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Enhancements to supply demand balance IAP response

1 April 2019

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1. IAP challenge

Our plan for managing the supply demand balance has been challenged by Ofwat through an assessment of unit cost across the industry.

“The expenditure allowance for non-leakage SDB benefits is calculated using the industry median unit cost which is lower than the company's unit cost.”

Extract from the supply demand balance enhancement feeder model.

2. Summary of our response to the Initial Assessment by Ofwat

Unit cost approach

Whilst unit cost models can provide helpful information they cannot be solely relied on for assessing the level of expenditure in relation to supply demand deficits.

The water resources planning process is a well-established and transparent methodology for identifying and challenging the most cost effective solutions. We have identified two zones with deficits in our WRMP, both in remote areas of West Wales, where limited options are available. In these zones, therefore the unit cost of feasible solutions are higher than the industry median.

The unit costs in Ofwat’s assessment appear to be highly influenced by a number of companies who have identified cheap groundwater solutions to their deficits. These lower cost options are not available to us in the two deficit zones.

We believe that the zone-specific WRMP approach to identifying the best cost solutions should be taken into account in determining the allowance for supply demand balance expenditure.

Allocation of expenditure between “2020-2025 supply demand benefit enhancement” and “long term supply demand benefit enhancement”

Having reviewed the IAP assessment, it is clear that other companies have provided a split of the supply demand benefit expenditure between amounts to address 2020-2025 supply demand deficits and expenditure to manage longer term deficits.

We did not make this distinction in our business plan, assigning all the enhancement expenditure to the 2020-2025 benefit. However, a proportion of our enhancement expenditure is directed as addressing long term supply demand deficit and should be reclassified as follows:

Scheme	Total value of scheme	Value of managing Supply Demand deficit	Value of managing long term enhancement	Basis of split
Tywyn / Aberdyfi	£6.4m	£4.4m	£2m	Proportional to the WAFU benefit
Pembrokeshire	£11.5m	£5.0m	£6.5m	
Total	£17.9m	£9.4m	£8.5m	
Unit cost per Ml/d benefit		£1.8m		

As a result of the above, we believe that the costs we presented in our plan are efficient and represent good value for customers, and we invite Ofwat to reconsider its assessment. We provide further detail in the following sections.

3. Challenge to unit cost approach

Other companies' plans

Company	Non-leakage supply-demand balance unit costs	Claimed benefit MI/d	Claimed expenditure £m
YKY	0.17	2.00	0.34
PRT	0.19	14.3	2.66
WSX	0.57	5.00	2.85
SEW	1.03	32.18	33.07
SES	1.14	2.27	2.59
SSC	1.33	4.94	6.56
ANH	1.45	62.00	89.90
TMS	1.47	72.09	105.88
AFW	1.54	44.95	69.01
SRN	1.55	33.36	51.76
SVE	1.67	70.60	117.90
WSH	3.71	5.10	18.90
Industry median	1.39		

Ofwat have calculated a unit cost for all supply enhancement schemes. A significant number of these schemes have substantially lower unit costs than ours. However, the majority of the low unit cost schemes are relatively simple and low-cost groundwater schemes such as:

- Portsmouth Water: Worlds' End borehole development (14.3 MI/d for £2.66m),
- Yorkshire Water: Groundwater enhancement scheme (2 MI/d for £0.34m),
- Affinity Water: Luton Greensand abstraction (5.9 MI/d for £5.54m),
- South East Water: Aylesford Newsprint groundwater scheme (18.18 MI/d for £26.23m),
- South Staffordshire Water: new borehole option and the reintroduction of ground water sources in the Cambridge area (3.92 MI/d for £2.87m).

Low unit cost groundwater schemes of this nature are not an option in either of our deficit zones. For this reason we assert that using an industry benchmark for cost per MI/d is not appropriate for our proposed investment.

We published our Final WRMP on 21 March 2019. The WRMP identifies the best value programme to address the supply demand deficits and resilience issues in the Tywyn Aberdyfi and Pembrokeshire zones. These costs should form the allowance for supply demand deficit management in these cases.

4. Allocation of expenditure

Having reviewed the evidence presented in the IAP it is clear that we did not present our plans on a basis consistent with the methodology used by Ofwat in the assessment.

Two categories are defined:

2020-25 enhancement - Includes new supply and water efficiency schemes delivering supply-demand balance (SDB) benefits in the period 2020-25.

Long-term enhancement - ‘Local’ supply schemes delivering SDB benefit (Ml/d) beyond 2025 (not considered regional).

Both our supply-demand schemes offer resilience benefits beyond 2020-25. The schemes address short term and long term supply demand deficits but also inherently provide headroom for resilience in the future. In assessing the cost benefit of the option available in the zones, the WRMP takes into account the efficiencies achieved by addressing long-term projected deficits at the same time as addressing the forecast deficit in the 2020-2025 period.

Our resubmitted business plan sets out the short term and long term split as follows:

Scheme	Total value of scheme	Value of managing Supply Demand deficit	Value of managing long term enhancement	Basis of split
Tywyn / Aberdyfi	£6.4m	£4.4m	£2m	Proportional to the WAFU benefit
Pembrokeshire	£11.5m	£5.0m	£6.5m	
Total	£17.9m	£9.4m	£8.5m	
Unit cost per Ml/d benefit		£1.8m		

In sections 5 and 6 we consider the investment needed in the Tywyn Aberdyfi and Pembrokeshire zones respectively and provide an analysis of the enhancement expenditure consistent with the definitions above.

5. Tywyn Aberdyfi WRZ

The alternative options considered to resolve the deficits in AMP7 and in the longer term are:

Scheme	Yield	Cost	Unit cost £m/MI/d
1. Afon Dysynni new abstraction	1.45 MI/d	£6.4m	4.4
2. Water efficiency	0.009 MI/d	c£44.3k	4.9
3. Leakage Trunk mains repairs	0.025 MI/d	c£442k	17.7
4. Leakage Trunk mains renewal	0.035 MI/d	c£1.8m	51.4
5. Leakage Distribution mains	0.017 MI/d	c£8.7m	511.8
6. Leakage Enhanced Active leakage	0.005 MI/d	c£60k	12

None of these schemes 2-6, either individually or combined, provide enough water to resolve both the short and long term deficits. Our preferred solution is to construct a new abstraction point on the Afon Dysynni. The WAFU benefit from this scheme by 2024/25 is 1MI/d and in the longer term by 2049/50 is 1.45 MI/d. The scheme cost is c£6.4m giving an AMP7 unit cost of £6.4m/MI/d and a long term unit cost of £4.4m/MI/d. This is the only option capable of providing the volumes of water required (Yield of up to 3.2MI/d to allow future inter-zonal transfer) and also has the lowest relative cost, with the least environmental impact. The Afon Dysynni abstraction will provide significantly greater resilience to severe droughts and the effects of climate change. This solution includes the provision of bankside storage to provide resilience against short-term shut down of the stream source during pollution events, especially during wet weather.

We consider that this scheme should be treated as follows

	Cost	MI/d benefit
2020-25 enhancement	£4.4m	1 MI/d
Long-term enhancement	£2.0m	0.45 MI/d

6. Pembrokeshire WRZ

The alternative options available in Pembrokeshire are:

Scheme	Yield(MI/d)	Cost(£m)	Unit cost £m/MI/d
1. Adaptation of Canaston pumping station	9.55	11.5	1.2
2. Water efficiency	0.67	5.4	8.1
3. Leakage Trunk mains repairs	0.1	1.53	15.3
4. Leakage Trunk mains renewal	0.14	48	342.9
5. Leakage Distribution mains renewal	5.26	96.1	18.3
6. Leakage Enhanced Active leakage Control	0.06	3.4	56.7
7. 'Smart' metering	2.86	45.8	16.0
8. Dam raising Llysyfran	14	16.3	1.2
9. Re-instate Milton boreholes	2	1.25	0.6
10. Zonal transfer from Tywi WRZ	4.5	24	5.3
11. Desalination	15	23.6	1.6
12. New source Afon Taf	5	6.3	1.3

Our existing Canaston pumping station has fixed speed pumps and operation within the abstraction licence means that we currently have to over-regulate the Eastern-Cleddau River, with more water released from our Llysyfran reservoir than can be abstracted at Canaston. The installation of variable speed pumps will enable more efficient river regulation to preserve Llysyfran reservoir storage during critical drought years. We have also included for additional bankside storage to support river regulation in times of drought. The gain in WAFU at 2024/25 is 4.13MI/d with a long term benefit of 9.55MI/d. This gives a long term unit cost of £1.2m/MI/d. This scheme was identified as the best value solution as it can be delivered within the AMP7 period and is the lowest cost option of those available that resolved the forecast deficit and provided additional resilience against climate change and severe drought.

We consider that this scheme should be treated as follows

	Cost (£m)	MI/d benefit
2020-25 enhancement	5.0	4.13
Long-term enhancement	6.5	5.42