Gate two query process

Strategic solution(s)	Grand Union Canal
Query number	GUC004
Date sent to company	05/12/2022
Response due by	07/12/2022

Query

1) Please can you direct us to the section of your submission which provides evidence of utilisation rates for Dry Year Annual Average, for events such as: 1:500 year drought events; peak demand; emergency response; in addition to standby or normal year operation. If this has not been included within the submission please can you provide us with additional evidence on this aspect.

2) Please can you direct us to the section of your submission which provides evidence of, and any assumptions relating to, interaction within the solution (ie. with the Minworth SRO), as well as between other proposed water resource solutions (ie. STT), in terms of system connectivity / impacts and mutual inclusivity/exclusivity. If this has not been included within the submission please can you provide us with additional evidence on this aspect.

3) Please can you direct us to the section of your submission which presents dry year annual average and critical period Deployable Output under 1:500 year drought consistent with regional plan and WRMPs. Modelling methods and calculations, including in relation to stochastic approaches and climate change, are not well evidenced please can you provide addtional information on this.

Solution owner response

Q1 Please can you direct us to the section of your submission which provides evidence of utilisation rates for Dry Year Annual Average, for events such as: 1:500 year drought events; peak demand; emergency response; in addition to standby or normal year operation. If this has not been included within the submission please can you provide us with additional evidence on this aspect.

A1 The utilisation rate of the scheme will vary depending on the severity of the demand or drought event. SRO utilisation is heavily focused on the summer period for Affinity Water. The annual average take is around 27% of DO for an SRO that does not have a minimum operational 'turnover' rate.

Whereas a scheme like GUC has a constant 'turnover rate' to ensure treatment processes are operational when the scheme is required to be used at 100% utilisation rate. This minimum turnover rate of c25% increases the annual average take to just over 40% and to over 50% for a 1 in 500 drought event.

Affinity Water produced a short technical report to explain Deployable Output calculations and SRO utilisation. This was not originally part of our Gate 2 suite of annexes, but we have made it available alongside this query and will upload to our respective websites when we publish query responses. The report is titled GUC Annex A4.2 Evaluation of SRO Scheme Utilisation.

Q2 Please can you direct us to the section of your submission which provides evidence of, and any assumptions relating to, interaction within the solution (ie. with the Minworth SRO), as well as between other proposed water resource solutions (ie. STT), in terms of system connectivity / impacts and mutual inclusivity/exclusivity. If this has not been included within the submission please can you provide us with additional evidence on this aspect.

A2 In the long term, GUC is entirely dependent upon Minworth supplying it with 115Ml/d. GUC is a transfer SRO and Minworth is a source SRO. In the Minworth submission (paragraph 3.8) it is noted that Minworth SRO can provide up to 230Ml/d which would be sufficient to meet the needs of both GUC and STT (which are set out in table 1.1. of the same submission).

GUC does not have any further interactions with other solutions. Thames Water had an Oxford Canal transfer, but through regular engagement with the Thames WRMP team, we understand this is not selected until quite late in the WRSE Regional Plan, and therefore GUC will be in place many years before it is required.

Q3 Please can you direct us to the section of your submission which presents dry year annual average and critical period Deployable Output under 1:500 year drought consistent with regional plan and WRMPs. Modelling methods and calculations, including in relation to stochastic approaches and climate change, are not well evidenced please can you provide additional information on this.

A3 The Deployable Output (DO) for the Grand Union Canal SRO is the same (maximum of 100Ml/d) under all scenarios, it is simply the utilisation profile which differs depending upon the severity of the drought event. This DO value is consistent with the information WRSE have used in their regional plan and in the Affinity Water WRMP.

The modelling methods and calculations assume that a capacity of 115Ml/d is required to deliver the 100Ml/d DO. The 15Ml/d difference between capacity and DO is to account for losses at the treatment works once water is abstracted from the canal, and owing to Affinity Water's lack of bankside storage. For further detail please refer to Annex A4.2 which is also referenced in response to Q1 above.

Date of response to RAPID	06 December 2022
Strategic solution contact / responsible person	[redacted] GUC@severntrent.co.uk

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