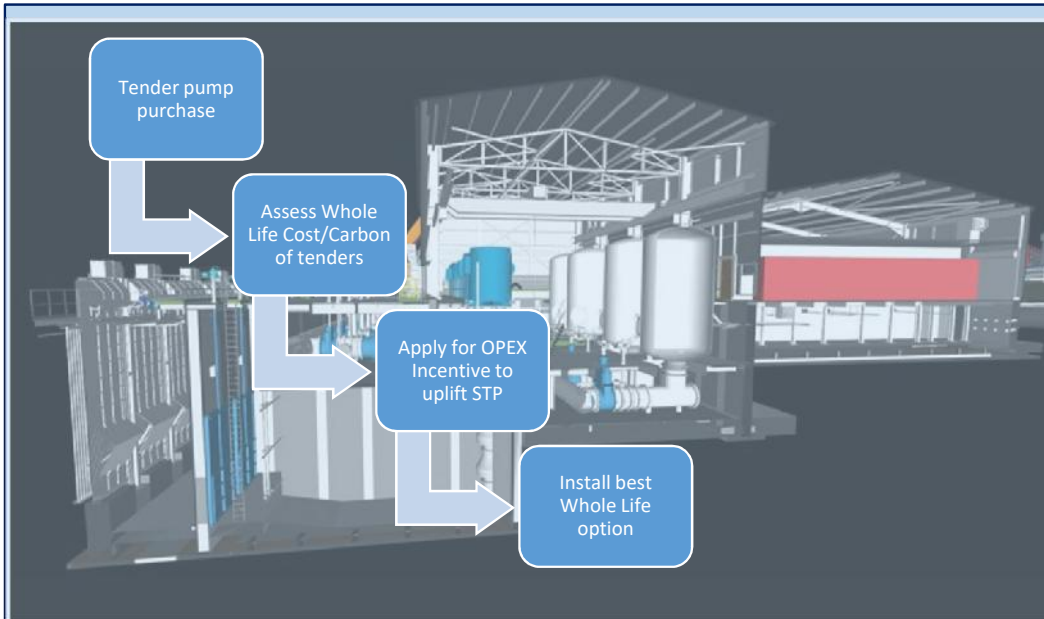


Prioress Mill RWPS - Reducing whole life carbon through rigorous equipment selection

Prioress Mill RWPS fills Llandegfedd Reservoir at a rate of up to 318 ML/D. A change in abstraction licence to help protect the ecology of the River Usk was required. The existing 60 year old station could not meet these new requirements. It was determined that refurbishment was not the preferred option and a new WPS would be built. Although this solution misses the first two elements of the carbon hierarchy (build nothing and build less), there was still opportunity to add value by building clever for efficient operation.



	CAPEX	Annual OPEX	Annual OpCarb (t CO2e)	20 year cost saving (£)	20 year carbon saving (t Co2e)
Pump 1	£1,369,000	£1,272,000	4,347	-	-
Pump 2	£1,723,000	£1,216,000	4,155	£1,086,000	3,827

Pump Selection:

- The procurement of the new pumps highlighted several options with a variety of CAPEX and OPEX costs. A lifecycle analysis was done, finding a 6.5 year payback on the enhanced CAPEX.
- By procuring the best efficiency pump and motor combination, **annual OPEX savings of £54k and reduction of 184t CO2e were achieved.**
- The Alliance benefited from increased gain share by using the OPEX Incentive.

VSD Selection:

- More efficient, higher CAPEX VSDs were also selected, **saving £11k and 37t CO2e annually.**
- The higher efficiency VSDs also produced less heat. This reduced ventilation needs (further reducing OPEX) and reducing CAPEX/CapCarb in structural steelwork.

- Equipment selection based on whole life cost and carbon should deliver long-term value to Welsh Water's customers.
- When specifying M&E plant it is highly likely that operational cost and carbon will form 90%+ of the whole life totals.
- The Alliance benefited though the use of OPEX incentive, with money allocated directly to the Gainshare pot.