Sustainability *first*

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To : REMAMailbox@Energysecurity.gov.uk

REMA Team
Department of Energy Security & Net Zero

Dear REMA Team

REMA Second Consultation (Review of Electricity Market Arrangements)

Sustainability First is a charity and think-tank focused on social and environmental issues in the energy and water sectors. We have published and engaged extensively over many years on policy, regulatory and consumer issues in the development of electricity markets, in particular for the demand-side, approaches to consumer flexibility and what fair outcomes could like for consumers and electricity end-users more generally. We were members of the BEIS / Ofgem Smart Systems Forum and shaped both the ESO's Power Responsive Programme and the ENA Open Networks project. For RIIO-2, we were on the Ofgem Challenge Group and a DNO customer engagement group.

Sustainability First views REMA as a set of important reforms designed to ensure a cost effective and secure net-zero electricity system by 2035. From the outset Sustainability First has argued that in creating efficient and clearer pricing signals in wholesale electricity markets that end-user interests must not simply be an afterthought. REMA represents a highly technical and complex set of reforms to wholesale electricity markets and our focus for the second consultation continues to be on what fair outcomes might look like for end-users – including who pays and who benefits.

To date, Sustainability First has been very pleased to support the Department for Energy Security and Net Zero, together with Citizens Advice, in the set-up of the REMA End-User Challenge Panel[1]. Our aim from the start was to help government, the regulator and energy companies obtain better insight into the potential knock-on impacts of these complex wholesale reforms for end-users.

The on-line form for the second consultation does not offer an option to input high-level comments. Given the huge scope of the second consultation, plus the options assessment and multiple background papers, we wish to highlight the following issues.

[1] Initially, the REMA End-User Forum (EUF).

REMA objectives, challenges, policy questions and assessment criteria

Objectives of the REMA programme are set out in the options assessment as [2] :

- *'Ensure a cost-effective transition as we move to our future net zero consistent power sector,*
- *Maintain a secure electricity supply throughout the 2020s and beyond, as we continue to move away from fossil fuel-based generation technologies, and*
- *Ensure our decarbonisation ambitions are delivered, so that the power sector contributes towards our legally binding carbon budgets, and we achieve our aim of a fully decarbonised power sector by 2035, subject to security of supply'.*

The options assessment notes that REMA is considering[3] : *'how to intervene to evolve the system to ensure that it continues to provide the most economically efficient means of producing and delivering electricity to consumers'.* Four main policy questions are listed, aligned with the four REMA challenges[4] :

- *'What is the role of marginal pricing within the electricity market and how best to decouple gas and electricity prices to pass on the benefits of low-cost renewables?*
- *How best to drive investment in low-cost renewables in future?*
- *How best to replace unabated gas with low carbon flexible technologies, while maintaining security of supply?*
- *How best to operate and optimise a renewables-based electricity system to keep costs as low as possible, taking into account location?'*

We support the REMA programme objectives and agree that the policy questions above capture the 'big-ticket' issues still to be resolved in delivering a decarbonised power system in 2035.

However, in connection with the five **REMA assessment criteria**[5]**,** by which the REMA options are being evaluated, we wish to make the following points..

Costs and benefits : From a consumer and end-user standpoint we support the change in the REMA assessment criterion from 'least cost' to **'best value for money'**, clarified as meaning that market design should lead to solutions that minimise overall system costs for consumers and sub-groups of consumers. However, there is presently little clarity on REMA cost-estimates. The consultation simply notes system cost reductions of £35 bn from 2030 to 2050 as well as a likely need to invest £275-375 billion in new capacity[6].

Cost and value for money remain a key consideration for consumers and end-users. We therefore welcome the REMA options assessment alongside the consultation. However, **a full economic impact assessment of the costs and benefits of the options to deliver a net-zero power system by 2035 is still much-needed from a consumer standpoint**. Looking to 2050, any impact assessment must also factor-in additional support mechanisms for nuclear and for hydrogen where those costs are met via

[2] REMA Options Assessment p 20. Paras 2.20-21
[3] REMA Options Assessment p 9. Paras 1.21-1.22
[4] REMA Challenges : Passing through the value of a renewables-based system to consumers; Investing to create a renewables-based system at pace; Transitioning away from an unabated gas-based system to a flexible, resilient, decarbonised electricity system; Operating and optimising a renewables-based system, cost-effectively
[5] Best value for money; Deliverability; Investor Confidence; Whole-system Flexibility; Adaptability
[6] REMA Second Consultation. Secretary of State foreword. P 4

separate customer levies. Producing a fuller picture of the likely costs and benefits of a net-zero power system is a basic step in properly informing any future decisions on possible trade-offs, whether from the standpoint of meeting statutory net-zero targets, supply security or consumer affordability. A detailed impact assessment can also help better inform the debate on trade-offs and time-scales for continued use of unabated gas for security of supply reasons pending expected deployment of large volumes of new storage[7].

We also welcome continued commitment to the criterion of '**deliverability**'. We see the decision to set aside further exploration of split markets in this light and see the decision to continue with a wholesale-market design based on marginal pricing as generally making sense for consumers for the long-run. Similarly, we support clarification that the Contract for Difference is to remain the main instrument by which to support zero-carbon power generation while at the same time seeking to improve the CfD structure in ways which better allocate market risk among actors. This includes downward pressure on those costs of system operability which pass-through directly to end-users.

The REMA vision stresses, inter al, that REMA would : *'Provide the right signals for flexibility across the system'* and *'Faciliate consumers to take greater control of their electricity use by rewarding them through improved price signals, whilst ensuring fair outcomes'*[8]. Inevitably this latter is easier said than done. For the first REMA consultation we proposed a sixth assessment criterion that would take explicit account of the potential impacts on end-users of these huge reforms. Namely that REMA should produce outcomes which were broadly 'fair' and 'equitable' from an end-user standpoint and also transparent. We continue to regard fair consumer outcomes as a main criterion against which the future success of the REMA reforms be judged.

Bridging from wholesale to retail

REMA interactions with retail markets[9]: in a far bigger electricity system, new more cost-reflective and whole-systems approaches to wholesale-pricing seek to drive flexibility – whether from generators or from end-users - and so promote 'whole-system' efficiency. With market-wide half-hourly settlement from December 2026, in a world of EVs and electric heat, more cost-reflective wholesale price signals created by the REMA reforms will, to some degree, flow through into retail prices and tariffs. This means that the REMA reforms matter a great deal to end-users. New opportunity and risk will arise for all customers, including, potentially, questions around customer ability to be flexible and also where customers may happen to be physically located on the electricity network.

Fair outcomes : from a consumer standpoint, how the wholesale markets will eventually bridge across to the retail markets remains a major unknown. The current Ofgem consultation on price protection under market-wide half-hourly settlement highlights the continuing uncertainty around what sorts of tariffs will be offered in the market. For this reason, and from a fairness standpoint, Sustainability First will continue to stress the continuing need for a strong focus on fair end-user outcomes from REMA. We therefore welcome DESNZ commitment to continuation of the REMA End User Challenge Panel.

[7] 55 GW short duration storage; 30-50 GW long-duration storage.
[8] Second consultation. P4
[9] Second consultation. Pp 21-22

At the first REMA End User Forum, together with Citizens Advice, Sustainability First led a discussion on what fair outcomes might look like. This was informed by a joint paper[10] which included strawman principles for fairness in REMA – see Annex 1. These hopefully can continue to help guide DESNZ in considering how best to judge fair outcomes for end-users in the next detailed stages of options development for REMA – in particular in looking to take forward detailed proposals for zonal locational marginal pricing (see below).

Coordinating wholesale and retail workstreams : it is also very important for the REMA reforms to bridge clearly with the DESNZ and Ofgem work-streams for future retail markets and for energy affordability. We therefore welcome set-up of a new DESNZ retail working group later in 2024 on consumer protections. But, at the same time, having now split REMA and retail into different internal work-streams DESNZ and Ofgem must stay alert to the risk of siloed approaches and outcomes.

Energy demand reduction

Sustainability First has long argued for cross-cutting policies to deliver on demand reduction (energy demand, electricity demand) to help offset the cost- and carbon-impacts of electricity system growth. We are very encouraged to see such clear recognition that :

> *'Permanent demand reduction delivered through electrical efficiency measures is integral to delivering a fully decarbonised electricity system by 2035, subject to security of supply, delivering both immediate and long-term benefits to the energy system. Over the short-term, reducing demand reduces system costs and contributes to reducing the frequency of periods in which gas sets the marginal price. In the long-term as demand grows from electrification of end-use sectors, ensuring a more moderate demand trajectory is achieved can help to avoid costly overbuild of supply and network assets. This contributes to system resilience and helps to protect the system and consumers from the impact of system stress events'* (p.40).

Methodologies for appraising whole system benefits of energy demand reduction : through the Sustainability First / CSE PIAG project on access to smart-meter data for a public-interest purpose we highlighted the dearth of accurate energy demand-side data available to inform energy policy development or market oversight. Indeed, in this regard, we described both government and Ofgem as 'flying blind into the future'. We therefore very much **welcome the commitment in the REMA consultation to re-visit government policy appraisal methodologies in 2024 to ensure that these properly value the whole system benefits of electricity demand reduction**. A major question however for energy modellers in DESNZ will continue to be how best to secure access to demand-side data-sets that are both sufficiently granular and also representative to deliver improvements in the demand-side inputs to their electricity system flexibility modelling[11].

Obligations on utilities : we note that DESNZ has decided not to support further interventions for demand reduction through upstream electricity markets. However, we continue to see merit in further consideration of some form of supplier obligation for average demand reduction – in

[10] 16 February 2023 - https://www.sustainabilityfirst.org.uk/publications-presentations/492-rema-end-user-forum-on-fairness-meeting-summary?highlight=WyJtZWV0aW5nIiwic3VtbWFyeSIsIm1lZXRpbmcgc3VtbWFyeSJd

[11] https://assets.publishing.service.gov.uk/media/60f57aade90e0764cd98a0a3/smart-systems-appendix-i-electricity-system-flexibility-modelling.pdf

particular, if such obligations can be shaped in ways that can help create much-needed 'market-pull' which is still very much lacking. We therefore hope that DESNZ will wish to explore the potential for supplier obligations for energy demand reduction and energy efficiency at a future point as integral to its commitment to cross-cutting approaches to energy demand reduction.

Zonal Locational Marginal Pricing (Zonal LMP)

In place of the present single national wholesale price, DESNZ and Ofgem retain a continued interest in locational wholesale marginal pricing as a REMA option to create downward pressure on the hard-to-tackle- and increasing costs of system operability. These latter costs are presently a direct pass-through to end-customers.

On grounds of complexity, deliverability and fairness we support the decision by DESNZ not to pursue the option of nodal LMP.

Ofgem's analysis of introducing locational marginal pricing (LMP) indicates a potentially worthwhile level of overall consumer benefit[12]. For this reason, DESNZ and Ofgem have decided to continue to consider the option of zonal LMP. The DESNZ consultation notes that zonal wholesale price differences could in the future 'help smooth out existing regional network charging differences for most regions'[13].

A recent REMA EUCP workshop[14] discussed issues for consumers and end-users that might arise from the introduction of zonal LMP. This was welcome, but equally that session pointed to many unresolved issues. Ahead of any serious move towards introducing zonal wholesale locational pricing, on behalf of consumers and end-users, Sustainability First would first wish to see some major issues better understood, including the following.

Distributional impacts :

- Beyond Ofgem's initial distributional analysis[15], a fuller understanding of possible distributional impacts of zonal LMP is needed. The DESNZ Options Assessment indicates that locational pricing has the potential to lead to savings for the 'typical household' in all regions, albeit consumers in the north and in Scotland stand to benefit more than consumers in London and the south-east. However, focusing on the 'typical household' masks huge variations in the level and pattern of usage between customers. More detailed analysis and greater transparency will be needed as to which consumer groups may benefit – or benefit less – by location - both in terms of expected savings as well by overall consumer numbers in each zone.

- Whether zonal wholesale pricing will apply only to generation ? Or whether to be introduced on <u>both</u> generation & demand. And, if zonal charges are to be placed on demand as well as on generation, whether further distributional analysis is needed.

[12] October 2023. Assessment of Locational Wholesale Pricing. https://www.ofgem.gov.uk/sites/default/files/2023-10/Ofgem%20Report%20-%20Assessment%20of%20Locational%20Pricing%20in%20GB%20%28final%29.pdf

[13] DESNZ. Second REMA Consultation. P. 94 DESNZ note that the differential between the lowest and highest cost distribution network charge in the Q1 2024 price-cap is £84.

[14] REMA End-User Challenge Panel – 10 April 2024

[15] Pp 132-156. Ofgem 2023. Assessment of Locational Wholesale Pricing. https://www.ofgem.gov.uk/sites/default/files/2023-10/Ofgem%20Report%20-%20Assessment%20of%20Locational%20Pricing%20in%20GB%20%28final%29.pdf

Downstream impacts - including on the structure of the retail market :

- With market-wide half-hourly settlement from 2026 (MHHS), retailers can be expected to introduce a range of sharper price-signals to small customers and household customers via retail tariffs. These may reflect price-, time-, scarcity/plenty or possibly type-of-use and / or or network charges – and could be a mix of kWh or kW signals. For analysis of the impacts of zonal LMP, the post-MHHS retail-world must therefore be the correct counterfactual – rather than today's flat standard-rate tariff. It is therefore important to understand more about what additional response might be expected from consumers – or communities - by additional place-based wholesale price signals (ie a kWh signal). A related question would be how high locational wholesale prices might need to go to produce a worthwhile additional consumer response - above and beyond the retail price signals likely anyway to result from the introduction of half-hourly settlement.
- Beyond re-locating, it is also not altogether clear what nature of consumer response is being sought by introducing locational signals to end-customers. Other than location of new data-centres or very large industrial customers (perhaps anyway transmission connected) the vast majority of existing electricity customers are highly unlikely to consider relocation simply in response to a zonal wholesale price signal. Arguably, LMP may encourage some customers in 'high-priced' zones to go more behind the meter or could perhaps increase the uptake of batteries but slow the uptake of EVs and heat pumps. Alternatively, in 'lower-priced' zones, LMP may serve as disincentive to installing low-carbon technologies such as PV. These practical considerations around the nature of customer response to a new locational price-signal need further thought.

Zonal LMP and network charges

Network charges are currently a main tool for communicating to end-users the costs associated with their physical location on the network – both in terms of the place they connect and also, once connected, in terms of available network capacity at particular points in time. Market actors have urged DESNZ to look closely at how best to integrate future locational signals in wholesale markets with existing or future locational signals on the transmission networks. **The REMA consultation now acknowledges a need for careful integration of zonal approaches to wholesale pricing with Ofgem's current work on transmission charging[16] .** This is welcome**.**

Separately, **for the vast majority of electricity end-users** today – whether distributed generators, communities, I&C customers, SMEs or households - **distribution network charges remain a customer interface that is both direct and well-understood** to help reflect the costs associated with a physical connection at a particular place on a local network – together with the costs associated with using that network.

- **DUOS** : the consultation notes that Ofgem is in the early stages of 'scoping out issues with DUOS' and reviewing distribution use of system charges[17]. DESNZ say : '*In the long-term, work could include reviewing the different signals sent at transmission and distribution level, and an*

[16] P 87 Noting that Ofgem has reinstated the TNUOS Task Force and has also begun a longer-term strategic review of TNUOS with a recent Open Letter

[17] P. 98

investigation into potential improvements to the locational and temporal granularity of DUoS charges'. This is also welcome.

- **Distribution connection and access charges** : the DESNZ consultation does not refer to connection and access charges at the distribution level. This matters in terms of fully understanding the potential customer impacts of introducing zonal locational charges. Since April 2023, the connection charging boundary for certain smaller customer assets was changed by Ofgem to encourage greater uptake of low carbon technologies (e.g. EV chargers, heat-pumps etc)[18]. In looking to introduce zonal wholesale prices for end-customers, DESNZ and Ofgem will also wish to consider how best to achieve locational price-signals consistent with distribution charges.

Zonal LMP and alternative approaches to sending locational signals to small-customers : Last, there are wider questions as to how far introducing zonal wholesale prices for small demand-customers will in practice send a clear and unambiguous price-signal to the vast majority of customers. DESNZ and Ofgem should also explore alternative approaches to communicating locational price-signals to smaller customers. For example, one such option might be to introduce of a kW specific-charge – ie a new household capacity charge (smaller consumers currently do not have a separate capacity charge) to convey a clear end-user signal about the impact of peak-related usage, including at a given location. Instead of zonal wholesale prices a household capacity charge would relate to a customer's maximum power off-take. Household capacity charges could support the need to reflect a clear kW-related signal – rather than kWh (as per LMP) – and so communicate the system capacity and network-related costs of peak-consumption[19]. This could be 'stepped' as in France or Italy – i.e 3kW, 5kW, 11kW. The Norway regulator recently introduced household capacity charges in response to the rapid growth in household EV chargers.

Conclusion

We welcome that DESNZ seeks a balanced approach to the future power system, looking to market mechanisms alongside targeted interventions to address market failures and other shortcomings[20]. We wholeheartedly agree on the need, highlighted by DESNZ, for interconnected and joined-up policies so that markets can work in a cohesive manner. Above all, good coordination will be basic to successful decision-making as between government, Ofgem and the new National Energy System Operator (NESO). In exercise of their statutory duties – whether for net-zero, whole-system planning, energy security or reducing costs for consumers - only well-coordinated approaches will ensure sufficiently informed and balanced trade-offs in decision-making.

The REMA reforms are huge, complex and technical and will take years to conclude and implement. Major decisions made in REMA over the next 2-3 years will bake-in basic end-user outcomes for the next 20-30 years. As noted, DESNZ is now increasingly looking to address the end-user side of the equation via their retail strategy. It therefore remains vital for the REMA and retail teams in DESNZ to

[18] Ofgem Access SCR – Final Decision. May 2022 https://www.ofgem.gov.uk/sites/default/files/2022-05/Access%20SCR%20-%20Final%20Decision.pdf

[19] Introducing a household capacity charge would however require revisiting Ofgem's 2022 Access-SCR to change the distribution connection charging boundary to fully shallow for demand (and 'shallowish' for generation)

[20] Consultation (p.19); Options assessment (p.18)

work in 'lock-step' (and also with Ofgem). The REMA options still on the table – rightly aiming to drive whole-system approaches to flexible responses from both generators and customers – will continue to represent not just potential opportunity for consumers but also many potential risks. This is why, as the narrowed-down REMA options now progress beyond the second consultation to the next stage of detailed design, we will continue to stress the need - across DESNZ, Ofgem and the NESO - to remain alert to ensuring fair outcomes for end-users.

We attach our answers to the questions on energy demand reduction and on locational pricing in Annex 2, but beyond the high-level points set out in this letter we do not provide specific answers to other consultation questions.

This letter and our answers to the DESNZ consultation questions can be published.

Yours faithfully

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Annex 1 - High-level 'strawman' principles by which to consider what fair outcomes for end-users in REMA might look like.

Citizens Advice and Sustainability First first outlined these principles to the REMA End-User Forum on 16 February 2023.[21]

Principle	**What could this look like in terms of fair outcomes for electricity end users?**
Equitable treatment	● Some end users receive targeted financial support to overcome barriers to participation in e.g., flexibility ● Work done to overcome non-financial barriers to participation ● Cost recovery is progressive ● Consideration of intergenerational equity ● Consideration of industrial competitiveness
Inclusive	● End users, especially those in vulnerable circumstances, are able to engage with the future energy system in a way that meets their own needs ● Robust governance, including retail market regulation that permits choice, ensures transparency and ensures appropriate consumer protections
Justifiable	● End users are only exposed to price signals to which they are able to respond ● Affordability: REMA policy costs are not borne by those least able to pay them
Transparent	● End users have been made aware and had opportunity to be involved in how policy decisions have been reached and why ● REMA policy options have been evaluated based on their ability to facilitate fair outcomes for end users – including through a distributional impact assessment ● Clarity of roles between BEIS, Ofgem and ESO in delivering fair outcomes for end users ● End users informed of composition of energy bills and factors that drive change

[21] https://www.sustainabilityfirst.org.uk/images/End_User_Forum_1_-_16_Feb_2023_-_DESNZ_Readout_-_Fairness.pdf

Annex 2 – REMA Second Consultation.
Sustainability First response to consultation questions

High-level answers to the second REMA consultation can be found in our letter above.

Below we answer **Question 3 on electricity demand reduction and Questions 22 and 23 on Zonal Locational Marginal Pricing**

Challenge 1: Passing through the value of a renewables-based system to consumers

3. Do you agree with our decision to focus on a cross-cutting approach (including sharper price signals and improving assessment methodologies for valuing power sector benefits) for incentivising electricity demand reduction? Please provide supporting reasoning, including any potential alternative approaches to overcoming the issues we have outlined.

Energy demand reduction

Sustainability First has long argued for cross-cutting policies to deliver on demand reduction (energy demand, electricity demand) to help offset the cost- and carbon-impacts of electricity system growth. We are very encouraged to see such clear recognition that :

> *'Permanent demand reduction delivered through electrical efficiency measures is integral to delivering a fully decarbonised electricity system by 2035, subject to security of supply, delivering both immediate and long-term benefits to the energy system. Over the short-term, reducing demand reduces system costs and contributes to reducing the frequency of periods in which gas sets the marginal price. In the long-term as demand grows from electrification of end-use sectors, ensuring a more moderate demand trajectory is achieved can help to avoid costly overbuild of supply and network assets. This contributes to system resilience and helps to protect the system and consumers from the impact of system stress events'* (p.40).

Methodologies for appraising whole system benefits of energy demand reduction : through the Sustainability First / CSE PIAG project on access to smart-meter data for a public-interest purpose we highlighted the dearth of accurate energy demand-side data available to inform energy policy development or market oversight. Indeed, in this regard, we described both government and Ofgem as 'flying blind into the future'. We therefore very much **welcome the commitment in the REMA consultation to re-visit government policy appraisal methodologies in 2024 to ensure that these properly value the whole system benefits of electricity demand reduction**. A major question however for energy modellers in DESNZ will continue to be how best to secure access to demand-side data-sets that are both sufficiently granular and also representative to deliver on improvements in demand-side inputs to their electricity system flexibility modelling[22].

Obligations on utilities : we note that DESNZ has decided not to support further interventions for demand reduction through upstream electricity markets. However, we continue to see merit in further consideration of some form of supplier obligation for average demand reduction – in

[22] July 2021. https://assets.publishing.service.gov.uk/media/60f57aade90e0764cd98a0a3/smart-systems-appendix-i-electricity-system-flexibility-modelling.pdf

particular, if such obligations can be shaped in ways that can help create much-needed 'market-pull' which is still very much lacking. We therefore hope that DESNZ will wish to explore the potential for supplier obligations for energy demand reduction and energy efficiency at a future point as integral to its commitment to cross-cutting approaches to energy demand reduction.

Challenge 4: Operating and optimising a renewables-based system, cost-effectively

22. Do you agree with the key design choices we have identified in the consultation and in Appendix 4 for zonal pricing? Please detail any missing design considerations.

Zonal Locational Marginal Pricing (Zonal LMP)

In place of the present single national wholesale price, DESNZ and Ofgem retain a continued interest in locational wholesale marginal pricing as a REMA option to create downward pressure on the hard-to-tackle- and increasing costs of system operability. These latter costs are presently a direct pass-through to end-customers.

On grounds of complexity, deliverability and fairness we support the decision by DESNZ not to pursue the option of nodal LMP.

Ofgem's analysis of introducing locational marginal pricing (LMP) indicates a potentially worthwhile level of overall consumer benefit[23]. For this reason, DESNZ and Ofgem have decided to continue to consider the option of zonal LMP. The DESNZ consultation notes that zonal wholesale price differences could in the future 'help smooth out existing regional network charging differences for most regions'[24].

A recent REMA EUCP workshop[25] discussed issues for consumers and end-users that might arise from the introduction of zonal LMP. This was welcome, but equally that session pointed to many unresolved issues. Ahead of any serious move towards introducing zonal wholesale locational pricing, on behalf of consumers and end-users, Sustainability First would first wish to see some major issues better understood, including the following.

Distributional impacts :

- Beyond Ofgem's initial distributional analysis[26], a fuller understanding of possible distributional impacts of zonal LMP is needed. The DESNZ Options Assessment indicates that locational pricing has the potential to lead to savings for the 'typical household' in all regions, albeit consumers in the north and in Scotland stand to benefit more than consumers in London and the south-east. However, focusing on the 'typical household' masks huge variations in the level and pattern of usage between customers. More detailed analysis and greater transparency will be needed as to which consumer groups may benefit – or benefit less – by location - both in terms of expected savings as well by overall consumer numbers in each zone.

[23] October 2023. Assessment of Locational Wholesale Pricing. https://www.ofgem.gov.uk/sites/default/files/2023-10/Ofgem%20Report%20-%20Assessment%20of%20Locational%20Pricing%20in%20GB%20%28final%29.pdf

[24] DESNZ. Second REMA Consultation. P. 94 DESNZ note that the differential between the lowest and highest cost distribution network charge in the Q1 2024 price-cap is £84.

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[26] Pp 132-156. Ofgem 2023. Assessment of Locational Wholesale Pricing. https://www.ofgem.gov.uk/sites/default/files/2023-10/Ofgem%20Report%20-%20Assessment%20of%20Locational%20Pricing%20in%20GB%20%28final%29.pdf

- Whether zonal wholesale pricing will apply only to generation ? Or whether to be introduced on both generation & demand. And, if zonal charges are to be placed on demand as well as on generation, whether further distributional analysis is needed

Downstream impacts - including on the structure of the retail market :

- With market-wide half-hourly settlement from 2026 (MHHS), retailers can be expected to introduce a range of sharper price-signals to small customers and household customers via retail tariffs. These may reflect price-, time-, scarcity/plenty or possibly type-of-use and / or or network charges – and could be a mix of kWh or kW signals. So far as analysis of the impacts of zonal LMP is concerned, the post-MHHS retail-world must therefore be the correct counterfactual – rather than today's flat standard-rate tariff. It is therefore important to understand more about what additional response might be expected from consumers – or communities - by additional place-based wholesale price signals (ie a kWh signal). A related question would be how high locational wholesale prices might need to go to produce a worthwhile additional consumer response - above and beyond the retail price signals likely anyway to result from the introduction of half-hourly settlement.

- Beyond re-locating, it is also not altogether clear what nature of consumer response is being sought by introducing locational signals to end-customers. Other than location of new data-centres or very large industrial customers (perhaps anyway transmission connected) the vast majority of existing electricity customers are highly unlikely to consider relocation simply in response to a zonal wholesale price signal. Arguably, LMP may encourage some customers in 'high-priced' zones to go more behind the meter or could perhaps increase the uptake of batteries but slow the uptake of EVs and heat pumps. Alternatively, in 'lower-priced' zones, LMP may serve as disincentive to installing low-carbon technologies such as PV. These practical considerations around the nature of customer response to a new locational price-signal need further thought.

23. How far would our retained alternatives to locational pricing options go towards resolving the challenges we have identified, compared with locational pricing? Please provide supporting evidence and consider how these alternative options could work together, and/or alongside other options for improving temporal signals and balancing and ancillary services.

Zonal LMP and network charges

Network charges are currently a main tool for communicating to end-users the costs associated with their physical location on the network – both in terms of the place they connect and also, once connected, in terms of available network capacity at particular points in time. Market actors have urged DESNZ to look closely at how best to integrate future locational signals in wholesale markets with existing or future locational signals on the transmission networks. **The REMA consultation now acknowledges a need for careful integration of zonal approaches to wholesale pricing with Ofgem's current work on transmission charging[27] .** This is welcome**.**

[27] P 87 Noting that Ofgem has reinstated the TNUOS Task Force and has also begun a longer-term strategic review of TNUOS with a recent Open Letter

Separately, **for the vast majority of electricity end-users** today – whether distributed generators, communities, I&C customers, SMEs or households - **distribution network charges remain a customer interface that is both direct and well-understood** to help reflect the costs associated with a physical connection at a particular place on a local network – together with the costs associated with using that network.

- **DUOS** : the consultation notes that Ofgem is in the early stages of 'scoping out issues with DUOS' and reviewing distribution use of system charges[28]. DESNZ say : '*In the long-term, work could include reviewing the different signals sent at transmission and distribution level, and an investigation into potential improvements to the locational and temporal granularity of DUoS charges'*. This is also welcome.

- **Distribution connection and access charges** : the DESNZ consultation does not refer to connection and access charges at the distribution level. This matters in terms of fully understanding the potential customer impacts of introducing zonal locational charges. Since April 2023, the connection charging boundary for certain smaller customer assets was changed by Ofgem to encourage greater uptake of low carbon technologies (e.g. EV chargers, heat-pumps etc)[29]. In looking to introduce zonal wholesale prices for end-customers, DESNZ and Ofgem will also wish to consider how best to achieve locational price-signals consistent with distribution charges.

Zonal LMP and alternative approaches to sending locational signals to small-customers : Last, there are wider questions as to how far introducing zonal wholesale prices for small demand-customers will in practice send a clear and unambiguous price-signal to the vast majority of customers. DESNZ and Ofgem should also explore alternative approaches to communicating locational price-signals to smaller customers. For example, one such option might be to introduce of a kW specific-charge – ie a new household capacity charge (smaller consumers currently do not have a separate capacity charge) to convey a clear end-user signal about the impact of peak-related usage, including at a given location. Instead of zonal wholesale prices a household capacity charge would relate to a customer's maximum power off-take. Household capacity charges could support the need to reflect a clear kW-related signal – rather than kWh (as per LMP) – and so communicate the system capacity and network-related costs of peak-consumption[30]. This could be 'stepped' as in France or Italy – i.e 3kW, 5kW, 11kW. The Norway regulator recently introduced household capacity charges in response to the rapid growth in household EV chargers.

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[28] P. 98

[29] Ofgem Access SCR – Final Decision. May 2022 https://www.ofgem.gov.uk/sites/default/files/2022-05/Access%20SCR%20-%20Final%20Decision.pdf

[30] Introducing a household capacity charge would however require revisiting Ofgem's 2022 Access-SCR to change the distribution connection charging boundary to fully shallow for demand (and 'shallowish' for generation)