

# Case note

## Changi Water Reclamation Plant, Singapore



The Deep Tunnel Sewerage System (DTSS) is a visionary project by PUB, Singapore's national water agency. Designed to be cost-effective and efficient, DTSS can meet the city-state's long-term needs in used water collection, treatment, reclamation and disposal for the next 100 years. At the heart of this mammoth system is the Changi Water Reclamation Plant, a state-of-the-art compact and covered used water facility.

### Deep Tunnel Sewerage System (DTSS)

Completed in 2008, the Phase One of the DTSS comprises a 48km deep sewer tunnel which runs from Kranji to Changi, over 60 km of link sewers, two 5 km deep sea outfall pipes and the centralized Changi Water Reclamation Plant (CWRP).

Phase Two of the DTSS is envisaged to be developed before 2030.

### Changi Water Reclamation Plant

At the heart of the DTSS is the CWRP, a state-of-the-art plant capable of treating 800,000 m<sup>3</sup> (176 million gallons or 320 Olympic size pools) of used water a day.

The plant was officially opened by Singapore's Prime Minister Lee Hsien Loong as one of the highlights of Singapore International Water Week in 2009.

CWRP sits on a site area of only 32 hectares, one-third the size of a conventional plant. Together with the deep tunnel, Phase One of DTSS replaces three of the six reclamation plants and accompanying pumping stations, freeing up to 135 ha land for other developments.

Some key features of the CWRP include a deep pumping station, a sludge dryer and a covered plant with odor control. With cutting-edge technologies, the plant can re-use by-products like bio-gas to fuel its sludge dryers.

### ABB – a reliable partner

ABB supplied a wide range of automation and power products and systems which ensure that the Changi Water Reclamation Plant is operated at the highest levels of efficiency and reliability.



1 Vertical high voltage induction motor rated at 3.5 MW | 2 ACS 1000 variable speed drives rated at 3.5 MW | 3 Variable speed drive supply transformers | 4 Low voltage switchgear | 5 Electromagnetic flowmeter | 6 AMB vertical high voltage induction motor rated at 1.8 MW

### ABB scope of supply

ABB supplied the following products and systems for the Changi Water Reclamation Plant in Singapore.

#### Variable speed drives

- ACS 1000 medium voltage drives, rated at 1.8 MW and 3.5 MW, for Changi's influent and effluent pumping stations
- ACS550 and ACS800 low voltage drives, rated from 1.5 kW to 500 kW, for various pumps in the water reclamation plant

#### Motors

ABB supplied vertical high voltage induction motors rated at 1.8 MW and 3.5 MW.

#### Transformers

- 22 kV / 415 V dry-type transformers
- 22 kV / 3.3 kV variable speed drive supply transformers
- 22 kV / 6.6 kV transformers
- 66 kV / 22 kV distribution transformers

#### Switchgear

ABB supplied low voltage and medium voltage switchgear including

- MNS 3.0 Motor Control Centers (MCCs)
- Automatic transfer switches
- Distribution boards and consumer units
- Genset control panels
- Local control stations
- Disconnect switch boxes

#### Instrumentation

- Sensyflow thermal mass meters
- Pressure transmitters
- Electromagnetic flowmeters in various sizes

For more information please contact:

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