Water Resources
PR24 data tables commentary

October 2023

Water Resources PR24 Data Table Commentary

RES1 Water resources asset and volumes data

Water resources Lines 1.1 - 1.41

RES1.1: Water from impounding reservoirs

Forecast values have been derived using a base-line of recent averages for 'water from impounding reservoirs', and relative changes in future demand (DI) over the projection period. Baseline figures have been provided by the leakage team.

Note for RES1.1 to RES1.4, the recent average values (APR) and average, can be shown:

Table 1

Water Resources	2021/22	2022/23	Average
Water from impounding reservoirs	29.46	29.71	28.99
Water from pumped storage reservoirs	572.64	602.17	581.61
Water from river abstractions	609.73	635.98	614.27
Water from groundwater works, excluding managed aquifer recharge (MAR) water supply schemes (Ml/d)	657.68	655.8	661.05

We anticipate volumes will decrease in line with demand decreases due to demand management over AMP8.

Table 2

	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
WRMP24 Preferred Plan demand forecast (Ml/d)	1157.90	1157.94	1151.83	1146.86	1143.44	1136.25	1126.30

RES1.2: Water from pumped storage reservoirs

Forecast values have been derived using a base-line of recent averages for 'Water from pumped storage reservoirs', and relative changes in future demand (DI) over the projection period. Baseline figures have been provided by the leakage team.

We anticipate volumes will decrease in line with demand decreases due to demand management over AMP8.

RES1.3: Water from river abstractions

Forecast values have been derived using a base-line of recent averages for 'Water from river abstractions', and relative changes in future demand (DI) over the projection period. Baseline figures have been provided by the leakage team.

We anticipate volumes will decrease in line with demand decreases due to demand management over AMP8.

RES1.4: Water from groundwater works, excluding managed aquifer recharge (MAR) water supply schemes

Forecast values have been derived using a base-line of recent averages for 'Water from groundwater works', and relative changes in future demand (DI) over the projection period. Baseline figures have been provided by the leakage team.

We anticipate volumes will decrease in line with demand decreases due to demand management over AMP8.

RES1.5: Water from artificial recharge (AR) water supply schemes

No such schemes are operated by the company. Forecast values maintained as zero as no schemes are proposed in AMP8.

RES1.6: Water from aquifer storage and recovery (ASR) water supply schemes

No such schemes are operated by the company. Forecast values maintained as zero as no schemes are proposed in AMP8.

RES1.7: Water from saline abstractions

No such schemes are operated by the company. Forecast values maintained as zero as no schemes are proposed in AMP8.

RES1.8: Water from water reuse schemes

No such schemes are operated by the company. Forecast values maintained as zero as no schemes are proposed in AMP8.

RES1.9: Number of impounding reservoirs sources

The number of impounding reservoirs has been provided by the water resources team and is not expected to change over the forecast period (2023/24 to 2029/30), remaining at two. This number is in alignment with the revised draft WRMP24.

RES1.10: Number of pumped storage reservoirs sources

The number of pumped storage reservoirs has been provided by the water resources team and is not expected to change over the forecast period (2023/24 to 2029/30), remaining at eight. This number is in alignment with the revised draft WRMP24.

RES1.11: Number of river abstractions sources

The number of river abstractions has been provided by the water resources team and is not expected to change over the forecast period (2023/24 to 2029/30), remaining at seventeen. This number is in alignment with the revised draft WRMP24.

RES1.12: Number of groundwater works excluding managed aquifer recharge (MAR) water supply schemes

The number of groundwater works has been provided by the water resources team and is not expected to change over the forecast period (2023/24 to 2029/30), remaining at one hundred and ninety eight. This number is in alignment with the revised draft WRMP24.

RES1.13: Number of artificial recharge (AR) water supply schemes

No such schemes are operated by the company. Forecast values maintained as zero as no schemes are proposed in AMP8.

RES1.14: Number of aquifer storage and recovery (ASR) water supply schemes

No such schemes are operated by the company. Forecast values maintained as zero as no schemes are proposed in AMP8.

RES1.15: Number of saline abstraction schemes

No such schemes are operated by the company. Forecast values maintained as zero as no schemes are proposed in AMP8.

RES1.16: Number of reuse schemes

No such schemes are operated by the company. Forecast values maintained as zero as no schemes are proposed in AMP8.

RES1.17: Total number of sources

Calculated from above

RES1.18: Total number of water reservoirs

The number of water reservoirs has been provided by the water resources team and is not expected to change over the forecast period (2023/24 to 2029/30), remaining at ten. This number is in alignment with the revised draft WRMP24.

RES1.19: Total volumetric capacity of water reservoirs

The total volumetric capacity of water reservoirs has been provided by the water resources team and is not expected to change over the forecast period (2023/24 to 2029/30), remaining at 227,252.7 Ml, in alignment with the revised draft WRMP24.

RES1.20: Total number of intake and source pumping stations

The total number of intake and source pumping stations has been provided by the water resources team and is not expected to change over the forecast period (2023/24 to 2029/30), remaining at 217, in alignment with the revised draft WRMP24.

RES1.21: Total installed power capacity of intake and source pumping stations

Based on no increase in the number of intake and source pumping stations the total installed power capacity is not expected to change.

RES1.22: Total length of raw water abstraction mains and other conveyors

There is a slight increase in this line for the end of AMP7 due to the inclusion of raw water mains replacement schemes.

RES1.24: Energy Consumption for raw water abstraction

This table captures energy consumption for raw water abstraction.

The data covers the years 2022/23 to 2029/30. The structure of the information replicates that used in the 2022/23 Annual Performance Report (APR). This commentary does not seek to replicate the APR commentary, more to explain any material differences, changes to assumptions and outline methodology.

All 2022/23 information has been replicated from the APR for that year. For the following years, the following represents the outline methodology:-

For 2023/24

- We have populated our APR template with the budgeted consumption for that year;
- The total energy consumption from transport and on-site fuel on all water function sites is assumed not to have changed from 2022/23. The exception is for the gas forecast to be delivered to the administration function (a share of which is allocated to all water function sites), where the budgeted gas consumption has been used;
- Additional consumption as a result of new capital schemes (Revenue Impact of Capital Schemes, or RICS) being delivered in the year has been added;
- An assumption of base energy efficiency has been added, consistent with historic averages for the water function.

For 2024/25 to 2029/30

- We have assumed that the consumption forecast will follow on from that for 2023/24, adjusted for:-
  - Change in the forecast of water abstraction since 2023/24, pro-rata to energy consumption;
  - RICS for schemes forecast for delivery from 2024/25 to 2029/30;
  - The same base energy efficiency assumption as 2023/24.

In 2022/23, the energy consumption was **90,098 MWh**.

The forecast for 2023/24 is **87,816 MWh**, which is driven mainly by a reduction in the forecast of electricity consumed compared to that recorded in 2022/23. 2022/23 suffered exceptionally hot and dry conditions and there was a high summer demand for water. We have budgeted for a more normalised set of conditions rather than the most recent extremes. We have also included 7 MWh of RICS and 959 MWh of assumed efficiencies.

The forecast for 2024/25 is **87,131 MWh**. The small changes from 2023/24 are driven by a small forecast increase in abstraction plus 271 MWh from forecast RICS and 959 MWh of assumed efficiencies.

The forecast for 2025/26 is **85,798 MWh**. The changes from 2024/25 are driven by a forecast decrease in abstraction consumption of 390 MWh plus 17 MWh from forecast RICS and 959 MWh of assumed efficiencies.

The forecast for 2026/27 is **84,547 MWh**. The small changes from 2025/26 are driven by a forecast decrease in abstraction consumption of 319 MWh plus 26 MWh from forecast RICS and 959 MWh of assumed efficiencies.

The forecast for 2027/28 is **83,654 MWh**. The small changes from 2026/27 are driven by a forecast decrease in abstraction consumption of 219 MWh plus 285 MWh from forecast RICS and 959 MWh of assumed efficiencies.

The forecast for 2028/29 is **82,924 MWh**. The small changes from 2027/28 are driven by a forecast decrease in abstraction consumption of 461 MWh plus 690 MWh from forecast RICS and 959 MWh of assumed efficiencies.

The forecast for 2029/30 is **82,264 MWh**. The small changes from 2028/29 are driven by a forecast decrease in abstraction consumption of 724 MWh plus 1,024 MWh from forecast RICS and 959 MWh of assumed efficiencies.

A number of assumptions have been made in calculating the raw water abstraction energy consumption data.

- For the whole of the water function, we have applied a financial split from the 2022/23 regulatory accounts between abstraction, raw water transport, water treatment and treated water distribution for electricity consumption. This financial split is based upon assessments of proportional use by different business units made by the finance team and operational managers. Because of the more significant volumes of solar electricity being generated on sites at a lower price than grid electricity, the solar costs were deducted from this calculation. Solar consumption was added back to complete the consumption picture.
- Grid electricity and fuel (oil and natural gas) used in offices has been included and split equally between the water and water recycling functions.
- Fuel oil is not recorded on our corporate systems against Ofwat's business units and therefore the same split used for electricity has been assumed for each fuel type with the exception of gas oil delivered to water recycling sites.
- We have assumed a 35% thermal efficiency for natural gas consumption in converting to energy output (boilers and 'combined heat and power' (CHP)).
- Transport (claimed mileage and fleet fuel purchased on fuel cards) is not recorded in our corporate systems against Ofwat's business units and therefore we have split the total 50/50 between water and water recycling and then assumed that they split in the same proportions as electricity between the business units.
- Transport for company cars is collected as mileage. For 2022/23 we have converted mileage into kWh through using the Business, Energy and Industrial Strategy's (BEIS) greenhouse gas reporting condensed conversion factors for 2022, and we have assumed no change to 2023/24 and through to 2029/30.
- For electric vehicles in 2022/23, a small volume of energy was collected via fuel cards or was metered at employees' homes. For the remaining, larger volume we made the assumption that the mileage claimed relates to charging at home or on public charging points, rather than using the charging points at our offices. Many people are still working from home a lot of the time and we don't have a reliable source to tell us how many miles are being claimed from charging at Anglian Water sites. We believe this assumption to be safe and not capable of skewing the overall figures since (i) electric car consumption from claimed mileage totalled just 238,643 kWh across the whole of Anglian Water and (ii) wherever cars are charged, the driver may be charging for domestic and commuting miles (which cannot be claimed) as well as for business. While there may be an overlap with the electricity consumption data, we consider that this will be de-minimus. We are looking to improve our processes in order to better capture consumption by electric cars charged at home and AW infrastructure. For 2023/24 and through to 2029/30 we have assumed no change to this approach, however, it should be noted that whatever the blend between electric, hybrid, petrol and diesel driven vehicles, the fundamental unit of the energy consumed - the Watt - does not change. It is a measure of work done, in this case to move vehicles, people and equipment from A to B, and the amount of energy consumed for a given journey will be similar for differently fuelled vehicles, regardless of the fuel used.
- Electricity and gas figures used for 2022/23 are all metered so there is a high confidence in them

RES1.25: Total number of raw water abstraction imports

There are currently no raw water abstraction imports (2022/23), as reported by the leakage team, and we are not predicting any future raw water imports as part of our WRMP24 plan.

RES1.26: Water imported from 3rd parties to raw water abstraction systems

There is currently no raw water imported from 3rd parties to raw water abstraction systems (2022/23) and we are not predicting any future raw water exports as part of our WRMP24 plan.

RES1.27: Total number of raw water abstraction exports

There are currently no raw water abstraction exports (2022/23), as reported by the leakage team, and we are not predicting any future raw water imports as part of our WRMP24 plan.

RES1.28: Water exported to 3rd parties from raw water abstraction systems

There is currently no raw water exported to 3rd parties from raw water abstraction systems (2022/23) and we are not predicting any future raw water exports as part of our WRMP24 plan.

RES1.29: Water resources capacity (measured using water resources yield)

The reporting year value has been provided for the company water resources capacity, based on the hydrological yields for all sources contributing to the WRMP19 deployable output supply forecast.

The total annual average water resources capacity is 1741.0Ml/d, which is made up of groundwater and direct surface water intakes (1014.6Ml/d) and surface water reservoirs, including their surface water intakes (726.4Ml/d).

We currently anticipate no change to this value.

RES1.30:Total number of impounding reservoirs assets

Anglian Water has two impounding reservoirs, Hollowell and Ravensthorpe.

We currently anticipate no change to this value.

RES1.31: Total number of new eels/fish entrainment screens

Two eel screens were implemented in 2022/2023 (Clapham and Tinwell). One further eel screen will be installed in 2024/2025 (Duston Mill). No further eel screens are planned between 2025/2026 and 2029/2030.

RES1.32: Total number of new eels/fish passes

One eel pass was installed in 2022/2023 (Cloves Bridge). No further eel passes are planned.

RES1.33: Total number of new wetlands

There are currently no wetland specific habitats planned as part of river restoration delivery in AMP7 or AMP8. Should this change, numbers will be updated accordingly.

RES1.34: Total area of new wetlands

There are currently no wetland specific habitats planned as part of river restoration delivery in AMP7 or AMP8. Should this change, numbers will be updated accordingly.

RES1.35: Total number of investigations; (WINEP/NEP) desk based only

Figures include three investigations that are anticipated to be predominantly desk-based, including a national invasive species investigation, a biodiversity priority species investigation, and a regional eel barriers investigation. These have the potential to increase in complexity with site visits, but this is not certain.

RES1.36: Total number of investigations; (WINEP/NEP) survey, monitoring or simple modelling

Figures include one invasive non-native species (INNS) investigation, where monitoring is expected, two drinking water investigations (DrWPA), where simple modelling is expected, one biodiversity (pollinator) investigation, and one environmental destination investigation (EDWRMP) which is site specific.

RES1.37: Total number of investigations; (WINEP/NEP) multiple surveys, and/or monitoring locations, and/or complex modelling water

Figures include sixteen high complexity water resource investigations covered by WINEP drivers EDWRMP_INV, HD_INV, WFD_INV_WRFlow, and WFD_NDINV_WRFlow. These cover multiple assets and locations and will likely require complex modelling and the potential for environmental monitoring.

RES1.38: Total number of investigations; (WINEP/NEP)

Combined total of lines 1.35, 1.36, and 1.37 - figures include investigations under WINEP drivers: INNS_INV, NERC_INV, EE_INV, DrWPA_INV, EDWRMP_INV, HD_INV, WFD_INV_WRFlow, and WFD_NDINV_WRFlow

love every drop
anglianwater

Anglian Water Services Limited
Lancaster House
Lancaster Way
Ermine Business Park
Huntingdon
Cambridgeshire
PE29 6XU

anglianwater.co.uk