

# Excellence in Energy Management



**Keppel DHCS Pte Ltd**



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## Background

As the first and largest district cooling systems developer and service provider in Singapore, Keppel DHCS aims to create lasting benefits for its stakeholders by delivering district cooling and heating solutions that conserve energy and protect the environment. Incorporated in 1998, the company is a wholly-owned subsidiary of Keppel Infrastructure, a division of Keppel Corporation focused on power, gas and environmental engineering.

## Energy Management in the Company

Since 2010, Keppel DHCS has pledged to improve its energy efficiency and reduce its carbon intensity emissions by 16% below 2020 business-as-usual levels, in line with the Keppel Group's targets and Singapore's sustainable blueprint. To achieve this, the company outlined a 10-year road map to enhance energy efficiency, focusing on three main areas - process optimisation, management of energy use and asset optimisation.

Key highlights of the company's initiatives include:

- Setting up a new research and development division to test and evaluate energy-efficient technology;
- Implementing smart controls such as real-time forecasting, as well as process simulation and optimisation;
- Adopting greener technologies; and
- Using renewable energy and technology such as building-integrated photovoltaics (BIPV) and geothermal systems in district cooling and heating systems and developments.

The company's energy management and performance are monitored at multiple levels. These include:

- Monthly review of key energy performance indicators and strategies by the Keppel DHCS Energy Efficiency and Carbon Management Committee;
- Quarterly carbon footprint reporting and sharing of energy-saving initiatives during the Keppel Group Sustainability Committee meeting; and
- Yearly consolidation of carbon footprint to track performance in line with Keppel Group targets.

## Achievements

Keppel DHCS has implemented various energy efficiency initiatives to lower its carbon footprint. The following table details key initiatives and corresponding energy savings achieved over the past five years:

S/N	Key Project Highlights	Energy Savings (MWh)
1	Implementation of smart controls, such as real-time forecasting, as well as process simulation and optimisation	2,822
2	Solar energy generation from building-integrated photovoltaics (BIPV)	422
3	Energy-efficiency gain from the adoption of greener technologies	4,450
4	Process optimisation and demand side management	6,738

Through the implementation of various initiatives to enhance energy efficiency, Keppel DHCS achieved a 15% improvement in chiller system efficiency over the past two years.

Since 2010, Keppel DHCS has achieved a total energy savings of 14,283 MWh. This translates to a reduction of about 8,577 tonnes of carbon dioxide (t-CO<sub>2</sub>) emissions.

The following charts illustrate the company's cumulative energy savings and carbon emission reduction over the past five years.

