

Gate two query process

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| Strategic solution(s) | SESRO |
| Query number | SER007 |
| Date sent to company | 16/12/2022 |
| Response due by | 20/12/2022 |

Query

1. Please provide more information that a SESRO 100Mm³ can support both T2ST, T2AT and local resource to SWOX WRZ. If SESRO 100Mm³ has a Deployable Output of ~185MI/d, how can it meet the demands of a 100MI/d T2AT, a 120MI/d T2ST, and local needs in SWOX WRZ. Is it due to the conjunctive use aspects of the schemes or is it due to the timing of when T2ST or T2AT are in use?

Solution owner response

Thames Water have provided supplementary evidence of option utilisation for the draft WRMP24 Ofwat query “TMS-dWRMP24-004”. In the response, a ‘Thames Water Option utilisation workbook’ was provided which we have also attached to this response.

The SESRO option is used to provide water to several zones. It is important to bear in mind that the SESRO option would be used alongside the Severn to Thames (STT) option from 2049-50 onwards, and so the SESRO option yield of 184.6 MI/d does not need to provide water to all of the zones you reference above. The water which SESRO would provide, and in conjunction with STT from 2049-50 onwards would be used in the following zones:

- Thames Water, London, from 2039-40 onwards
- Affinity Water, via T2AT, with a first phase (50 MI/d) from 2039-40 and a second phase (further 50 MI/d) from 2044-45 onwards

- Southern Water, via T2ST, from 2039-40 onwards
- Thames Water, Swindon and Oxford (SWOX), from 2049-50 onwards
- Thames Water, Slough, Wycombe and Aylesbury (SWA) via transfer from SWOX, from 2049-50 onwards
- Thames Water, Kennet Valley, via a new scheme associated with Fobney WTW, from 2049-50 onwards

The volume of water required in the different zones to which the SESRO and STT options could provide benefit varies over time, as demand grows/shrinks over time (due to the interaction between population growth and demand management strategies), new challenges are imposed (e.g., environmental destination), and other resource solutions are constructed to provide benefit in the many WRZs involved. In addition, there is a significant conjunctive use benefit in operating the T2AT scheme in conjunction with Thames Water’s London WRZ. This is discussed in further detail in Section 4.2.2 of the main report within the Thames to Affinity Transfer SRO Gate 2 submission.

The table below demonstrates the projected resource balance in the near-term, at 2039-40, 2044-45, and 2049-50 to show that the options selected are able to provide the resource needed. This demonstrates that being able to vary option utilisation over time creates an efficient and resilient plan – key to this is that the T2AT and T2ST are not needed at their full capacities for the whole planning period, and that water is not needed in SWOX or SWA until 2049-50 (by which time the STT would be constructed to provide additional resource).

All figures in the table below are in Ml/d and are for the Dry Year Annual Average, ‘DYAA’, (1 in 500-year) scenario.

| | 2039-40 | 2044-45 | 2049/50 |
|--|----------------|----------------|----------------|
| SESRO Use | 184.6 | 184.6 | 184.6 |
| Total water from STT sources | 0 | 0 | 157.4 |
| DO Benefit from T2AT-London Conjunctive Use | 25 | 50 | 50 |
| Total Resource Benefit from West Thames options, inc. conjunctive use | 209.6 | 234.6 | 392.0 |
| SESRO/STT Water used by London (inc. conj. use) | 111.5 | 98.9 | 173.7 |
| SESRO/STT water used by T2AT | 50.0 | 63.0 | 71.1 |
| SESRO/STT water used by T2ST | 48.1 | 72.7 | 69.0 |
| SESRO/STT Water used by SWOX & SWA | 0 | 0 | 59.4 |
| SESRO/STT Water used by Kennet Valley | 0 | 0 | 18.8 |
| Total resource utilisation | 209.6 | 234.6 | 392.0 |

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| Date of response to RAPID | 19-12-22 |
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