Severn Trent PR24 Data Tables Commentary

Water Resources

WONDERFUL ON TAP

SEVERN TRENT

Contents

RES1: Water resources asset and volumes data

Note: where relevant, values in this PR24 data table align to the 15th July 2023 APR submission and have not been updated to reflect any restatement unless specifically noted.

RES1.1 - RES1.8 water from (Various)

Year 2022/23 is reported in line with APR23 actuals. APR22 (2021/22) has been used to Baseline FY 2023/24 as it provides a more representative spilt of an average year (due to dry summer/spring of 2023). All future year's figures have been adjusted to account for impacts of WRMP24 (new schemes and forecast DI changes), alongside any WINEP impacts. The confidence grade for RES1.1 – RES1.4 is B2. RES1.5 – RES1.8 is reported as zero, as we do not have any water supplied by these types of assets: this therefore has a confidence grade of A1.

RES1.9: Number of impounding reservoirs sources

There are no new impounding reservoir schemes planned for AMP8. Therefore, the value will remain 8 with A1 confidence grade for 2022 - 2030.

RES1.10: Number of pumped storage reservoirs sources

There are no new pumped storage reservoirs sources schemes planned for AMP8. Therefore, the value will remain 5 with A1 confidence grade for 2022 - 2030.

RES1.11: Number of river abstractions

Year 2022/23 is reported in line with APR23 actuals. There is an increase of 1 in 2023/24 due to the company's refurbished Rothley Brook abstraction point coming online. Another increase of 1 is factored in for 2024/25 with the new/refurbished intake at Witches Oak (Church Wilne) coming online. All remaining years are unchanged due to no other schemes of this type being planned prior to April 2030. *The confidence grade for RES1.11 is A1.*

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

The number of groundwater works in supply for 2022-2023 is based on the APR23 submission. There are no predicted changes to the total number of groundwater works forecast to be in supply for 2023 – 2030. No new groundwater works are planned and there are no licence changes impacting the total number of groundwater works between 2023 – 2030*. The confidence grade for RES1.12 is B2.*

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

There are currently no AR schemes and none are planned for AMP8. Therefore, the value will remain 0 with A1 confidence grade for 2022 - 2030.

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

There are currently no ASR schemes and none are planned for AMP8. Therefore, the value will remain 0 with A1 confidence grade for 2022 - 2030.

RES1.15 – RES1.16: Number of saline abstraction schemes and number of reuse schemes

No current sources and no plans in WRMP to commission any. *Confidence grade is A1.*

RES1.17: Total number of sources

Calculated value in the data table. The confidence grade is a B2 as this is the confidence grade of the largest contributing data source.

RES1.18: Total number of water reservoirs

There are no new reservoir sources planned for AMP8. Therefore, the value will remain 22 with A1 confidence grade for 2022 - 2030.

RES1.19: Total volumetric capacity of water reservoirs

There is one scheme to raise the water level within Draycote reservoir during AMP8. It is planned that the additional storage of 1400Ml will be delivered in 2028. The change is approximately a 6% increase on the total storage and is well within the +/-10% that an A3 confidence grade allows should the project be delayed and not be delivered within AMP8.

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

The forecast for this data line is a slight increase over the plan period, accounting for our capital maintenance plans to return some groundwater intakes to operation this AMP, and two new surface water intakes planned for our preferred WRMP and Green Recovery programmes. We give this data a score of B2, which aligns with our confidence in the APR23 data.

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

We rarely increase the size of existing surface water intakes. The increase over the plan period is due to our capital maintenance plans to return some groundwater intakes to operation this AMP, new or upsized intakes as part of our WRMP and Green Recovery programmes, and some upsized groundwater intake pumps as part of our WINEP plans to respond to changing abstraction licences. We give this data a score of B2, which aligns with our confidence in the base APR23 data.

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

There are no schemes proposed in the remainder of AMP7 and AMP8 for additional raw water abstraction mains and other conveyors. *This data line has a confidence grade of A2.*

RES1.23: Average Pumping Head – Raw Water Abstraction

We have assumed the WRMP water into supply drop occurs during AMP8 and is still valid for AMP8. There will be a drop in Distribution Input (DI) because of licence reductions.

DI is forecast to fall year on year from 2023/24 through to 2050/51 this will have an impact on the Clean Water Average Pumping Head (APH), to calculate the likely impact on APH the following assumptions have been used:

We have focussed on a sample of WTWs where reductions in output represent the majority of the DI in the company, and to provide a representative company-wide impact to pumping head. The DI reductions have been applied to these 8 WTW's using the assumption listed below. This is deemed appropriate given the alternative of undertaking forecast average pump head calculations for every Severn Trent site - whilst using a representative sample of WTWs will give a fair reflection of the impact of DI reductions.

Water Treatment Works	Production Mld[1] 2022/23	Comments
Strensham	143.55	
Upton RWI		
Mythe	94.02	
Trimpley	40.03	
Frankley	360.35	
Whitacre		Not included
Draycote		Not included as supplies discrete area
Shelton		Not included as supplies discrete area
Campion Hills		Not included as supplies discrete area
Ogston		Not included as supplies discrete area
Homesford		Not included as supplies discrete area
Cropston	15.07	Feeds Hallgates Reservoir
Swithland PS		
Melbourne	195.59	
Egginton RWI		
Foremark PS		
Staunton Harrold PS		
Bamford	122.83	
Ladybower		
Little Eaton	65.57	
Church Wilne		Not included as major works planned during AMP8
Total Production in 2022/23 for included WTW	1037	
Total WIS 2022/23	1942	
DI for 2022/23	1977	
Production covered as % of Total Production	53.4%	

To establish the heads in individual systems at the works identified as being included above, the flows from the individual systems need to be calculated in line with the DI profile for each year.

The following assumptions have been applied and used to produce a projected works flow and projected system flow at sites with multiple pumping systems. For each year calculated an excel spreadsheet “DI and Production Projection” has been created and is used to determine the flow against which the individual system head is read.

- The base DI against which the DI Input Profile is compared, is the 22/23 DI figure reported in APR23. We have used this as it represents the most complete Ave Pump Head data set available when the calculation was undertaken.
- Sites with gravity flow to or from the site will remain unchanged from the 22/23 flow. This includes Bamford and Gravity flow to Frankley, though Trimpley transfer flow to Frankley will be subject to change year on year.
- The 22/23 WIS figure for the works included above is expressed as a percentage of the sum of those works WIS figures for 22/23. These percentages it is assumed will remain unchanged for the period 22/23 to 29/30.

- The works flow for each year is calculated using the WIS for 22/23 minus the difference in WIS between 22/23 and the year being calculated multiplied by the percentage detailed in 3 above.
- At Bamford the 22/23 percentage contribution to the of the sum of the WIS for the works included above has been calculated. As stated in 2 above, the Bamford WIS it is assumed will remain unchanged. Therefore, it has been assumed that the DI reduction will be made up from Melbourne and Cropston. Melbourne & Cropston 22/23 WIS contribution has been calculated as a percentage and this percentage multiplied for each works against the calculated Bamford reduction. These additional reductions have been included in the WIS reductions from both works.
- The base Abstraction flow is that recorded in 22/23. Subsequent years abstraction has been calculated using the 22/23 flow minus the calculated difference in WIS for the works the abstraction site feeds.
- The flow from Egginton RI feeds Staunton Harold and Foremark reservoir sites, each of which pump to Melbourne WTW. The base abstraction flow for these two sites is that recorded in 22/23. The sum of the two works 22/23 flow to Melbourne has been calculated and the flow from each works expressed as a percentage of the total flow. It is assumed this percentage remains unchanged year on year. For subsequent years the abstraction figure at each site has been calculated using the 22/23 flow minus the calculated difference in WIS at Melbourne multiplied by the percentage of 22/23 total flow from the two sites.
- Trimpley River abstraction flow is inclusive of the Frankley raw water transfer flow. It is assumed that the transfer flow will reduce by the same as the Frankley WIS year on year. Therefore, the Trimpley Abstraction flow will reduce by the sum of the WIS reduction at both Trimpley and Frankley.

There is a small decrease in head across the period. Where there is a small increase on the previous year's head, this is attributed to the way in which the abstraction head is sourced from test data rather than directly from a system curve.

The confidence grade of the data is B3.

RES1.24: Energy Consumption – water resources (MWh) and CW4.7: Energy consumption – raw water transport (MWh); CW4.5: Energy consumption - water treatment (MWh); CW5.23: Energy consumption – treated water distribution (MWh)

These lines are prepared on the same basis as the equivalent annual performance report data lines and use 2022-23 numbers as the starting baseline. We then project how changes in population and water demand will impact electricity and fuel consumption and the additional energy requirements of planned capital schemes included in our overall plan. We also project the net energy impact of electrification in line with our net zero plans. In clean water subservices, distribution input is projected to fall in line with our plans on leakage reduction. This has a reduction impact on energy use. This is offset by planned capital schemes to improve water quality and resilience and cope with the abstraction reductions required by our water resources management plan. The net effect is a small rise in total energy consumption over AMP8. *The confidence grade for RES1.24 is B3.*

RES1.25 - RES1.28 Number and Volume of raw water abstraction systems imports/exports.

All four lines are zero value for all years, as the company has no such transfer (import or export) with any neighbouring companies. There are also no plans for any new sources of this classification to be built and operational prior to April 2030. *The confidence grade of the data is A1.*

RES1.29: Water Resources Yield as measured using Water Resources capacity.

We have updated our calculations for this measure as per the guidelines. We have used the latest Water Resources modelling guidance for WRMP24. For PR19 we had used Water Resources modelling using Historic flow sequences to calculate Water Resources Yield as per our WRMP19 modelling. For the PR24 data tables we have updated our modelling to use stochastic data as per our WRMP24 modelling. We have done this following the guidance in RAG 4 Appendix 2. Water Resources Further Guidance bullet 3.42.

We have assumed a level of service of 1 in 200 for the tables as they only go as far as 2030, and we are not planning to work to 1 in 500 until later AMPs.

For PR19 the data requested included Water Resources Capacity pre 2020 and post 2020 separately, the table for PR24 has only one line for Water Resources Capacity therefore we have combined our data into this line, with new Water Resources schemes increasing the capacity overtime. *The confidence grade for this data is B3.*

RES1.30: Total number of impounding reservoirs

There are no new impounding reservoir sources planned for AMP8. Note that only reservoirs used for water supply are included. Impounding reservoirs where the water cannot be taken into supply are excluded although the Company must maintain them to ensure that they remain safe. Therefore, the value will remain 17 with A1 confidence grade for 2022 - 2030.

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

There are no new eels or fish screens to be installed as part of AMP8 WINEP. The confidence grade for this data is A1.

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

There are no new eels or fish passes to be installed as part of AMP8 WINEP under those driver codes. *The confidence grade for this data is A1.*

However, note that in AMP8 we will be removing a weir at Peakshole Water to improve fish passage (brown trout) under the NERC WINEP driver.

RES1.33: Total number of new wetlands

Our AMP7 sustainable abstraction 'environmental measures' workstream will create new wetland features in a number of the priority catchments where we are working to mitigate for the effects of our water abstraction. The final measures specification documents for the individual catchments in the AMP7 environmental measures programme has yet to be confirmed with the Environment Agency, but the latest agreed and draft versions (26/09/23) include the following recommended list of wetland / pond creation projects:

Total Confirmed Wetlands:	34
Total Confirmed Ponds:	0
Total Unconfirmed Wetlands:	11
Total Unconfirmed Ponds:	11
Total Wetlands:	45
Total Ponds:	11
Total	56

We expect to confirm the measures specifications for the AMP7 programme with the Environment Agency by autumn 2023 at which point we can confirm the agreed list of new wetland features to be created. All projects are due to complete by end 2024-25. Due to the uncertainty around the final number of confirmed projects we have assigned a confidence grade of B4.

There are currently no new wetland sites planned as part of AMP8 WINEP.

The confidence grade of this data is B4.

RES1.34: Total area of new wetlands

We have not yet confirmed the full scope and extent of the new wetland sites to be created as part of our AMP7 sustainable abstraction 'environmental measures' WINEP work but the latest versions of Appendix A and Appendix B from the environmental measures specification documents identifies approximately 44Ha of area to be improved. Once the site measures specification documents have been finalised with the Environment Agency during autumn 2023 we will be able to confirm the extent of the features to be created.

The confidence grade of this data is C5.

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

There are no AMP7 or AMP8 investigations that are solely desk based. *The confidence grade of this data is A1.*

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

We are delivering an extensive investigation programme in AMP8 across the following WINEP drivers:

WINEP Driver	Invs - Survey, monitoring, simple modelling
NERC_INV	5
EE_INV	1
HD_INV	1
SSSI_INV	1
WFD_NDINV_WRFlow	70
WFD_INV_WRHMWB	0
INNS_INV	0
ED_WRMPINV	0
DrWPA_INV	0

The confidence grade of this data is A1.

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

We are delivering an extensive investigation programme in AMP8 across the following WINEP drivers:

WINEP Driver	Invs - Multiple surveys, monitoring locations, complex modelling
NERC_INV	0
EE_INV	1
HD_INV	0
SSSI_INV	0
WFD_NDINV_WRFlow	0
WFD_INV_WRHMWB	2
INNS_INV	1
ED_WRMPINV	31
DrWPA_INV	4

The confidence grade of this data is A1.

RES1.38: Total number of investigations

Calculated value in the data table. The confidence grade is A1.

RES1.39 – RES1.41: Additional lines; water resources cost driver

These lines are a nil return as there are no water resource cost driver data that isn't covered by other lines. *The confidence grade of this data is A1.*