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Australia – Considering Future Technology Improvements to Victoria Water Desalination Plant

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On this page: *Case Study 2: Australia – The PPP contract considers future technology improvement and provides an interesting incentive for the private partner to identify and propose technical innovations which reduce the overall costs of the project.*

Background

After a decade that saw major droughts in the Australian state of Victoria's central and eastern regions, including Melbourne and Geelong, desalination had become crucial for the water supply in the area. Melbourne's freshwater storage reserves dropped from nearly full capacity in 1996 to less than 30 percent in 2007. Against this background, the Victoria State Government announced the procurement of the Victoria Desalination Plant to ensure Melbourne's and regional Victoria's urban water supply was not rainfall dependent and could better withstand the effects of climate change.

The Victorian Desalination Project is located in the Wonthaggi region. The plant is one of the world's largest and most energy-efficient reverse osmosis desalination plants. It is capable of supplying up to 150 billion gigaliters of water a year to Melbourne, Geelong and, via other connections, South Gippsland and Western Port towns. The project design also allows for a possible capacity expansion to up to 200 billion gigaliters. The project is being delivered as a PPP project by the AquaSure consortium. It reached financial close on September 2, 2009, and achieved final commissioning completion on December 17, 2012.

PPP Projects

AquaSure entered into a 30-year PPP contract with the Victoria State Government in 2009 to design, construct, operate and maintain the desalination plant and the associated infrastructure. The private partner delivers desalinated water to state-owned water authorities, which in turn deliver this water to households. The scope of the project includes: the construction and operation of the desalination plant, the 84 kilometer (km) transfer pipeline to connect to Melbourne's existing water supplies, delivery of power supply for the project, operations and maintenance, and the purchase of renewable energy credits.

The project considers the latest technology, such as leading-edge technology and practices for membrane efficiency and energy efficiency. The PPP contract also takes future technology improvement into account, and acknowledges that there will be advances in the technology used in desalination plants (for example, new, more efficient membrane models). It is also anticipated that significant benefits may be achieved by upgrading the desalination plant and associated infrastructure to utilize new technology (both in terms of cost savings and efficiency or environmental benefits) and that there will also be costs associated with implementing the new technology.

The PPP contract balances these considerations to achieve the best value for money outcome, while retaining flexibility for the private partner and the contracting authority to weigh the costs and benefits of new technology on a case-by case basis: The private partner must maintain a level of technology in the desalination plant and associated infrastructure that is consistent with best industry practice and ensure that the system is able to operate effectively and efficiently with the Victorian water and electricity networks. Technology upgrades beyond this standard can be initiated by either party. If the contracting authority proposes a technological upgrade, it will pay for the modification (unless otherwise agreed with the private partner). The contracting authority will retain the whole benefit of any cost savings resulting from the modification. Alternatively, if the private partner proposes and implements new technology, this can only be done with the contracting authority's approval. Any cost savings resulting from the new technology will be shared by the private partner and the contracting authority.

Lessons Learned

The PPP contract considers future technology improvement. As is common for projects that depend on the latest technology, the PPP contract obliges the private party to ensure that the level of technology is consistent with best industry practice. It allows both parties to initiate variations related to new technology. The PPP contract provides an interesting incentive for the private partner to identify and propose technical innovations which reduce the overall costs of the project and enhance efficiency by ensuring that the parties benefit equally from cost savings achieved as a result of the implementation of new technology initiated by the private partner. If the contracting authority proposes new technology, it pays for the upgrade but also receives the whole benefit of any cost savings.

Source: Victoria State Government. Victorian Desalination Plant. Porter, Kiel. 2010. "Victorian Desalination PPP." Project Finance & Infrastructure Journal.

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