

RESPONSE TO OFGEM'S TARGETED CHARGING REVIEW

The Anaerobic Digestion and Bioresources Association (ADBA) is the trade association that represents the range of interests and matters related to the anaerobic digestion of organic materials (AD) across the UK, including the collection of waste for use as feedstock. ADBA understands the complex range of skills required by developers of new AD plants, from feedstock management through technology to energy production, markets and resource to land. ADBA is a founder member of the World Biogas Association (WBA).

The organisation has over 400 members from across the AD industry, including plant operators and developers, farmers, local authorities, waste management companies, supermarkets, food processors, energy and water companies, equipment manufacturers and suppliers, consultants, financiers and supporting service companies. Anaerobic digestion can make a significant contribution to renewable energy, climate change, and critical resource preservation targets, subject to the right policies being in place.

Why should the government invest in AD?

Following strong growth in recent years the UK's AD sector now has a capacity of over 700MW electrical-equivalent. This is more than double the capacity of the Uskmouth coal plant – enough power for more than 850,000 homes.

AD produces biogas which can be used to generate baseload electricity. It also offers flexibility, with plants able to dispatch electricity to meet high demand periods, provide low carbon heat or be upgraded and used as a transport fuel.

AD offers an excellent return on the government's investment. This return includes:

1. Energy security from domestic green electricity

Biogas is good for UK energy security. It is generated in the UK and supplies are constant and reliable. AD is delivering home grown green power to the electricity grid here and now. AD can contribute to energy security by delivering around 30% of either domestic electricity or gas demand.

2. Cost effective carbon abatement

AD has already reduced UK greenhouse gas emissions by nearly 1% annually. Supporting the technology further could reduce carbon emissions by 4%. Our calculations suggest that continuing to support the technology would reduce government expenditure by £755m from 2017 to 2040 in GHG abatement.

3. Economic productivity and global competitiveness

A sector already employing around 3,500 people, with the potential to employ over 30,000 more, many in rural areas and manufacturing jobs, is worth protecting. The UK is a world leader in biogas with UK companies exporting over £100m-worth of biogas-related expertise and equipment per year. Given its world-leading expertise, the UK AD industry has a real opportunity to be at the heart of the growing global biogas industry, estimated to be worth £1 trillion.

4. Strengthening the rural economy

Recycling digestate back to the land boosts crop yields and improves Britain's soils, the poor quality of which is costing the UK £1bn a year according to a recent Parliamentary Office of Science and Technology estimate. Integrated into farming, AD also helps stabilise farming businesses, improving their ability to withstand fluctuations in global commodity markets.

5. Meeting recycling targets

The government will not be able to meet its recycling targets without mandatory separate food waste collections in England, which will require more food waste AD capacity to treat and recycle the resulting separated food waste.

Question 1: Do you agree that the potential for residual charges to fall increasingly on groups of consumers who are less able to take action than others who are connected to the system, is something we should address?

Yes.

Question 2. If so, why do you think, or do not think, action is needed?

We think it is important that residual charges are addressed to ensure the full range of benefits AD delivers can be realised. AD plants are able to export low carbon electricity to the transmission system or distribution network via a single half-hourly meter capable of independent control. AD plants, be they gas to grid or CHP, provide renewable baseload electricity but as a dispatchable technology can also ensure their supply of power to the electricity grid is maximised at times of peak demand, forgoing gas injection opportunities.

Current 'use of system' costs (both Transmission Network Use of System (TNUoS) Demand Residual (TDR) and Balancing Services Use of System (BSUoS)) are necessary, especially as the electricity grid modernises. Distributed generation (DG) removes reliance on the transmission network and negates the need for reinforcement and maintenance of the transmission system. Where DG provides baseload power, transmission network operators (TNOs) save significant expenditure from a constant reduced use of the transmission network. They can predicate their network investment on distribution generation and can balance network supply and demand in a more cost-effective manner.

Addressing residual charges provides opportunity for the benefits of DG to be assessed and adequately valued; Cornwall Energy's analysis found DG benefits to be undervalued in the network Common Distribution Charging Methodology (CDCM) by between £7.4/kW and £16.6/kW.¹

We would support Ofgem in a Significant Code Review to evaluate residual charges. We believe such charges should be, at least in part, priced according to the carbon emissions relating to generation. Residual as well as forward-looking charging should encourage investment in low-carbon, sustainable generating technologies.

ADBA has consistently recommended any review of network charging be holistic and systematic. For this reason we have not supported the rushed approach of Ofgem in the proposed CMP264 and CMP265 modifications 'minded to' decision. Network charging impacts and interacts with other areas such the evolution of the electricity network into a smart, flexible system needs to encompass and the impact of the UK exit from the European Union. A careful, integrated and forward looking approach, cognisant of these interactions, is needed.

Question 3: We are proposing to look at residual charges in a Significant Code Review. Are there any elements of residual charges that you think should be addressed more urgently? Please say why.

No.

As our response to question 2, above, notes, a holistic and system-wide approach to charging should be undertaken. We do not support a piecemeal approach.

Although Ofgem understand the embedded benefit charge to be an issue requiring urgent attention – and that waiting two years for a TCR to be undertaken “could mean at least two further years of escalating distortive payments”² – the “c£600m” supposed cost of this to consumers has not been supported by sufficient and adequate evidence. Combining Ofgem's minded to decision on the CMP264 and CMP265 modifications with the proposed Significant

¹ https://www.theade.co.uk/assets/docs/resources/Embedded_Benefit_Report_final.pdf 4.

²

https://www.ofgem.gov.uk/system/files/docs/2017/03/minded_to_decision_and_draft_impact_assessment_of_industrys_proposals.pdf 15.

Code Review (SCR) would ensure that delivering customer value for money is achieved but that priorities of decarbonisation and security of supply are also given due consideration.

An SCR would provide time and resource for a more expansive study of wider impacts. We would support Ofgem in gathering a range of stakeholder views and in taking into consideration how the transmission network cost to the consumer is set to change: network costs are set to grow from £943 in 2007 to £3.7bn by 2021, but there has been no questioning to date as to the appropriateness of these new assets and their suitability for the electricity grid of the future.

Question 4. Are there elements of the approaches in other countries that you think could be appropriate for GB residual charges?

See our response to question 5, below.

Question 5: Are there other approaches that you know about from other jurisdictions, that you think offer relevant lessons for GB?

Germany has embraced smart flexibility, offering dispatchable power and power to gas to suit demand. This is an example of policy that could help the UK transition to a smart energy future, as was called for in BEIS and Ofgem's recent call for evidence.³

In Germany AD plants may be operated so as to enter into a pulse mode to dispatch electricity when demand is high. Germany has extensive biogas infrastructure, this dynamic application arose following the amendment of their Renewable Energy regulations to introduce a 'flexibility tariff' for dispatchable electricity generation. The flexibility rate has a total cap of 1350MW to help ensure that the sector is predominantly providing baseload electricity. Individual AD plant operators receive financial support once they have increased the installed capacity of the plants. Generation of this sort is further supported by priority connection rights to feed into the grid.

E.g. An operator of an AD plant with an installed capacity of 500kW is permitted to increase the capacity of its plant by 50% to 750kW. For the additional 250kW capacity the operator receives the additional flexibility rate. The flexibility rate is guaranteed for ten years.

Germany has also adopted power to gas, which denotes the conversion of renewable electricity into hydrogen using electrolysis. This conversion would be done when production is high but demand is low. This could then be used directly in hydrogen vehicles or a hydrogen gas network if those systems are put in place. Alternatively, through methanisation, the hydrogen can be converted into methane where it can be used as a renewable energy source, upgraded to be used as a transport fuel or stored.⁴

IEA Task 37 on biogas has undertaken significant research into the potential role of biogas in smart and flexible energy grids.⁵ We encourage Ofgem, and BEIS, to review this work.

³ <https://www.gov.uk/government/consultations/call-for-evidence-a-smart-flexible-energy-system>

⁴ <http://www.viessmann.co.uk/en/local-heating-networks/power-to-gas.html>

⁵ http://www.iea-biogas.net/files/daten-redaktion/download/Technical%20Brochures/Smart_Grids_Final_web.pdf

Question 6: Do you agree that our proposed principles for assessing options for residual charges are the right ones? Please suggest any specific changes, or new principles that you think should apply.

We support the principles for assessing options of reducing distortions, fairness, proportionality and practical considerations.

We do have concerns that the supposed distortions in the Capacity Market (CM) that Ofgem have recently reported on are being used to drive forward changes to network charging that will affect both CM and those sub 100MW generators not in the CM, which – to date – is all AD generation, whose projects are excluded from the CM because they have received financial support through government renewable financial incentives.⁶ Such a decision would, of course, be unfair.

As we noted in our response to Ofgem's minded to decision on the proposed CMP264 and CMP265 modifications, we have concerns with the Connection and Use of System Code (CUSC) panel process, wherein the decision makers are comprised of those who initially proposed the. The CUSC panel is an unsuitable forum for changing network charging as industrial manufacturers and distributed generators, the majority of who are not members of the CUSC process, are not adequately represented.

In addition to those principles advanced for assessing options we believe alignment with UK strategic objectives for energy should also be considered. This should comprise measures to reduce carbon intensity of energy generation in line with UK Carbon Budgets and efforts to improve energy efficiency.

Question 7: In future, which of these parties should pay the transmission residual charges: generators (transmission- or distribution-connected), storage (transmission- or distribution-connected), and demand, and why? What proportion of these charges should be recovered from each type of user?

Distribution connected generators (DG) should pay less transmission residual charges both because their generation provides an avoided cost in respect of use of system and because of the other benefits DG provides. As Cornwall Energy have found DG benefits are undervalued and, accordingly, not adequately charged for. These benefits, to which all AD operators contribute, comprise:

- Credits slightly lower than benchmark analysis (Impact assessed in range of £2.6/kW to £6.5/kW across 2014-15 to 2016-17); and,
- Non-intermittent generation benefit the network in respect of the voltage of connection (Impact assessed in range of £7.4/kW and £16.6/kW in 2016-17).

Cornwall Energy note that the current level of the TNUoS triad charge is overvalued and is set to grow. The research finds "that an appropriate TNUoS Triad charge would be £32.3/kW, a reduction from the 2015-16 rate of £45.80/kW. Both demand and distributed generation should receive TRIAD benefits which reflect the full value of this charge."⁷

Question 8: In future, which of these parties should pay the distribution residual charges: generators (transmission- or distribution-connected.), storage (transmission- or distribution-connected), and demand, and why? What proportion of these charges should be recovered from each type of user?

As stated in our response to question 7, above, the benefits DG provide must also be accounted for. Any additional recovery of residual charges from DG must account for these.

⁶ Ofgem's minded to decision states, "TDR payments to smaller EG are distorting other markets, including the Capacity Market (CM), wholesale and ancillary services markets."

https://www.ofgem.gov.uk/system/files/docs/2017/03/minded_to_decision_and_draft_impact_assessment_of_industrys_proposals.pdf 5.

⁷ https://www.theade.co.uk/assets/docs/resources/A_review_of_Embedded_Generation_Benefits_in_Great_Britain.pdf 7.

Question 9: Do you support any of the five options we have set out for residual charges below, and why?

From the limited exposition provided Option E: a hybrid approach appears to present the fairest apportioning of residual charges; however, we would be interested in the Significant Code Review providing further assessment and analysis to support all of the presented options.

From discussions with Severn Trent – one of several water companies with large on-site energy demands – ADBA understands that any of the proposed changes would require substantial changes to inhouse systems and processes and that the cost of introducing such changes would be, ultimately, passed on to customers. Severn Trent do not believe this to be either fair or practical.

Network charging must support the evolution of the electricity grid and energy supply to one that is low carbon. To limit warming in line with the UNFCCC Paris Agreement the IEA recommends Scenario 450, the limiting of GHG atmospheric concentrations to 450 parts per million of CO₂. Nothing less than this would limit average global warming “well below 2°C” or drive efforts to limit the temperature increase even further to 1.5°C above pre-industrial levels.⁸ To achieve this the emissions of energy generation must fall to around 80kg of CO₂ per MWh by 2040 – only renewables provide for this future.⁹

As farm and food waste left to decay on fields and in landfill eventually decays to greenhouse gases, the carbon footprint of AD is particularly low. Electricity can be generated by AD from waste with a carbon footprint that is around 40 times less than natural gas, 45 times less than fracked-gas, and 70 times less than diesel.¹⁰

Question 10: Are there other options for residual charges that you think we should consider, and why?

No comment.

Question 11: Are there any options that you think we should rule out now? Please say why.

Each of the five options sketched in this Targeted Charging Review warrant further investigation and think it appropriate that Ofgem make the case for any changes to charging and carry the burden of proof. Requiring this of consultation respondents is unfairly burdensome.

We do have concerns that any gross charging approaches would be complex to regulate and that, accordingly, would introduce further administrative burden to AD operators.

ADBA encourages a Significant Code Review to be undertaken and for thorough assessment of the implications of each of the options to be presented.

Question 12: Do you think we should do further work to analyse the potential effects of the charging arrangements for smaller EG (called ‘embedded benefits’)?

Yes.

The recent minded to decision on CMP264 and CMP265 modifications has no consideration of the impact any reduction in embedded benefits would have on the revenue streams of distributed generators, at the individual plant level or collectively.

The proposals will have a particular impact on AD operators because the technology provides local baseload energy, so most receive triad benefits as an important part of their income stream. As the data included in table below shows triad levels depend on the individual PPA and location.

⁸ http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf art 2.1.

⁹ <http://www.iea.org/newsroom/news/2016/november/world-energy-outlook-2016.html>

¹⁰ Daniel Nugent and Benjamin K. Sovacool, *Energy Policy*, 65, 229, (2014)

Evidence point	Capacity/Generation	Location	Value
10 plants in England	c. 100GWh per annum	Various	c. £6/MWh
Single AD plant	1.4MW	East England	£31,020 per annum
Single AD plant	1MW	SE England	£4.74/MWh
Single AD plant	1MW	SW England	c. £32,000 per annum
Single AD plant	700kW	SW England	c. £38,000 per annum

Variance in triad payments due to contractual arrangements has not been considered in this review and any resulting change to the charging arrangements for embedded benefits would accordingly not be fair. In addition, as we have discussed in our response, interrelated benefits, costs and revenues, have not been considered and if changes to networking charges are to be made they can only be taken into account through a Significant Code Review and impact assessment.

Embedded benefit represents an important part of the income stream of AD operators. As we stated in our response to Ofgem's recent minded to decision we believe existing sites should be grandfathered TDR at its current level current with RPI, as WACM20 proposed in Ofgem's impact assessment. Retroactive changes in policy such as that being proposed in the minded to decision discourage future investment in so far as they create regulatory uncertainty which may detract from the investment case.

Generation of renewable electricity from AD plants contributes significantly to several government objectives: providing energy security, reducing imports, curbing carbon emissions and helping the UK meet its renewable energy and recycling targets. Reducing or removing the embedded benefit would put the continuing delivery of these benefits at risk.

The supposed savings to consumers take no account of the socialised cost of climate change adaption. This cost will rise the longer decarbonisation is postponed – the minded to decision will lead to a reduction of deployment and increased subsidy cost for renewable generation.¹¹ Slow progress on ending carbon intensive generation has a high cost that will, ultimately, fall on consumers to pay.

Question 13: Do you think changes are needed to the current charging arrangements for smaller EG, and when should any such changes be implemented?

As discussed in our response to question 7, above, DG benefits are currently undervalued and insufficiently charged for. Such values must be accounted for in any holistic review of network charging.

Question 14: Of the embedded benefits listed in our table, do you think that any should be a higher or lower priority?

No.

As stated throughout our response we believe all network charging should be reviewed holistically and systematically.

¹¹ Numerous economic studies have confirmed this, including The Stern Review on the Economics of Climate Change and the World Bank's Turn Down the Heat reports: http://unionsforenergydemocracy.org/wp-content/uploads/2015/08/sternreview_report_complete.pdf ii, and <https://openknowledge.worldbank.org/bitstream/handle/10986/20595/9781464804373.pdf?sequence=3&isAllowed=y> xvii.

Question 15: Do you think there are other aspects of transmission or distribution network charging which put smaller EG, or any other forms of generation or demand, at a material disadvantage?

As we have said in our response to question 2, above, distributed generation removes reliance on the transmission network and negates the need for reinforcement and maintenance of the transmission system. We believe this value to be higher than the grid supply point infrastructure investment figure Ofgem claim of 1.62p/kW.¹²

Independent analysis suggests that contrary to Ofgem's minded to position, grid 'sunk costs' vary when a long-term view is adopted.¹³ As Ofgem has recently recognised Cornwall Energy estimate the cost of transmission network reinforcement to add £18.50/kW.¹⁴

When a span of 15-45 years is taken into account to reflect the expected life of an embedded generator costs are seen to be variable and correspond to the avoidance of long term costs to the transmission network.¹⁵ It is unreasonable to regard 90% of the future investment in the electricity network as 'sunk costs' when i) the majority of this infrastructure is yet to begin being built, and ii) the future composition of the electricity grid is yet to be agreed upon with vastly different requirements depending on, for example, use of electricity in vehicles.

We support a Significant Code Review as this would ensure that these wider impacts and their effect on one another can be properly understood and costs evaluated.

Question 16: Do you agree with our view that storage should not pay the current demand residual charge, at either transmission or distribution level?

We agree that storage may be disadvantaged by the current residual charging methodology and that changes should be introduced to facilitate this electricity grid evolution. These should, however, be considered as part of a holistic and systematic charging review.

Energy storage, of both heat and electricity, is a challenge for some renewable technologies but for biomethane the gas grid provides an existing (and therefore cheaper) means of storage and transmitting biomethane or gas. Further innovation in this area could enable gas generated from the AD process to be transported prior to being combusted to produce electricity. This would provide ideal solutions to remote communities that do not have access to electricity or gas grids. Alternatively, biogas could be converted onsite into batteries or cells, ready for use and without operators incurring grid limitations and costs. The technology for storage, pressurisation and transportation is proven and well-established.

Further innovation in this area could expand renewable fuels in transport, where HGVs in particular have scope for expansion. Use of biomethane as a fuel is vital to government efforts to decarbonise the transport sector, reduce UK carbon emissions by about a quarter.

¹²

https://www.ofgem.gov.uk/system/files/docs/2017/03/minded_to_decision_and_draft_impact_assessment_of_industrys_proposals.pdf 23.

¹³

<http://www.theade.co.uk/medialibrary/2016/05/16/09ca4432/A%20review%20of%20Embedded%20Generation%20Benefits%20in%20Great%20Britain.pdf> 38.

¹⁴

https://www.ofgem.gov.uk/system/files/docs/2017/03/minded_to_decision_and_draft_impact_assessment_of_industrys_proposals.pdf 62.

¹⁵

<http://www.theade.co.uk/medialibrary/2016/05/16/09ca4432/A%20review%20of%20Embedded%20Generation%20Benefits%20in%20Great%20Britain.pdf> 26.

Question 17: Do you agree with our view that storage should not pay BSUoS on both demand and generation?

No comment.

Question 18: Which of the BSUoS approaches described is more likely to achieve a level playing field for storage?

No comment.

Question 19: Do you think the changes in this chapter should be made ahead of any wider changes to residual charging that may happen in future? Do you agree with our view that these changes should be implemented by industry through the standard code change process?

No.

As we have stated throughout our response to this consultation we believe network charging should be reviewed holistically, through a SCR. A rushed, piecemeal approach would be unlikely to produce a charging methodology and regime fit for purpose for today, let alone one that able to accommodate the electricity system of the future.

Question 20: We would welcome your thoughts on the potential make-up of a CCG. Please refer to the potential role, structure, prioritisation criteria and assessment criteria.

We support the establishment of a Charging Coordination Group (CCG) to ensure interaction and coherency between the SCR content and wider, related changes such as the work on smart, flexible energy. To ensure fairness and avoid bias we look forward to CCG having a wide and diverse representation, including industrial manufacturers and DG.

Question 21: Do you agree with our proposed delivery model, including its scope?

We support Ofgem in their proposal to undertake a SCR to tackle comprehensively and systematically issues across transmission and distribution, and across codes.

Question 22: Do you agree that our proposed SCR process is most appropriate for taking forward the residual charging and other arrangements for smaller EG discussed in this document?

Yes.

As we have noted throughout our response to this consultation we believe the changes to network charging proposed by the CMP264 and CMP265 modifications are rushed and have been presented without adequate and sufficient evidence. To the contrary, the proposed SCR process would present opportunity for a considered and systemic review.

A rushed decision risks a proportion of the 20GW¹⁶ of distributed generation having to close due to lost revenue, resulting in higher wholesale prices for UK electricity overall as lower cost renewables close or new projects fail to materialise. This will ultimately impact the consumer and raise energy bills, not reduce them as is claimed Ofgem's recent minded to decision. We would also expect to see higher volume of network losses as power is directed from further afield – the value of avoided losses as a result of local generation has not been assessed to date, however, the SCR would provide time and resource for this.

Other potential impacts and unintended consequences that may result should be assessed comprehensively through a SCR before any element of network charging change is made. Potential system wide impacts that could be assessed through a SCR include:

¹⁶ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/467024/rpt-frontier-DECC_DSR_phase_2_report-rev3-PDF-021015.pdf 6.

- Reduction of deployment and increased subsidy cost for renewable generation, as existing Contracts for Difference tariffs are now significantly undervalued;
- Increased energy costs of up to 19% for energy intensive manufacturers in the steel, paper, chemicals and food and drink sector, negating recent government efforts to reduce energy costs on these users, and leading to potential job losses;
- Harm to government's energy storage and demand side response ambitions by reducing value from these investments by £45/kW per year, which represents a significant proportion of projected revenue; and,
- Reduced electricity security, as more than 7.5 GW of distributed generation operates during peak demand periods - this should be considered in terms of its impact on winter supply margins.¹⁷

We thank Ofgem for the opportunity to comment.

¹⁷ ADBA has joined the Association for Decentralised Energy's open letter to Rt Hon Greg Clark MP to set out our concerns about the minded to decision and to express the unaccounted for system wide impacts to Ofgem and BEIS.