Dear Sir/Madam


I am writing in response to the consultation document regarding Wholesale markets and the 2019 Price Review.

My area of expertise is Through Life Costing, which includes CAPEX, OPEX and TOTEX, but more importantly models which evolve through time. I have provided expert advice and solutions to many industrial sectors. I have also served/currently serve on steering groups such as the Cost Management Through-Life steering and working group within the Ministry of Defence and support cost modelling working group, as well as feeding into the National Audit Office review of Government Department spend and their approaches to cost estimating/modelling. My research is industry focussed.

Many of my industry partners operate within a complex evolving value chain, with the majority having long-life, high value assets (critical, cost etc.) at their core. Example industries include water (modelling and assessing the value of activities within wastewater, sludge and catchments), aerospace/defence/transport – estimating the cost (monetary, environment, societal) of delivering outcomes (availability, resilience, affordability within an evolving value chain) and whole life value analysis within the energy sector. The water sector has the similar complexities in delivering clean drinking water and processing wastewater.

**SLUDGE**

In 2015, my research team completed an analysis on wastewater treatment in terms of cost, environment and flows. We based our analysis on years of previous research undertaken within the defence, aerospace and energy sectors, where long-life assets deliver an outcome e.g. flying hours at an appropriate cost.
The under-pinning approach is applicable across sectors and our water research has to date focussed on ‘Evaluating the techno-economic performance of wastewater system operation using input-output analysis’. Sludge is at the core of our analysis.

Our modelling approach leads the user to,

1) Create a conceptual model of their system – here we guide the users in creating a blueprint of their delivery system (treatment of waste water in our example). At this stage the users also map such things as the technological knowledge of the assets and delivery system.

2) Undertake quantitative analysis to determine if the system is delivering the required outcomes at the expected cost. This utilises empirical data, which is commonly available in the water sector. These are then used to evaluate how the system has performed, ascertain whether it is expected to meet the planned outcomes e.g. xx m$^3$ agriculture grade sludge paid for.

Reviewing the consultation document and briefings, it is my view that using this type of system modelling (input-output-outcome) can guide both Ofwat (system of systems) and industry (their systems and boundaries/co-operation between providers).

Our approach is one which evolves through time i.e. it is not just a one-off model and leave approach, which is problematic when the focus is on outcomes. The modelling approach would assist the sludge debate/discussion in the following ways,

- It enables a structured, auditable approach to modelling the outcomes of sludge activities.
- It would show the variations due to geography, environment and asset base. This enables evidence-based decision-making.
- The data sets can be defined and evolve with time to reflect the needs of the business during the life cycle of the assets/sludge system.
- It can be used at a sub-system level (provider, regions, catchments, etc.) as well as a system of system level (value for money across England and Wales sludge business).
- The model presents data on outcomes (cost, environment, health).

Such an approach will answer the questions such as,

a) How might the market vary by geography?

b) What are the practical issues that need addressing? To answer this you need a good understanding of the system/sub-system.

c) What information, data do we need to assist the decision making process.
I have not included the full details of the model within this feedback. However, with the move towards stakeholder engagement, value for money and outcome based decision-making, the modelling approach I am proposing will assist Ofwat and water companies in their decision-making.

If you are interested in gaining an insight to the work we have been undertaking, please do not hesitate to contact me. The company we engage with is Wessex Water and they will also be able to provide their view of our approach if this is of use.

Sincerely

Dr Linda Newnes