

February 2023

Creating tomorrow, together:
Our final methodology for PR24

Submission table guidance

Section 6: Bioresources

About this document

Version control

Version	Date published	Description
V1	7/7/2022	Draft methodology
V2	12/2022	Final methodology Changes from V1; <ul style="list-style-type: none">• BIO3a lines 15 to 23: Reference to shadow reporting during AMP8 has been removed.• The placeholder for table BIO5 has been removed. We will not collect this information in business plans tables at PR24.
V3	7/2/2023	Changes from V2; New table BIO5 for bioresources treatment and storage data (cost drivers) added. New table BIO6 capturing the NMEAV for bioresources capital enhancement schemes has been added

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1. Summary purpose of the data tables

What data are we collecting?

- 1.1 We are collecting data on companies' forecast costs and associated drivers over the period 2022–30 for bioresources.
- 1.2 There are five data tables related to cost assessment for the bioresources services. We provide line definition for each item included in each table along with additional guidance and commentary requirement, if necessary.

Why are we collecting the data?

- 1.3 We are collecting this data as part of the bioresources cost assessment. Cost assessment is a critical part of PR24. We need to establish an independent baseline estimate of bioresources costs and will need accurate historical and forecast costs and volumes for a range of cost drivers to develop our cost assessment approach. Finally, when costs are not included in our benchmark cost models or outside the regulated business, companies are allowed to submit cost adjustment claims.
- 1.4 Table BIO1 also contains inputs needed for populating the PR19 Bioresources reconciliation model and calculating the end of period revenue adjustments to be applied at PR24.

How is the data aligned with the annual performance report (APR)?

- 1.5 We expect data reported in business plans to be aligned with data reported in companies' APR tables. If a company restates previously reported historic data in its business plan, we expect this to be clearly highlighted and explained in its commentary.
 - BIO1 is aligned with Pro forma 8A in the APR.
 - BIO2 is aligned with Pro forma 8B in the APR.
 - BIO3 is aligned with Pro forma 8C in the APR.
 - BIO4 is aligned with Pro forma 8D in the APR.
 - BIO5 is a new table that will be aligned with future APRs
 - BIO6 is a new table that will be aligned with future APRs.

2. General guidance

- 2.1 In general, companies should follow the [APR reporting guidance](#) for filling in the tables in this document.
- 2.2 As part of the process to improve bioresources cost assessment, we have published our final guidance on how best to account for [sludge liquor costs](#), [energy generation revenues](#) and [overheads](#). We explain in the document where the final guidance should be followed.
- 2.3 We expect companies to complete a full set of data tables that are in-line with the guidance and line definitions for each table. We expect assurance processes to ensure that information is accurate and consistent and can be relied upon.

Price base and Indexation

The base year for the business plan is 2022-23.

The price base for financial cost information is base year prices indexed using the financial year average Consumer Price Index (including housing costs) i.e. 2022-23 prices FYA (CPIH deflated).

3. BIO1 – Bioresources sludge data

Table BIO1 line definitions

Line	Title	Definition	RAG 4.10 line reference
BIO1.1	Total sewage sludge produced, treated by incumbents	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. Cross-border imports should be excluded. Sludge treated by managed contractors should be included; sludge treated by separate 3 rd party service providers should be reported in BIO1.2.	8A.1
BIO1.2	Total sewage sludge produced, treated by 3rd party sludge service provider	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. Cross-border imports should be excluded. Sludge treated by managed contractors (as opposed to separate 3 rd party service providers) should be excluded; instead it should be reported in BIO1.1.	8A.2
BIO1.3	Total sewage sludge produced	To be entered as the sum of BIO1.1 and BIO1.2.	8A.3
BIO1.4	Total sewage sludge produced from non-appointed liquid waste treatment	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 BIO1.3. Cross-border imports should be excluded.	8A.4
BIO1.5	Percentage of sludge produced and treated at a site of STW and STC co-location	The percentage of the sludge quantity reported in BIO1.3 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 sludge is treated to a standard such that it can be recycled to the environment or disposed of without any further treatment. Note that sludge that is dewatered but disposed of without being treated should not be included in this line.	8A.5
BIO1.6	Total sewage sludge disposed by incumbents	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.	8A.6

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Line	Title	Definition	RAG 4.10 line reference
		<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 BIO1.7.</p>	
BIO1.7	Total sewage sludge disposed by 3rd party sludge service provider	<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 BIO1.6.</p>	8A.7
BIO1.8	Total sewage sludge disposed	To be entered as the sum of BIO1.6 and BIO1.7.	8A.8
BIO1.9	Total measure of intersiting 'work' done by pipeline	<p>Total work done in intersiting sludge operations by pipeline during the report year measured as the product of sludge mass (in tds) multiplied by distance conveyed (in km). Based on actual length of pipeline from sludge holding tanks to STC, not straight-line distance. This measure should not include sludge transported between STWs via a gravity sewer, the operating costs of which are allocated to Network+. For the purposes of this line, 'intersiting' means the conveyance of sludge between physically separate sites that are connected by a sludge pumping main.</p> <p>$(km1 * tds1) + (km2 * tds2) + \dots + (kmN * tdsN)$</p>	8A.9
BIO1.10	Total measure of intersiting 'work' done by tanker	Total work done in intersiting sludge operations carried out by road tanker during the report year measured as the product of sludge mass (in tds) 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	8A.10

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Line	Title	Definition	RAG 4.10 line reference
		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. $(km1 * tds1) + (km2 * tds2) + \dots + (kmN * tdsN)$	
BIO1.11	Total measure of intersiting 'work' done by truck	Total work done in intersiting sludge operations carried out by truck during the report year measured as the product of sludge mass (in tds) 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. $(km1 * tds1) + (km2 * tds2) + \dots + (kmN * tdsN)$	8A.11
BIO1.12	Total measure of intersiting 'work' done (all forms of transportation)	To be entered as the sum of BIO1.9 to BIO1.11.	8A.12
BIO1.13	Total measure of intersiting 'work' done by tanker (by volume transported)	Total work done in intersiting sludge operations carried out by road tanker during the report year measured as the product of sludge volume (in m ³) 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. $(km1 * m^3_1) + (km2 * m^3_2) + \dots + (kmN * m^3_N)$	8A.13
BIO1.14	Total measure of 'work' done in sludge disposal operations by pipeline	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 tds) 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. $(km1 * tds1) + (km2 * tds2) + \dots + (kmN * tdsN)$	8A.14
BIO1.15	Total measure of 'work' done in sludge disposal operations by tanker	Total work done in sludge disposal operations carried out by road tanker during the report year measured as the product of sludge mass (in tds) 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	8A.15

Line	Title	Definition	RAG 4.10 line reference
		tractors) should be included in this line. No account should be taken of distance travelled by empty tankers. $(km1 * tds1) + (km2 * tds2) + \dots + (kmN * tdsN)$	
BIO1.16	Total measure of 'work' done in sludge disposal operations by truck	Total work done in sludge disposal operations carried out by truck during the report year measured as the product of sludge mass (in tds) 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. $(km1 * tds1) + (km2 * tds2) + \dots + (kmN * tdsN)$	8A.16
BIO1.17	Total measure of 'work' done in sludge disposal operations (all forms of transportation)	The sum of lines BIO1.14 to BIO1.16.	8A.17
BIO1.18	Total measure of 'work' done by tanker in sludge disposal operations (by volume transported)	Total work done in sludge disposal operations carried out by road tanker during the report year measured as the product of sludge volume (in m ³) 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. $(km1 * m^31) + (km2 * m^32) + \dots + (kmN * m^3N)$	8A.18
BIO1.19	Chemical P sludge as percentage of sludge produced at STWs	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 (reported in BIO1.3)	8A.19

BIO1 Additional guidance

3.1 For the purposes of reporting quantities of sludge produced (lines BIO1.1 to BIO1.3), this is measured ideally at the boundary between the Network plus and Bioresources business units as defined in RAG 4 or if not, at the point of treatment. There should be continuous measurement via instrumentation rather than by composite or spot sampling. Where both the incumbent and a third-party service provider undertake different stages of sludge treatment eg dewatering followed by lime stabilisation, sludge quantities should not be doubled-counted and should be reported either in line BIO1.1 or line BIO1.2, not both.

- 3.2 For the purposes of reporting against lines BIO1.5 and BIO1.6, sludge disposal operations for sludge recycled to farmland are assumed to end upon arrival at the field. Accordingly, no account need be taken of changes in the quantity of sludge stored in field piles when completing these lines.

4. BIO2 – Bioresources operating expenditure analysis

Table BIO2 line definitions

Line	Title	Definition	RAG 4.10 line reference
BIO2.1	Power	All energy costs, including the climate change levy and the carbon reduction commitment. Any cost savings from power generated internally should be netted off these costs.	8B.1
BIO2.2	Income treated as negative expenditure	Income received sales which are external to the appointed business and which directly relate to the wastewater processes. It should be input as a negative number. This will include; <ul style="list-style-type: none"> Electricity sales from sources such as Hydro, PV, wind and CHP to external parties. Electricity sales from back-up generators under arrangements such as the National Grid 'STOR', "frequency response" and "dynamic demand". Bio-methane gas sales to the National Grid. Sludge and sludge products such as cake, granules etc. to external parties.	8B.2
BIO2.3	Discharge consents	Total cost of discharge consents by the Environment Agency / Natural Resources Wales or the Canal & River Trust.	8B.3
BIO2.4	Bulk discharge	Total payments for bulk discharges.	8B.4
BIO2.5	Renewals expensed in year (Infrastructure)	Infrastructure renewals which are expensed rather than capitalised in the statutory accounts. 'Renewals' are generally planned activities to replace significant lengths of pipework or parts of an asset. These are targeted at improving network performance or solving ongoing problems and restores an asset to full capability.	8B.5
BIO2.6	Renewals expensed in year (non-Infrastructure)	Non-infrastructure renewals which are expensed rather than capitalised in the statutory accounts. 'Renewals' are generally planned activities targeted at improving network performance or solving ongoing problems and restores an asset to full capability.	8B.6
BIO2.7	Other operating expenditure excluding renewals	Other operating costs not included in previous lines; BIO2.1 to BIO2.6	8B.7
BIO2.8	Total functional expenditure	The sum of lines; BIO2.1 to BIO2.7.	8B.8
BIO2.9	Local authority and Cumulo rates	The cost of local authority rates. This should include both the local authority rates and cumulo rates.	8B.9
BIO2.10	Total operating expenditure (excluding 3rd party)	Total operating expenditure excluding 3rd party costs recorded in table CWW1. The sum of lines BIO2.8 to BIO2.9.	8B.10
BIO2.11	Power	All energy costs, including the climate change levy and the carbon reduction commitment.	8B.11

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Line	Title	Definition	RAG 4.10 line reference
		Any cost savings from power generated internally should be netted off these costs.	
BIO2.12	Income treated as negative expenditure	Income received sales which are external to the appointed business and which directly relate to the wastewater processes. It should be input as a negative number. This will include; <ul style="list-style-type: none"> Electricity sales from sources such as Hydro, PV, wind and CHP to external parties. Electricity sales from back-up generators under arrangements such as the National Grid 'STOR', "frequency response" and "dynamic demand". Bio-methane gas sales to the National Grid. Sludge and sludge products such as cake, granules etc. to external parties.	8B.12
BIO2.13	Discharge consents	Total cost of discharge consents by the Environment Agency / Natural Resources Wales or the Canal & River Trust.	8B.13
BIO2.14	Bulk discharge	Total payments for bulk discharges.	8B.14
BIO2.15	Renewals expensed in year (Infrastructure)	Infrastructure renewals which are expensed rather than capitalised in the statutory accounts. 'Renewals' are generally planned activities to replace significant lengths of pipework or parts of an asset. These are targeted at improving network performance or solving ongoing problems and restores an asset to full capability.	8B.15
BIO2.16	Renewals expensed in year (non-Infrastructure)	Non-infrastructure renewals which are expensed rather than capitalised in the statutory accounts. 'Renewals' are generally planned activities targeted at improving network performance or solving ongoing problems and restores an asset to full capability.	8B.16
BIO2.17	Other operating expenditure excluding renewals	Other operating costs not included in previous lines; BIO2.11 to BIO2.16	8B.17
BIO2.18	Total functional expenditure	The sum of lines; BIO2.11 to BIO2.17	8B.18
BIO2.19	Local authority and Cumulo rates	The cost of local authority rates. This should include both the local authority rates and cumulo rates.	8B.19
BIO2.20	Total operating expenditure (excluding 3rd party)	Total operating expenditure excluding 3rd party costs recorded in table CWW1. The sum of lines BIO2.18 to BIO2.19	8B.20
BIO2.21	Power	All energy costs, including the climate change levy and the carbon reduction commitment. Any cost savings from power generated internally should be netted off these costs.	8B.21
BIO2.22	Income treated as negative expenditure	Income received sales which are external to the appointed business and which directly relate to the wastewater processes. It should be input as a negative number. This will include; <ul style="list-style-type: none"> Electricity sales from sources such as Hydro, PV, wind and CHP to external parties. 	8B.22

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Line	Title	Definition	RAG 4.10 line reference
		<ul style="list-style-type: none"> Electricity sales from back-up generators under arrangements such as the National Grid 'STOR', "frequency response" and "dynamic demand". Bio-methane gas sales to the National Grid. Sludge and sludge products such as cake, granules etc. to external parties.	
BIO2.23	Discharge consents	Total cost of discharge consents by the Environment Agency / Natural Resources Wales or the Canal & River Trust.	8B.23
BIO2.24	Bulk discharge	Total payments for bulk discharges.	8B.24
BIO2.25	Renewals expensed in year (Infrastructure)	Infrastructure renewals which are expensed rather than capitalised in the statutory accounts. 'Renewals' are generally planned activities to replace significant lengths of pipework or parts of an asset. These are targeted at improving network performance or solving ongoing problems and restores an asset to full capability.	8B.25
BIO2.26	Renewals expensed in year (non-Infrastructure)	Non-infrastructure renewals which are expensed rather than capitalised in the statutory accounts. 'Renewals' are generally planned activities targeted at improving network performance or solving ongoing problems and restores an asset to full capability.	8B.26
BIO2.27	Other operating expenditure excluding renewals	Other operating costs not included in previous lines; BIO2.21 to BIO2.26	8B.27
BIO2.28	Total functional expenditure	The sum of lines; BIO2.21 to BIO2.27	8B.28
BIO2.29	Local authority and Cumulo rates	The cost of local authority rates. This should include both the local authority rates and cumulo rates.	8B.29
BIO2.30	Total operating expenditure (excluding 3rd party)	Total operating expenditure excluding 3rd party costs recorded in table CWW1. The sum of lines; BIO2.28 to BIO2.29	8B.30

BIO2 Additional guidance

- 4.1 This table provides further analysis of operating expenditure for wastewater sludge for the 2022-30 period. This information will support the development of cost assessment modelling.
- 4.2 Companies should fill in this table based on APR reporting guidance for the 2022-30 period.
- 4.3 We expect total operating expenditure excluding 3rd party costs (Lines BIO2.10, BIO2.20 and BIO2.30) to match with total operating expenditure recorded in table CWW1. If they do not agree companies should provide an explanation for any differences.

5. BIO3a – Bioresources energy and liquors analysis

Table BIO3 line definitions

Line	Title	Definition	RAG 4.10 line reference
BIO3a.1	Energy consumption – bioresources	Measure of energy usage (electricity, gas, liquid fuels) by the bioresources wholesale business unit (irrespective of the power source). Energy usage should be measured as that which is either imported or self-generated and used in relevant business unit. No account should be taken of self-generated energy that is exported from the business unit where it is generated. Fleet transport and standby generation should be included as should an allowance for administrative buildings and head office function.	8C.1
BIO3a.2	Energy generated by and used in bioresources control	The energy that is generated by undertaking activities within the bioresources price control and which is subsequently used within the bioresources control. To be reported in MWh and an equivalent monetary value. The monetary value should exclude any income from renewable energy incentives.	8C.2
BIO3a.3	Energy generated by bioresources and used in network plus control	The energy that is generated by undertaking activities within the bioresources price control and which is subsequently used within the wastewater network plus price controls. To be reported in MWh and an equivalent monetary value. The monetary value should exclude any income from renewable energy incentives.	8C.3
BIO3a.4	Energy generated by bioresources and exported to the grid or third party	The energy that is generated by undertaking activities within the bioresources price control and which is subsequently exported to the national grid or a third party (including non-appointee businesses). To be reported in MWh and an equivalent monetary value. The monetary value should exclude any income from renewable energy incentives. Companies who export raw biogas to another company or associate should use the biomethane column to record biogas production and income from the sale of that biogas.	8C.4
BIO3a.5	Energy generated by bioresources that is unused	The energy that is generated by undertaking activities within the bioresources price control and which is subsequently unused by the incumbent, third parties or the national grid. To be reported in MWh.	8C.5
BIO3a.6	Energy bought from grid or third party and used in bioresources control	The amount of energy that is purchased from the national grid or another third party and subsequently used within the bioresources price control. To be reported in MWh and an equivalent monetary value.	8C.6
BIO3a.7	Energy consumption – bioresources	This line should be shadow reported throughout AMP7, based on the guidance for the allocation of revenues /costs associated with energy generation in the bioresources control, as set out in RAG 2.	8C.18

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Line	Title	Definition	RAG 4.10 line reference
		<p>Measure of energy usage (electricity, gas, liquid fuels) by the bioresources wholesale business unit (irrespective of the power source). Energy usage should be measured as that which is either imported or self-generated and used in relevant business unit. No account should be taken of self-generated energy that is exported from the business unit where it is generated. Fleet transport and standby generation should be included as should an allowance for administrative buildings and head office function.</p>	
BIO3a.8	Energy generated by and used in bioresources control	<p>This line should be shadow reported in AMP7, based on the guidance for the allocation of revenues / costs associated with energy generation in the bioresources control, as set out in RAG 2.</p> <p>The energy that is generated by undertaking activities within the bioresources price control and which is subsequently used within the bioresources control. To be reported in MWh and an equivalent monetary value. The monetary value should exclude any income from renewable energy incentives.</p>	8C.19
BIO3a.9	Energy generated by bioresources and used in network plus control	<p>This line should be shadow reported in AMP7, based on the guidance for the allocation of revenues / costs associated with energy generation in the bioresources control, as set out in RAG 2.</p> <p>The energy that is generated by undertaking activities within the bioresources price control and which is subsequently used within the wastewater network plus price controls. To be reported in MWh and an equivalent monetary value. The monetary value should exclude any income from renewable energy incentives.</p>	8C.20
BIO3a.10	Energy generated by bioresources and exported to the grid or third party	<p>This line should be shadow reported in AMP7, based on the guidance for the allocation of revenues / costs associated with energy generation in the bioresources control, as set out in RAG 2.</p> <p>The energy that is generated by undertaking activities within the bioresources price control and which is subsequently exported to the national grid or a third party (including non-appointee businesses). To be reported in MWh and an equivalent monetary value. The monetary value should exclude any income from renewable energy incentives. Companies who export raw biogas to another company or associate should use the biomethane column to record biogas production and income from the sale of that biogas.</p>	8C.21
BIO3a.11	Energy generated by bioresources that is unused	<p>This line should be shadow reported in AMP7, based on the guidance for the allocation of revenues / costs associated with energy generation in the bioresources control, as set out in RAG 2.</p>	8C.22

Line	Title	Definition	RAG 4.10 line reference
		The energy that is generated by undertaking activities within the bioresources price control and which is subsequently unused by the incumbent, third parties or the national grid. To be reported in MWh.	
BIO3a.12	Energy bought from grid or third party and used in bioresources control	<p>This line should be shadow reported in AMP7, based on the guidance for the allocation of revenues / costs associated with energy generation in the bioresources control, as set out in RAG 2.</p> <p>The amount of energy that is purchased from the national grid or another third party and subsequently used within the bioresources price control. To be reported in MWh and an equivalent monetary value.</p>	8C.23

BIO3a Additional guidance

- 5.1 This table provides an analysis of energy consumption for the period 2022-30.
- 5.2 For the shadow lines BIO3a.7 - BIO3a.12 companies should fill in this information based on the final guidance on the energy generation for the period 2022-30.
- 5.3 For the lines BIO3a.1 – BIO3a.6 companies should fill in this information based on the APR reporting guidance for the period 2022-25. We will not collect any information for these lines for the period 2026-30.
- 5.4 For BIO3a.1 to BIO3a.5 and BIO3a.7 - BIO3a.11 the heat column refers to all heat generated within the bioresources control. Companies should only include energy generation from assets in the regulated business; non-regulated assets such as solar panels that are owned by an associated company should not be included.
- 5.5 For used heat, companies should provide an estimate of the amount and value/cost of the heat generated and used to heat digesters or raise steam. Unused heat refers to an estimate of the amount and value of heat that is generated but wasted, for example heat generated by CHP engines that is not required for warming digesters during the summer.
- 5.6 In our December document we said that to set a specific efficiency challenge for bioresources (and separately for wastewater network plus) we would need appropriate data for our econometric cost benchmarking models. This requires a time series of data that reflects our recent cost allocation guidance. We reflected in our guidance how companies are required to report their costs in the annual performance reports. As per

APR, we are collecting here shadow and non-shadow data. We consider that this approach could have an impact on how companies report costs in other tables. Therefore, we welcome stakeholders' views on what is the best approach to deal with this impact. Our consultation question on this topic can be found in Chapter 12, Business Plan Submission.

6. BIO3b – Bioresources; income, liquors and metering analysis

Table BIO3b line definitions

Line	Title	Definition	RAG 4.10 line reference
BIO3b.1	Income claimed from Renewable Energy Certificates (ROCs)	The total income received from Renewable Energy Certificates that apply to bioresources assets.	8C.7
BIO3b.2	Income claimed from Renewable Heat Incentives (RHIs)	The total income received from Renewable Heat Incentives that apply to bioresources assets.	8C.8
BIO3b.3	Income claimed from [other renewable energy subsidy]	The total income received from renewable energy subsidies that are not Renewable Energy Certificates and Renewable Heat Incentives that apply to bioresources assets. Companies should replace [other renewable energy subsidy] in the line description with the specific subsidy that is being referenced.	8C.9
BIO3b.4	Income claimed from [other renewable energy subsidy]	The total income received from renewable energy subsidies that are not Renewable Energy Certificates and Renewable Heat Incentives that apply to bioresources assets. Companies should replace [other renewable energy subsidy] in the line description with the specific subsidy that is being referenced.	8C.10
BIO3b.5	Income claimed from [other renewable energy subsidy]	The total income received from renewable energy subsidies that are not Renewable Energy Certificates and Renewable Heat Incentives that apply to bioresources assets. Companies should replace [other renewable energy subsidy] in the line description with the specific subsidy that is being referenced.	8C.11
BIO3b.6	Total income claimed from renewable energy subsidies	This is the sum of lines BIO3b.1 – BIO3b.5.	8C.12
BIO3b.7	% of total number of renewable energy subsidies due to expire in the next 2 financial years	The percentage of the total number of renewable energy subsidies claimed by the company that are due to expire within the next two financial years.	8C.13
BIO3b.8	This year's value of renewable energy subsidies due to expire in the next 2 financial years	The total value of the number of renewable energy subsidies claimed by the company that are due to expire within the next two financial years.	8C.14
BIO3b.9	BOD load of liquor or partially treated liquor returned from bioresources to network plus	The biochemical oxygen demand load of sludge liquor or partially treated liquor (ie 'settled BOD') returned from bioresources to network plus in units of kilogram per day (kg BOD5/d). This value is to be shadow reported throughout AMP7.	8C.15

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Line	Title	Definition	RAG 4.10 line reference
BIO3b.10	Ammonia load of liquor or partially treated liquor returned from bioresources to network plus	The ammonia load of sludge liquor or partially treated liquor returned from bioresources to network plus in units of kilogram ammonia nitrogen per day (kg NH ₄ -N/d). This value is to be shadow reported throughout AMP7.	8C.16
BIO3b.11	Recharge to Bioresources by network plus for costs of handling and treating bioresources liquors	The total recharge to the bioresources price control form the wastewater network plus price control for the costs of handling and treating sludge liquors. This should be the total recharge at the company level in £m, determined by use of the standard methodology for liquor treatment costs. This value is to be shadow reported throughout AMP7. Companies should also continue to report the costs of liquor treatment using their current quantification method in table 4E, as per previous years.	8C.17
BIO3b.12	Percentage of bioresources energy consumption that is metered	The percentage of energy consumption in bioresources that is metered, as opposed to being estimated.	8C.24

BIO3b Additional guidance

- 6.1 Companies should fill in this table based on APR reporting guidance for the 2022-30 period.
- 6.2 Companies should include the following commentary to this table:
- An explanation of any material year-on-year variations.
 - An explanation of any changes in reporting methods / assumptions that have led to a material change in reported figures.
 - An indication of the quality of data provided.

7. BIO4 – Bioresources sludge treatment and disposal data

Table BIO4 line definitions

Line	Title	Definition	RAG 4.10 line reference
BIO4.1	% Sludge - untreated	Percentage of sludge produced which is untreated prior to disposal	8D.1
BIO4.2	% Sludge treatment process - raw sludge liming	Percentage of sludge produced which is untreated other than by liming	8D.2
BIO4.3	% Sludge treatment process - conventional AD	Percentage of sludge produced which is treated by conventional AD (with or without liming)	8D.3
BIO4.4	% Sludge treatment process - advanced AD	Percentage of sludge produced which is treated by advanced AD (with or without liming). (THP, EH, two-stage + PAS and APD)	8D.4
BIO4.5	% Sludge treatment process - incineration of raw sludge	Percentage of sludge produced which is untreated other than by incineration	8D.5
BIO4.6	% Sludge treatment process - other (specify)	Percentage of sludge produced by other treatment type(s) (to be specified)	8D.6
BIO4.7	% Sludge treatment process - Total	Calculated as the sum of BIO4.1 to BIO4.6 The totals for the incumbent and 3 rd party service provider columns should sum to 100%	8D.7
BIO4.8	% Sludge disposal route - landfill, raw	Percentage of (un-incinerated) sludge by disposal route - landfill, raw	8D.8
BIO4.9	% Sludge disposal route - landfill, partly treated	Percentage of (un-incinerated) sludge by disposal route - landfill, partly treated	8D.9
BIO4.10	% Sludge disposal route - land restoration / reclamation	Percentage of (un-incinerated) sludge by disposal route - land restoration / reclamation	8D.10
BIO4.11	% Sludge disposal route - sludge recycled to farmland	Percentage of (un-incinerated) sludge by disposal route - recycled to farmland	8D.11
BIO4.12	% Sludge disposal route - other (specify)	Percentage of (un-incinerated) sludge by disposal route - other (specify)	8D.12
BIO4.13	% Sludge disposal route - Total	Calculated as the sum of lines BIO4.8 to BIO4.12 The totals for the incumbent and 3 rd party service provider columns should sum to 100%	8D.13

BIO4 Additional guidance

- 7.1 This table asks for information on sludge treatment processing for the period 2022-30 which we will use to facilitate cost assessment modelling.
- 7.2 Companies should fill in this information based on APR reporting guidance.

8. BIO5 – Bioresources additional treatment and storage data

BIO5 – Bioresources additional treatment and storage data

Line	Title	Definition	RAG 4.10 line reference
BIO5.1	Tonnes of dry solids treated via main sludge treatment	Total tonnes of dry solids treated via the main sludge processes e.g. anaerobic digestion, advanced anaerobic digestion etc (under WINEP/NEP driver codes SUIAR_IMP / W_SUIAR_IMP1, SUIAR_ND / W_SUIAR_NDIMP1).	
BIO5.2	Tonnes of dry solids undertaking thickening/dewatering	Total tonnes of dry solids processed via thickening/dewatering (under WINEP/NEP driver codes SUIAR_IMP / W_SUIAR_IMP1, SUIAR_ND / W_SUIAR_NDIMP1).	
BIO5.3	Additional sludge storage - tank volume (pre-thickening/pre-dewatering/untreated sludge), m ³	Additional or new sludge storage tank volume provided (in m ³) to meet WINEP/NEP requirements (under driver codes SUIAR_IMP / W_SUIAR_IMP1, SUIAR_ND / W_SUIAR_NDIMP1). This line refers to sludge tank storage prior to thickening or dewatering, and/or prior to any other main sludge treatment stage.	
BIO5.4	Additional sludge storage - tank volume (thickened/dewatered/treated sludge), m ³	Additional or new sludge storage tank volume provided (in m ³) to meet WINEP/NEP requirements (under driver codes SUIAR_IMP / W_SUIAR_IMP1, SUIAR_ND / W_SUIAR_NDIMP1). This line refers to sludge tank storage post-thickening or dewatering, and/or post any other main sludge treatment stage.	
BIO5.5	Additional sludge storage - cake pads/bays area or equivalent (cake), m ²	Additional or new cake pad or storage bay areas, or equivalent storage (in m ²), provided for final cake storage, post main sludge treatment (under WINEP/NEP driver codes SUIAR_IMP / W_SUIAR_IMP1, SUIAR_ND / W_SUIAR_NDIMP1).	
BIO5.6	Total number of sludge treatment schemes providing sludge storage	Total number of schemes that provide new or additional sludge storage (under WINEP/NEP driver codes SUIAR_IMP / W_SUIAR_IMP1, SUIAR_ND / W_SUIAR_NDIMP1).	
BIO5.7	Total number of sludge treatment schemes providing sludge thickening and dewatering	Total number of schemes that provide new or additional thickening/dewatering capacity, and/or reduce the sludge final volume, which result in the reduction of transport movements and/or sludge storage requirements (under WINEP/NEP driver codes SUIAR_IMP / W_SUIAR_IMP1, SUIAR_ND / W_SUIAR_NDIMP1).	
BIO5.8	Total number of sludge treatment schemes providing	Total number of schemes that provide new or additional main sludge treatment capacity (e.g. anaerobic digestion, advanced anaerobic digestion etc) to	

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Line	Title	Definition	RAG 4.10 line reference
	main sludge treatment enhancement	improve resilience in the sludge supply chain or to prevent deterioration in soil/water quality (under WINEP/NEP driver codes SUIAR_IMP / W_SUIAR_IMP1, SUIAR_ND / W_SUIAR_NDIMP1).	
BIO5.9	Volume of sludge processed via thickening or dewatering, m ³	Volume of sludge (in m ³) that will undergo new or additional thickening and/or dewatering stages (under WINEP/NEP driver codes SUIAR_IMP / W_SUIAR_IMP1, SUIAR_ND / W_SUIAR_NDIMP1).	
BIO5.10	Landbank availability, %	<p>Estimated average percentage of land available to recycle sludge cake to land in a given reporting year. The percentage should be determined based on the following:</p> <ul style="list-style-type: none"> • 100% availability - the company is working on the basis of no average reduction/increase of land availability relative to the previous reporting year. • < 100% - the company is working on the basis of a potential average reduction of land availability relative to the previous reporting year. • > 100% - the company is working on the basis of a potential average increase of land availability relative to the previous reporting year. 	

BIO5 Additional guidance

8.1 This new table asks for additional information on sludge treatment and storage for the period 2022-30 which we will use to facilitate cost assessment modelling.

9. BIO6 – NMEAV for capital enhancement schemes

Line	Title	Definition	RAG 4.10 line reference
BIO6.1	CPIH / CPIH lagged	Inflation adjustment	
BIO6.2	NMEAV (Opening)	Opening value of assets under Sludge storage -Tanks (pre-thickening, pre-dewatering or untreated) (WINEP/NEP) (item CWW3.134)	
BIO6.3	Capex	Bioresources enhancement capital expenditure based on Sludge storage -Tanks (pre-thickening, pre-dewatering or untreated) (WINEP/NEP)	
BIO6.4	CCA Depreciation	CCA depreciation amount for Sludge storage -Tanks (pre-thickening, pre-dewatering or untreated)	
BIO6.5	Disposal adjustment	The value of Sludge storage -Tanks (pre-thickening, pre-dewatering or untreated) assets disposed of in year t which have not been fully depreciated at their disposal date (i.e. nominal GMEAV of those assets less total of the depreciation amounts for that asset to date).	
BIO6.6	Other adjustments	Other adjustments to the Sludge storage -Tanks (pre-thickening, pre-dewatering or untreated) asset value in year t to which we determine to apply in year t	
BIO6.7	NMEAV (Closing)	Closing value of assets under Sludge storage -Tanks (pre-thickening, pre-dewatering or untreated).	
BIO6.8	CPIH / CPIH lagged	Inflation adjustment	
BIO6.9	NMEAV (Opening)	Opening value of assets under Sludge storage -Tanks (thickened/dewatered or treated); (WINEP/NEP) (item CWW3.137)	
BIO6.10	Capex	Bioresources enhancement capital expenditure based on Sludge storage -Tanks (thickened/dewatered or treated); (WINEP/NEP)	
BIO6.11	CCA Depreciation	CCA depreciation amount for Sludge storage -Tanks (thickened/dewatered or treated); (WINEP/NEP)	
BIO6.12	Disposal adjustment	The value of Sludge storage -Tanks (thickened/dewatered or treated); (WINEP/NEP) assets disposed of in year t which have not been fully depreciated at their disposal date (i.e. nominal GMEAV of those assets less total of the depreciation amounts for that asset to date).	
BIO6.13	Other adjustments	Other adjustments to the Sludge storage -Tanks (thickened/dewatered or treated); (WINEP/NEP) asset value in year t to which we determine to apply in year t	
BIO6.14	NMEAV (Closing)	Closing value of assets under Sludge storage -Tanks (thickened/dewatered or treated); (WINEP/NEP).	
BIO6.15	CPIH / CPIH lagged	Inflation adjustment	
BIO6.16	NMEAV (Opening)	Opening value of assets under Sludge storage - Cake pads / bays / other; (WINEP/NEP) (item CWW3.140)	

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Line	Title	Definition	RAG 4.10 line reference
BIO6.17	Capex	Bioresources enhancement capital expenditure based on Sludge storage - Cake pads / bays / other; (WINEP/NEP)	
BIO6.18	CCA Depreciation	CCA depreciation amount for Sludge storage - Cake pads / bays / other; (WINEP/NEP)	
BIO6.19	Disposal adjustment	The value of Sludge storage - Cake pads / bays / other; (WINEP/NEP) assets disposed of in year t which have not been fully depreciated at their disposal date (i.e. nominal GMEAV of those assets less total of the depreciation amounts for that asset to date).	
BIO6.20	Other adjustments	Other adjustments to the Sludge storage - Cake pads / bays / other; (WINEP/NEP) asset value in year to which we determine to apply in year t	
BIO6.21	NMEAV (Closing)	Closing value of assets under Sludge storage - Cake pads / bays / other; (WINEP/NEP).	
BIO6.22	CPIH / CPIH lagged	Inflation adjustment	
BIO6.23	NMEAV (Opening)	Opening value of assets under Sludge treatment - Anaerobic digestion and/or advanced anaerobic digestion; (WINEP/NEP) (item CWW3.143)	
BIO6.24	Capex	Bioresources enhancement capital expenditure based on Sludge treatment - Anaerobic digestion and/or advanced anaerobic digestion; (WINEP/NEP)	
BIO6.25	CCA Depreciation	CCA depreciation amount for Sludge treatment - Anaerobic digestion and/or advanced anaerobic digestion; (WINEP/NEP)	
BIO6.26	Disposal adjustment	The value of Sludge treatment - Anaerobic digestion and/or advanced anaerobic digestion; (WINEP/NEP) assets disposed of in year t which have not been fully depreciated at their disposal date (i.e. nominal GMEAV of those assets less total of the depreciation amounts for that asset to date).	
BIO6.27	Other adjustments	Other adjustments to the Sludge treatment - Anaerobic digestion and/or advanced anaerobic digestion; (WINEP/NEP) asset value in year to which we determine to apply in year t	
BIO6.28	NMEAV (Closing)	Closing value of assets under Sludge treatment - Anaerobic digestion and/or advanced anaerobic digestion; (WINEP/NEP).	
BIO6.29	CPIH / CPIH lagged	Inflation adjustment	
BIO6.30	NMEAV (Opening)	Opening value of assets under Sludge treatment - Thickening and/or dewatering; (WINEP/NEP) (item CWW3.146)	
BIO6.31	Capex	Bioresources enhancement capital expenditure based on Sludge treatment - Thickening and/or dewatering; (WINEP/NEP)	
BIO6.32	CCA Depreciation	CCA depreciation amount for Sludge treatment - Thickening and/or dewatering; (WINEP/NEP)	

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Line	Title	Definition	RAG 4.10 line reference
BIO6.33	Disposal adjustment	The value of Sludge treatment - Thickening and/or dewatering; (WINEP/NEP) assets disposed of in year t which have not been fully depreciated at their disposal date (i.e. nominal GMEAV of those assets less total of the depreciation amounts for that asset to date).	
BIO6.34	Other adjustments	Other adjustments to the Sludge treatment - Thickening and/or dewatering; (WINEP/NEP) asset value in year to which we determine to apply in year t	
BIO6.35	NMEAV (Closing)	Closing value of assets under Sludge treatment - Thickening and/or dewatering; (WINEP/NEP).	
BIO6.36	CPIH / CPIH lagged	Inflation adjustment	
BIO6.37	NMEAV (Opening)	Opening value of assets under Sludge treatment - Other; (WINEP/NEP) (item CWW3.149)	
BIO6.38	Capex	Bioresources enhancement capital expenditure based on Sludge treatment - Other; (WINEP/NEP)	
BIO6.39	CCA Depreciation	CCA depreciation amount for Sludge treatment - Other; (WINEP/NEP)	
BIO6.40	Disposal adjustment	The value of Sludge treatment - Other; (WINEP/NEP) assets disposed of in year t which have not been fully depreciated at their disposal date (i.e. nominal GMEAV of those assets less total of the depreciation amounts for that asset to date).	
BIO6.41	Other adjustments	Other adjustments to the Sludge treatment - Other; (WINEP/NEP) asset value in year to which we determine to apply in year t	
BIO6.42	NMEAV (Closing)	Closing value of assets under Sludge treatment - Other; (WINEP/NEP).	
BIO6.43	CPIH / CPIH lagged	Inflation adjustment	
BIO6.44	NMEAV (Opening)	Opening value of assets under Sludge investigations and monitoring (WINEP/NEP) (item CWW3.152)	
BIO6.45	Capex	Bioresources enhancement capital expenditure based on Sludge investigations and monitoring (WINEP/NEP)	
BIO6.46	CCA Depreciation	CCA depreciation amount for Sludge investigations and monitoring (WINEP/NEP)	
BIO6.47	Disposal adjustment	The value of Sludge investigations and monitoring (WINEP/NEP) assets disposed of in year t which have not been fully depreciated at their disposal date (i.e. nominal GMEAV of those assets less total of the depreciation amounts for that asset to date).	
BIO6.48	Other adjustments	Other adjustments to the Sludge investigations and monitoring (WINEP/NEP) asset value in year to which we determine to apply in year t	
BIO6.49	NMEAV (Closing)	Closing value of assets under Sludge investigations and monitoring (WINEP/NEP).	

BIO6 Additional guidance

- 9.1 This new table requests NMEAV data separately for each bioresources capital enhancement scheme contained in Table CWW3 (see items CWW134 – CWW154).
- 9.2 Companies should fill in this information following the depreciation guidance issued alongside the [PR24 Bioresources control: supplementary document](#) published in September 2022.
- 9.3 Companies should include the following commentary to this table:
 - An explanation of any material year-on-year variations.
 - An explanation of any changes in reporting methods / assumptions that have led to a material change in reported figures.
 - An indication of the quality of data provided.