

Gate one query process

Strategic solution(s)	LTWLR
Query number	LTW008
Date sent to company	20/04/2026
Response due by	22/04/2026

Query

This query is a follow up to LTW004.

- Within Q1 you have provided capex inclusive of optimism bias. Please provide us with the breakdown of base capex per option and the methodology of how you have applied optimism bias to this.
- We could not accurately reconcile how you have come to your annual OpEx figures for each solution. Please break this down for us step by step.

Solution owner response

Part 1: Within Q1 you have provided capex inclusive of optimism bias. Please provide us with the breakdown of base capex per option and the methodology of how you have applied optimism bias to this.

TW response

The response below builds on the information provided in query responses LTW001 (capital estimates) and LTW004 (optimism bias ranges for each solution).

Optimism Bias was calculated in accordance with ACWG Cost Consistency Methodology, Section 3, Approach to Risk and Optimism Bias. The project is considered Non-Standard Civil Engineering (Section 3.8, bullet 1) therefore the

OB Upper Bound of 66% was used. The level of option development for LTWLR is considered very low therefore no scale back was applied based on maturity (Section 3.8, bullet 2). As no QCRA has been developed, further scale back is not appropriate (Section 3.8, bullet 5).

The following table presents the base capex for each option and the application of Optimism Bias. These values are for the central estimate for each option as presented in Query 1, rather than the upper and lower ranges presented in the Gate 1 report and Query 4.

Option	Indicative preferred	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Total (Central Estimate)	740	1,200	1,390	860	1,050
Base Capex	446	723	837	518	633
OB £	294	477	553	342	417
OB %	66%	66%	66%	66%	66%

All values in £millions, in 22/23 prices with Total rounded to nearest £10million.

Part 2: We could not accurately reconcile how you have come to your annual OpEx figures for each solution. Please break this down for us step by step.

TW response

The response below builds on the information provided in query responses LTW001 (fixed and variable OpEx for each solution) and LTW004 (summary of variable OpEx drivers).

The annual OpEx figures included in table 4.2 of the Gate 1 report are derived using the following formula:

$$\text{Annual OpEx (£m/yr)} = \text{fixed OpEx} + (\text{variable OpEx} * 90 \text{ days} * 300 \text{ MI/d} / 10^6)$$

Where:

- Fixed OpEx is measured in £M/year
- Variable OpEx is measured in £/MI

- Variable OpEx it is multiplied by the assumed duration of operation (90 days¹) and by the flow volume (300 MI/d), to get £/year. This is then adjusted to get £M/year.

Using the fixed and variable OpEx figures provided in query response LTW001, we present below a worked example for calculating the annual OpEx for the indicative preferred solution at Gate 1.

- Fixed OpEx = £0.8m
- Variable OpEx = £19.9/MI

$$\text{Annual OpEx} = 0.8 + (19.9 * 90 * 300 \text{ MI/d} / 10^6)$$

Therefore, annual OpEx equals £1.3m/yr (as reporting in the Gate 1 report).

Date of response to RAPID	[REDACTED]
Strategic solution contact / responsible person	[REDACTED] [REDACTED]

¹ OpEx estimates at Gate 1 were based upon an indicative assumption of 90 days of operation per annum, to cover use during peak periods rather than a specific year. This enables comparison between options on a like-for-like basis.