

# Meeting note

Wednesday 2 March 2016  
 Centre City Tower, 7 Hill Street, Birmingham B5 4UA  
 10.00 am to 3.30 pm

## Sludge working group – second meeting

Attendees	
Adrian Mercer	Veolia
Andrew Snelson	Anglian Water
Dave Musco	Yorkshire Water
James MacLean	Northumbrian Water
Jon Latore	United Utilities
Julie Tate	Natural Resources Wales
Kevin Wightman	Southern Water
Mark Worsfold	South West Water
Mat Davis	Environment Agency
Matt Wheeldon	Wessex Water
Neil Corrigall	Severn Trent Water
Peter Trafford	Thames Water
Sean Larkin	Dŵr Cymru (Welsh Water)

## Meeting purpose

The purpose of this meeting was to discuss about:

- Defining the market: The boundary around sludge activities;
- Defining the market: How do the impacts differ across Ofwat's policy options? How reasonable are Ofwat's assumptions?;
- Water company sludge regulation: RCV allocation for sludge control;
- Actions and setting the agenda for next meeting.

<b>Action</b>	<b>By whom</b>	<b>Deadline</b>
Ofwat will consider updates to the Impact Assessment based on the feedback from companies.	Ofwat	May 2016
Companies are welcome to give their feedback on the Modern Equivalent Asset Valuation cost approach. (Ofwat circulated an email requesting companies views on 4 <sup>th</sup> March 2016)	Companies	14 <sup>th</sup> March 2016
Andrew Snelson (Anglian Water) will provide Ofwat with driving unit costs (£/mile). Ofwat also welcomes other companies to provide more details on their driving costs.	Andrew Snelson (Anglian Water) and other companies	14 <sup>th</sup> March 2016
Mat Davis (Environment Agency) will provide Ofwat with the schematics of environmental regulation that were published on the WaterUk website. These were removed because they are now out of date.	Mat Davis (Environment Agency)	Completed – provided on 3 <sup>rd</sup> March.

## Notes of the meeting

### Defining the market: The boundary around sludge activities

This section started with a presentation given by Andrew Snelson (Anglian Water). The presentation slides accompanying this meeting note, details five market boundary options. For each option, each element of the value chain is either inside the boundary (subject to sludge market) or outside the boundary (remains a monopoly under incumbent). We note that even if an activity remains with the 'monopoly' side of the boundary that these activities are already under a degree of market pressure through market testing.

**Option 1 (slide 8):** The first option includes in the boundary STWs<sup>1</sup> (Sewage Treatment Works) co-located to STCs (Sludge Treatment Centres), STCs, CHP (Combined Heat and Power) engines, spreading to land, generation and sale of electricity. STWs, thickening centres and transports are excluded from the boundary. This split has the advantage of being simple as STWs co-located to STCs are in the sludge boundary. Therefore, this option makes asset management easier but does not reflect what happens with the sludge in the market. Stakeholders recognised that this option is not the best suited for the creation of a market for sludge.

**Option 2 (slide 9):** The second option differs from the first option by excluding STWs co-located to STCs from the market. This option has the advantage of being quite simple but there is uncertainty about where the thickening process stands. There would most probably be a need for mechanism costing process for sludge to charge sewage treatment for thickening (or vice versa). The liquor transfers would also need a clear costing process. Companies appreciated the fact that transport would still be outside of the boundary and, hence, the responsibility of incumbent. This option has also the advantage that incumbent would have incentives to thicken their sludge to an efficient consistency as they pay for the transport.

**Option 3 (slide 10):** The third option differs from the second option by including all thickening processes in the boundary. This option would cause sludge to enter the boundary for the thickening process, exit the boundary for the transport and re-enter

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<sup>1</sup> Note that STWs are referred to as WRCs in the slides.

the boundary for the rest of the value chain. This option was considered to be overly complex for the market.

**Option 4 (slide 11):** The fourth option differs from the third option by including transport after thickening in the boundary. However, transport from STWs to STCs or from STWs to thickening plants would still sit outside the boundary. This option was also considered to add unnecessary complexity.

**Option 5 (slide 12):** The last option includes in the sludge boundary the part of the value chain which is after the STWs. This option has the advantage of best reflecting the natural monopoly. Attendees recognised that this might be the best option for new entrants with innovative technology. Some of the attendees also considered that new entrants would have to not only build STCs but also transport the sludge. Although this is likely to be determined by the form of contracts made by companies and entrants. This option raised the concern about whether or not transport should be included in the boundary. If transport is included in the boundary, transport contractors would have an incentive to wait as long as possible before collecting sludge from small STWs in order to come with a larger tanker and, hence, realise economies of scale. This could compromise compliance at the sewage works for incumbents. This risk could be minimised by setting strict contract between the WaSC and the contractor. [Although we note some attendees concern over the extent at which contractual arrangements can mitigate risks].

There is also the possibility that transport contractors are not interested in collecting sludge from thousands of STWs and prefer to collect sludge from a few thickening centres. In this case, there would not be a market at the boundary. Stakeholders also agreed that thickening by gravity should be excluded from the boundary but thickening by mechanical or chemical processes should be included in the boundary.

Attendees (except for Ofwat) were asked to vote for the options. They were given five tokens and could attribute them to one or several of the options according to their preference. The voting was based on attendees' opinion on the appropriateness of the boundary design for the market. The results are summarised in the table below.

Option	Number of votes
Option 1	6
Option 2	24
Option 3	0
Option 4	0
Option 5	31

Attendees also considered the possibility that other criteria than economic efficiency could be considered when choosing the best options. The impact on customers' bill and the risk to compliance could also be taken into account. It was considered that the market could not only be created to make savings but also to assure compliance with regulation.

Other concerns were raised in respect to the opening of the market to competition. Resilience was one of the main concerns. For example, tankers can in the current situation be used in case of operational emergencies such as flooding or pollution. Indeed, the collection of sludge can be postponed up to 24 hours if necessary. If the transport is moved within the boundary, this operational resilience could be lost.

Another concern was the compliance of contractors and consequences if they do not deliver promised services. What happens if a transport contractor fails to collect sludge from a STW and, hence, causes a compliance incident? Attendees recognised that this risk could be mitigated by strict contracts.

The benefits of a sludge market were also discussed. Some stakeholders stated that companies already have incentives to act in an economic and efficient way and, indeed, already act in such a way. However, companies recognised that there was little trade across companies' boundaries and that the creation of a sludge market could encourage such trades.

Attendees also looked into any issues rising from trans-boundary transfers. Pricing processes would have to be set up for the return on energy generation (electricity and gas), liquors and general co-located site costs such as labour, overheads, wash-water and land management. If co-treatment of organic waste is undertaken on a STC, there could be more onerous environmental permitting obligations, the costs of which would also need to be split between sludge and sewage treatment. Because customers from the appointed activities should not pay for the extra permits, customers from the non-appointed activities could end up having to pay large additional costs which would make co-treatment sites economically unattractive.

## **Defining the market: How do the impacts differ across Ofwat's policy options? How reasonable are Ofwat's assumptions?**

### **Co-digestion and OOW**

In the second section of the meeting, the co-digestion and opening of the sludge market to OOW (Other Organic Waste) was discussed. Companies are concerned that co-digestion will greatly increase costs as companies would have to obtain mobile-plant and deployment permits from the EA (Environment Agency). It is

unclear if the costs of additional licences would be offset by the larger market available. Other attendees state that OOW would welcome sludge to balance their Anaerobic Digestion (AD) inputs. Therefore, OOW might be willing to pay for sludge and the costs of additional licences.

Moreover, some AD operators might also be interested in sludge. AD operators who only treat non-waste or waste which respect quality standards might have little incentives to take in sludge as they would need to buy new permits if they were to treat sludge. However, AD operators who treat waste which does not respect quality standards will probably be interested in taking sludge as they already have the required licences. Some of those AD operators also have spare capacity.

There are two other issues that could dampen co-digestion. The first one is the public perception who might react negatively to co-digestion. The second one is the ROC incentive which might distort the market as organic waste has more calorific value. Therefore, OOW or other AD operators might not want mix their organic waste with sludge as this would decrease the energy output of their AD. Also the level of ROCs from treatment of sludge is lower than the ROCs from treating organic waste by AD.

### **Delayed investment and innovation pace**

Depending on where the boundary is set up, buyers and sellers might be affected differently by barriers to trade. This has to be taken into consideration when the barrier is set.

It was also recognised that most of the benefits of a competition market would not stem from the actual trades but rather from the delayed or avoided investments costs in the future. Companies could decide to transport their sludge a bit further in order to avoid transportation costs.

The innovation pace should also increase in a competition market. And the larger the market is, the higher the pace of innovation will be. There should also be a greater focus on management as it is already the case in GENeco. Although attendees noted that GENeco is many ways is likely to be unique, given its size and location.

### **How reasonable are Ofwat's assumptions?**

Several points were made about the OPEX costs used in the trading model. First, OPEX can be reported in different manner across companies (eg. negative OPEX). Fixed OPEX should be removed from the analysis as they won't be affected by

trading. Finally, there are large variations in costs across areas due to specific geographical areas (e.g. rural or urban, using gravity to transport sludge). It has been suggested to break down the analysis by areas to improve the model's depiction of the reality.

Transportation costs are a big determinant of the trading model's outcome. They also vary widely across companies depending on strategy and geographical characteristics. The willingness of companies to trade should also be taken into account. For example, even if a trade opportunity is cost efficient a company might decide not to proceed with the trade as this could decrease their resilience. Other attendees have noted that a market could increase resilience. However, there has to be resilience at a regional level as sludge cannot be transported economically across the country on a large scale.

The model could also be extended to include composting beside AD. Farmers could also be introduced. Although some farmers are willing to innovate and take part in co-digestion, it seems like a "big jump" for most farmers to enter the sludge market.

Despite those complexities, all stakeholders have recognised it was difficult to quantify benefits and costs for instance what assumption should be made on the efficiency savings. But none had suggestions of an alternative approach.

There are differences between the AD value chain and the liming value chain. This would require two different trading analyses.

There is a large uncertainty over the reduction in investment would materialise as a result of the sludge market. One attendee thought that we should consider more than just enhancement costs. One attendee also considered that it may only result in a reduction of 5% expenditure in new assets. Other attendees also noted that much of the enhancement investment was about changing their treatment processes.

## **Water company sludge regulation: RCV allocation for sludge control**

This session started by a presentation from Peter Trafford (Thames Water) introducing a model of RCV protection. Attendees agreed that the model had the advantage of being simple. However, companies were concerned about the distorted incentives that this model could introduce. For example, if cost recovery is based on volume, companies might have an incentive to use techniques to affect their recorded volume and, hence, what costs they recover from the price controls.

Two other concerns were raised. The first one was that if volume treated decrease by about 20%, OPEX could decrease by less than 20% due to an efficiency effect. The second concern is that if the RCV is not properly allocated, there is a risk of double recovery where a WaSC could use its treatment capacity to treat sludge from another WaSC and export its own sludge to another WaSC. In this case, the WaSC would get a cost recovery via the RCV protection mechanism as its appointed business is not treating any sludge but would also get the revenue from treating the imported sludge on the non-appointed side.

Finally, there needs to be a clear way to value sludge as volume is not enough. Indeed, other factors such as the calorific value and metal residues need to be taken into account as they affect the output of AD. There were also concerns about how volume forecasts would be calculated.

Companies then discussed the advantages of a shadow RCV compared to an allocated RCV. It was argued that investors would like to see the RCV kept as a whole and see the shadow RCV used for the market. Despite the commitment to protect RCV, there is uncertainty around how this will be applied in future AMP. Finally, the shadow RCV offers more flexibility as assets can be moved back from the sludge side to the network plus side in the future if there is a misallocation. If the RCV is allocated, there is a risk of downward spiral where once a company makes a loss, the customers' bill increase making the company's price less attractive, resulting in a loss of customers and further losses.

Companies then looked at an alternative cost recovery method which is a case by case approach. This option was considered overly complex as this would introduce too much uncertainty for investors.

Finally, the group discussed the Modern Equivalent Asset Value (MEAV), its purpose and valuation method. There was a disagreement around the purpose of the MEAV. Some stakeholders felt that its objective was to set a level playing field for new entrants while others thought it should reflect the cost of brand new sludge assets. The approach to the MEAV was also discussed and companies were wondering if the MEAV should reflect an asset with the same capacity and technology or the same capacity as current technology. In all cases, companies recognised that the MEAV should account for companies' characteristics (OPEX heavy or CAPEX heavy) and regional cost adjustments. Ofwat is open to receiving proposals on alternatives to the MEAV to allocate the RCV.