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Review of the bioresources market – consultation

Dear Connor,

Thames Water welcomes the opportunity to respond to this consultation. We broadly agree with the logic and objectives of the proposals and have provided more detailed answers, to the questions set in the consultation, in the annex to this letter. Firstly, we would like to take the opportunity to make some general comments on the development of the market.

While we consider that Ofwat was right to identify the potential for markets to develop in bioresources and to create the separate price control, in our view there are a number factors that are contributing to the relatively slow pace of market development.

The most important factor is the EA regulatory framework that results in the mixing of sludge with other organic waste being uneconomic. If this could be overcome the market could develop more rapidly and we would be willing to support Ofwat in any discussions with the EA.

However, we recognise that regulatory barriers to the development of the market may also take time to change. This includes developments in environmental regulation including EA's sludge strategy, the Industrial Emissions Directive and Rule 1 Farming Rules for Water. Other regulations and agencies not directly connected to economic regulation or the sector may also have an impact. Local planning may also delay new developments if there are objections to new sites or local residents not wanting the associated increased road traffic from the importing or exporting of sludge.

In addition, the market structure has several features that create path dependencies. It is highly capital intensive, territorial and the assets have relatively long lives (average life of 30-yrs for sludge treatment and 13-yrs for disposal). These are long periods given that all sites will have had some (if not significant) investment in the past 10-yrs. When sites have been upgraded, they are planned for the next 20-30 years, so have headroom capacity built in. It is based on 10 producers

within a territorial monopoly who have been investing in equipment under price controls over many years. Given this structure the opportunities for a hypothetical new entrant may be limited.

A more realistic and foreseeable market development scenario would be some form of collaborative investment in either replacing or investing in new bioresource equipment. This will be at the replacement rate of existing assets or in response to increase in the amount of capacity required.

In conclusion, we support the development of markets and endorse Ofwat's approach (drive efficiency, make better use of sludge, benefits customers etc), however market development will take time. Our general observation is that Ofwat can only effectively regulate the supply side but there are issues on the demand side that are outside of the regulators control. This point has been acknowledged in the Jacobs Report, and by the CMA[1]. This has an impact on the level of market development that can be achieved and needs to be taken into consideration in PR24.

Yours sincerely,

Peter Trafford

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[1] Competition and Markets Authority, 'Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determination - Final report', March 2021, p548-555

Annex

General Comments

Before responding to the specific questions, we have the following general comments.

Regarding technological changes that are critical to market development, the example cited on page 6 is not fully representative as there is now only one incinerator (Beckton) and there has been a long term move towards Anaerobic Digestion (AD). Advanced Anaerobic Digestion (ADD) does not necessarily give a significant increase in benefit as the capex is high compared to AD and the opex benefit doesn't always provide a better WLC (Whole Life Cost). AAD is a better option for certain circumstances, for example, to provide extra capacity where space is constrained. Under certain circumstances less technological options, such as liming, may be more appropriate given the current asset base and size of the treatment works.

We agree that generally larger Sludge Treatment Centres (STC) provide economies of scale. However, given the disperse nature of some companies, it may be uneconomic and reduce any carbon benefits to haul large volumes of sludge to a centralised STC site.

Co-digestion of sludge with other organic waste is a great opportunity to develop the market, however it is currently cost prohibitive under current regulations and there is no clarity over whether this will be changed. Whilst gas yields may increase through digestion, other aspects such as dewaterability and depackaging can increase costs.

Whilst there may have been a change in the amount of sludge being traded (Pg8), and the use of markets hasn't moved very quickly, we think that all companies are actively considering trading, but either the opportunity isn't there (timing of supply vs demand), the cost of using the market doesn't provide better value or that the risks associated with market trading are too great (too many uncertainties over long term trades). Companies may have also identified other longer-term priorities they wish to achieve such as obtaining greater resource recovery from existing assets.

Do you agree with, or have any comments regarding, Jacobs' bioresources market review report?

We agree with the six types of market opportunity that Jacobs suggest however, in the identification of constraints (page iv) we note that

- Jacobs have not considered the timing of need, e.g. when one company needs capacity other companies might not be able to provide it. This is a fundamental obstacle to the market developing. Without longer term forecasts the market cannot predict where and when capacity is needed. We suggest for the market to evolve new information in the form of analysis in a simple graphical representation of sludge growth is needed, overlaid with current sludge treatment capacity, with as much credibility as is possible to encourage investment.
- We agree that current legislation is probably the biggest systemic risk associated with market development. We also consider there are regulatory risks associated with Environmental (co-treatment) and planning policies (consent).
- We are not sure IED will drive changes in the market, as there is no certainty over the improvements that will be needed until the EA have responded to all permit applications. Unless there are such significant issues with several sites in a local area that would make it more cost effective to be rebuild the sites, a joint capacity approach is unlikely. Additionally,

the timescales imposed for resolution of IED conditions might not allow consideration of these longer-term solutions.

- A more important issue will be shared opportunity around investment to mitigate land bank recycling – technology issues are not hindering this; it is the uncertainty around timing, i.e. when and where to invest.
- Co-treatment (co-location or co-digestion) offer the greatest opportunity if the current regulatory constraints can be overcome.

We have the following comments on the issues raised:

- Cost of Capital (Issue F). We don't believe that it would be advantageous to customers to promote a change in the WACC just to develop a market. Markets will naturally find the most economic solution through a process of competition that takes into account supply, demand, and risk. Using a third party might be the only option if, for example, there is not enough land for development, or the location of the sludge means transport is the influencing cost.
- Overheads (issue G) – we agree that current allocation of corporate overheads may not be truly representative of the bioresource activity. Better accounting and allocation of these costs would be beneficial. For marginal headroom the cost to treat should be the gate fee, rather than the full cost allocation as some of these costs are fixed to the incumbent sludge.
- Procurement authority (issue H) – benchmarking incumbent bioresource service against market opportunities should demonstrate to Network+ that the incumbent is efficient. If not, then it makes sense to utilise the market. Given the inherent activity on the same site (90% in our case) it doesn't make sense to make further separation of the business as this will lead to higher management overheads and inefficiencies in site operations.
- Risk of Supplier failure (issue I). If the solution to the problem of supplier failure is demonstrating resilience inevitably this indicates a certain amount of redundancy for some assets that might only be called upon infrequently. In effect resilience could cap prices given the inherent oversupply of capacity to provide resilience.
- Lack of synchronisation and joint planning (Issue J). We don't believe that information on its own can ever be a good substitute for understanding to help the market develop. The current amount of data being provided is excessive and adds confusion to what is required. Historic sludge data doesn't help promote the market other than by giving confidence to forward forecasts. We believe that the data being provided needs to be rationalised to provide the data that the market stakeholders need. A round table discussion, including potential new entrants and the information providers, might be the best way to achieve this. The idea of regional partnerships would be beneficial to share ideas and data.
- Differences in accounting for overheads, shared assets, and energy (barrier K). Recommendations (R15/16) by Jacobs are made with little evidence that accounting treatments make a big difference. In any event market development is likely to align accounting practices and indeed make them more obvious.
  Valuing energy is extremely difficult given that it is a commodity traded in near real time (spot), forward markets (day ahead, monthly, annually etc) and reserve contracts (with Grid).
- Procurement approaches (Issue L). This recommendation may make the procurement process less efficient. Generally, if assets need to be built on the sludge stream there is often other works needed on the effluent stream simultaneously. For efficient delivery (cost, The Construction Design and Management Regulations 2015 etc) these are normally awarded as a site wide project. Having to bid sludge projects separately may result in delays or less efficient delivery.
- Sludge quality (Issue M). This is related to the issue of who should manage the sludge quality (generally dry solids (%DS) content). If Network+ manages the tankering then they

are responsible for the cost – driven by their ability to thicken it based on process limitations. Bioresource can suggest where to take the sludge based on the thickness (to dewatering or direct to sludge treatment). At present bioresources accommodate the cost for the tanker even though they have no control over the quality. This could be resolved by a charge based on %DS, which is how a 3rd party would charge their customers if they undertook the transport.

- Sludge quality Issue O. The calorific value/methane potential of sludge doesn't vary much, except between primary and surplus activated sludge (SAS). The issue is generally about the %DS and whether it contains a lot of grit/rag that could cause issues to the sludge process. Given this, we are not sure what benefit an industry wide standard would provide, as any contract would ask for these sorts of parameters to be agreed. While it may be useful to understand what other contaminants are in the sludge, there are currently no limits on these and this may present a risk around recycling options. Measuring a lot of parameters could be expensive and are only a snapshot in time and may not therefore be representative over time.

Do you agree with, or have any comments regarding, the proposals and views we set out in this document?

We will comment on the following sections and headings and pages:

Establish bidding market arrangements

- Pg13) Whilst out of the five options our preference would be Option 1, many of the issues limiting market development are not within the power of Ofwat to solve, yet they are critical to the market's success. Key examples include interpretation of Rule 1 of the Farming Rules; Industrial Emissions Directive, EA sludge strategy, local planning policy, and energy policy (renewable incentives).
- Pg15) final bullet: We would like to understand if this is just for 'new capacity' or where a current activity changes (e.g. end of contract period for say recycling) or do all current activities have to be assessed including current operations to ensure they are fully benchmarked? We appreciate that there is merit in the first two, but existing operations will be difficult due to the integrated nature of sites within Network+.
- Pg15) Ideally a common approach would make it easier for the market to understand and a common approach would also ensure the same information is used. To have this in place by the end of AMP7 is possible, but prior to submission of Business Plans may be challenging, especially if we want to develop a common industry approach.

We note there are significant activities currently procured within bioresources (sludge transport, sludge disposal) that are already competitively tendered:

- We advertise key contracts in OJEU. In our case these are contractors working on our behalf, under our management teams, as we need to control the activity to ensure associated activities with STWs (e.g. impact of sludge on the effluent process) are correctly managed.
- Construction activities are awarded based on Frameworks, which have been competitively tendered and then internally benchmarked via comparison between historic project costs or mini competition.
- Most construction activities are relatively modest (i.e. capital maintenance or small asset growth) and so a full bid assessment framework might not be warranted.

Where activities are directly managed in house (such as operations of STCs, farm sourcing, tanker operators) these are regularly benchmarked against outsourced models to ensure they remain cost effective.

Potentially there are several large investments that will be needed in the near future (e.g. thermal disposal plants to mitigate changes in land recycling practices) where shared investment/DPC might be practical and so these discreet projects could benefit from a Bid Assessment Framework.

Undertake better targeted cost assessment

We appreciate that the cost assessment needs to be appropriate to ensure that the correct cost to serve is being used. Ensuring accurate allocations isn't easy due to the historic set up of wastewater operations (combined WWN+ and Bioresources). Many of these recharges are calculated on an allocation basis and having to develop a separate management accounting system will take time, effort and ultimately cost. Given the amount of shared services across a site (power, manpower, telecoms, tax, rates etc) a true allocation of costs as if it were a separate business may not be possible to credibly deliver.

It is uncertain what impact further changes to cost allocation will have on trading. This is because a gate fee will be dependent on other factors that may be more material to the gate fee that relatively minor corrections to other cost allocations. These include site specific costs relating to volume and quality of feedstocks and non-cost factors such as risk appetite and headroom.

The standard liquor cost methodology still could be interpreted differently, for example, which assets are included in the treatment. At some sites the liquor may go to the head of works so cost might include Primary Sedimentation Tanks (PSTs), Activated Sludge Plants (ASPs), etc whereas other sites may just be into the ASP, again if the site is a filter works there may be no power costs incurred. Further clarification on how to quantify liquor costs may be needed once AR21 data has been analysed.

Consider changing the basis of our cost challenge so that it is based on average revenue requirement rather than expenditure.

Option 2 (Pg19) will potentially add additional management costs to allow calculation of revenues with no certainty that the approach would deliver a better outcome. This approach might also unfairly penalise some companies that have older assets that don't attract large renewable energy incentives (i.e. liming). It is also not clear whether this will reduce in-house If costs are comparatively less efficient there may then be a driver to make improvements to in-house services to drive down costs rather than use the market, which might only make some marginal improvement to reduce costs to below the gate fee as the fee effectively acts as a ceiling.

A gate fee will be very dependent on the type of treatment process and so this will skew some of the comparative metrics to favour those companies that have AD rather than lime. However, market factors (i.e. what farmers want from their biosolids) and the scale of the operation may mean that higher cost treatment processes have other benefits that would not be included in the comparative assessment.

As we have moved towards managing our sludge centres more as biorefineries, we have generated more renewable energy and therefore this efficiency will be reflected in our gate fee prices. However due to changes in energy policy, it should be noted that many of these sites currently attract ROCs, which will expire across the system over the next 10-years. Whilst we plan to move to biomethane as part of our low carbon strategy, these may not attract incentives, which will increase the gate fee. Additionally, is unclear if further incentivisation will be offered by energy policy and this could significantly change the dynamics of a developing market.

Encourage greater sector collaboration

We agree with Ofwat that Option 1 is the best solution and would suggest that long term (20+year) sludge profiles are published. The current data of headroom, capacity, tradable capacity etc is complex and is not guaranteed to be accurate over the long term. We recommend that this is reviewed with key stakeholders to ensure the correct data is provided for market development. We note that WaSCs are already collaborating on developing the market, through such forums as the one led by Jacobs and the 'innovation' communities are looking at modelling sludge trading.

We have developed decision support tools to allow us to apply systems thinking to both the investments we make and the tactical and operational decisions we take on a daily basis. This helps us to operate at an optimum level whilst balancing cost and risk. These tools are based around the BMA SludgeOps suite using prescriptive analytics. The tools allow us to evaluate trading opportunities and assess the impact, which receiving or exporting sludge will have across our system. We have used these tools to identify potential trading opportunities with our neighbouring WASCs and third parties, but to date none of these have materialised due to timing and capacity issues.

We have also engaged with consultants to assess the wider organic waste market to understand where opportunities could lie once forthcoming environmental legislation is enacted.

Finally, we have engaged in understanding the long-term issues around recycling biosolids to agriculture to understand if and when we need to develop Advanced Thermal Disposal options. As these are likely to be 'lumpy' investment we would look to develop these through DPC/shared investment with others (in line with Jacobs recommendation on Pg22, bullet 3)

Improve information remedies

Whilst we support providing information that will help develop the market, some data currently being provided could confuse or even mislead would-be entrants, unless they have a good understanding of the sludge arena in the first place. Too much information could slow down market development due to uncertainty or obscure useful data. It might be worthwhile finding out from potential market entrants if they understand and use the current data sets.

We still believe that there is ambiguity in some of the definitions within the market monitoring data and would like to have a cross industry review to ensure consistency.

Ensure more joined-up, pro-market outcomes

We agree that Performance Commitments (PCs) should be targeted and allow comparison of companies. A common PC would be desirable to using sludge as resource rather than treating it as a waste. We do not, however, believe that there should be any incentivisation through PCs

around using the market. This would create risks that could not be controlled by the company given the barriers to market development are external to the water sector. If PCs were introduced around use of the market, there could be unintended consequences, for example, forcing poor or inefficient decisions to meet a target.

Companies should not be incentivised to produce sludge that cannot meet the 'satisfactorily be disposed of' criteria as that is a requirement under environmental legislation. We believe that more emphasis should be given to ensuring that the sludge is put to greater beneficial use (i.e. what delivers greater benefits to customers including farmers), which might mean greater renewable generation, or producing a product specific to a farmer's needs (e.g. containing lime)

Trading Incentives

We agree with Ofwat that here should not be incentives to drive the market as this could drive behaviours that are unlikely to be efficient in the long term. We also note that from the Jacobs assessment the market will develop once barriers and risk have been overcome. As Jacobs conclude "In any case we would recommend waiting for some of the larger environmental regulation constraints to be resolved before fully judging the success of market development and applying large wholesale change to market operation." (p21 Bioresources Market Review)

We note that the low level of trading is mainly the result of a path dependency. Water companies were incentivised to invest to process waste within their monopoly territory only. This meant that historically any spare capacity would have been treated as inefficient investment by the previous price control regimes that did not assume trading would be anything other than a marginal activity.

Cost of Capital/ Double Funding

We agree that there should be no change in this area. The OOW sector manages their capital through long term contracts. To date there has been little appetite by this sector to trade with sludge due to the issues with regulations and end-of-waste status. In addition, many of these facilities have already entered long term contracts with Local Authorities and Food Service Establishments (FSE) to treat waste and so sludge is not a significant benefit to them. Market development in the other direction (i.e. other waste into sludge) is currently restricted due to regulations and limited headroom capacity. It is unlikely that we would build significant additional capacity to service this industry unless there was guaranteed feedstocks. We have spoken to several LA's and there is not this guarantee at the present time.

Pricing Trades

Setting incremental gate fee prices is within the remit of an individual company as they know their current processing costs and the level of risk that will be considered.

Long term trades will have to include the capital costs and any other costs incurred during the life of the contract. Estimating these can be complex and that may be one of the barriers to the market developing in these areas. If the offering company fundamentally gets their figures wrong, it could have adverse impacts on their customers by overcharging or running at a loss.