify an alternative approach to applying effective regulatory oversight to market actors engaged in new energy activities which is not outlined in this Consultation?**

Covered in Q3.

5. **Do you agree with this approach?**

Yes

6. **What do you consider to be the best format for this type of framework? (e.g. Codes of Practice, Guidelines of Best Practice, Minimum Standards for Consumer interactions, etc.)**

Flexible system which covers all aspects and reflects the scale of activity of the entity.

7. **Do you agree with this approach?**

Yes

8. What type of information do you think should be required to register?

All relevant information to allow the actor to engage with the market and ensure governance of the entity.

9. What initial considerations should the CRU assess to enable effective participation by aggregators in the electricity sector?

As aggregators already exist in the market, current mechanisms can be extended to include the new actors including JARSC's and REC's trading virtually with and within CEC's. An independent aggregator with no affiliation to a supplier should be able to contract with the energy community for the purpose of pooling their generation load to participate in the wholesale electricity market or in auctions.

10. Do you agree with this approach to distinguish proximity requirements between CECs and RECs?

We broadly agree with the proximity requirements outlined for both CECs and RECs. REC's should relate to electrical proximity such that energy sharing can be physical such that the benefits as outlined in Q14 and Q20 below can be realized and an appropriate incentivization system can be put in place to support it. As CEC's don't have a proximity clause, a number of REC's and/or JARSC's can also be part of a CEC. Virtual sharing can occur within the CEC and any support scheme should reflect the limited benefits accrued, as per Q15.

We also believe there is a clarification required for proximity requirements for JARSC's beyond a single building. Single premises should also cover multiple buildings under single ownership which are designated in the Directives as 'within confined boundaries' such as hospitals, college campuses, ports and single owner industrial parks. Where this sharing occurs across multiple meters, but within single ownership, these sites would be located in close proximity within the community and electrically behind a single substation and be designated as JARSC's.

11. If the CRU maintained the existing data protection requirements and applied them to market actors offering new services, either through licencing or contractual arrangements, would that be enough to effectively ensure consumer's

data is being protected as they engage in these new activities?

As consumers can seek third-party management of their activity, data protection and access issues must reflect this.

12. Are there any other arrangements in relation to data protection that the CRU should consider to ensure the appropriate consumer protections are upheld?

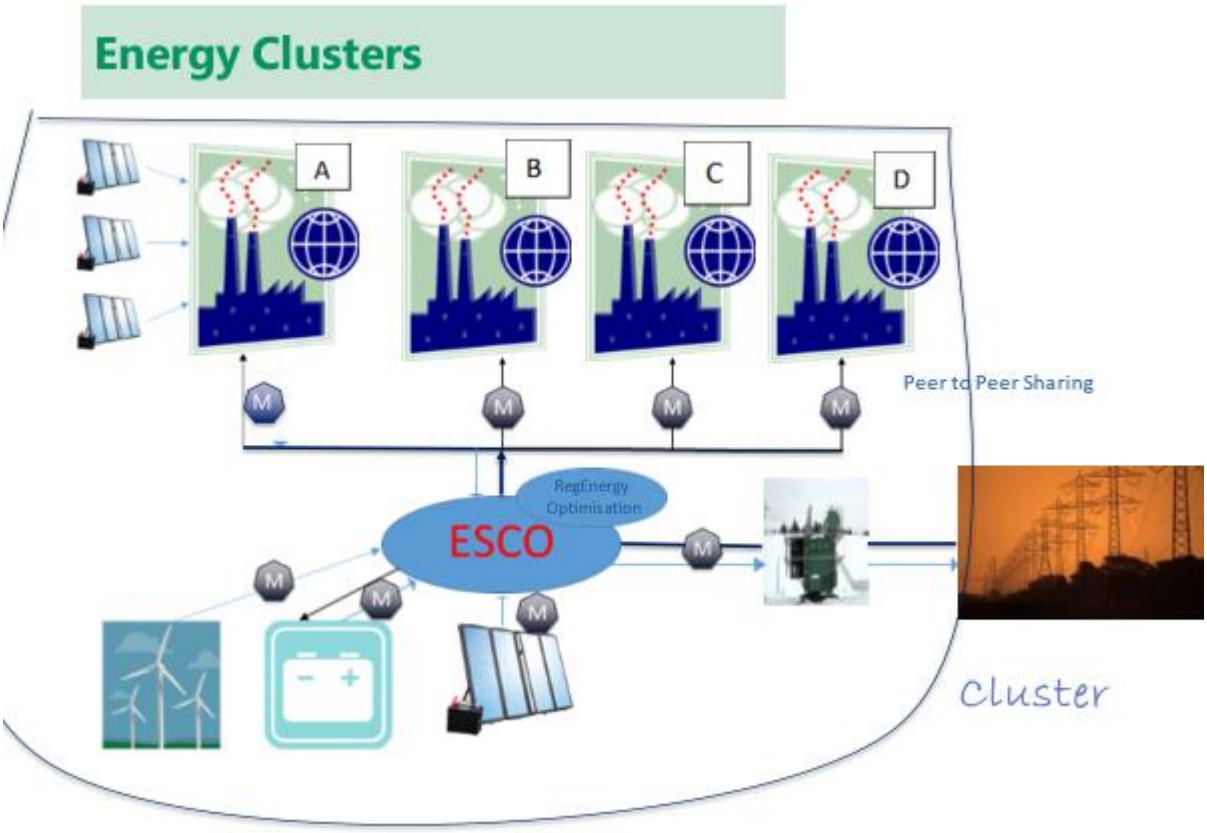
Not aware of any.

13. Do you see any further challenges associated with data access that should be considered for market actors engaged in new energy activities?

No.

14. Do you have a view on how physical energy sharing or trading would work? If so, can you provide an example?

Transposition of the EU Directives in a practical manner offers Ireland a significant opportunity to enable mechanism such as peer to peer (P2P) sharing which will facilitate Energy Communities and Energy Citizens to play a central role in the transition. The advantages of P2P trading and the advancement of Energy Communities is laid out in Q20 of the response to DECC. How such a community can realise these advantages can be seen in the Diagram below.



Smart metering systems will provide granular data for all members of the community – residential, commercial or industrial which will be located behind an electrical node as addressed in Q10 above. They can then use prediction technologies to build energy profiles of local consumers which will facilitate the design of generation systems that suit the demand and capacities of the members and the local grid. P2P platforms can then balance, as much as possible, the generation profiles of local renewable energy with the members load profiles on a fine-grained time basis. The P2P platform can also integrate with the wholesale energy market where half hourly time of use tariffs are available and arbitration techniques can be used to amend consumption behaviour. This further assists the grid by relieving pressure at high demand intervals. Where members have flexibility in their processes, this can be automatically optimized by actuating high load systems to suit market tariffs and available local renewable energy.

Aggregated cluster loads provide a more stable, predictable profile where issues of seasonality can be overcome such that renewable energy systems can then be designed to suit the entire cluster. Solar and wind technologies can be integrated within and for the community to specifically suit its aggregated load profile. Where renewables are integrated

behind the meter of a member, (as per site A above) they now have a market for excess energy which can be shared within the cluster as part of balancing the sustainable cluster. Battery systems, Demand Side Management and load shifting techniques can also be deployed to maximise the percentage balancing the Energy Community can achieve.

The Energy Communities Optimisation Management system monitors the flows of energy through supply and generation meters. It will also control variable and flexible assets such as batteries and flexible loads which can be ramped up or down to maximise balancing. The community can integrate with the market and wider grid depending on its legal designation (as per Q3 above) or partner with a licensed supplier (ESCo) to trade on its behalf. This entity would provide balancing and settlement functionalities within the cluster and with the grid and markets. This example can be related to the transposition of the Directives within the various designations as follows.

Renewable Self Consumers - including Jointly Acting (JARSC) should be entitled to generate renewable energy (RE), including for their own consumption, and share this RE through P2P trading arrangements and not be subject to discriminatory or disproportionate procedures and charges, and to network charges that are not cost-reflective. Should this RE remain within a single premise, there should be no grid charges applied, as only the internal network is being used. This single premises could be an office or apartment block, shopping centre or municipal building.

Single premises could also cover multiple buildings under single ownership which are designated as 'within confined boundaries' in the Directive such as hospitals, college campuses, ports and single owner industrial parks. Where this sharing occurs across multiple meters, but within single ownership, these sites would be located in close proximity within the community and electrically behind a single substation. There should not be a size limit on Single Premises in relation to number of sites or amount of RE installed. However, a cap could be placed on the amount of energy that entity could export on to the grid as opposed to consumed themselves. These 'Single Premises JA RSC's' therefore may need a classification which a Maximum Export Capacity (MEC) could be applied to. Charges may apply outside single buildings, as a limited area of the distribution grid is used, where a cost benefit analysis (CBA) should be undertaken to assess fair and cost reflective tariffs/support schemes to enable JA RSC's, while reflecting the advantages they bring to the overall grid. The CBA should also cover the level of RE the RSC could export to the grid.

As it may be difficult to amend network charges and the necessity to socialise grid costs, it may suit the Irish market model to use a Support Scheme mechanism which would

align with the recently introduced Community auction pot from the RESS scheme and the upcoming proposals for Microgeneration. The support scheme should reflect the advantages outlined for the physical sharing of energy within a community (Q20) above what a RESS or Microgeneration project provide that simply spill to the grid. The extra costs associated with executing trade flows and managing the community should be reflected. The community's legal framework should ensure that savings are fairly distributed amongst the members which adequately reflect both generation and consumption. It is critical that an Incentivisation system is put in place to realise the potential of Energy Communities and to meet Government targets and the stated target of 500MW by 2025 coming from community projects. It is clear this will not be met by RESS alone and EC's offer a framework that will have a far greater reach within communities and offer them to play significant roles within energy markets as prosumers.

Renewable Energy Communities (REC's) are entitled to share, within the renewable energy community, renewable energy that is produced by the production units owned by that REC. Unjustified regulatory and administrative barriers to renewable energy communities are to be removed with cost-reflective network charges. A cost benefit analysis should be undertaken to assess fair tariffs/support schemes to enable REC's, while reflecting the advantages they bring to the overall grid. To accrue these advantages to their fullest, REC's should be located within a local community and electrically behind a single node or group of interconnected substations. Members of the REC can be multi owners and could be tenants in an Industrial Park, group of Agricultural sites, Commercial entities, Housing Estates, etc. or a mixture of the above once they are located together. Their size should not be limited in size to numbers or levels of energy. Export of energy beyond the REC to the grid could be capped and this level could form part of the CBA. REC's therefore may need a classification which a Maximum Export Capacity (MEC) could be applied to. Similarly to JARSC's above, any support scheme should reflect the advantages outlined for the physical sharing of energy within the community and be shared fairly across generation and consumption.

15. **In addition to the concepts of VPPs and peer-to-peer trading platforms, are there any other forms of virtual energy sharing or trading which you think customers would benefit from participating in?**

The advantages that JARSC's and REC's bring to the market are outlined in Q14 and Q20. These are realized through the physical sharing of energy between members who are located close to each other behind an electrical node. These communities could integrate with other clusters who are not in close proximity to them – in a virtual way. In this way, these REC's and JARSC's could be part of larger **Citizen Energy Communities (CEC's).** CEC's have similar rights to REC's with all types of energy, not just renewable. As REC's and JARSC's will

both consume from and spill to the grid at various times, further overall grid balancing can be achieved by virtually trading within larger CEC's. Prediction systems can be rolled up to a regional level to aid balancing and also to potentially trade on future flexibility markets. As virtual trading does not accrue the same advantages as physical trading, the charges/support scheme mechanisms should reflect this. Potentially, energy sharing within a CEC could be aligned with the Community RESS scheme.

16. **Do you agree with this proposal?**

Yes.

17. **What information would need to be included on this webpage to fully inform active consumers of their rights, entitlements, and obligations?**

Results of the consultation and outline of the EU Directives and individuals' rights such as the ability to join or leave a community and continue to have access to the grid as normal.

18. **What other forms of engagement would be effective routes to inform consumers of their new rights under the CEP?**

Usual channels.