

# **Zenobē's Response to Ofgem's Consultation:**

‘Targeted charging review: minded to  
decision and draft impact assessment.’

4<sup>th</sup> February 2019

## Introduction

Zenobē Energy is the leading UK-based owner and operator of grid-connected batteries, financed by over £45 million of equity from private investors and an infrastructure fund. It has also arranged two debt facilities which together came to c. £35 million and were the first debt in the UK secured against batteries.

The company has built, owns and operates over 73MW of commissioned assets at nine sites. Its portfolio of batteries is contracted to supply services to National Grid, including Fast Reserve, FCDM, FFR, Capacity Market T-1 and T-4. Our site at Guildford is the first battery and charger combination to support the charging of EV buses and other EV public and private fleet vehicles. In addition to this, Zenobē is optimising electricity usage for commercial and industrial customers including reduction of ancillary charges and addressing resilience issues.

## Overall objectives

As a provider of 'new technology' and services to businesses and grid operators, Zenobē is a strong supporter of the Government's wider policy objectives of managing the efficient transformation to a smart, low carbon, decentralised energy system including the electrification of transport and heat. Likewise, we support Ofgem's aim of ensuring that electricity networks can be used efficiently and flexibly so that all customers can have the access they require and benefit from new technologies and services, whilst avoiding unnecessary costs.

However, we do not believe that the proposals that formed the basis of this consultation give sufficient recognition to the role that new technologies and services can play in delivering the policy objectives of the Government and Ofgem - for example, by maintaining system stability or by reducing costs through increasing flexibility.

We are also concerned that the vested interests of the large industrial participants are over reflected in the 'minded to decision' document and that smaller, entrepreneurial, new technology providers' views are substantially excluded.

## Key Points

Zenobē would like to stress the following key points alongside our detailed response to the individual questions.

### **1) Impact on cost of capital due to the proposed changes by the Targeted Charging Review 'Minded to decision'**

Zenobē strongly believes that the reforms would benefit substantially from robust evidence and data which seems to be absent from this and other consultations. In section 5.33 of the TCR the document it states that '[...] as part of the TCR we do not consider any increase in cost of capital to be likely, as potential for change in charging arrangements is well established. In addition, we do not consider any increase in the cost of capital to be likely. This is because changes in charges should be factored in, with regulatory reviews being well established. We also do not expect there to be any increase in risk across the industry '. Based upon Zenobē's practical experience of raising debt and equity capital, we strongly disagree with these assumptions. We would welcome the opportunity to discuss this issue and to provide evidence to address the model assumptions.

The proposals act as a strong disincentive for consumers to invest in assets and mechanisms which reduce demand on the system at critical times. If the residual charges evolve in the 'minded to decision' direction then we believe it will create a hostile environment for the adoption of flexible solutions, new technologies, renewables and innovation. This is due to the significant reduction in income generation / cost savings and therefore the lack of incentive to invest in these areas.

Low carbon technologies (including PV and storage) can smooth the demand curve, thus avoiding or delaying CAPEX until it is certain that further network reinforcement is required. This provides a flexible solution that can be replaced with line upgrades when it has been proven that the investment is needed. These technologies do, however, require CAPEX which will need to be supported by future incomes calculated on the basis of current ancillary service costs and payments. Changing these costs and payments could result in considerable loss of revenue for companies that have used debt to fund their investments. Uncertainty in this area would likely mean that investors would be unwilling to invest further in low-carbon technologies and services. Zenobē is already seeing this from its customers and any delay in take up of the new technologies stands in opposition to the Government's ambitions in this policy area.

### **2) Impact on government industrial strategy to support and develop the Smart Systems and Flexibility Plan**

We note that the accompanying Ministerial Foreword of 'A Smart, Flexible Energy System Plan' urged that:

- 'We must seize the opportunities enabled by a smart system – including active demand-side response to price incentives, and the use of advanced **energy storage** technology.'
- 'We must maximise the ability of consumers to play **an active role in managing their energy needs**.'

- 'With a smart system, we can go further and faster in breaking down barriers to competition – allowing the widest possible range of innovative products and services to prove themselves in the market place.'

However, there is little evidence to explain why the proposals set out in this consultation are fit for purpose and how they will maximise innovation and the active role of consumers. As we set out in our response, these proposals could unintentionally reduce investment in storage, consumers and innovation.

### **3) Impact on users who have already adopted energy efficiency measures**

Within the consultation, Ofgem itself accepts the following negative impacts of its 'minded to decision':

**On-site generation - Ofgem's 'minded to decision' will penalise users who adopted energy efficiency measures and those who invested in on-site generation solutions, including storage.** 'Most significant impacts expected for these users due to the loss of their ability to avoid TNUoS and CDCM charges'. Some firms may pay more, particularly if they have benefited from reduced contributions because of investing in on-site generation which has reduced their contribution to the existing system. Those that have not taken such action pay less. Within the small non-domestic segment, the lowest consuming users will pay more than currently.'

**Load Disconnection – Industrial consumers who are currently playing an active role in managing their energy needs will potentially face an increase in charges level sufficient to justify a load disconnection.** This will bring their contribution to the network charges to zero, increasing other users' charges. It is far more beneficial to the system to use incentives to encourage behaviour such as peak-shaving, rather than changes which might lead to sites disconnecting from the system.

Those who will benefit from a private network will have a competitive advantage over those who cannot add an onsite generation to their sites. As Ofgem states, 'There is the potential for load disconnection among certain types of users with a relatively low cost of investment in back up power, i.e. those already existing CHP /baseload generation.' This will ultimately lead to a reduction of the number of users contributing to the system, and an increase in charges for those who cannot have an autonomous generation system.

### **4) Impact on vulnerable consumers**

Ofgem recognises that 'some households who use the least amount of electricity could face a typical annual increase of between £2 and £22 a year.' The TCR proposals will penalise the most vulnerable consumers and in particular those who consume the least in an effort to reduce their bills. It is highly unfair to penalise those who cannot afford to pay higher bills, in order to favour those with the highest income within the same category who will see a reduction on their bills.

### **5) Impact on utilisation of new technologies by old and new consumers**

Ofgem's top priorities include enabling growth in demand, particularly stemming from new low carbon technologies, whilst managing constraints on the network. Zenobē supports these objectives. However, we

are concerned that the Charging Futures proposals may have some unintended consequences. As currently drafted, the proposals may inadvertently act as disincentives for users to adopt new technologies - technologies which can make significant contributions to the realisation of the aims of the Government such as carbon budgets, distributed electricity, the successful deployment of smart meters and the renewable energy roadmap.

Numerous energy consumers, and particularly companies, have invested in storage or other demand-side response mechanisms to address ancillary charges. They have changed their behaviour to ensure that power usage is reduced at times of system stress. This has improved system stability and lowered consumers' bills at little to no capital cost to the industry and the Government. If Ofgem implements the proposals set out in this consultation paper, there will be a number of unintended consequences as large energy users either become less competitive or move offshore. These 'unintended consequences' are not taken into account by Ofgem which has a narrow electricity mandate and seem to be principally focussed on protecting smaller consumers rather than taking an holistic view of the effect of its proposals on all consumers.

For example, the bus sector, where Zenobe is heavily involved through our innovative programmes, is not currently a large user of electricity. However, the government and councils are pushing the sector to adopt zero-emission vehicles, and EVs are the principal vehicles being adopted. The proposed changes under the Ofgem reviews will substantially increase the cost of electricity and therefore the operation of the EVs. The increase in costs will have to be passed on to the consumers, generally lower-income consumers, in order to retain the viability of these buses.

Furthermore, uncertainty about changes to the system has already severely curtailed current and medium-term investment in innovation and new technologies, which are pivotal in providing flexibility and innovation. We have already seen this through discussions that we are having with potential Commercial and Industrial customers.

## **6) Involvement of small and medium innovative companies in the consultation process**

Zenobē would welcome the opportunity, alongside other renewable and new technology / service providers, to be more involved in the development of Targeted Charging Review arrangements.

We understand that established energy system participants are heavily involved with Ofgem in driving this process forward. These established participants, other than the generators, are prohibited from investing significantly in storage and, consequently, are disincentivised to support this new technology. This is despite the fact that it is a Government objective to integrate such new technologies and services into the system.

Smaller companies can present valuable insights and solutions. However, given their limited resources and the tight timetables of consultations, these companies are frequently unable to engage at the same level as the larger established companies that can afford to invest in detailed, time-consuming responses with the support of large consultancies. As such, to ensure that any reforms deliver the original objective, it is vital that early engagement takes place with smaller companies and that adequate time is provided to match with to their resources and capacity.

This consultation focusses on the challenges that low carbon technologies can present. Whilst challenges do exist, new technologies and services are part of the solution. If reforms are undertaken in a way that facilitates and encourages them correctly, low carbon technologies can alleviate many of the identified issues. Examples include shedding load, feeding in power when the system is under stress, ultimately reducing both pollution levels and consumers' bills.

With several different reviews occurring concurrently, Zenobē strongly believes that Ofgem should ensure that:

- The benefits of these individual reviews are considered together to evoke effective overall proposals that do not lead to unintended consequences for other areas that have not been reviewed.
- Any reforms are fair, credible and consistent. They need to be developed in a transparent and inclusive way that recognises the needs of the network companies and existing generators as well as incentivising new technology and new service providers
- Any changes are progressive and consider the effects on existing investments and business models established under the current system

Given the complexity and volume of reforms, it is difficult to be aware of all the codes and licences changes. It would be beneficial if all stakeholders were consulted even before the first draft of consultations is issued. For those participants that do not have a compliance department or policy team, it would be helpful if Ofgem could make particular efforts to ensure they are involved in discussions and understand the real financial implications of potential changes.

## Questions

### **Question 1. Do you agree that residual charges should be levied on final demand only?**

We agree.

Residual charges distort competition and investment between different technologies. Levying residual charges from generators can also distort outcomes between GB generators and interconnectors, for whom residual charges are not levied. This approach is more practical and requires less change from the current charging regime.

### **Question 2. Do you agree with how we have assessed the impacts of the changes we have considered against the principles? If you disagree with our assessment, please provide evidence for your reasoning.**

The method adopted by Ofgem to assess the impact of the changes is not designed to deliver government's policy outcomes.

Ofgem has a statutory environmental duty. However the impact assessment as set out in the TCR does not include target carbon criteria. Charging cannot be separate from government policy goals. It will encourage or discourage future investment decisions that could help meet the energy trilemma of keeping the lights on, at an affordable price, while decarbonising the power system.

The proposals need to align with: the BEIS Industrial Strategy, the Clean Growth Strategy, the UK's renewables and low carbon targets, and the Government's objectives to deliver the electrification of heat and transport. This includes the Government's desire to put the UK at the forefront of electric vehicle deployment as announced at the recent Zero Emission Vehicle Summit. We believe that more consideration of these environmental requirements needs to be addressed in the paper and the consequences of meeting or falling short of these environmental requirements must be taken into account as part of the 'informed decision'.

### **Energy Act (2013)**

Since the Energy Act received Royal Assent on 18 December 2013 and requires the Secretary of State to ensure that the carbon intensity of electricity generation in the United Kingdom is not greater than the upper end of the decarbonisation target range.

The Authority's principal objective remains the same but both the Secretary of State and Ofgem will be required to carry out their regulatory functions in a manner best calculated to further delivery of policy outcomes.

However, as previously highlighted, the outcomes of the Consultations do not align with the Smart Systems and Flexibility Plan, the Clean Growth Strategy, the Carbon Budget or the Climate Change Act. And therefore we believe it needs to be amended to meet the environmental criteria.

### **Recommendation:**

Introduce an 'environmental impact' criteria.

Charging options	Reducing harmful distortions	Fairness	Proportionality and practical considerations	Distributional impacts	Environmental impact
Option 1	++++	++	++	+	+++
Option 2	+	+	++	+++	++
Option 3	++	++	+	++	+
Option 4	++	++	++	+	+

**3. For each user, residual charges are currently based on the costs of the voltage level of the network to which a user is connected and the higher voltage levels of the network, but not from lower voltage levels below the user's connection. At this stage, we are not proposing changes to this aspect of the current arrangements. Are there other approaches that would better meet our TCR principles reducing harmful distortions, fairness and proportionality and practical considerations?**

Historically, the energy system's flow and design were simple and clear: transmission-connected generators on one side and distribution connected consumers on the other. The totality of ancillary services were provided by the network operators.

Today the system is more complex with users connected at the transmission level, distribution connected generators and consumers providing ancillary services. The historic flow and design have changed. It is appropriate to rethink the allocation of residual charges.

It is important to consider how this principle would apply while seeking to achieve a level playing field between transmission and distribution network users. Factors that should be considered include the following:

- Distribution users pay high costs up-front (per MW of capacity) to connect to the electricity network compared to transmission system parties
- Transmission connectees tend to have new network investment (extension or reinforcement) socialised across the entire network customer base
- Distribution connected parties are required to raise finance to procure these assets rather than being able to rely on the network owner's ability to finance and build these assets.
- Distribution connected projects can also be exposed through the statement of works process to transmission-related connection charges (and underwriting for transmission reinforcements). However, connected transmission parties are not exposed to distribution system reinforcements. Distribution parties are exposed to transmission losses (albeit often a credit due to offsetting of transmission network flows) as well as distribution losses. However, transmission connected parties are not exposed to distribution

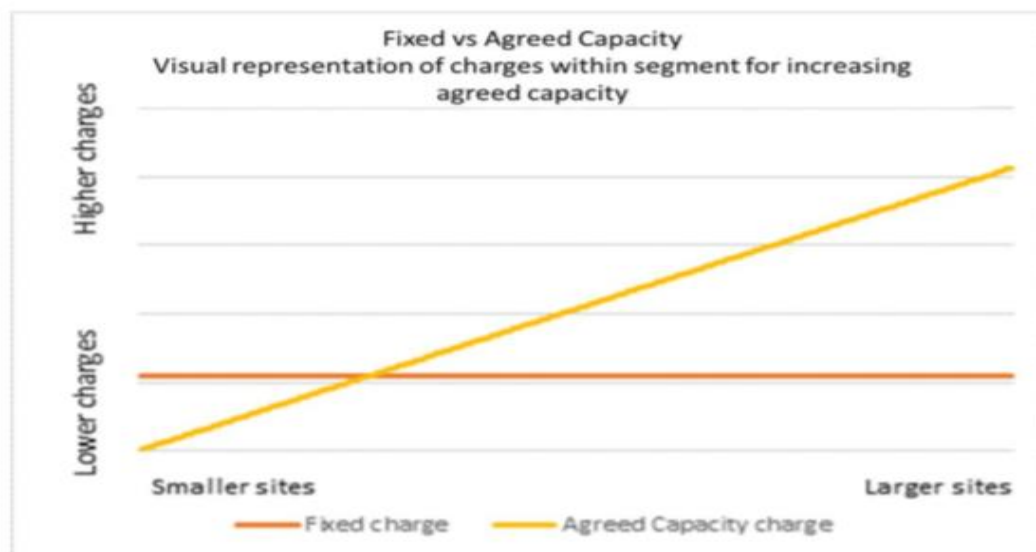


losses, even though their requirement for (and utilisation of) the distribution network is just as significant as a distribution connected party.

Transmission connected generators and Ofgem consider that the embedded benefits create a distortion between transmission connected generators and distribution connected generation. If the argument to remove the embedded benefits is to create a level playing field, then the transmission connected benefits should be removed under the same rationale.

**Question 4 . As explained in paragraphs 4.41, 4.43, 4.46, 4.49, 4.80, we think we should prioritise equality within charging segments and equity across all segments. Do you agree that it is fair for all users in the same segment to pay the same charge, and the manner in which we have set the segments? If not, do you know of another approach with available data which would address this issue? Please provide evidence to support your answer. Question 5. Do you agree that similar customers with and without on-site generation should pay the same residual charges? Should both types of users face the same residual charge for their Line Loss Factor Class (LLFC)?**

Figure 6 Fixed Charges compared to Agreed Capacity within Segments



Zenobē contests the fairness of the Fixed Charge option. Segments with diverse consumers will automatically lead to unfairness and disproportionate charges. The most vulnerable consumers will be punished - "some households who use the least amount of electricity could face a typical annual increase of between £2 and £22 a year".

#### **Similar customers with and without on-site generation**

Customers within the same Line Loss Factor Class (LLFC), but with and without on-site generation should not pay the same residual charges. Users who invested in on-site generation and/or storage to reduce their costs, help to reduce demand during peak consumption hours. These high CAPEX investments were made under

the current regime, and they should not be disadvantaged by a new regime for taking innovative steps which benefit the entire system. New customers will not have the sunk costs, and will therefore have an unjust advantage.

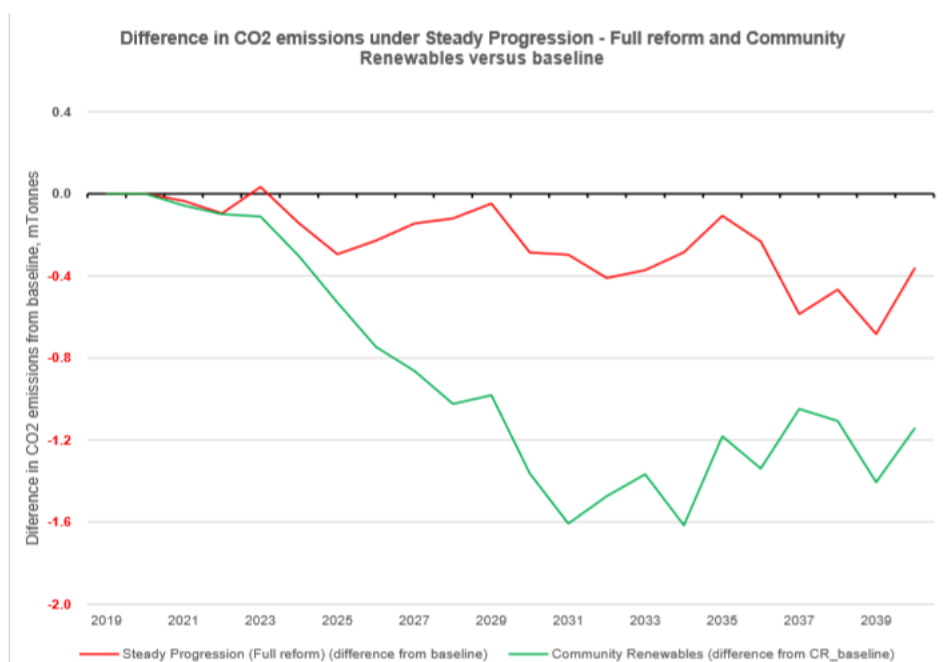
**Question 6. Do you know of any reasons why the expected consumer benefits from our leading options might not materialise?**

Zenobē believes the prediction that consumers will end up saving an average of £2 a year on their energy bill is unreliable. Due to the uncertainty of the effects caused by the market, in addition to the questionable assumptions of the model, any final value for the effect on consumer cost would have a large margin of error. Such a small consumer benefit combined with a much larger uncertainty should not be used as reasoning behind such reform.

With such a marginal financial advantage, the motivation for the reform must be put forward as the environmental benefits from the push towards decarbonisation fuelled by the reform. It is the general view of the market that the TCR will create more barriers to the penetration of renewables into the market and stifle the environment for the innovation required to introduce more efficient technologies.

The IPCC report on the impact of global warming presents the key findings relevant to the global warming of 1.5°C and 2°C. Bear in mind that, to achieve a 2°C scenario significant political changes need to occur. Failing to limit global warming at 1.5°C will have long-lasting and irreversible impacts such as loss of ecosystems and extinction, risks to health, livelihood, food security, water supply, human security and economic growth. Future climate-related risks will only be reduced by the upscaling and acceleration of far-reaching political objectives.

Figure 25 of the consultation – Carbon Emissions reduction under different scenarios



Future consumers will be penalised with the irreversible impacts of global warming and Ofgem justifies it by an uncertain £2 reduction in bills per year.

#### Question 10. Do you agree with the conclusions we have drawn from our assessment?

Zenobē challenges the assumptions in the Frontier model. We disagree with several of the key conclusions, such as the effects on the investment and deployment of energy storage, decarbonisation and customer cost. A separate confidential document is submitted to support this.

**Questions 11. Do you agree with our proposed approach to the reform of the remaining nonlocational Embedded Benefits? Question 12. Do you agree with our proposal not to address any other remaining Embedded Benefits at this stage? Which of the embedded benefits do you think should be removed ? Please state your reasoning and provide evidence to support your answer. Question 13. Are there any reasons we have not included that mean that the remaining Embedded Benefits should be maintained?**

#### Lack of data and evidence

Ofgem argues that when users lower the consumption at peak times (including Triad) they do not reduce the overall cost of the system for all consumers.

The consultation does not give adequate consideration to the significant benefits and value arising from the flexibility that batteries and other DSR technology can provide. For example, storage systems can react in seconds to either shed load or provide power in times of system stress, and thus provide crucial resilience. No estimates are included in the report to demonstrate this value.

- There is insufficient data to demonstrate the case for change:
  - There seems to be little evidence that Triads are over-remunerated. We would like to see an impact assessment of the last two years with two case scenarios: the status quo and a counterfactual without the Triad system. Without users implementing peak shaving methods, incentivised by Triad costs, there would be far more strain on the system. Increased strain would lead to expensive generation, grid reinforcement, higher pollution and the need for more balancing services. All of the aforementioned consequences result in an increased consumer cost and negative environmental impacts.
  - We contest the point made in section 5.17 of the consultation, stating that users should not be encouraged to use 'inefficient' means of avoiding Triad costs. Ofgem should therefore introduce incentives which promote reducing load in these times through the use of clean and efficient technology such as battery storage.
  - It is unhelpful that DNOs are neither equipped to measure constraints on the system in real-time nor have access to data concerning the impact on the system of specific technologies. Without this information, the proposals risk leading the industry along a counterproductive path.
  - The proposals would benefit from analysis based on objective data and the presentation of scenarios to demonstrate the potential impact on various participants within the market.
  - We wish to understand the basis upon which the assumption has been made that Triads are over-remunerated. We see no evidence of this.

#### **Question 14. Do you agree with our proposed approach to transitional arrangements?**

In such large reform, there can not be any mistakes. There must be a transitional period long enough to ensure that the assessments in the consultation were not inaccurate, and that the delivery of other market reforms will not cause inadvertent effects. There must be time for the market to understand and adjust to the changes. Those who have invested under the current regime should not be unfairly prejudiced against. Zenobē encourages Ofgem to provide a decision in 2019 but with an implementation phase from 2021 to 2023.

#### **Question 16. For our preferred option do you think there are practical consideration difficulties that we have not taken account of? Please provide evidence to support your answers.**

It is concerning that the consultation has not taken in to account the current volatility of the UK's political situation. Leaving the EU will have undetermined effects on the energy market - for example the use and cost of interconnectors will change.

#### **Electricity cost competitiveness in comparison to other European nations**

In Europe, many markets are more favourable to large energy consumers in order to protect industries. There are examples of certain industrial plants moving away from the UK due to the uncompetitiveness of the UK energy market. Production moving away from the UK reduces carbon generation by manufacturing in the UK, but the carbon footprint of such products is larger when they then need to be imported.

We would welcome the opportunity to meet with you to discuss our concerns and proposed solutions in greater detail. In the meantime, if you or colleagues have any immediate queries regarding Zenobē's consultation response, please do not hesitate to contact me.

Yours sincerely,

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