

OptiFacts



Optimatics

Water Systems Optimization

Australia
New Zealand
United Kingdom
United States

www.optimatics.com

“At Gold Coast Water, we provide exceptional customer service and a team approach that engenders youthful enthusiasm, along with internationally recognised academic credentials to produce truly innovative solutions that work; we expect our partners to provide the same. With the power of the genetic algorithm behind them, the only answer was Optimatics.”

Client Reference:

Scott Sherriff
Network Analysis Manager
Gold Coast Water
Nerang Administration Centre
Nerang, Queensland
Telephone: +61 7 5582 8929

Gold Coast Desalination Plant Options Study

Configuring a network associated with the Tugun Desalination Plant

OPTIMATICS carried out an options analysis of eleven different scenarios on the Tugun Desalination Plant and associated network for Gold Coast Water, assuring them that the best decisions were being made.

KEY POINTS

- Eleven different options analysed
- Restricted timeframe
- Critical new water source for South East Queensland

Background

With an expanding population and forecasts of a reduced water supply, South East Queensland is currently building a new desalination plant at Tugun on the Gold Coast.

Following the successful bulk mains optimization in which Optimatics were able to save over 19% of the cost of the capital works for the trunk main system, Gold Coast Water engaged Optimatics to explore the impact of the desalination plant on the bulk water supply system.

The Project

A total of eleven options were analysed and included changes in constraints such as:

- Different system demand projections;
- Different production rates at Tugun Desalination Plant;
- Different production rates from the Mudgeeraba WPP;
- Different levels of production from the Molendinar WPP; and
- Staging options for the Tugun Desalination plant and bulk water system.



Tugun - Planned site for desalination plant

Key Outcomes

With the desalination plant on a tight timeline for design, the Optimatics study was able to run scenarios which quickly and efficiently provided the following information:

- An optimized cost of assets that would be needed for transport of water from the new Tugun plant;

- Impact of the cost of transport relating to the size of the desalination plant;
- The percentage volume of each storage that would be desalinated water; and
- Scenarios to consider down time in the desalination plant for operational reasons.

Benefits

Planning of new water sources for a city can involve a significant change in the flow paths of the bulk water. This can involve large capital works and the need for optimal scenario modelling. This optimization study resulted in a robust master plan, and helped Gold Coast Water make timely and optimal decisions.

