

Sustainability as an essential part of travellers' journeys

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Infusing
environmental
sustainability into
building design
and operations



Sustainable Jewel

Integrated Cooling Strategy and Thermal Stratification

Excessive warm air exits the building through vents triggered automatically by higher temperatures.

Deployable solar shading under the event plaza glass facade and localised shading from trees

- Localised shading from trees
- Highly-efficient chiller plant and air distribution system reduces a significant amount of energy consumption
- Air-conditioning diffusers at occupied zones (up to 2 metres from the ground)



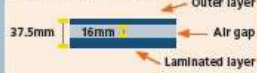
- Chilled water pipes embedded in the flooring to take away solar heat gain and radiate coolness to pedestrians



Multi-Layered Solar Control Strategy

Jewel's glass façade comprises over 9,000 unique glass panels.

Each panel comprises 3 layers.

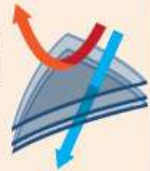


Solar selective coating was also applied to allow maximum daylight while keeping solar heat gain out.

Benefits

Reduces building cooling load by minimising solar heat penetration

Allows natural light into the building and ensures health of greenery



Sustainable Construction Materials

Jewel's construction extensively involved sustainable products certified under the Singapore Green Labelling Scheme.

- Steel was used in the façade (which is more sustainable than concrete)
- Recycled concrete aggregates and green cement form part of the floors and beams

Recycled materials were used for the interior construction and fit-out such as ceiling boards, drywall partitions, toilet partitions, plastering coating, waterproof membranes, plaster, rockwool for the façade, adhesive for the floor tiles, landscape drain cells and more.



- Low volatile organic compound (VOC) paints

Gardens with Efficient Irrigation

- Special foliage of more than 2,000 trees and over 100,000 shrubs form the entire landscaping in Jewel



Some of the benches in Jewel are made from the trunks of trees that once grew in the carpark that Jewel was built on.

- Integrated Soil Moisture Management System auto-irrigates the landscape with recycled water
- Soil sensors maintain optimal moisture levels



Jewel's Iconic Rain Vortex

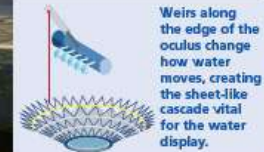
At Jewel's core is the world's tallest indoor waterfall at a height of 40 metres.



Rainwater is funnelled through the 11-metre-wide oculus and cascades over 7 storeys.



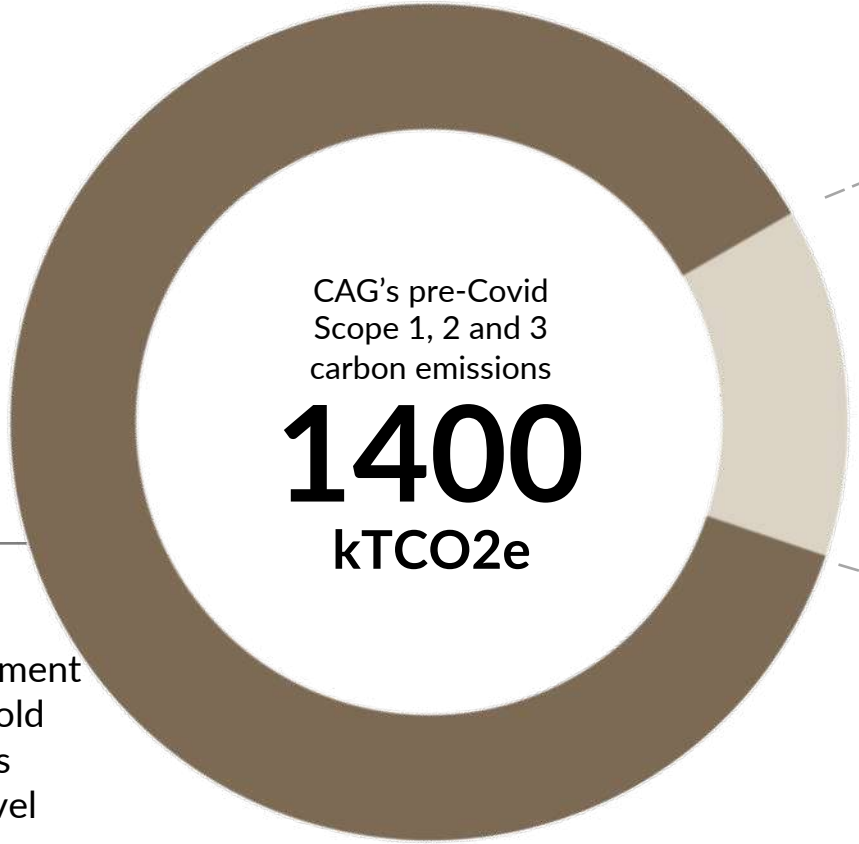
Purified water is cycled back to the oculus via pipes embedded in the façade.



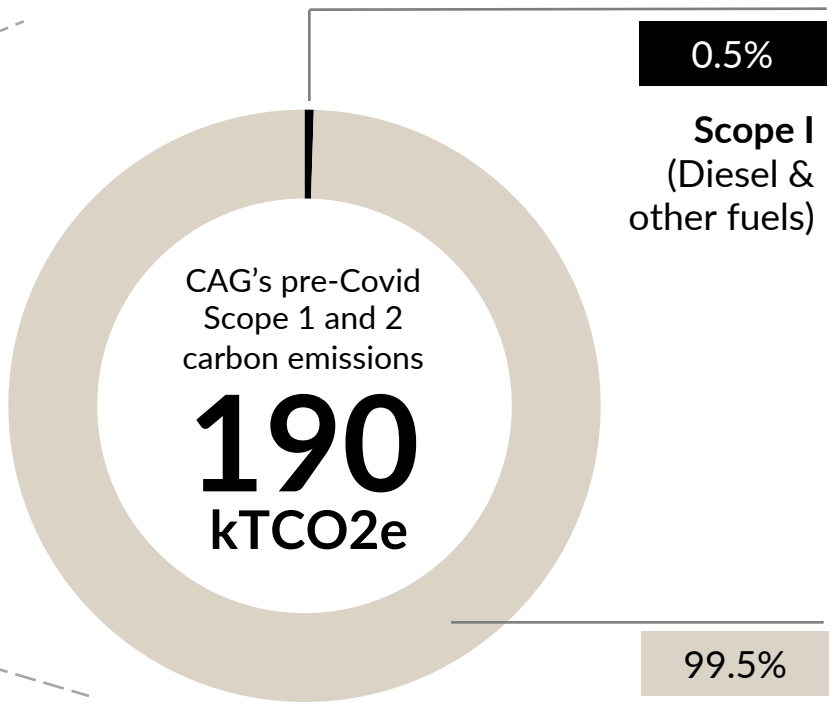
Our environmental sustainability efforts are underpinned by verified carbon footprints and measurements of key energy-consuming activities

Scope 1 and 2 emissions contribute ~15% of our carbon footprint; aircraft jet fuel account for majority of Scope 3 emissions

Electricity is CAG's predominant lever; accounts for >99% of Scope 1 and 2 emissions



- Scope III**
- Aircraft LTO
 - Ground equipment
 - Electricity resold
 - Surface access
 - Employee travel
 - Etc.



Scope I
(Diesel & other fuels)

Scope II
(Electricity)

Ground Handling

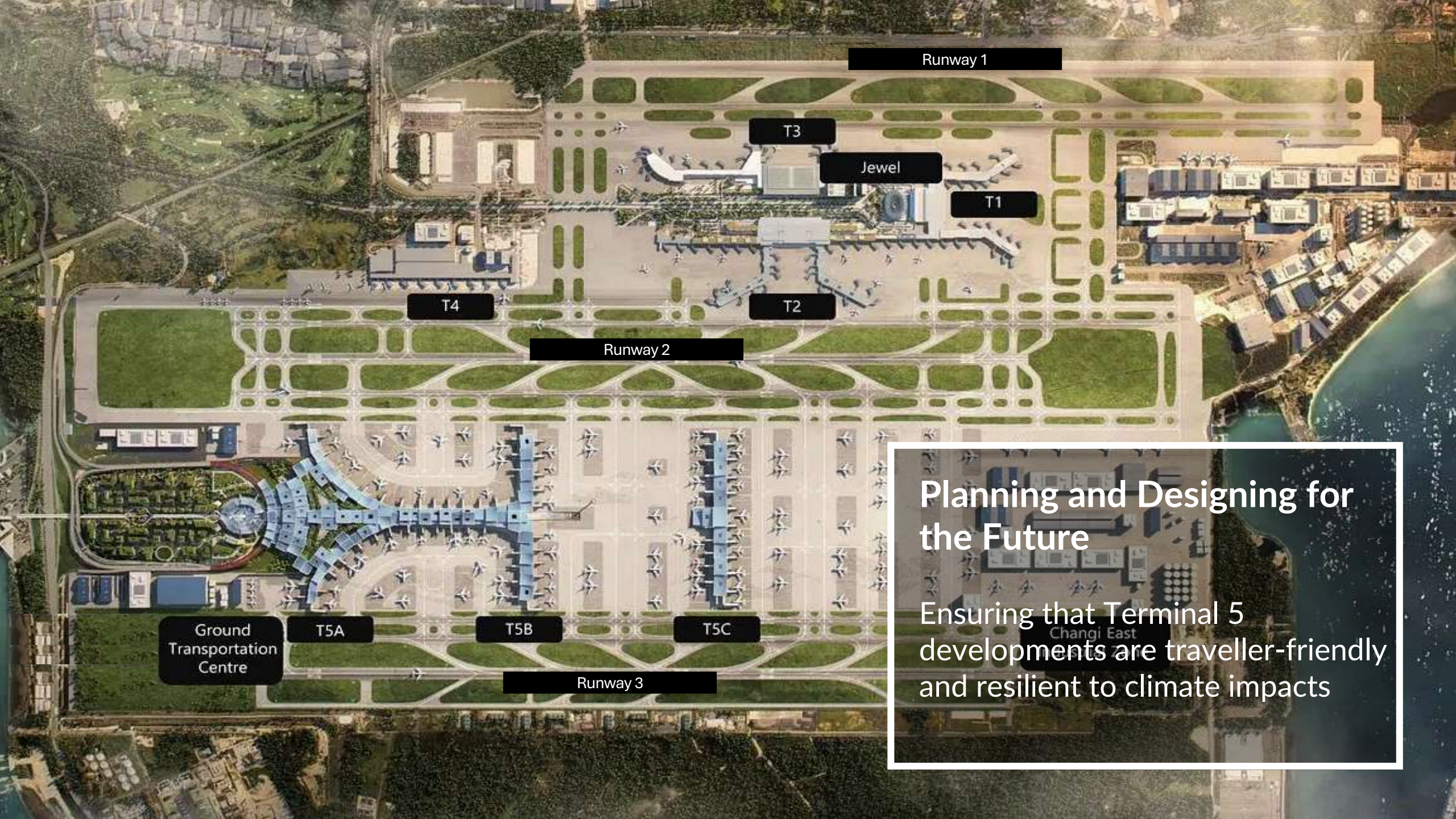
- 100% electric baggage tractor fleet today
- **From 2025, all new light vehicles, tractors and forklifts will have to be electric**
- **100% of airside vehicles to run on cleaner energy by 2040**
- We will triple our EV charging network to ~300 points to support this endeavour



Sustainable Aviation Fuel

- Neste's expanded refinery in Singapore: capacity of **up to 1 million tonnes of SAF** per annum
- **Seamless supply chain:** Neste is part of Changi Airport Fuel Hydrant Installation (CAFHI)
- **SAF Levy** to be introduced from 2026 to provide demand signal; starting from 1% of hub's uplift





Runway 1

T3

Jewel

T1

T4

T2

Runway 2

Ground
Transportation
Centre

T5A

T5B

T5C

Runway 3

Planning and Designing for the Future

Ensuring that Terminal 5 developments are traveller-friendly and resilient to climate impacts



Local elements weaved into design, for a distinctly Changi experience

Together, a Sustainable Changi.

