

SUSTAINABILITY PERFORMANCE REPORT FOR 2022

This report provides an update to our stakeholders (as at 31 December 2022) on the Key Performance Indicator under the Sustainability Linked Bond issued by NTU in October 2021 (the “Sustainability-Linked Bond KPI”).

SUSTAINABILITY

In October 2021, NTU issued the world’s first publicly offered sustainability-linked bond (SLB) by a university. NTU’s Sustainability Framework provides information on NTU’s sustainability commitments and goals. In addition, it sets out a time-bound Sustainability Performance Target that is aligned with NTU’s efforts to achieve carbon neutrality by 2035.

SUSTAINABILITY PERFORMANCE TARGET

Achieve carbon neutrality for the NTU Yunnan Campus¹ by 2035, while aiming to reduce gross carbon emissions intensity² by at least 50 per cent from the 2019 baseline.

2019 Baseline Scope 2 gross carbon emissions intensity: 56 kgCO₂e/m²

For calendar year 2022, NTU’s performance of the Sustainability-Linked Bond KPI is as follows:

ACTUAL PERFORMANCE

2022	Scope 2 gross carbon emissions intensity	54 kgCO ₂ e/m ²
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NTU continues to play a strong role in sustainable development and in March 2023, we won the “Whole Systems Approach Excellence Award” from the International Sustainable Campus Network (ISCN) for demonstrating our commitment to sustainability in the areas of research, education, community engagement and sustainable infrastructure developments.

¹ “NTU Yunnan Campus” means the campus of NTU located in the Western part of Singapore along Nanyang Avenue

² Carbon emissions intensity shall be calculated as kilogrammes of carbon dioxide equivalent emitted per square metre of gross floor

NTU was also lauded for the pioneering use of Mass Engineered Timber (MET) in the construction of two of Asia’s largest wooden buildings on campus, Gaia and The Wave. As a testament to our commitment to sustainability, NTU was the first university in Singapore to pledge its commitment as a Champion under the Green Nation Pledge. The pledge was taken during the launch of NTU Service Week, witnessed by Singapore’s Minister for Sustainability and the Environment, Ms Grace Fu, who was the guest-of-honour.

As we strive to fulfil the commitments outlined in our manifesto towards a climate-aligned future, NTU has undertaken various initiatives aimed at advancing the agenda set forth in our manifesto. Here are some of the key highlights of these efforts.

As part of our commitment to being a Smart and Sustainable Campus, NTU now has eight zero energy buildings. The most recent addition to this lineup is Gaia, unveiled in May 2023. Named after the Greek goddess of Earth, Gaia is a remarkable six-storey development constructed using MET. At the time of its launch, NTU accounted for half of the 16 zero energy-certified buildings in Singapore. By the end of 2022, NTU achieved the milestone of obtaining 100% Green Mark Platinum certification for all eligible buildings on the NTU Yunnan Campus.

Renewable energy generation at NTU will be boosted with the completion of the second phase installation of solar photovoltaic panels on campus by 2023, which will enable NTU to generate 11.8 million kilowatt-hour (kWh, 9.8MWp) of clean energy annually, sufficient to power over 5,300 two-room HDB flats for a year. Aligned with the Singapore Green Plan on accelerating nationwide deployment of electric vehicle (EV) charging points, NTU, together with ST Engineering, launched Singapore’s first integrated Smart Car Park and 13 EV charging systems on campus.

area of the NTU Yunnan Campus (and gross floor area is defined as the total area of the covered floor space measured between the centre line of party walls, including the thickness of external walls but excluding voids).

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In partnership with the United Nations Institute for Training and Research (UNITAR), a United Nations (UN) training arm, NTU was selected to host the International Training Centre for Authorities and Leaders (CIFAL) Singapore, the only such centre in the country. The centre aims to strengthen the ability of individuals, institutions, and societies in Asia-Pacific countries to perform functions, solve problems, and set and achieve objectives in a sustainable manner, thereby encouraging sustainable development in this region.

As a university, NTU strives to equip our students with the foundation and practical tools to understand the concepts of sustainability and prepare them for global sustainability challenges. Hence, all NTU undergraduates are required to complete the *Sustainability: Society, Economy and Environment* course offered under the Interdisciplinary Collaborative Core (ICC) Office. NTU also offers a Second Major in Sustainability with all single-major programmes across four colleges (College of Science, College of Engineering, Colleges of Humanities, Arts and Social Sciences, and Nanyang Business School).

Since buildings play a major role in climate change, NTU collaborated with the Singapore Sustainability Academy (SSA) and the Global Green Connect Academy to launch a training programme, *Driving Sustainability in Green Technology – Sustainability Leadership in Real Estate Sector*. This inaugural programme on sustainability in green technology will equip professionals with the right skills to take advantage of career opportunities in the green sector, particularly in real estate.

As a research-intensive university, NTU participates in a myriad of sustainability-related research activities. Reported in July 2023, a team of researchers from the Energy Research Institute @ NTU (ERI@N) and TUMCREATE, in collaboration with Surbana Jurong, found a significant geothermal resource in Singapore that could be a consistent source of clean energy in addition to solar power. This promising discovery could pave the way for a previously unimaginable renewable energy source in resource-limited Singapore. To also help

Singapore develop smarter, resilient energy grids, the Renewable Energy Integration Demonstrator-Singapore (REIDS) testbed spearheaded by ERI@N explores the compatibility of various renewable sources with energy storage systems such as batteries and hydrogen fuel cells. Data from the testbed will be used to advance the development of more intelligent and robust energy grids in Singapore.

Tackling climate change requires leveraging technology. In this regard, NTU launched the first of four new Global Navigation Satellite System (GNSS) reference stations at Lazarus Island to better monitor changes to Singapore's land height and sea levels. Led by NTU's Earth Observatory of Singapore (EOS), this initiative will produce data that can be analysed by EOS's researchers to more accurately track sea level rise in Singapore and aid in future national projections.

The campus community and university alumni also play a pivotal role in our sustainability journey in actively fostering a culture of sustainability. To cultivate stronger awareness of sustainability and inspire collective action within the OneNTU community, NTU organised its annual month-long Green for Good event featuring sustainable living workshops, nature walks and exhibitions. NTU also consistently hosts other sustainability initiatives, such as NTU Sustainability Month, which drew more than 15,000 participants and over 70 partners, and featured "NTreeU", a tree-planting initiative in support of the National Parks Board's OneMillionTrees movement.

Our community engagement initiatives have a global reach. For instance, scientists from the Nanyang Environment and Water Research Institute (NEWRI) went to Nepal to establish a clean water facility for the children of Shree Janta Secondary School and the surrounding communities. In addition to providing ongoing access to clean water, the NEWRI team conducted educational campaigns at the school to raise awareness of the health risks associated with arsenic contamination within the community. The goal is to empower students to promote safe

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drinking water practices within their own households.

To showcase NTU's sustainability efforts across all aspects – from education, research and innovation to community engagement – NTU collaborated with Mediacorp to release a three-part documentary series, "[Our World to Change](#)", on CNA.

To better understand our sustainability strategies, initiatives and performance, we encourage our stakeholders to refer to [NTU's sustainability and news website](#).

In connection with the disclosure of NTU's performance of the Sustainability-Linked Bond KPI for the calendar year ended 31 December 2022, PricewaterhouseCoopers LLP (PwC) has undertaken a limited assurance engagement and the report can be found on our [sustainability website](#).

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