

Response to Ofwat Consultation on PR24 operational greenhouse gas emissions performance commitments definitions

Date: 6 March 2023

Company: Jacobs

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**Aim of the Consultation:** To seek views on the scope of the performance commitments, particularly in relation to including additional reporting categories, and using a static version of the CAW throughout the PR24 price control period.

Link: [GHG\\_PCs\\_definition\\_consultation\\_February\\_2023.pdf \(ofwat.gov.uk\)](https://www.ofwat.gov.uk/consult/indpr24/ghg_pcs_definition_consultation_february_2023.pdf)

## 1. Consultation questions and responses:

### 1.1 Question 1: Do you have any comments on our proposal to include additional reporting categories in the definitions of our PR24 operational GHG emission PCs?

It is an important step forward for the UK Water sector to include additional categories for Scope 3 emissions estimation, aligned with the GHG Protocol, as part of the PR24 operational greenhouse gas (GHG) emissions PC.

Considering the value chain as part of the PCs will encourage strong collaboration and innovation across the value chain to decarbonise, while creating incentives for taking action and good performance. This is aligned with the Science-Based Target (SBT) approach, where a Scope 3 target is required under the [SBTi Net-Zero Standard](#). Some of the UK Water Companies are already committed to SBTs, and other might follow as result of the PCs. The inclusion of additional reporting categories in the definitions of the PR24 operational GHG emissions PC will contribute not only the Water sector’s commitments but align with the UK’s Net Zero strategy.

We provide further points for consideration below:

Consultation text	Comment
<p><b>Use of Chemicals:</b> “We propose that emissions from the production of purchased chemicals for use in regulated activities should be included”</p>	<p>The Scope 3 <i>Category 1. Purchased Good and Services</i> (GHG Protocol), makes up most of a water company's Scope 3 emissions. Chemicals make up a substantive component of this though this is not well quantified globally in efforts to date around Scope 3 quantification.</p> <p>We consider chemicals to be sufficiently quantifiable and substantive to be included in regulated activities emissions reporting and with minor revisions and improved referencing, the existing chemicals emission factors already present in the sector’s CAW and associated reporting inputs is already well suited for their inclusion.</p> <p>It is recognised that these emissions are not currently included in the 2030 Net Zero Routemap due to the lack of widely available and/or consistent data though would not agree that the information is unavailable or inconsistent.</p> <p>The inclusion of this category in the PR24 PCs will support further development of data across the sector, which can be built upon to be included in the scope and boundary of the sector’s Net Zero target. As such, the reporting of this PC should be based on the emissions estimated with the Carbon Accounting Workbook, rather than by spend data, which is an overall methodology for Scope 3 emissions (e.g., SBT).</p> <p>For PR24, the level of effort required to achieve significant emissions reduction will need a sector-wide approach and collaboration to implement strategies and supply chain engagement- for example with lower carbon chemicals and advanced dosing using AI/ML and digital twin approaches to optimise dosing. Including the chemicals in reporting will support innovation to make them more efficiently used and lower carbon and more circular where they are used.</p>

## 1.2 Do you have any comments on our proposal to allow companies to claim GHG emissions reductions when trading bioresources

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<p><b>Waste in operations:</b> “we are proposing that the disposal and treatment of waste, particularly as it relates to bioresources, is included in the scope of both the water and wastewater PCs to ensure more accurate consideration of companies' GHG emissions and to avoid distortions within the bioresources market”</p> <p>“• when trading sludge, companies should account for scope 3 emissions generated by the treatment of sludge when exporting it to a third party (including transportation and treatment);”</p>	<p>We would agree with the proposal to consider full Scope 1, 2 and 3 emissions associated with treatment of waste relating to bioresources is important to bring into PCs even for the non-regulated bioresources market.</p> <p>This should consider the very significant nitrous oxide emissions from liquor treatment of high strength liquors (through sidestream or mainstream – e.g. regulated – WwTWs) as well as emissions of nitrous oxide and methane associated with the storage, transport and application to land of bioresources products. Some of these are estimated in the CAW presently, some are not.</p> <p>The magnitude of nitrous oxide emissions from sidestream treatment and through mainstream treatment as a result of STCs – in particular those with advanced AD which generate higher ammonia liquors – must be considered.</p> <p>In alignment with a best global science approach we would suggest that carbon sequestration should not be considered – e.g. emissions sources only (and not potential emissions reduction or sequestration benefits) should be considered.</p>
<p>“Relating specifically to the treatment of sludge by third parties, we are aware that our requirement for companies to report using a location-based method could disincentivise companies from trading sludge.”</p> <p>To address this... “Companies that can report on emissions from the disposal and treatment of their waste may claim emissions reductions to the extent that they purchase renewable energy generated from the treatment of such waste by third parties. To claim the emissions reductions, the company must have the corresponding renewable energy certificates, which includes RGGOs and REGOs. <b>This is the only exception</b> we are proposing to our net location-based emissions method to incentivising the PCs.”</p>	<p>We consider a risk that this ability to claim renewable energy generated creates a disconnect with the energy inputs required to support renewable energy (e.g. biogas and biomethane) outputs.</p> <p>In particular, companies currently import significant quantities of natural gas (when leaked or combusted on site this is a Scope 1 emission, when leaked during transit this is Scope 3) in order to sustain advanced AD processes at WwTWs. Whilst the magnitude and frequency of this import is company and site specific (depending on company policy, economics, infrastructure) the practice is endemic across WaSCs.</p> <p>Companies have intentionally maximised biogas to biomethane to grid production in order to claim renewable credits whilst importing significant quantities of natural gas to make up the deficit in biogas required. Whilst gas prices have changed practice here, the incentives which support this practice remain in place and the activities continue. Full carbon accounting of this therefore should be undertaken too for consistency. I.e. - fully accounting of all emissions associated with the current practice for Companies or third parties who require to import natural gas for site use which directly or indirectly must also be considered if downstream carbon benefits are to be considered.</p> <p>It is important to note that importing natural gas includes both Scope 1 emissions (direct combustion on site) and</p>

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	<p>Scope 3 emissions (pipeline transport). It is also important to note that where biomethane is produced and exported to grid, similar Scope 3 emissions losses (pipeline transport) are incurred. We reviewed some of this literature in recent Rapid Evidence Assessments for Defra which will be published shortly – including the additional methane losses which occur through every process stage of producing and using or upgrading biogas – with some losses through upgrading units particularly substantial in terms of fugitive methane.</p> <p>Our key comment is that if downstream emissions benefits (e.g. renewable energy claims) are to be permitted then the on site and downstream methane losses incurred as a result of the STC production of renewable energy must also be considered. Such downstream emissions losses are reported in literature and whilst IPCC factors are as yet lacking incoming LDAR requirements for the sector are likely to lead to a rapid improvement in understanding of these emissions.</p> <p>Generally, any approaches which are introduced should also incentivise high quality renewable energy purchases, aligned with the Hierarchy of Renewable Energy Procurement that we highlighted in the recent <a href="#">Ofwat Net Zero Technologies Review</a> (page 40). This may support the concept of local PPAs with local third party providers of renewable energy for local Water Companies.</p>

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### 1.3 Question 3: Do you have any comments on our proposal to use one version of the CAW throughout PR24 to assess progress against the PCs?

Consultation text	Comment
<p>The CAW: "we are proposing to adopt a fixed version of the CAW for the duration of the 2025-30 period"</p>	<p>In the are of process emissions, this proposal to consider a fix version of the CAW will only provide a valid, science based approach to baseline (in order to assess progress) if the CAW is updated with recommendations from recent UKWIR and Defra work.</p> <p>There are 2 issues with regards to N2O and both currently result in gross under-estimate of N2O emissions which will provide no meaningful basis for assessing progress. There is also an additional consideration which we consider necessarily to support progress in PCs recognising that the only means of actually reducing process emissions will be if these are quantified in some way.</p> <p>The 1<sup>st</sup> issue: there is an error in the CAW regarding the activity factor considered for total nitrogen generated by each PE – to which the N2O EF is then applied. Whilst the original derivation of the EF and activity factor for TN may have had some previous rationale, there is no evidence for this and evidence overwhelmingly points to the need to update the TN activity factor as has recently been recommended again in UKWIR work (2020, 2023) and also in Defra work (2023).</p> <p>The 2<sup>nd</sup> issue: the N2O EF has not been updated with best science which now recommends that this be increased from approximately 0.3%N2O/TNincoming to 1.6% - over a 5 fold increase. As recent evidence highlights, the 1.6% factor is appropriate for the CAW for the Companies and provides a meaningful baseline.</p> <p>In terms of methane, the EFs may under or over-estimate emissions but we consider these more likely to be more accurate than N2O and that existing CH4 EFs should remain.</p> <p>If the above issues are addressed, we consider a fixed version of the CAW as appropriate <i>from which to consider reductions</i> – <b>however this must include the ability for companies to self report (in an assured, best science approach) their actual emissions at sites where mitigation is being undertaken – this is the only means of validating any emissions reduction activity for either N2O or CH4. Accordingly, there must be some mechanism for adjustment of the fixed CAW baseline where companies are monitoring at site level. There is evidence from global practice to show how this could be done – it is entirely possible.</b></p> <p>It is likely that based on recent good practice guidance for the sector, many companies are likely to be making provision to monitor nitrous oxide at their largest sites if not already- so it is possible that a reasonable proportion of Company emissions will be under monitoring at the point the CAW is fixed – and this could be considered if the outputs from such monitoring campaigns (for the connected PE load only – not transposed across the entire asset base) have been derived through campaigns which align with good practice and if both inputs and outputs have been assured in line with good practice which we would suggest is required specifically for the auditing of such Tier 3 (site level) reported data.</p> <p>This forms our additional consideration beyond the 2 points above on N2O – and this applies to both N2O and CH4. There is recognition that global best science (IPCC tiered methodology and associated literature evidence base) demonstrates that only through site level monitoring can emissions be assessed and only through site level monitoring <i>can progress in reducing emissions (and hence any PC)</i> be demonstrated.</p> <p>There is no basis, globally, for a sector or national accounting tool which allows for process emissions to be reduced through reporting of different (e.g. process type, process optimised) EFs. It is <i>possible</i> though in our view not probable, that in the years leading up to 2030, improved EFs will be able to be adopted by the sector based on the results of long term (continuous or regular) monitoring campaigns which consider the recognised variation in emissions and mitigation opportunities.</p>

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	<p>However, given this has yet to occur globally, ever, anywhere, including in countries with many more years of experience monitoring N2O and CH4 than the UK, this is highly unlikely to provide a meaningful trajectory at present. There must be a recognition that any progress towards a PC in process emissions will require site level monitoring – and if this is to be undertaken robustly then the improved baseline achieved would be required in order to demonstrate emissions reductions (rather than an assumed emission at the CAW EF level).</p> <p>The flexibility within accounting in the CAW to include site-level monitoring emissions factors (for both N2O and CH4; different guidance should apply to each given methods and variability) could be achieved with a Tier 3 option for reporting. This would attribute a portion of PE load (N2O) or tDS (CH4) as 'Tier 3' reported where companies have a site level monitoring approach <i>which aligns with recent – e.g. UKWIR Good Practice Guide – guidelines for monitoring and reporting emissions at site level</i>. The task of assuring CAW inputs and outputs could include this new methodology</p> <p>If the above issues are addressed, the CAW will provide an improved baseline for these emissions.</p>
<p>"For the purposes of assessing performance against the GHG emissions PCs, when adopting one version of the CAW, we are expecting companies to report using the same fixed national grid emissions factor each year."</p>	<p>It is not clear whether the proposed static CAW would use the same calculation methodology and GHG emission factors across the PR24 years or whether the same methodology would be applied with emission factors being updated annually in line with BEIS GHG reporting protocols.</p> <p>Whilst using a consistent methodology allows year-on-year comparison, there will likely be potentially significant changes in emission factors over the five-year period. This is particularly pertinent with regard to electricity emission factor associated with the National Grid (i.e. location-based approach) which the UK Government Green Book (<a href="https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal">https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal</a>) forecasts would drop by ~38% over the PR24 period ('Grid average \ Consumption-based \ Commercial/ Public sector' would decrease from 0.129 kgCO<sub>2</sub>e/kWh in 2025 to 0.049 kgCO<sub>2</sub>e/kWh in 2030; the equivalent for Industrial' would be from 0.127 kgCO<sub>2</sub>e/kWh in 2025 to 0.048 kgCO<sub>2</sub>e/kwh in 2030).</p> <p>Whilst utilisation of the same grid emission factor would eliminate emissions reductions beyond the active control of the company, it would not reflect the actual real world emissions associated with the company's Grid electricity consumption by the end of the PR24.</p> <p>Clarification on the exact meaning of a "static CAW" is required.</p>

**1.4 Question 4: Which version of the CAW do you consider it is feasible to use throughout PR24 and why?**

Consultation text	Comment
<p>The CAW: "we are proposing to adopt a fixed version of the CAW for the duration of the 2025-30 period"</p> <p>"We expect to use the version of the CAW which is in effect at the date of our PR24 final determinations, subject to the outcome of the PR24 determinations process."</p>	<p>As it is a complex modelling tool, the CAW generally goes through a number of iterations after issue each year as comprehensive testing by numerous companies with varied operational configurations can often reveal glitches within the model.</p> <p>We would therefore recommend that the most current edition of the CAW which has undergone a full cycle of testing by the water companies and subsequently been updated to resolve any issues identified would be the most reliable version to use.</p>