



Feb 14, 2024 17:00 +08

Work starts at Changi Airport on the largest single-site rooftop solar panel system in Singapore

Changi Airport Group (CAG) has appointed Keppel Ltd. (Keppel) to design, build, own and operate a large-scale solar photovoltaic (PV) system on the rooftop areas of Changi Airport's terminal buildings, terminal auxiliary structures, airfield and cargo buildings for a period of 25 years. When completed in early 2025, the solar PV system will have a combined generation capacity of 43 Mega-Watt peak (MWp), of which 38 MWp will be installed on rooftops, making this Singapore's largest single-site rooftop solar PV system.

The remaining 5 MWp of solar generation capacity will come from a solar PV system installed at a 40,000 m² turf area within Changi Airport's airfield outside of aircraft operational areas. This will be the first time a solar PV system is installed in Changi's airfield – marking the first step towards maximising solar potential at Changi Airport beyond conventional rooftop spaces.

Combined, the rooftop and airfield solar PV systems are expected to generate sufficient solar energy equal to what is needed to power more than 10,000 four-room HDB[1]flats yearly. With the system, CAG will reduce its carbon emissions by approximately 20,000 tonnes each year, or about 10% of its consumption in 2019.

Deploying solar PV systems in the airport involves a set of unique challenges as compared to conventional installation at commercial, industrial, or residential sites. For example, robust simulation had to be carried out to ensure that the solar panels do not pose glare and glint effects to air traffic controllers and pilots or interfere with communications, navigation & surveillance (CNS) and meteorological signals. The associated installation and maintenance processes will also need to comply with aviation safety and security requirements, including fire safety code requirements prescribed by the Singapore Civil Defence Force.

The completed PV system will be integrated with Keppel's state-of-the-art Operations Nerve Centre (ONC) sited within the *Keppel Infrastructure@Changi* building, which will offer remote monitoring and real-time reporting of solar generation metrics as well as advanced fault detection and diagnostics for predictive maintenance, all of which ensure high system up-time and optimal power generation. Keppel's ONC also deploys artificial intelligence and machine learning algorithms to form adaptable models for better forecasting and energy management to optimise asset performance and operational outcomes.

Mr Koh Ming Sue, CAG's Executive Vice President, Engineering & Development, said, "Notwithstanding Singapore's limitations with renewable energy sources, CAG strives to make Changi a more sustainable aviation hub through reducing carbon footprint from all practical fronts. We have been addressing the airport's energy demands at its core, which includes upgrading our frontline airport building and systems with best-in-class energy efficient models and expanding our support for the airport community to switch to

cleaner energy vehicles. Partnering Keppel in this project, which is Changi Airport's largest deployment of solar PV system to date and our first foray into solar PV systems in the airfield, we have taken a significant step forward in our decarbonisation journey.

“In parallel, at the back end, CAG has also appointed another partner, SolarGy Pte Ltd to transform our airport maintenance and storage centre into a greener facility by installing a 640kWp rooftop solar PV system which will cut the facility's emissions by around 50%. As technology continues to advance, we look forward to working with innovative partners to further unlock solar potential and other sustainable opportunities at Changi Airport.”

Mr Lim Yong Wei, General Manager, (Energy-as-a-Service) Infrastructure Division, Keppel said, “We are excited to be the solutions provider for Changi Airport Group's solarisation efforts. When completed, this 43MWp landmark solar project will contribute significantly to making the Changi air hub greener and testament to Keppel's capabilities and innovation. Going forward, we hope to continue working with CAG to explore more decarbonisation and sustainability solutions.”

[\[1\]](#) HDB: Housing Development Board, the Singapore government agency responsible for public housing.

About Changi Airport Group

Changi Airport Group (Singapore) Pte Ltd (CAG) (www.changiairportgroup.com) was formed on 16 June 2009 and the corporatisation of Singapore Changi Airport (IATA: SIN, ICAO: WSSS) followed on 1 July 2009. As the company managing Changi Airport, CAG undertakes key functions focusing on airport operations and management, air hub development, commercial activities and airport emergency services. It also manages the Changi East development project, which includes the building of a new Terminal 5 for Changi Airport. CAG also operates Seletar Airport (IATA: XSP, ICAO: WSSL) and through its subsidiary Changi Airports International, invests in and manages airports around the world.

As one of Asia's most connected international aviation hubs, Changi Airport links Singapore to some 150 cities globally, with close to 100 airlines operating more than 6,400 flights weekly. Jewel Changi Airport, a multi-dimensional lifestyle destination, opened in April 2019, bringing Changi Airport's shopping and dining offering to over 600 F&B and retail outlets. The world's most awarded airport, Changi has won over 670 accolades for its consistent and excellent airport staff service, passenger experience and safety standards.

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