



TMS61 PR24 Data Table Commentary - Bioresources

BIO1 - Bioresources sludge data

Line item	Line commentary	Forecasted change and explanation
BIO1.1	This is a measure of all the untreated sewage sludge (primary, secondary, tertiary) produced by in-area wastewater treatment processes in the report year which is either treated by the incumbent or remains untreated prior to disposal. Grit and screenings removed through preliminary treatment processes should be excluded.	Increasing due to forecasted population change.
BIO1.2	This is a measure of all the untreated sewage sludge (primary, secondary, tertiary) produced by in-area wastewater treatment processes in the report year which is treated by a 3rd party sludge service provider. Grit and screenings removed through preliminary treatment processes should be excluded	Constant 0 - no sludge treated by 3rd party provider, not expected to change.
BIO1.3	To be entered as the sum of lines 1 and 2	Increasing due to forecasted population change.
BIO1.4	This is an estimate of all the untreated sewage sludge (primary, secondary, tertiary) produced by in-area wastewater treatment processes in the report year, and which is produced as a result of treating non-appointed liquid wastes through appointed wastewater treatment assets. Because this sludge is generated at in-area wastewater treatment sites we expect this quantity to be included in the total given in 3	Increasing due to forecasted population change.
BIO1.5	The percentage of the sludge quantity reported in 3 that is produced at co-located sites. For the purposes of this definition: i) "co-located" includes sites where the STC is physically separate, but the sludge is transferred from a wastewater treatment site by pipeline, and ii) STC means any site where thickening to >10%DS, and / or dewatering and / or microbial reduction (eg digestion, lime stabilisation etc) is undertaken.	Expected return to larger towns and cities due to work etc. STC's at larger sites and towns.
BIO1.6	The total amount of sewage sludge treated and disposed of during the report year by the incumbent expressed in thousands of tonnes of dry solids of sludge disposed by the whole service.	Increasing due to forecasted population change.

BIO1.7	<p>This should include recycling to farmland (irrespective of whether spreading is undertaken by the 3rd party service provider or the farmer) and disposal to landfill, incineration, land restoration / reclamation, composting and other routes. This will be different from sewage sludge produced due to:</p> <ul style="list-style-type: none"> - quantities of lime used in lime treated sludge, - losses of volatile solids in the treatment process, and - changes in the amount of stockpiled sludge. <p>Sludge disposed of by managed contractors should be included; sludge disposed of by separate 3rd party service providers should be reported in 7.</p>	Constant 0 - no sludge treated by 3rd party provider, not expected to change.
BIO1.8	To be entered as the sum of lines 6 and 7	Increasing due to forecasted population change.
BIO1.9	<p>The total amount of sewage sludge treated and disposed of during the report year by a 3rd party sludge service provider expressed in thousands of tonnes of dry solids of sludge produced by the whole service. This should include recycling to farmland (irrespective of whether spreading is undertaken by the 3rd party service provider or the farmer) and disposal to landfill, incineration, land restoration / reclamation, composting and other routes. This may be different from sewage sludge produced due to:</p> <ul style="list-style-type: none"> - quantities of lime used in lime treated sludge, - losses of volatile solids in the treatment process, and - changes in the amount of sludge stockpiled at sludge treatment centres. <p>Sludge disposed of by managed contractors (as opposed to separate 3rd party service providers) should be excluded; instead, it should be reported in line 6.</p>	Decreasing due to improved optimisation of sludge treatment processes at Beckton rather than piped to Riverside

BIO1.10	<p>Total work done in intersiting sludge operations carried out by road tanker during the report year measured as the product of sludge mass (in ttds) multiplied by distance travelled (in km) in transporting the sludge. Based on actual distance travelled from sludge holding tanks to STC, not straight line distance. Work done by other forms of transport of liquid sludge (eg tractors) should be included in this line. This measure should exclude the distance travelled by vehicles to the sewage treatment works to collect the sludge. No account should be taken of distance travelled by empty tankers.</p>	<p>Fluctuates with BIO1.11 depending on STC reception and treatment capability and distance travelled</p>
BIO1.11	<p>Total work done in intersiting sludge operations carried out by truck during the report year measured as the product of sludge mass (in ttds) multiplied by distance travelled (in km) in transporting the sludge. Based on actual distance travelled from sludge holding tanks to STC, not straight line distance. This measure should exclude the distance travelled by vehicles to the sewage treatment works to collect the sludge. No account should be taken of distance travelled by empty tankers.</p>	<p>Fluctuates with BIO1.10 depending on STC reception and treatment capability and distance travelled</p>
BIO1.12	<p>To be entered as the sum of lines 9 through to 11</p>	<p>Initial increase due to greater liquid transportation but then reduces with small increases due to population increase and greater use of cake transportation</p>
BIO1.13	<p>Total work done in intersiting sludge operations carried out by road tanker during the report year measured as the product of sludge volume (in m³) multiplied by distance travelled (in km) in transporting the sludge. Based on actual distance travelled from sludge holding tanks to STC, not straight line distance. Work done by other forms of transport of liquid sludge (eg tractors) should be included in this line. This measure should exclude the distance travelled by vehicles to the sewage treatment works to collect the sludge. No account should be taken of distance travelled by empty tankers.</p>	<p>Increasing due to an expected greater distance the liquid sludge needs to be transported and linked to increased cake transportation</p>

BIO1.14	Total work done in sludge disposal operations carried out by pipeline (eg transport to an incinerator) during the report year measured as the product of sludge mass (in ttds) multiplied by distance travelled (in km). Based on actual distance travelled from the STC to the landbank, landfill site, land reclamation site or incinerator as appropriate, not straight line distance.	Constant 0 due to no sludge disposed of via a pipeline
BIO1.15	Total work done in sludge disposal operations carried out by road tanker during the report year measured as the product of sludge mass (in ttds) multiplied by distance travelled (in km) in transporting the sludge. Based on actual distance travelled from the STC to the landbank, landfill site or land reclamation site as appropriate, not straight line distance. Work done by other forms of transport of liquid sludge (eg tractors) should be included in this line. No account should be taken of distance travelled by empty tankers.	Constant 0 due to no sludge being disposed of as a liquid
BIO1.16	Total work done in sludge disposal operations carried out by truck during the report year measured as the product of sludge mass (in ttds) multiplied by distance travelled (in km) in transporting the sludge. Based on actual distance travelled from the STC to the landbank, landfill site or land reclamation site as appropriate, not straight line distance. No account should be taken of distance travelled by empty tankers.	Fluctuates due to distance travelled based on where fields are available for recycling the sludge to land
BIO1.17	To be entered as the sum of lines 14 through to 16	Fluctuates due to distance travelled between STC used and where fields are available for recycling the sludge to land

BIO1.18	Total work done in sludge disposal operations carried out by road tanker during the report year measured as the product of sludge volume (in m3) multiplied by distance travelled (in km) in transporting the sludge. Based on actual distance travelled from the STC to the landbank, landfill site or land reclamation site as appropriate, not straight line distance. Work done by other forms of transport of liquid sludge (eg tractors) should be included in this line. No account should be taken of distance travelled by empty tankers.	Constant 0 - Same as line BIO1.15 but as m3 rather than ttds no work done by tanker in sludge disposal operations, not expected to change.
BIO1.19	The total quantity of sludge produced at wastewater treatment works which use chemical dosing for phosphorus removal expressed as a percentage of total sludge produced at all in- area sewage treatment works	Increasing due to increased no of STW's with phosphorous permits

BIO2 - Bioresources operating expenditure analysis

1. Material year-on-year variations

Set out in the table below shows any material year-on-year variations in costs from FY24-30, and reasons for dropping any large sewage treatment works from the table.

Data Table	Whole Table or Line	Commentary
BIO2	BIO2.7, 17, 27	Refer to commentary for CWW2.6, 8-10
	BIO2.20	The formula for this data line is incorrect in the template

2. Changes in methodology / assumptions

- A change has been made to the allocations used for CWW2 lines 8-10 discharge consents. In APR23, discharge consent costs were wrongly allocated into Bioresources sludge costs, where it should have been allocated to sewage treatment in Wastewater Network+, as we do not have discharge consents on Bioresources, but have permit fees which don't fall into the RAG definition for discharge consents.

The correct treatment has been made from FY24 data onwards.

- A change has been made to the allocation to upstream service within Bioresources. APR23 allocation to upstream service for Bioresources has been recalculated following an Ofwat query. This change in methodology has been replicated for FY24-30
- A restatement of APR23 has been made following queries raised by Ofwat and carried forward for FY24-30.

Third Party services in CWW1.5, restated for the below changes which then impact CWW1.1 base operating expenditure and therefore CWW2.14 Total base operating expenditure.

- DS third party costs, refer to DS1e - DS5 methodology, and explanation of APR23 restatement.

- Bulk supply costs as per APR23 Ofwat query TMS-APR-CA-012

3. Data quality

As per the latest best estimate (LBE) approved forecast.

BIO3a - Bioresources energy analysis

1. Material year-on-year variations

Set out in the table below shows any material year-on-year variations in costs from FY24-30.

Data Table	Whole Table or Line	Commentary
BIO3a	BIO3a.4	"Energy generated by bioresources and exported to the grid or third party" increases for Biomethane from FY24 due to Deephams and Mogden coming online.
	BIO3a.10	FY23 value £1.920m should be negative, as per the FY24-40 forecast. This was a transposition error in APR23.

2. Changes in methodology / assumptions

Not applicable, the base methodology is consistent with APR23 submissions.

3. Data quality

As per the latest best estimate (LBE) approved forecast.

4. Energy forecast impacts

Not applicable as per LBE forecast.

BIO3b - Bioresources; income, liquors and metering analysis

1. Material year-on-year variations

Set out in the table below shows any material year-on-year variations in costs from FY24-30, and reasons for dropping any large sewage treatment works from the table.

Data Table	Whole Table or Line	Commentary
BIO3b	BIO3b.1	ROC certificates are set to expire from FY27 reducing the year-on-year profile

2. Changes in methodology / assumptions

Not applicable, the base methodology is consistent with APR23 submissions.

3. Data quality

As per the latest best estimate (LBE) approved forecast.

4. Sludge liquor recharge impacts

Covered in separate commentary.

5. Forecast subsidy levels impacts

As per question 1 above.

BIO4 - Bioresources sludge treatment and disposal data

Line item	Line commentary	Forecasted change and explanation	Reliability Band	Confidence Grade
BIO4.1	% Sludge Untreated - This is the percentage of sludge produced which is untreated prior to disposal	Downward trend to 0% as resilience of treatment assets improves	B	3
BIO4.2	% Sludge treatment process - Raw Sludge liming - This is the percentage of sludge produced which is treated by liming	Downward trend to 0% as lime treated sludge is harder to recycle to land, has higher opex costs and doesn't have the environmental benefit other process types have	B	3
BIO4.3	% Sludge treatment process - Conventional AD - This is the Percentage of sludge produced which is treated by conventional AD	This remains static as conventional digestion remains the most cost beneficial for those sites the process is currently on.	B	3
BIO4.4	% Sludge treatment process - Advanced AD - This is the Percentage of sludge produced which is treated by Advanced AD	This remains static as advanced digestion remains the most cost beneficial for those sites the process is currently on.	B	3
BIO4.5	% Sludge treatment process - Incineration of raw sludge - This is the percentage of sludge produced which is treated through incineration.	This remains static as we expect we will have to keep incinerating at Beckton	B	3
BIO4.6	% Sludge treatment process - Other (please specify) - This is the percentage of sludge produced which is treated by a process not	Remains 0% as we are not expecting any alternative treatment processes	B	3

	previously listed (specify process type)			
BIO4.7	% Sludge treatment process - Total - This is the total percentage of sludge treated through all processes (Sum of B4.1 to B4.6 - This should total 100%)	Will be 100%	B	3
BIO4.8	% Sludge disposal route - Landfill, raw - This is the percentage of (Un-incinerated) sludge by disposal route to landfill of raw sludge	Downward trend to 0% as resilience of treatment assets improves to allow all sludge to be for beneficial use	B	3
BIO4.9	% Sludge disposal route - Landfill, partly treated - This is the percentage of (Un-incinerated) sludge by disposal route to landfill of partly treated sludge	Downward trend to 0% as resilience of treatment assets improves to allow all sludge to be for beneficial use	B	3
BIO4.10	% Sludge disposal route - Land restoration / reclamation - This is the percentage of (Un-incinerated) sludge by disposal route of land restoration / reclamation	Downward trend to 0% as resilience of treatment assets improves to allow all sludge to be for beneficial use	B	3
BIO4.11	% Sludge disposal route - Sludge recycled to farmland - This is the percentage of (un-incinerated) sludge by disposal route of recycled to farmland	Upward trend to 100% as resilience of treatment assets allows for all sludge to be recycled to farmland	B	3
BIO4.12	% Sludge disposal route - Other (please specify) - This is the percentage of (un-incinerated) sludge disposed of through a route not previously	Remains 0% as we are not expecting any alternative disposal routes	B	3

	listed (specify disposal route)			
BIO4.13	% Sludge disposal route - Total - This is the total percentage of sludge disposed of through all routes (Sum of B4.8 to B4.12 - This should total 100%)	Will be 100%	B	3

BIO5 - Bioresources - additional treatment and storage data

The table is a nil return for Thames Water.

BIO6 - Bioresources - NMEAV for capital enhancement schemes

The table is a nil return for Thames Water.



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