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**Subject: Ofgem's minded-to decision on the regulatory treatment of CLASS**

**Introduction**

Shell welcomes the opportunity to respond to Ofgem's consultation on its minded-to decision on the regulatory treatment of Customer Load Active System Services (CLASS). Shell does not fully support any of the options proposed by Ofgem for the regulatory treatment of CLASS as we do not believe that these options will deliver the best outcome for GB consumers.

As explained below, we believe that the best outcome for GB consumers will be delivered by CLASS technology being used by Distribution Network Owners (DNOs) and National Grid Electricity System Operator (NG ESO) to more cost-effectively operate the system, thereby reducing costs for GB consumers, as opposed to being used to provide commercial balancing service sold by DNOs to NG ESO.

Our favoured approach is similar to Option 2 and Option 3 in the paper, with a preference for CLASS being remunerated through the price control process, and the technology being rolled out and used for solely for system operation (not commercial balancing) purposes, to the extent that it can be demonstrated that this has a positive and not a negative impact on GB consumers.

The technology used to facilitate CLASS may increase the cost-effectiveness of system operation, which would be of benefit for GB consumers. For example, it could be used by network operators to more cost-effectively maintain the target voltage on their networks and could be used in the first line of defence to reduce voltage during low frequency events, before more drastic measures are taken as part of the Low Frequency Demand Disconnection (LFDD)

scheme. The technology may benefit consumers by reducing the cost for DNOs to reduce voltage for system operation purposes and also by reducing the risk of a blackout if DNOs are able to reduce voltage with a more controlled, coordinated and automated process.

Our main objections to CLASS being used being used by DNOs to offer balancing services to NG ESO on a commercial and competitive basis are the following:

1. **It creates a conflict of interest which is harmful to competition:** in principle we are opposed to network companies being allowed to compete in the provision of services as this creates a conflict of interest between the network company and network users (generation or demand) connected to that network.

Due to their monopoly position network companies have, and can derive further, competitive advantage over network users where they are competing in the provision of the same or similar services. This concern is supported by some of Ofgem's key decisions whereby DNOs are not allowed to own storage assets or act as aggregators.

An important conclusion of DG Competition's Energy Sector Inquiry<sup>1</sup> (the "Energy Sector Inquiry") is that the optimal regulatory response to address the negative potential impact of a conflict of interest, is to ensure that there is no conflict of interest. This conclusion has also been implemented and further strengthened in subsequent legislative packages.

We are deeply concerned that Ofgem is "minded-to" establish a regulatory treatment for CLASS that will promote and exacerbate this conflict of interest and incentivise DNO behaviour that is detrimental to the development of effective competition.

2. **The current provision of CLASS by network operators does not consider all costs that the DNOs are imposing on network users and therefore misrepresents the benefits to GB consumers:**

- a. the primary reason why DNOs are not incorporating all costs in the provision of CLASS response is because the DNO does not own the energy that it is selling to NG ESO as a service;
- b. the DNO has not asked customers for their permission to provide response on their behalf, and appropriate arrangements have not been established to compensate customers for that energy response;
- c. voltage reduction on a network has a negative impact (i.e. increases costs) on network users connected to that network that are seeking to provide the same

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<sup>1</sup> [http://ec.europa.eu/competition/sectors/energy/2005\\_inquiry/index\\_en.html](http://ec.europa.eu/competition/sectors/energy/2005_inquiry/index_en.html)

response service to NG ESO as the DNO, we understand that some DNOs have stated this as the reason why they have not provided the CLASS service to date;

- d. by reducing voltage, the DNO will place suppliers with customers connected to that network out of balance, which will increase suppliers' exposure to imbalance charges which tend to be high and hard to forecast;
- e. voltage reduction increases losses on a network, and the DNOs are not compensating parties who will have to pay for those increased losses; and
- f. even if a very small amount of the costs of CLASS are being recovered through the network company's regulated activities, this represents a material level of cross-subsidisation between the company's competitive and regulated activities.

We understand that because of the nature of CLASS the cost that it imposes on each individual party listed above is likely to be marginal and hard to measure. However, we expect that the benefit of CLASS for each individual customer is also marginal, and by DNOs not including, and Ofgem not considering, these deciding the appropriate regulatory treatment for CLASS and similar technologies, it is not clear that GB consumers will be better off.

**3. The decision, and the precedent set by the decision, will have a material and negative impact on network users developing and deploying technologies that are able to offer balancing services and flexibility to network operators:**

- a. We understand from the 2016 Baringa impact assessment<sup>2</sup> carried out on behalf of Electricity North West Limited (ENWL) (the "Baringa IA"), that CLASS technology is expected to displace the commercial provision of some balancing services by network users by 2027. CLASS technology displacing the provision of these services by network users will have a material and detrimental impact on those network users.
- b. As a result of the precedent set by CLASS, we anticipate that DNOs will develop further services that further displace anticipated revenue streams from the provision of balancing services and flexibility which will have a material impact on commercial development and deployment of such services by network users. Alternatively, if network users fail to anticipate that they will be displaced in the commercial provision of services by DNOs this will result in stranded assets.

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<sup>2</sup> The redacted and public version of the Baringa report commissioned by Electricity North West Limited "Assessing the impact of CLASS on the GB Electricity Market".

- c. We are concerned about the wider impact that the decision on CLASS, and the precedent set by the decision, will have on the development of the wider market for flexibility, including the wholesale market. The main signal provided to network users to drive cost-effective deployment of flexible assets is the imbalance price, whose effectiveness as a signal depends critically on the cost reflectivity of energy balancing services being procured by NG ESO.
- d. The inherent conflict of interest associated with network companies competing with network users in the provision of balancing services and flexibility will limit progress by network companies in developing and delivering effective and efficient markets for flexibility and the procurement of balancing services to facilitate the competitive provision of these services. Enabling the development of these services is one of the biggest challenges currently faced by DNOs and is expected to unlock significant value for GB consumers.

For the reasons set out above, which are explained in more detail in the annex to this response, we do not support the options presented by Ofgem for the regulatory treatment of CLASS as we do not believe that they are in the best interests for GB consumers.

Shell believes that GB consumers' best interests would be served by CLASS technology being rolled out and used for system operation purposes (and not the provision of commercial balancing services to NG ESO) to the extent that it can be demonstrated that this has a positive and not a negative impact on GB consumers.

Given the materiality of the proposed minded-to decision, we would welcome the opportunity to meet with you to explain our concerns.

Yours sincerely,  
Shell Energy Europe Limited

Olaf Islei  
Power Commercial Regulatory Manager

## **Annex – detailed explanation of concerns with DNO provision of**

In this annex we explain in detail our concerns with Ofgem’s minded-to decision for the regulatory treatment of CLASS.

### **1. The proposed regulatory treatment creates a conflict of interest which is harmful to competition:**

In principle we are opposed to network companies being allowed to compete in the provision of services to NG ESO or to other network users, as this creates a conflict of interest between the network company and network users (generation or demand) connected to that network.

Due to their monopoly position network companies have, and can derive further, competitive advantage over network users where they are competing in the provision of the same or similar services. The Energy Sector Inquiry discovered several practical challenges resulting from inadequate unbundling, and the potential conflict of interest that this creates:

1. The [network company] is unlikely to have an incentive to connect potential competitors in the generation/supply business to their network.
2. Despite an obligation to [explain] refusals, the existence, location and degree of [network] congestion [on which the refusal is based] is often not transparent.
3. It is impossible for market participants to verify whether and to what extent the congestion that was claimed to exist by the network operator is real. Particularly where the alleged congestion cannot be attributed to a single generator.
4. A lack of transparency as regards network constraints combined with the obligation on applicants to contribute to network reinforcement creates considerable leeway to raise costs for bringing new (rival) capacity online.
5. Obstacles can also stem from delays in the grid connection process caused by/attribution to the [network company].
6. Works related to building new network connections [to resolve any congestion] can only be undertaken by the network operator itself, who also chooses the best geographical location of the grid connection.
7. A network operator has no incentive to choose the shortest connection or to make attractive offers for building network extensions and reinforcements that will serve its competitors.

Building on this evidence, one of the main conclusions reached in the Energy Sector Inquiry is that “the experiences of full ownership unbundling [in Europe] suggest that it significantly changes the behaviour of the network undertaking: fully unbundled Transmission System

Operators ('TSOs') and Distribution System Operators will no longer have the incentive to favour affiliated companies –since there are none-, but can focus on optimising the use of the networks.”

The optimal regulatory response to address the negative impact that this conflict of interest can have on the development of effective competition and consumers, is to ensure that there is no conflict of interest. The Energy Sector Inquiry conclusions on the importance of unbundling have been implemented and further strengthened in subsequent legislative packages (i.e. the Third Energy Package and the Clean Energy Package).

The transition of DNOs to Distribution System Operators was a particular point addressed in the Clean Energy Package as there is a concern that this will exacerbate the conflict of interest. This is because we expect DSOs to, in one form or another, take responsibility for establishing markets to access local flexibility connected to their networks. In our view the greatest value to GB consumers is likely to be delivered by DSOs facilitating the development of efficient and competitive market to access that local flexibility. If the DSO is at the same time seeking to offer flexibility, it diminishes that DSOs incentive to develop properly transparent and competitive markets. The conflict of interest creates a strong commercial incentive for DSOs to restrict rather than promote effective competition.

We are therefore, deeply concerned that Ofgem is “minded to” establish a regulatory treatment for CLASS that will promote and exacerbate this conflict of interest and incentivise DNO behaviour that is detrimental to competition. In deciding on the appropriate regulatory treatment for CLASS Ofgem should assess the likely negative impact that network companies competing with network users for the provision of the same or similar services will have on their incentives and ability to restrict as opposed to promote competition.

Given the significant challenges and complexity already associated with DNOs facilitating users connected to their network in providing balancing services and flexibility, and the considerable scope for DNOs to leverage their monopoly position for commercial advantage in that process – we strongly believe that the optimal regulatory framework is to not allow network companies to compete with network users in the provision of the same or similar services. This is because we have seen limited evidence that a complex set of regulatory rules mandating behaviour is a strong substitute or a more cost-effective approach to delivering outcomes than incentives based on commercial interests set by the regulatory framework.

## **2. The current provision of CLASS by network operators does not consider all costs that the DNOs are imposing on network users and therefore misrepresents the benefits to GB consumers:**

To protect GB consumers interests it is critically important that, in case Ofgem decides that network companies should compete with network users in the provision of balancing and

flexibility services, the network companies properly account for and reflect all costs associated with the provision of that service in its price and are not able to cross-subsidise between their regulated and competitive activities. In the case of CLASS we see two main reasons why the costs are not likely to be cost reflective, and explain how the current set up of CLASS may enable network companies to cross-subsidise between their regulated and competitive activities.

The first reason, which applies to most services that a network company may seek to offer, is because the network company has a large regulated asset base that the consumer is already paying for and a significant information advantage over network users and the regulator. In competing to provide commercial services there is a strong incentive on the network company to maximise its profitability by not properly accounting for all costs associated with the provision of that service (in the price they offer NG ESO for that service), and for as many costs as possible to be recovered through customers via their regulated asset base. The network company has a strong incentive and the ability to cross-subsidise between its regulated asset base and its “competitive activities”.

In the case of CLASS technology we understand from the Baringa IA that the cost of providing response to NG ESO is in the region of £3/MW/h for capacity reservation, and if the energy payment for activation of fast reserve is also close to zero, we expect that the network company’s estimate of the cost of CLASS on a MWh basis is close to £3/MWh. We also understand from Ofgem’s consultation document that ENWL have rolled out the technology to 243 primary substations.

For Ofgem to be certain that CLASS and its utilisation are in the best interests of GB consumers it must be certain that network companies are not able to cross-subsidise between their regulated and competitive activities. To consider whether this is likely, we can use a hypothetical example where ENWL provides one MWh of response to NG ESO for which it recovers £3 through its fast reserve contract. For the provision of that service to be in GB customers interest ENWL would have to demonstrate that degradation caused to its regulated asset base (i.e. to the primary substations) from the MWh response is less than  $£3 \div 243 = £0.012$  per primary substation.

If the provision of the service costs more than 1.2 pence per primary substation in terms of increased operational and maintenance costs, then the service increases, not decreases, overall costs for GB consumers. In addition, if the provision of the response results in **any** increased operational and maintenance costs for each primary substation, which the network company is then able to recover via its price control, Ofgem is in effect allowing the network company to cross-subsidise its competitive activity with its regulated activity. If for example the increased operational and maintenance costs for each primary substation are in the region of

£0.004 for a MWh of response offered to NG ESO, the level of cross-subsidisation is equivalent to 30% of the cost of the service.

We have used the example of increased operational and maintenance costs to demonstrate that even a small level of cross-subsidisation is extremely material. In the provision of services based on technologies such as CLASS there are also likely to be numerous other ways that network companies are able to cross-subsidise between its regulated and competitive activities. Given the scale of the potential cross-subsidisation – i.e. that a £0.004 increase in operational and maintenance costs per substation per MWh of response would result in a 30% cross-subsidy – we do not consider that Ofgem will be able to effectively regulate the activity to ensure that no cross-subsidisation is taking place.

The second reason why the provision of CLASS response by network companies is unlikely to be cost reflective is because purposeful deviation by the network company from the target voltage on its networks will result in additional costs for network users. Based on our understanding of the current approach taken by DNOs to offer this service, we have not seen evidence that the DNOs are being required to take these costs into account.

The primary reason why DNOs are unlikely to take all costs into account is because the DNO does not own the energy that it is selling to NG ESO as a service – as the energy will have been sold by a generator (who produced it) to a supplier (who purchased it to supply its customers). We understand that the DNO is only acting within its statutory tolerances ( $\pm 6\%$ ), however we believe that the primary role of the DNO is to maintain the target voltage within the tolerance, as opposed to purposefully deviating from the target level in order to sell the resulting energy for commercial gain to NG ESO.

We also understand that the negative impact on individual customers is likely to be marginal, and that the customer may not even notice that there has been a deviation in voltage, but we do not consider the fact that these costs of network users are small to be a good reason to allow DNOs to profit from imposing those costs. As we seek to explain below, if the DNO and Ofgem fail to properly take these costs into account, then it is not clear that the service being provided is in GB consumers interests.

The first example of increased costs is where a network user on the DNOs network is seeking to provide demand side response (DSR) to NG ESO by reducing its demand at the same time as the DNO lowers the voltage on its network to provide the same response. In this instance the DNOs reducing voltage on its network will make the DSR less effective as the turn down power would be less.

The effect of the DNOs actions is to increase the costs of network users who are seeking to provide the same or similar service to NG ESO. We do not consider that DNOs should be

allowed to offer a commercial service to NG ESO, which at the same time increases the costs of network users to provide that same commercial service. The conflict of interest is clear.

If we adopt the same hypothetical example as above and assume that by 2027 there is 200MW of demand response capability connected to the DNO network. For the DNO's service to reduce overall costs for GB consumers, Ofgem would have to be confident that the negative impact of the DNO's voltage reduction on other DSR providers is less than  $£3 \div 200 = £0.015$  per MWh of alternative response.

In any case, Shell believes that DNOs should not be allowed to take actions for commercial gain that increase the costs for network users (however marginal) that are seeking to compete with the DNO in the provision of the same or similar services. This is because the conflict of interest that the DNO has and its ability to leverage its monopoly position is clearly too strong. In our view the fact that these costs are not currently considered by DNOs to be relevant is due only to the existing conflict of interest as we are sure that the DNO would not disagree that these costs exist.

The second example of increased costs for network users is that the DNO taking action to reduce the voltage on its network will have a negative impact on customers connected to that network. We understand that a domestic customer may not notice that its kettle takes a couple of minutes longer to boil. However, other network users have time critical operational and production processes that will take longer as a result of any voltage reduction, as well as sensitive machinery that may be damaged.

The impact on those network users is that their costs associated with those production processes will increase – for example, it will take marginally longer to produce a car, marginally longer to smelt aluminium and marginally longer to charge an electric vehicle. This means that there will be a marginal increase in the costs to those businesses that are connected to the DNO's network and for whom electricity is a primary input in the production process or service that they provide.

If we adopt the same hypothetical example as above and use the fact that there are 2.4 million domestic households connected to ENWL's network as a proxy, as we do not know what commercial and industrial demand is or will be connected to ENWLs network. For it to be in GB consumers' interest for ENWL to reduce voltage on its network to offer one MWh of commercial response to NG ESO, the resulting negative impact on each household would have to be less than  $£3 \div 2.4 \text{ million} = £0.00000125$ . If the negative impact on each network user is greater than  $£0.00000125$  then the action taken by ENWL will increase and not decrease overall costs for GB consumers.

As part of its justification for providing the service, ENWL have noted that consumers do not notice the impact of the voltage reduction. However, in terms of the anticipated effect that is

the same as saying that a customer would not notice if £0.00000125 was taken from their bank account.

This also relates to our final example of the CLASS response increasing costs for network users, which is that by reducing the voltage on its network the DNO will increase the losses on its network<sup>3</sup>, which will have to be paid for by network users, and will put suppliers that are supplying customers on its network out of balance. The example of increased losses is another case where the DNO can leverage its regulated asset base, as network users do not have a choice whether to pay for losses, to cross-subsidise a commercial activity.

The same points also hold here that, even if the increased cost associated with losses (and level of cross-subsidisation) and the extent to which suppliers are put out of balance is very small for each individual customer or supplier: firstly, the costs exist and do not have to be very material to be able to demonstrate that the service being offered by the DNOs is not in GB consumers' interest; and allowing a DNO to cross-subsidise its commercial activity with its regulated activity is fundamentally anti-competitive.

Finally, on the assessment of the overall costs and benefits associated with the provision of CLASS we note that the assessment of the benefits in the Baringa IA is out of date. We note for example, that in assessing the benefits Baringa assume that CLASS, with a cost of around £3/MW/h, is displacing network users that are offering the same service at a cost of about £30/MW/h, resulting in a saving of £27/MW/h for GB consumers. However recent experience has shown that tendered prices for capacity have been more in the region of £6-£8/MW/h – which would suggest a materially lower saving than has been suggested.

Therefore, to determine whether a proposed regulatory treatment for CLASS is in the interest of GB consumers Ofgem should update the analysis undertaken for the Baringa IA to:

1. Ensure that all costs are taken into account in that assessment, even where those costs are extremely small on a per customer basis;
2. Ensure that it is not possible for network companies to cross-subsidise its competitive activities from their regulated asset base; and
3. Update Baringa's assessment of the benefits with more recent data and with information on the actual costs and benefits of CLASS.

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<sup>3</sup> The power lost on the grid can be written as  $P_L = 3 R I^2 = \frac{R P^2}{V^2 \cos^2 \phi}$ ; this explains that a reduction in voltage results in higher losses on a network. Losses are paid for by network users.

**3. The decision, and the precedent set by the decision, will have a material and negative impact on network users developing and deploying technologies that are able to offer balancing services and flexibility to network operators**

We understand from the 2016 Baringa IA that the commercial potential for CLASS technology is expected to increase from about 100MW today to around 2GW in 2027 and be able to meet all of NG ESO's needs for firm frequency response and fast reserve by 2027. The Baringa IA forecasts that CLASS will have displaced the commercial provision of these balancing services by network users by 2027. CLASS technology displacing the provision of these services by network users will have a material and detrimental impact on network users that currently provide these services and should be factored into their investment decisions and may result in some stranded assets.

We also expect that a decision by Ofgem to allow CLASS response to be offered by DNOs to NG ESO will set a precedent for network companies to seek to develop and offer other commercial balancing services to NG ESO. As network companies have a monopoly position, they have advantages not available to network users (such as access to information and control over network users), that they can leverage to ensure that the service they are offer to NG ESO or other network users is more competitive. This is likely to have a significant impact on the incentive for network users to develop and deploy assets that can provide such balancing and flexibility services as there is a risk of stranded assets.

An additional concern with the precedent set by the proposed minded-to decision, is the impact that of the development on the wider market for flexibility, including the wholesale market. The main signal provided to network users to drive cost-effective deployment of flexible assets is the imbalance price, whose effectiveness as a signal depends critically on the cost reflectivity of energy balancing services being procured by NG ESO. If network companies provide balancing services to NG ESO, which are not fully cost reflective, this may have the effect of cannibalising the imbalance price. If the imbalance price itself is not fully cost reflective, this will weaken the signal provided in the wholesale market for network users to develop and deploy a cost-effective level of flexibility.

Finally, the inherent conflict of interest associated with network operators competing with network users in the provision of will limit progress by network operators in developing and delivering effective and efficient markets for flexibility and the procurement of balancing services and the competitive provision of these services. Enabling network users at distribution level to provide flexibility and response is one of the biggest challenges currently faced by DNOs and is expected to unlock significant value for customers.