Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

# Climate Action Roadmap 2025

# Table of Contents

# 1. Introduction

This is Trinity's fourth Climate Action Roadmap, which has been prepared in response to the requirements set out in the Public Sector Climate Action Mandate 2025, and according to the guidance provided by the SEAI. This report builds on and updates the Climate Action Roadmaps prepared in 2023 and 2024[1] , which outlined the work undertaken in Trinity with respect to monitoring and reporting of our greenhouse gas (GHG) emissions, governance structures, training obligations and sustainability initiatives across college.

Trinity's Sustainability Strategy sets three main interconnected targets related to climate, nature and health, and a comprehensive Sustainability Action Plan outlines >260 actions for a whole-of-university approach to meeting these targets. These targets correspond directly with four of the Sustainable Development Goals (goals 3, 13, 14 and 15), and link into many others, and affect everything we do, including teaching and learning (Education for Sustainable Development, ESD), research (knowledge generation and sharing for policy and practice), campus operations (for Nature Positive Campus, Climate Smart Campus, Active Campus, Circular Campus and Responsible Campus) and community (partnerships within and beyond the University).

Progress since the launch of the Trinity Sustainability Strategy has been substantial, laying the foundations for transformative changes needed to meet the Public Sector Climate Action Mandate targets. However, as Ireland's leading research-intensive university, which is continuing to grow both its student numbers and its research, and with its diverse built infrastructure, including culturally significant historic buildings in Dublin's city centre, the challenges associated with reducing emissions are complex and considerable. Trinity is responding to a range of external societal and policy-related pressures, including increased demand for student places as a result of the growing demographic in Ireland and financial pressure associated with sustainable funding of third level institutions. The IUA has recognised that Irish universities face shortfalls in covering operational costs from the core grant leading to shortfalls in many areas (including student services, digital infrastructure and outdated facilities). Increased student numbers mean more demands on space, as well as increased energy consumption and other issues that make emissions reduction difficult.

1 Climate Action Roadmaps

Thus, Trinity faces significant challenges in achieving a 51% reduction in greenhouse gas (GHG) emissions by 2030. Based on the current trajectory and activity, the university is not on track to meet this goal. However, significant monitoring and planning efforts are actively underway to close the gap, focussing on Scope 1 decarbonisation, whilst simultaneously reducing Scope 2 and 3 emissions.

Achieving scope 1 emissions targets will require a coherent whole-of-university approach. This includes transformative strategies in space utilisation optimisation, best practices in energy management, optimisation of building control systems, and extensive retrofitting of existing infrastructure. Equally important is the need to upskill both staff and students to support meaningful and lasting behavioural change. However, rapid acceleration of climate-focused investment is also critical to enable scalable and impactful action. Achieving scope 2 and 3 emissions targets also requires cultural and operational changes, and Trinity has invested in a team to manage these changes, including staff with expertise in sustainable travel, green research, education for sustainable development, nature-based solutions, communications and student engagement.

This report outlines how Trinity has progressed its climate action efforts since the 2024 Roadmap, focussing on our people, our way of working and on our buildings and vehicles, in line with the SEAI guidance.

# 2. Our People

Trinity College is committed to enhancing its governance structures to support climate and biodiversity action, and broader sustainability goals. In 2023, the Principal Committee of Board on Environment and Sustainability was established (Figure 1). This high-level committee holds oversight responsibility for the implementation of Trinity's Sustainability Strategy 2030 and its associated Action Plan, including alignment with the national Climate Action Plan, and meets at least five times per year.

To support the operational delivery of the Action Plan, a Sustainability Management Group (Figure 1) meets every month and monitors progress and ensures implementation across the institution. Members of this group are:

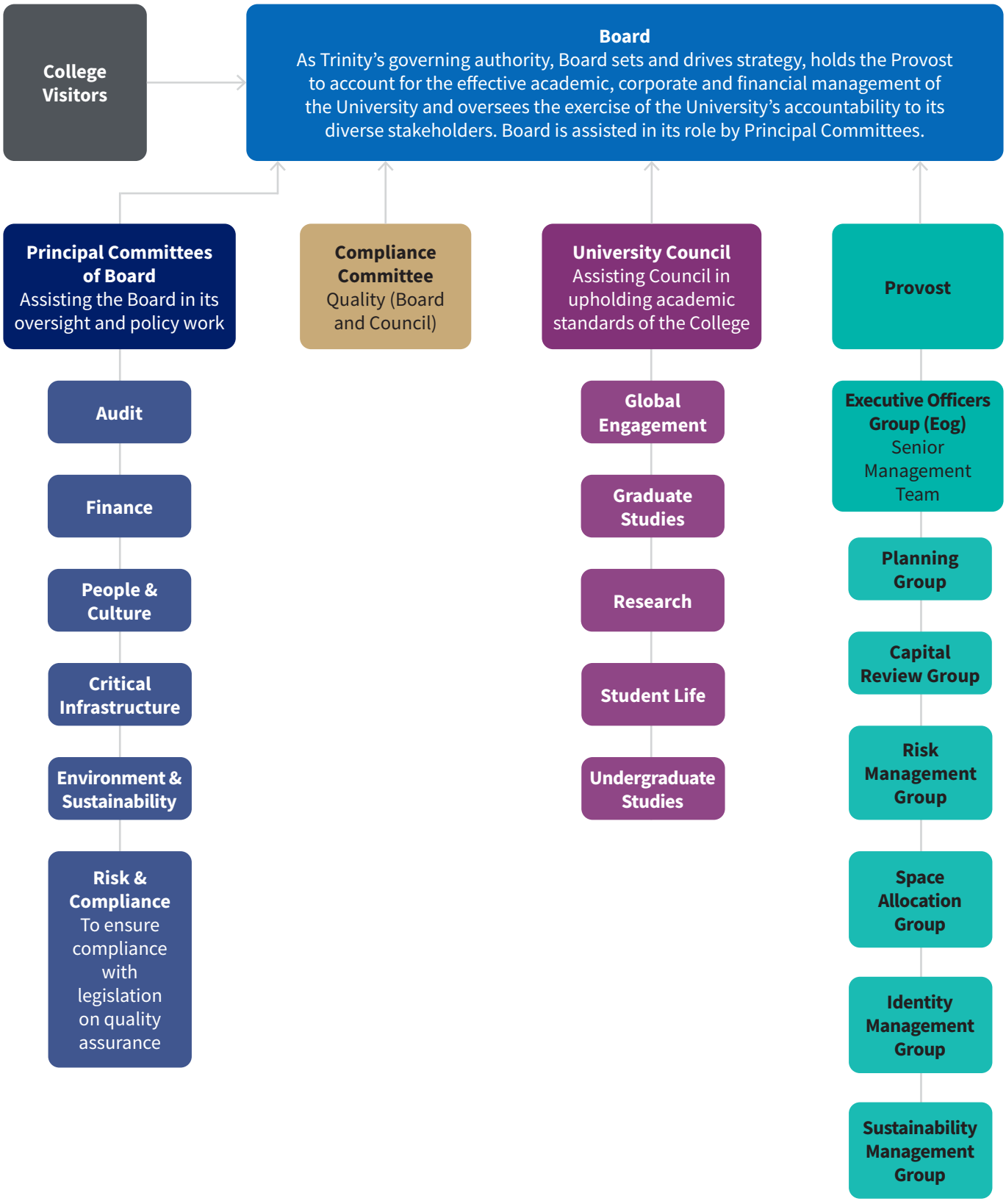
- Chair: Sustainability Manager (Provosts Directorate)
- Vice President for Biodiversity and Climate Action (Provosts Directorate)
- Dean of Undergraduate Studies (Academic Services Division)
- Director of Research (Academic Services Division)
- Head of Campus Infrastructure (Corporate Services Division)
- Director of Commercial Revenue Unit (Corporate Services Division)
- Head of Financial Planning & Analysis (Financial Services Division)

Trinity's governance framework is further strengthened by two voluntary committees that focus on community engagement and awareness:

- The Green Campus Committee, promoting sustainability awareness and behaviour change across the campus.
- The Green Labs Committee, which supports sustainable practices and resource efficiency in research and teaching laboratories.

These groups play a vital role in fostering a culture of sustainability throughout the College community.

Figure 1: Governance Structure in Trinity College Dublin, highlighting in green the Environment and Sustainability Committee that reports into Board, and the Sustainability Management Group that reports into the Executive Officers Group.



Trinity established a new unit in 2022, Trinity Sustainability, with a Vice President for Biodiversity and Climate Action leading the team and supported by a Sustainability Manager. The team expanded in 2024 and 2025 with the recruitment of the following positions:

- Green Labs Officer
- Sustainability Communications Officer
- Sustainability Assistant
- Healthy Campus Manager
- Healthy Campus Administrator
- Sustainable Travel Officer
- Biodiversity Officer
- Fellows for Education for Sustainable Development (two part-time academic secondments)

A Grounds and Gardens Advisory Expert Group considers, advises and provides strategic direction on the development and maintenance of the University's grounds and input into major plans, strategies and programmes involving outdoor spaces and landscapes, including carbon reduction and operations relating to sustainability. This Group reports into the Bursar & Chief Strategic Developments Officer, Chief Operating Officer and Vice-President for Biodiversity & Climate Action. Key personnel who are involved in progressing climate action targets across the college include the following roles:

- Carbon Reduction Manager
- Director of Campus Infrastructure
- Head of Engineering & Maintenance
- Sustainability Manager
- Procurement Manager
- Catering Manager
- ESG Monitoring & Reporting Manager (newly appointed)

## 2.1 GREEN TEAMS

The Sustainability Management Group is the de-facto high-level 'Green Team' in Trinity College, comprising a range of senior managers, who oversee core sustainability actions in relation to overall implementation, academic and operational areas, and are involved in delivery of the Climate Action Roadmap. These areas include education, research, energy, waste, food, procurement, capital projects, finance and communications.

The Vice President for Biodiversity and Climate Action (VPBCA) is the nominated Climate and Sustainability Champion for the university with responsibility for overseeing development and implementation of Trinity's Sustainability Strategy. The VPBCA is also responsible for implementing and reporting on the Climate Action Mandate across the entire University.

## 2.2 ENGAGING AND TRAINING STAFF

Climate Leadership Training has been delivered to 600+ staff members (including the senior leadership team) since December 2023. Training has been delivered primarily by external providers; however, a new Climate Leadership Development Micro-credential has been developed in the university and sponsorship has been provided from Trinity for 60+ Trinity staff to complete this course. Additional training covering other sustainability issues was also delivered to staff in 2024 (Table 1, Figure 2).

**Table 1:** Training delivered to Trinity Staff since 2023

| TYPE OF TRAINING | NUMBER OF STAFF TRAINED |
|---|---|
| Climate Leadership Training | 600+ |
| Circular Economy Training | 41 |
| Embodied Carbon training | 17 |
| Life Cycle Costs training | 13 |


**Figure 2:** Climate Leadership Training 2024

# 3. Our Way of Working

## 3.1 GHG AND ENERGY EFFICIENCY TARGETS

The Climate Action Mandate sets emission reduction and energy efficiency targets for public bodies as follows:

- 51% reduction in greenhouse gas emission by 2030;
- Net zero carbon emissions by 2050;
- 50% increase in Energy Efficiency by 2030;
- Update Climate Action roadmaps annually in line with updated Public Sector Action Mandate.

We have the ambition to reach net zero (across all categories of emissions, not just from our buildings) by 2040, due to the urgency of our climate emergency and the radical actions that are required from all of us. The strategic objectives for carbon reduction under the university's Sustainability Strategy and Action Plan are:

1. Decarbonise thermal/heating systems in Trinity's buildings and reduce emissions from Trinity-owned vehicles to reduce direct GHG emissions by 51% by 2030 (scope 1 emissions).
2. Improve energy efficiency by 50% and increase renewable energy use (scope 2 emissions).

Although Trinity has seen overall reductions in CO2 emissions since 2016 (Table 2), there has been a slight increase in emissions during 2024, compared with 2023. Details and explanations for this increase are outlined below.

Table 2: CO2 emissions from thermal energy, transport fuels and electricity use in Trinity 2016-2024.

| $CO_2$ emissions (kg $CO_2$) | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|
| Thermal energy | 8,334,424 | 7,942,368 | 9,185,216 | 9,140,098 | 8,929,588 | 8,873,295 | 8,532,030 | 8,416,199 | 8,916,554 |
| Transport fuels | 36,523 | 36,134 | 33,840 | 33,499 | 26,184 | 27,084 | 22,975 | 16,399 | 16,264 |
| Electricity | 18,160,646 | 16,160,713 | 14,231,703 | 12,080,564 | 9,300,401 | 11,533,753 | 11,517,287 | 9,628,224 | 9,174,636 |
| **Total** | **26,477,594** | **24,139,215** | **23,450,759** | **21,254,160** | **18,256,174** | **20,434,133** | **20,072,293** | **18,060,822** | **18,107,454** |

### 3.1.1 Scope 1 Emissions Generated by Natural Gas/Thermal heat

The CO2 emissions associated with natural gas/thermal heat rose by 6% to 8,917 tonnes in 2024.

Trinity saw an increase of 6% in the total thermal heat used (43.52 million kWh) in the calendar year 2024 compared to 2023.

The total thermal energy is made up of 42.6 million kWh in natural gas from our metered buildings, 910,000 kWh gas use in buildings where we occupy space, and small amounts of diesel and LPG fuel.

The increase in natural gas/thermal use and subsequent increase in GHG emissions can be attributed to the following:

- Building use:
  - The College Green campus used 20.2 million kWh of gas in 2024, an increase of 2.8% compared to 2023. The campus has five main gas connections, three of which use over 6 million kWh each. The gas meters which showed the largest increase was the East End gas stream, up 12%, which serves buildings that were built in the 1970's (Arts, Ussher, Boland library, Chemistry, East End buildings). Reasons for this increase are related to cooler weather in September 2024 which led to heating systems being turned on earlier than usual. This includes buildings with extended and weekend opening hours such as the Arts Building and Libraries.
  - One research institute, Trinity Biomedical Science Institute (TBSI), saw an increase in natural gas use of 11% in 2024. This was due to extended ventilation system running hours implemented in December 2023 and continued in 2024 as well as the cooler autumn temperatures, both of which contributed to the need for extra air heating for labs and offices.
  - Student accommodation in Dartry and Kavanagh Court saw an increase in natural gas use of 8% in 2024. However, in Autumn 2024 a new heating system control was put into Block 1 Dartry that will lead to better control of that block's heating system and a reduction in natural gas use. Kavanagh Court is not owned by Trinity but we are still responsible for its carbon emissions.

Although there has been an increase in natural gas use compared to 2023, this needs to be considered in the context of limitations in:

- Data capture: from June to December 2023 manual meter readings were only available and therefore analysis of the 2023 data is limited. However, in December 2023 the Energy Management System went live with 40 loggers on the electricity and gas meters installed in the largest buildings. This allows a more accurate and detailed comparison of use in each of the buildings.
- Limited human capacity: Trinity had reduced capacity prior to 2023 within its Estates & Facilities team to assess and manage use.

Since 2023, increased resourcing has allowed capture of more accurate data and increased human capacity to prioritise actions and implement thermal energy saving projects, targeting energy saving measures across more buildings.

There is a need to manage fluctuations in seasonal temperatures by ensuring the heating systems are under better control, as well as developing an approach to thermal comfort, aligned with the College's sustainability and carbon reduction objectives. This will involve assessment of requests for heating in offices, labs and lecture theatres during shoulder seasons.

Trinity recognises that there is an urgent need to radically reduce fossil fuel (natural gas) use to reach our 51% target as set by Government. The reduction in fossil fuel use can be managed if investment is made in key areas including shallow retrofit, technical improvements in key buildings, smarter processes and practices across all areas of work including timetabling, space utilisation, lab management and extensive organisation and behavioural change. While behaviour change is a key pillar of Trinity's sustainability efforts, the associated reduction in greenhouse gas (GHG) emissions will be challenging to quantify without the implementation and evaluation of targeted initiatives. To address this, the development and piloting of specific behaviour-focused projects, including the creation of unit-level Green Teams, will be essential. These teams can lead localised sustainability actions, encourage staff and student engagement, and provide valuable data on the measurable impacts of behaviour change interventions. However, the success of these initiatives will require the reallocation of staff time and so require buy in, support and leadership at all levels.

These changes will need to be outlined in a clear plan that has the support of the Board of Trinity as well as the workforce, student population and our visitors – communication of this plan will be critical if we are to implement changes across all areas of the university. Moreover, the plan must be economically viable and deliver measurable progress within a short implementation window of 4.5 years. This decarbonisation plan is currently under development as part of the Master Planning exercise for the University, and is expected to be completed in 2025.

### 3.1.2 Scope 2 Emissions Generated by Electricity

The CO2 emissions associated with electricity use reduced by 4% to 9,174 tonnes 2024.

Overall TCD electricity use in 2024 was 34.7 million kWh, a 0.5% reduction compared to 2023. This reduction in electricity use and subsequent reduction in GHG emissions can be attributed to the following;

- Energy Management – There was a 2% reduction in electricity use across the College Green campus due to improvements and investments in energy management systems.
- Reliance on the national grid - Due to an improved grid emission factor more electricity was produced by renewable sources, which had a knock-on effect reducing CO2 emissions.
- Building Use – Further reductions were not seen across the campus due to increases in electricity use in several buildings that focus on research. For example, the Trinity Biomedical Science Institute (TBSI) alone had a 3% increase in electricity use due to extended ventilation system running hours and some operational issues with chillers, which are large load items.

The challenge that the university faces relate to the fact that we have an overall emissions absolute ceiling but are also increasing student numbers, doing more research, and consequently developing new buildings on site such as the E3 Learning Foundry and Portal (at Trinity East, Grand Canal Dock). These buildings have been designed to consider their environmental impact and are all-electric, however electricity use will increase and there is no guarantee that the national grid will provide 100% renewable energy in the short to medium term. This will require us to find equivalent emission savings to offset the electrical emissions from the new buildings and realistically these savings must be found through organisational/behavioural and technical measures.

### 3.1.3 Decarbonisation Plan

There was a slight increase in overall CO2 emissions (scope 1 and 2) in 2024 compared with 2023, however this increase was less than previous years due to investments made to the energy management systems, which allowed for greater accuracy and efficiency with respect to data collection and subsequent management of electrical systems. This must be the last year that CO2 emissions increase across the college, the next 4.5 years must focus on reducing emissions by at least 10-15% per annum either through technical solutions or radical behaviour change, otherwise GHG targets will not be met. Achieving radical behaviour change across a university of Trinity's scale will require a significant cultural shift, which should extend beyond the 4.5-year implementation window. Behavioural transformation depends not only on awareness and engagement, but also on the structural and systemic changes needed to make sustainable choices the default and easy option for staff, students, and visitors.

To reduce fossil fuel use and CO2 emissions by 51% by 2030, the current Gap to Target for electrical, transport and thermal emissions is 10,466t (see Glidepath in Figure 2), with a gap of 4,757t from thermal and transport (Figure 3).

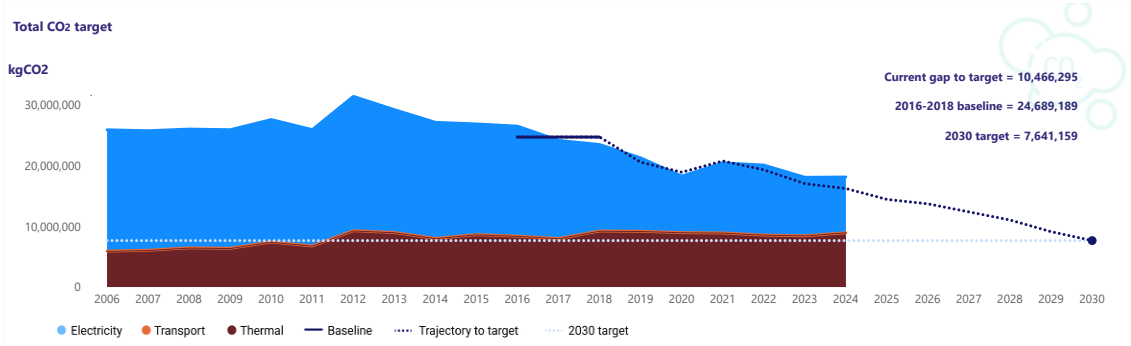



Figure 2: Glidepath of total CO2 emissions from 2006 to the 2030 target

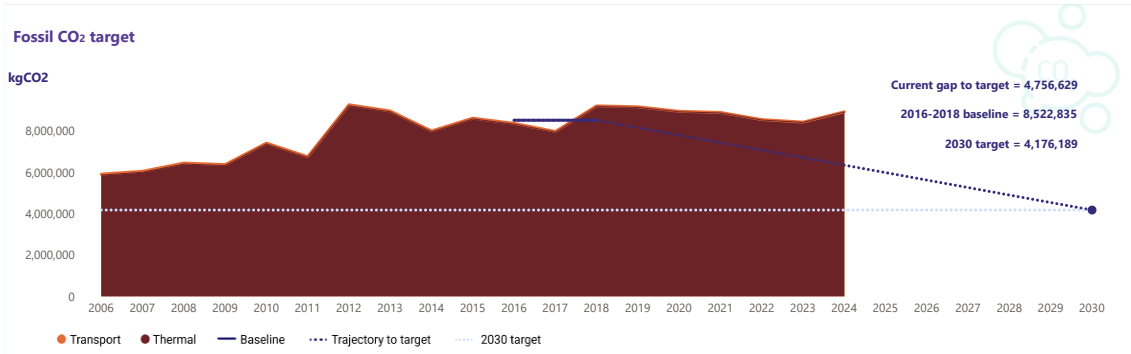



Figure 3: Glidepath of fossil CO2 emissions from transport and thermal heat from 2006 to the 2030 target

Trinity has started the process of monitoring usage across the college to inform the decarbonisation plan. Concept decarbonisation projects have been identified by the Estates & Facilities team that can close our “Gap To Target”, including Energy Centres and Heat Networks, with Air-Source Heat Pumps as the lead heat source. However, a comprehensive list of options for the entire Trinity Estate to meet climate action targets, associated costs, carbon savings and other considerations (including impact on the community and Trinity’s academic mission) is currently under development. This Decarbonisation Strategy & Implementation Plan is being developed in conjunction with Trinity’s Master Planning project.

Trinity’s Master Planning exercise commenced in early 2025 and will consider options for decarbonisation as part of the process. The project brief relating to decarbonisation is as follows:

**Priority 1:** Assess the suitability of small-scale district heating networks (energy centres) for the College Green campus.

**Priority 2:** Undertake a focused assessment of one cluster within the College Green campus to further analyse the technical and economic performance of an energy centre.

**Priority 3:** Develop a bespoke decarbonisation strategy & implementation plan for the whole campus.

The Decarbonisation Strategy & Implementation Plan will be developed by Q3 2025 and implementation will begin in 2026, when financial & strategic support is forthcoming.

## 3.2 SUSTAINABILITY ACTIVITIES

Trinity has been progressing sustainability initiatives over the last 12 months to increase awareness of our climate targets and biodiversity commitments as well as to empower students and staff to take climate action. Given the cultural, organisational and behavioural changes needed to reach our climate targets, informing, involving and catalysing staff and students is a critical part of Trinity's Climate Action. The main initiatives which have been undertaken during the past 12 months are summarised below.

### 3.2.1 Green Labs

Trinity has over 450 labs which range from wet, dry and digital labs undertaking world-class research, however these labs have a high impact in terms of energy, waste and water use. It is estimated that the GHG emissions from laboratories within Higher Education Institutions is 30-40% of the total GHG emissions (Scope 1,2 & 3) . In 2024, Trinity hired a Green Labs Officer in the Trinity Sustainability Team to address this issue. A key priority for 2025 is to reduce impact through a recognised Green Lab accreditation programme as well as offering professional training to lab users. To date, 133 labs in Trinity are working through the My Green Lab accreditation process, with 45 fully certified labs. Trinity is also an active member of the Irish Green Labs network and SEAI Public Sector Labs Working Group.


Figure 4: Left: from L-R Trinity's Green Labs Officer, Dumitru Anton, with My Green Labs Sustainability Programme Manager, Jack O'Grady, and Trinity's Sustainabilty Manager Jane Hackett; Right: My Green Labs Network Event in Trinity.

Progress in 2024 includes:

- Green Labs Committee – the committee was re-established in Autumn 2024 after a hiatus of two years.
- Green Lab Network Events – two network events were organised for staff and Jack O'Grady from My Green Labs delivered a presentation at one event (Figure 4).
- Green Lab website – a new Green Labs website was launched to support staff.
- Professional Accreditation – 37 staff were offered training as part of the My Green Lab accreditation.

Trinity's Green Labs Officer works closely with the Carbon Reduction Manager in the Estates and Facilities team, as well as building and lab managers in academic units, to address emissions associated with laboratory work, and strategies to reduce them (e.g. addressing high electricity demand equipment like fume hoods and freezers).

**Figure 5:** Trinity shows its stripes during Climate and Biodiversity Week (October 2024)

### 3.2.2 Engagement Weeks

Trinity runs several engagement weeks to support students and staff to learn about climate and broader sustainability themes including:

- **Green Week** – this is an annual event which focuses on the theme of 'Healthy Planet, Healthy People'. The week has been running annually for 23 years and offers a range of events focusing on diverse topics including a climate, biodiversity, circularity, health and networking. The week is delivered in collaboration with student societies and the Green Campus committee.
- **Climate & Biodiversity Action Week** – this is an annual event which has been running for 3 years with a focus on delivering activities for students and staff around the topics of climate & biodiversity. The aim of the week is to increase knowledge and understanding about how these two critical issues are inherently interconnected. As part of this week, Trinity light up its iconic Front Arch with the Climate Stripes (Figure 5).

**Figure 6:** Trinity staff and students attending COP29

[2] Pillars – Irish Green Labs

### 3.2.3 UN Framework Convention on Climate Change (UNFCCC)

The UNFCCC's 29th Conference of Parties (COP29) took place over two weeks in Baku, Azerbaijan in October 2024. Trinity Sustainability obtained Observer Status for the University, and as a result, received ten virtual tickets, which were allocated to interested staff and students (Figure 6) through an application process. Observer status gives us an opportunity to share what we are doing in Trinity, learn from others and build collaboration and partnership between universities to demonstrate leadership and focus attention on meaningful climate action.

### 3.2.4 Sustainability Leadership Awards

Trinity's annual Sustainability Leadership Awards took place during Green Week, March 2025. The awards celebrated the work undertaken by staff and students who showed initiative to become sustainability leaders within their studies, as part of their work or voluntarily within their community. Twenty-eight students and staff members (Figure 7) received an award for their work relating to energy reduction in labs, green theatre production, community engagement, videography & storytelling, education for sustainable development, research in engineering and education as well as and volunteering within their local community

**Figure 7:** Recipients of the Trinity Sustainability Leadership Awards 2025

### 3.2.5 Energy Reduction Campaign

An Energy Reduction Campaign was rolled out in December 2024 entitled 'Our 51% Challenge' (see Emissions Reduction Campaign, Figure 8). The campaign will be delivered over 12 months to provide information about energy use, promote behaviour change and identify projects for prioritisation. The campaign has delivered the following:

- Publication of energy-related emissions for 27 areas around campus.
- Four 'Energy Roadshows' were delivered to key staff members in buildings identified as high energy users.
- All of college webinar to share information relating to targets, energy use and potential technical and behavioural solutions.
- Earth Day event run by students which focused on targets, current emissions and potential solutions.

The next steps of the campaign will focus on developing key action plans for high use areas, leading on the development of green teams, monitoring & evaluation and further communication with all students and staff. and monitoring any changes

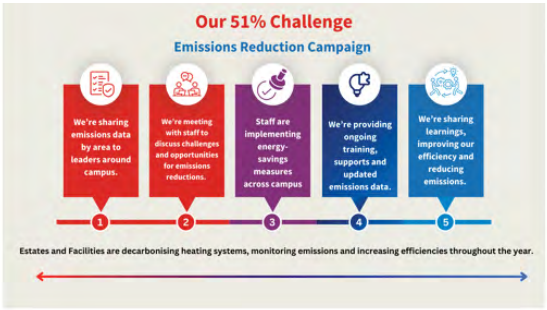




**Figure 8:** Key images from Trinity's energy campaign 'Our 51% Challenge' that have been displayed on virtual display boards across Trinity during 2024

### 3.2.6 Online Game - Energy Sparks

Trinity collaborated with a young startup -Bolddonut Games – to develop an online game focused on raising awareness of peak and off-peak energy use. The game was developed, and play tested in conjunction with students and staff members. The game was launched during Climate & Biodiversity Action Week. The game is currently being expanded to include Green Labs and will be rolled out to new students in September 2025. To play the game click here: Sparked - The Energy Game by bolddonut

### 3.2.7 Responsible Futures – Student-Led Audit

Trinity was one of seven universities to take part in an international pilot of the UK Responsible Futures student-led audit. Students were set the task of auditing Trinity's formal and informal curriculum for integration of Education for Sustainable Development (ESD) under the Students Organising for Sustainability Responsible Futures framework. This was led by Trinity Sustainability, with 10 students from across college (Figure 9), and comprised an audit under 51 criteria. Following the audit in late 2024, Trinity became a Responsible Futures accredited institution in early 2025. This recognition reflects the significant efforts that Trinity have implemented around ESD and sustainability in general in recent years.


Figure 9: Student auditors for the Responsible Futures Audit completed in October 2024

### 3.2.8 Circular Economy Initiative - Trash to Treasure

Trinity's Green Campus committee have been running a circular economy event entitled Trash to Treasure since 2018. The event focuses on reducing waste resources going to landfill by encouraging students to donate items at the end of the academic year. These items are then sold at a discounted rate to incoming students in September (Figure 10). The event in 2024 was entitled 'Uptown Funk' and was co-ordinated by the Circular Economy sub-committee of the Green Campus committee, the students worked tirelessly over the summer period to ensure items were clean, in good working order and ready for reuse.

Figure 10: Second hand items from the Trash to Treasure initiative ready for resale in September 2024

## 3.3 ISO 500001 CERTIFICATION

As reported in the 2023 & 2024 Climate Action Roadmaps, Trinity is committed to implementing ISO50001-based energy management system and ISO14001 environmental management system over the coming years. The implementation of the systems will require significant investment in terms of human capacity due to the length of time it takes to gain certification which can take between 18-24 months. ISO 50001 will require some internal administration resources, and we are currently examining how we would be able to achieve and maintain ISO 50001 certification with the resources we have available.

## 3.4 GREEN PROCUREMENT

Trinity began implementing green procurement practices across the university in 2017 and the procurement team are supporting green procurement as outlined in the Climate Action Roadmap 2024. Trinity will review the Circular addressing the new Green Public Procurement obligation upon publication.

## 3.5 CONSTRUCTION

### 3.5.1 Low Carbon Cement

According to the I.S. EN 206 Concrete – Specification, performance, production and conformity standard introduced from the 1st September 2024, all new public projects in Ireland must adhere to newly-introduced public procurement guidelines mandating a minimum of 30% clinker substitution in concrete products used in government and public works projects (Ground Granulated Blast Furnace Slag (GGBS)). Trinity currently has one large capital project under construction – the E3 Learning Foundry – which has included a minimum content of 30% GGBS replacement for all reinforced concrete structural elements. The reason why GGBS was chosen is its availability in the Irish market and the maturity of cement producers to comfortably include it in their concrete mixes.

### 3.5.2 International Cost Measurement Standards (ICMS)

The International Cost Management Standard (ICMS) is a principle-based internal standard that sets out how to classify, define, measure, record, analyse and present construction project costs and life cycle costs and carbon emissions in an international common format. Its implementation is mandatory from January 2024 and this requirement has been included within Trinity's consultancy appointments during 2024.

### 3.5.3 Whole Life Carbon Assessment (WLCA)

The consultancy appointments on our major capital programmes requires carbon measurement to be completed by the Project Manager/Quantity Surveyor.
This includes the assessment of: -

**1.** Embodied Carbon Emissions; and
**2.** Operational Carbon Emissions

The WLCA process is to be embedded throughout all Stages of capital projects and Trinity requires all project team members to participate in the process as required.

### 3.5.4 Construction Waste Recycling Requirements

Any contractors employed by the University must comply with all current waste legislation including inter alia 'SI 126 of 2011 - European Communities (Waste Directive) Regulations 2011'. On several projects, contractors are also required to manage construction waste in compliance with the proposed BREEAM accreditation. Any waste generated during the works must be accounted for by the University; therefore, contractors employed by university are obliged to:

- Minimise the volumes of waste produced during the works.
- Segregate the waste and maximise the volumes designated for recycling. Please note that all C&D waste is considered suitable for recycling.
- Provide a waste & recycling report to the Employer's Representative at the termination of the project and to be included in the safety file. This report should cover all waste generated in the course of the works by category and weight, together with the method of disposal – waste recycled, waste sent to land fill, etc.
- The location of skips, etc., required by contractors during a works must be located within the hoarded site area. Contractors must provide its own waste receptacles for the management and disposal of waste associated with the works. Contractors are strictly prohibited from using the University's waste receptacles for the disposal of 'project waste' - under any circumstances.

In addition, Trinity is a member of the Irish Green Building Council (IGBC) who are piloting digital documents to track the lifecycle of building materials; this information would be used to assess the environmental impact of materials and support reuse and recycling.

## 3.6 ORGANIC FOOD

Trinity has no process currently in place to purchase 10% (by value) organic produce for its catering service as this is a new requirement under the 2025 Mandate. However, the Procurement unit will begin to engage with suppliers currently used by Trinity to assess what organic options are available. Information relating to data and cost will also be sought.

## 3.7 FOOD WASTE

Trinity has been capturing data on food waste and has separated food waste from green waste material since 2018 (Figure 11). The amount of food waste generated on campus has been reduced by 70.75 tonnes since the 2018 (baseline). The total food waste generated in 2024 was 85,500kg (85.5 tonnes).

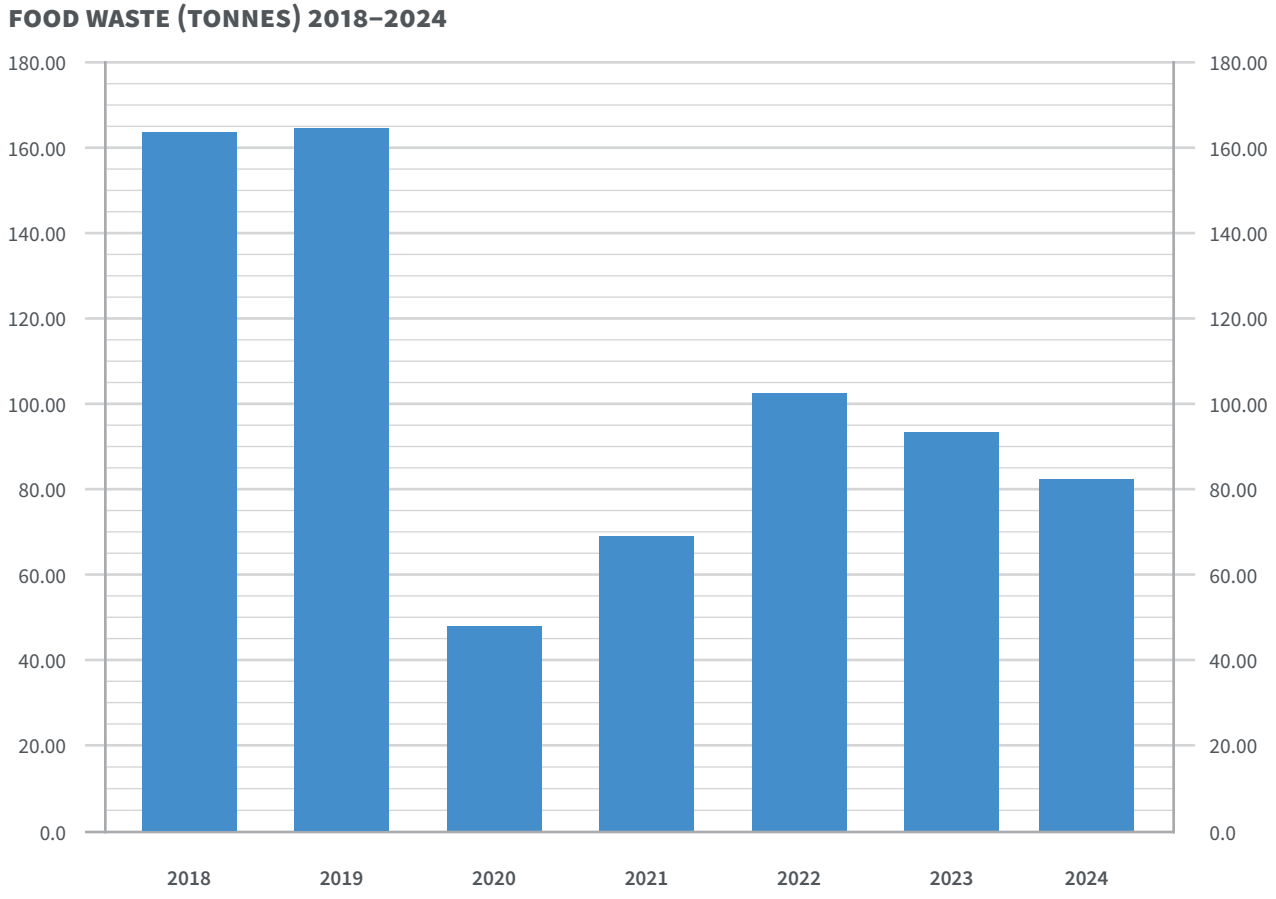



Figure 11: Food Waste 2018-2024

Trinity has procured the services of 'Positive Carbon' to install a food waste monitoring system. The service will include a staff training session, and the system will "Go Live" at the start of the new academic year in September. The monitoring system tracks food waste and will identify every item that goes into the bin, enabling staff members to identify what food is wasted and explore options for reducing food waste.

Trinity has established a Green Events team made up of conference organisers, catering staff and event managers. The team are tasked with identifying problems associated with events hosted by the university and will draft a Green Events handbook for teams across the university to standardise the approach of hosting small and large events with the aim of further reducing food waste.

## 3.8 ICT EQUIPMENT

Trinity has several suppliers of ICT equipment, with the main suppliers being Dell, Samsung and Apple. Compliance with the certified EPEAT Gold Standard (or equivalent) and TCO Certified (or equivalent) can be guaranteed for Dell/Windows and Samsung devices, however Apple devices are not part of the certification process since 2022. Therefore, guidance is required from the Office of Public Procurement as to how to proceed. Trinity is currently developing a Digital Transformation Strategy which will need to be assessed against the 51% GHG emissions reduction target.

## 3.9 PAPER

Trinity set a target of 20% decrease in paper use by 2020 versus 2011 baseline. This target was reached in the 2014/2015 financial year. Since 2014/2015 there has been a consistent reduction in the amount of paper used with a 66% reduction in total (Table 3). There has been a continued reduction in the amount of paper used in 2024 with 5.23 million sheets purchased, however this will need to be further reduced over the coming year. Trinity has moved from 100% recycled paper to 100% Carbon Neutral Paper (Black Label Zero) in 2024 which is certified by FSC, Nordic Ecolabel and EU Ecolabel as being produced in a carbon neutral way. This will be reviewed annually.

Table 3: Paper Use 2017-2024

| YEAR | NO. OF PAGES |
|---|---|
| 2017/2018 | 11.3 million |
| 2018/19 | 10.25 million |
| 2024 | 5.23 million |

Digitisation is ongoing, especially focusing on the Library, however a true estimation of the carbon associated with digitisation is also required to determine the GHG emissions associated with the rise in digital communications and storage.

## 3.10 WATER USE

Trinity has installed 29 water fountains across the whole campus estate since 2017 to reduce the use of bottled water. Since September 2024 the primary Irish Water feed to the College Green Campus meter has been connected to the energy management system which has allowed for daily usage pattern. This has shown a gradual increase in water use (Table 4) reflecting the return to work following COVID-19 restrictions.

**Table 4:** Total annual water use on the College Green Campus (data from Irish Water)

| ACADEMIC YEAR | TOTAL WATER USE |
|---|---|
| 2021/2022 | 163,506 m3 |
| 2022/2023 | 195,438 m3 |
| 2023/2024 | 199,735 m3 |

## 3.11 SINGLE USE

Trinity eliminated single use plastic items from catering and events (delivered by Trinity Catering) in 2018, three years ahead of the EU Single Use Plastics Directive in 2021. However, the Covid-19 pandemic delayed the elimination of single use food and beverage containers until 2021.

- Plastic straws – eliminated in 2018
- Plastic cutlery – eliminated in 2018
- Plastic stirrers - eliminated in 2018
- Expanded polystyrene single use food and beverage containers – eliminated in 2021.

In addition, two catering outlets (The Forum, Trinity Business School, and Aras an Phiarsaigh) have successfully ceased using disposal coffee cups since 2023 and a trial has been carried out in another outlet (The Perch, Arts Block) in July and Oct. 2023. The remaining cafés are working on ways to reduce the use of disposable cups through the 2GoCup initiative as well as considering 'disposable free days' during the week. The university has over one million visitors each year and therefore moving to entirely disposable free is more complicated, due to language and cultural differences of some visitors. Support in terms of developing campaigns to communicate with our visitors will be required to successfully eliminate disposable cup use.

## 3.12 OTHER MATERIALS

### 3.12.1 Deposit return scheme

Trinity installed two reverse vending machines in October 2024 to support the nationwide deposit return scheme (Figure 12). In addition, Trinity has supported the Re-turn scheme with the development of a carbon foot printing tool for the Re-Turn website with the support of a Trinity graduate, soon to be launched.


**Figure 12:** One of the Reverse Vending Machines installed in the Arts Building

### 3.12.2 Contract waste

Trinity's contractor RPS undertook a Waste Audit in 2024 (an initial phase of a three-phase review) to inform a Waste Action Plan (for a Circular Campus) which will be developed in 2025 as part of our strategic deliverables. This will be jointly led by the Trinity Sustainability Green Labs Officer, and a new role in Estates and Facilities - the Environmental Operations Manager, and implementation of the actions will commence in 2026 subject to funding, where required.

# 4. Our Buildings & Vehicles

## 4.1 ACTIVE TRAVEL

Trinity College is part of the National Transport Authority's Smarter Travel Campus programme and celebrated its tenth anniversary in 2021. Trinity has promoted active travel and supported cycling with infrastructure and pop-up repair facilities (Figure 13). Trinity undertakes travel surveys every three years to determine modal shift and, on average, over 90% of all students and staff travel in a sustainable way to campus. To comprehensively address the ongoing transport challenges facing the college, a transport study is being completed, funded by the NTA. The scope of the study focuses on eight key priorities as follows:

- **Priority 1** Conduct a Campus Cordon Study
- **Priority 2** Conduct a Freight Study.
- **Priority 3** Undertake a Cycle Audit
- **Priority 4** Investigate the concept for a proposed new TCD Mobility Hub
- **Priority 5** Undertake a microsimulation traffic model of Lincoln Place
- **Priority 6** Develop a Campus Travel Plan/ Mobility Management Plan
- **Priority 7** Develop an Annual Staff & Student Commuter Travel Survey
- **Priority 8** Development of a ZEV Charging and Maintenance Strategy

The transport study is almost complete, and a draft Campus Travel Plan has been developed which will be launched in November 2025 after consultation with the college community. In addition, a Sustainable Travel Officer has joined the Trinity Sustainability team, who is tasked with implementing the Campus Travel Plan and achieving the Smarter Travel Mark in 2025.

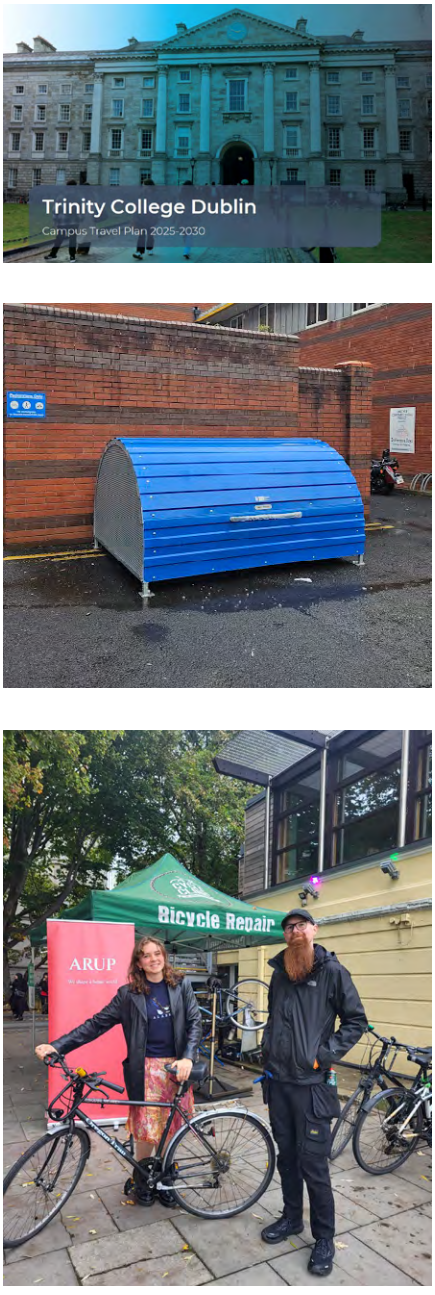



Figure 13: Bicycle repair pop up and new bike lockers, contributing to active travel, and the development of the Campus Travel Plan

## 4.2 CAR PARKING

Trinity's Sustainable Travel Officer will be responsible for implementing this objective. Trinity has sought car parking reductions where possible as part of other initiatives including a reduction in car parking numbers at the South perimeter of New Square in December 2024. Car parking on the College Green Campus has been reducing over the years, most recently with the removal of car parking spaces in front of the Rubrics Building which were replaced with cycle parking. The University has drafted a Campus Travel Plan and a masterplan project is underway to further develop the strategy for carparking reduction.

## 4.3 VEHICLES

Trinity's Estates & Facilities department now only purchase electric vehicles for the logistics fleet which consists of eight vehicles. Currently, three of the fleet vehicles are electric and two existing diesel-powered vehicles will be replaced with electric vehicles by the end of Q2 2025. Trinity has developed a three-year vehicle replacement plan which will see all diesel vehicles replaced with electric by the end of 2027, subject to funding availability. During the transition period, all active diesel vehicles are fuelled with Hydrotreated Vegetable Oil (HVO), which offers lower greenhouse gas (GHG) emissions compared to conventional diesel. However, we acknowledge that HVO is not a long-term sustainable solution due to potential impacts on habitats and biodiversity, stemming from uncertainties around the feedstock source and supply chain.

## 4.4 DISPLAY ENERGY CERT

Trinity is currently undergoing a procurement process to develop a mechanical and electrical consultant framework which will include the delivery of display energy certificates (DEC). One of the universities newest buildings, Trinity Business School, already has a DEC cert and it is displayed in a prominent position in the building.

## 4.5 BUILDING STOCK PLANS

Trinity has completed a Stage 1 Building Stock Plan and issued this to SEAI in January 2024.

### 4.5.1 HEA EEDPP Programme

Trinity proposed two deep retrofit projects in our Trinity East Campus for funding under the HEA's Higher Education Energy Efficiency & Decarbonisation Pathfinder Programme 2023 (EEDPP 20023). The projects are:

- **Project 1:** Unit 3 (Trinity East) Grand Canal Quay. A deep retrofit with an air source heat pump will be incorporated into this building which will feature a new digital library that has received funding from the Laidlaw Foundation. The HEA has also recently given its approval for the project to proceed to the statutory applications submissions stage.
- **Project 2:** Units 1, 2, and 8 Pearse St. A deep retrofit with air source heat pump will be incorporated into these units for laboratory research space.

## 4.6 CLEANING SERVICES

We are currently 3.5 years into our existing contract for indoor cleaning services, which was awarded prior to the introduction of requirements relating to environmental training. As such, there was no mandate at the time for tenderers to specify training on environmentally responsible cleaning methods. However, recognising the importance of reducing environmental impact, we will include a requirement in the 2026 tender specification for tenderers to detail the training that will be provided to ensure all staff involved in service delivery possess the necessary knowledge and skills to apply environmentally sustainable cleaning practices.

# 5. Conclusion

Trinity remains firmly committed to climate action and reducing its greenhouse gas (GHG) emissions in line with Government targets for 2030. While progress has been made, we also acknowledge the ongoing challenges faced in balancing energy demand with our GHG emissions targets.

This year, we achieved a slight reduction in electricity-related emissions, due to continued energy conservation efforts and a higher share of renewables on the national grid. However, this progress was offset by an increase in emissions from thermal heating. Higher demand during colder periods resulted in an additional 500 tonnes of $CO_2$ being emitted from thermal energy use, despite our broader efforts to reduce overall emissions.

By the end of 2025, Trinity will finalise a costed, comprehensive Decarbonisation Strategy & Implementation Plan, which will guide future projects and initiatives aimed at reaching our 2030 targets and accelerating our transition to NetZero by 2040. In parallel, we are developing a new energy policy and enhancing the operational control of heating systems—measures that can yield significant savings at relatively low cost. The ambition to meet emission reduction targets exists within Trinity, but to deliver on our obligations, we require a robust financial, organisational and behaviour change plan.

A multi-annual sectoral partnership approach with Government, to replace the annual grant processes that have dominated to date was proposed by a short-term IUA Sustainability Group , who proposed the need for:

- a Higher Education decarbonisation major project fund of €275m for IUA universities
- a targeted decarbonisation investment programme of €100m for IUA universities in key areas of focus, including renewable electrical energy generation, renewable thermal generation/district heating schemes, digital transformation of the built environment, design and planning of post 2030 deep retrofit projects.
- a new specific devolved grant of €20m per annum over the 5-year period to 2030 for IUA universities for sustainability related minor works.

A robust governance structure is now in place in Trinity to support our ongoing decarbonisation journey and to drive energy efficiency improvements across the university. Nevertheless, the challenges remain substantial and without Government support, achieving the public sector GHG reduction target of 51% by 2030 will be extremely difficult. Failure to meet these targets not only risks financial penalties at a national and European level, but more importantly, threatens societal wellbeing, economic resilience, and the stability of our natural ecosystems and communities to thrive and survive.

[3]**The IUA Working Group comprised Sustainability leads from all IUA members, and during Q1 2024 drafted a document "Climate Action Roadmap Delivery to 2030" with input from Green Team colleagues.**

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

# Climate Action Roadmap
2025