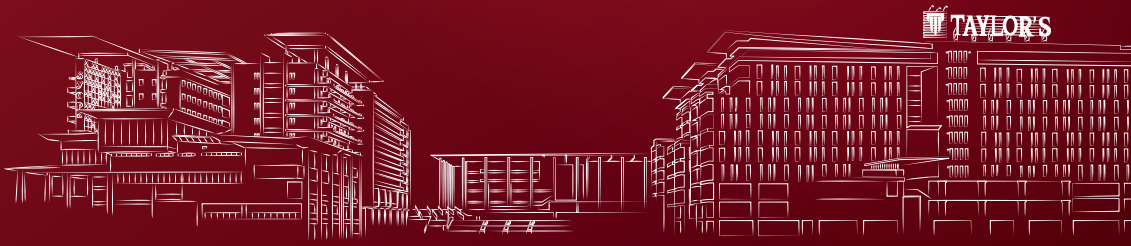




**TAYLOR'S
UNIVERSITY**
Wisdom · Integrity · Excellence

Net Zero Plan by 2050 & 2023 Carbon Emissions Report

Updated: February 2024



NET ZERO PLAN



Taylor's University is dedicated to reducing its carbon footprint on campus, with a Net Zero Plan aiming to achieve carbon neutrality by 2050. This plan involves gradually reducing greenhouse gas emissions linked to university operations, energy usage, and supply chain activities. To reach this goal, Taylor's University has implemented various initiatives and strategies as follows:

2019-2022: Completed

- Changed all conventional lighting to energy-efficient T5 & T8 fluorescent and LED fixtures throughout the university. Savings gained will contribute to approximately 5% of the total electricity usage.
- Installed solar panels at Blocks A-E to generate more renewable energy.
- Implemented solar-powered lamp posts around the campus.
- Installed sensor-controlled lighting in common areas such as toilets and car parks to reduce electricity usage.
- Set up hot-desking workplaces and allowed staff to work from home whenever possible.
- Allocated two car park spaces for electric vehicle charging stations at Block A.
- Introduced more vegetarian options on campus to promote a low-carbon diet.
- Established a fruit farm to increase biodiversity and raise awareness.
- Programmed elevators to stop at alternate floors to conserve energy.
- Implemented lake water treatment using a green wall system to reduce contaminants such as heavy metals, phosphorus, and nitrogen.
- Implemented a wastewater management system by trapping oil and grease from kitchen wastewater for water reuse.

2023-2026: Ongoing

- Establishment of an Urban Farm to serve as a green space and a living laboratory.
- Construction of green walkways from the campus to the residence and installation of more green walls around the campus.
- Installation of piezoelectric tiles at Block A staircase of the university to raise awareness and generate electricity for night lighting.
- Adoption of electric buggies for transporting students around campus.
- Phased refurbishment of toilets to improve the piping system and installation of sensor-operated water taps and mirrors with touch-panel lights on/off switches to conserve water and electricity. New flushing system incorporates double option of a light or heavy flush to further conserve water.
- Upgrading of thermal energy storage and chilled water systems to reduce emissions associated with peak demand.
- Placement of recycling bins around campus to encourage waste recycling and upcycling.
- Collaboration with Entomal to promote the use of insects as a sustainable protein source requiring fewer resources and producing fewer greenhouse gas emissions.
- Creation of more open learning spaces with natural lighting and fans to reduce the need for artificial lighting and air conditioning during the daytime.
- Increased implementation of hybrid learning to minimize the need for daily commuting to campus.
- Implementation of new and continually upgraded solar panels for higher efficiency.
- Use of microbial fuel cells to convert chemical energy to electrical energy through the action of microorganisms from Taylor's Lake.
- Utilization of Building Automation Systems (BAS) to ensure maximum operational efficiency of energy at the chiller plant room.

2027-2030

- Gradually reduce the number of vehicles on campus by encouraging students to utilize the shuttle bus service provided.
- Reduce energy usage through improved utilization of thermal energy storage over the years following installation.
- Implement the second phase of toilet refurbishments at the higher floors of the academic blocks to enhance the piping system and install sensor-operated water taps and mirrors with touch-panel lights on/off switches to conserve water and electricity.
- Integrate more sustainability-related courses into the curriculum to foster greater awareness among students and faculty.
- Organize additional sustainability-related events and campaigns on campus to enhance awareness among the campus community.
- Foster collaborations with more corporate companies to engage in various sustainability initiatives on campus.

2031-2040

- Increase the usage of electric vehicles while gradually reducing reliance on fuel-powered vehicles.
- Continuously review sustainability-related academic courses to ensure their relevance.
- Conduct ongoing research on the feasibility of integrating new and more efficient energy sources such as hydroelectric power and wind turbines.
- Monitor continuously and perform regular maintenance on the thermal energy storage system to enhance energy usage efficiency.
- Implement ongoing upgrades of facilities on campus to maintain efficient energy and water usage in daily operations.
- Introduce more alternative low-carbon protein options into the campus menu, reflecting the ongoing project involving the Black Soldier Fly.

2041-2050

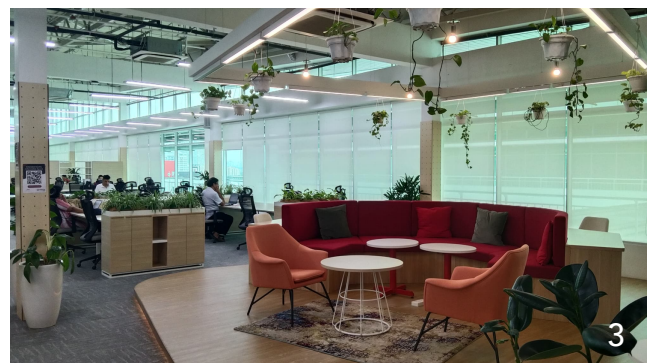
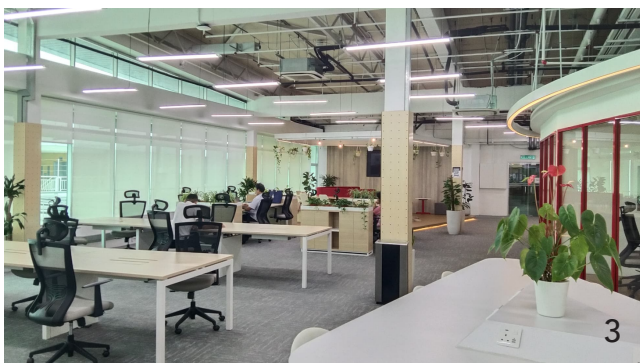
- Perform constant and frequent checks on methods to conserve energy and conduct preventive maintenance.
- Continuously explore new possibilities of adopting technologies that increase water usage, such as hydro cars.
- Embrace newly developed technologies, such as clean nuclear energy, for everyday use.

MEASURES OF SUCCESS

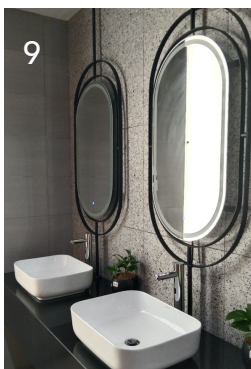
Visuals of the following initiatives are shown at page 3-5

1. Solar panels installed on the rooftops of Blocks A-E, as well as solar-powered lamp posts.
2. Electric charging facilities available on campus, along with the usage of electric buggies to transport students.
3. The Academic Suite at Blocks C & D has been transformed into a hot-desking style to optimize space utilization. Taylor's University also encourages staff to work from home where feasible.
4. Fruit farm planted with assorted tropical fruit trees such as banana, papaya, mango, guava, sugar apple, ciku (Sapodilla) trees, sugar cane, tapioca, yam, etc.
5. Elevators set to stop at alternate floors to conserve electricity; "Save energy" notices posted in most public areas to remind users to conserve electricity.
6. Taylor's Urban Farm serves as a 3,000 sq ft living laboratory and urban green space where students can actively engage in activities focused on food security, sustainability, and technology.
7. Installation of green walls around the campus to reduce surrounding temperatures.
8. Installation of piezoelectric tiles at the main staircase of the campus to convert footsteps into energy.
9. Refurbishment of toilets in phases to install sensor taps and lighting for water and energy conservation.
10. Collaboration with Entomal to promote the use of insects (Black Soldier Fly) as a sustainable source of protein.
11. Placement of recycling bins around campus to encourage waste recycling and upcycling.
12. Upgrading works on thermal energy storage and chilled water systems to reduce energy usage during peak times, estimated completion by end of 2026.
13. Creation of more open learning and hangout spaces that utilize natural lighting and fans.

SUPPORTING EVIDENCES



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2023 CARBON EMISSIONS REPORT

To achieve our goal of becoming a carbon-neutral campus by 2050, we annually monitor our performance in terms of carbon dioxide emissions, with 2023 serving as our baseline year.

In accordance with the GHG Protocol Standards, we have categorized our carbon emissions into Scope 1 and 2:

Scope 1: These emissions encompass the direct emissions generated by the university, including fuel consumption by owned vehicles and gases used in kitchen operations.

Scope 2: These emissions comprise the indirect emissions resulting from purchased electricity consumed by the university.

2023 Annual Carbon Emissions report for Taylor's University		
Reporting period:	January - December 2023	
Emissions scopes included in our report:	We have measured our Scope 1 and Scope 2 emissions. However, we currently do not possess robust data for our Scope 3 emission sources.	
Our carbon reduction target(s):	We commit to reduce our carbon emissions to zero by 2050. All figures are reported as tonnes carbon dioxide equivalent (tCO ₂ e)	
Baseline year for our target and reporting:	2023	
Emission source	Year 2023 in tCO ₂ e	Comments
Scope 1		
Fuel used in owned vehicle - Petrol	19.4	We utilized a total of 8265.38 liters of petrol. The approximate CO ₂ emission per liter of petrol fuel is 2.35 kg.
Fuel used in owned vehicle - Diesel	28.9	We utilized a total of 11,525.12 liters of diesel. The approximate CO ₂ emissions per liter of diesel fuel is 2.51 kg.
LPG used in kitchen operations	37.1	12,000 kg, using the density of LPG as 505 kg/m ³ , translates to 23,762.38 liters.
Scope 2		
Electricity	7757.7	We utilized a total of 10,234,369 kWh of electricity, with a conversion rate of 0.758 kgCO ₂ e per kWh.
Total Scope 1 and 2 emissions	7843.1	





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