

Smart Design for the 50 Migd Changi NEWater Plant – a 25 Year DBOO Concession.

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Summary

In February 2007, after a 3 month competitive tendering process, the Public Utilities Board (PUB) of Singapore selected SembCorp Utilities (SCU) to develop a 25-year NEWater supply project, through a design-build-own-operate (DBOO) contractual structure. Before tender SCU joined forces with Black & Veatch to win the project. Black & Veatch worked closely with SCU to understand their drivers and as a result successfully played a significant role in securing the project through smart conceptual design of the 228,000 m³/day (50migd) Changi NEWater Plant (CNWP). Black & Veatch were subsequently appointed by SCU to detail design the facility, which is by far the largest NEWater Plant in Singapore and one of the largest membrane based water reclamation plants in the world. A key element was the project team's focus on minimizing whole of life cost, thus enabling SCU to submit the lowest NEWater tariff. This paper discusses the effect of CAPEX and OPEX on the NEWater tariff and addresses the main design aspects of the facility to show how concessionaires and designers need to work together and understand each other's drivers in order to be successful in such development projects.

Keywords

NEWater, purified, recycled, reverse osmosis, whole-of-life cost.