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

Climate Action Roadmap 2023

MARCH 2023

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CONTENTS

1. Context

The Government of Ireland Climate Action Plan 2021 (CAP21[1]) required public sector bodies to complete Climate Action Roadmaps to communicate how they aim to meet the requirements of the Climate Action Mandate 2022[2]. The Mandate aims to support public sector bodies to lead by example in demonstrating the necessary climate action to reduce Ireland's GHG emissions by 51% by 2030. In this first Roadmap for 2023, Trinity College Dublin focuses on plans for reducing the total energy related emissions and fossil fuel related emissions from our operations, in line with the targets in the Climate Action Plan 2021 (CAP21), and SEAI/EPA guidance[3]. Although Trinity has the ambition to achieve the targets set by Government for Public Body Greenhouse Gas (GHG) emissions reductions, our ability to do so is severely constrained by resource availability. Meeting these targets will require significant financial input and external assistance will be required.

Future Climate Action Plans will respond to updated government level plans[4], reflect progress on campus infrastructural projects, and detail how the University could support large scale structural and cultural changes to mitigate and adapt to climate change, and become a nature positive university, where environmental sustainability is embedded across education, research and operations, through partnership, collaboration, engagement and innovation.

1 https://www.gov.ie/en/publication/6223e-climate-action-plan-2021/
2 **The Public Sector Climate Action Mandate (Box 9.2, page 71 of CAP21, approved by Government on 4th July 2022 and issued to all Departments by the Minister for Environment, Climate and Communications) requires public sector bodies to show leadership in climate action by taking, and reporting on, the actions of the Mandate.**
3 https://www.seai.ie/publications/Public_Sector_Bodies_Climate_Action_Roadmaps_Guidance.pdf
4 https://www.gov.ie/en/publication/7bd8c-climate-action-plan-2023/

2. Contents of the Climate Action Roadmap

The content of the Climate Action Roadmap was set out in the Public Sector Bodies Climate Action Roadmap Guidance[5], which was developed by SEAI and the EPA. This document sets out how Trinity College Dublin is responding to the specific areas in the guidance document, namely though:

- Leadership and governance
- Emission Reduction and Energy Efficiency Targets
- Resource Use, Environmental Management and Accreditation
- Our Buildings and vehicles

2.1 LEADERSHIP AND GOVERNANCE

The Climate Action Roadmap requires that leadership and governance structures for climate action are set up, and that staff are engaged with climate action and have appropriate training. The core elements of this are outlined as follows:

- Establish and resource Green Teams, reporting to senior management, to become integrated drivers of sustainability in every public sector body.
- Nominate a member of the Management Board as the Climate and Sustainability Champion with responsibility for implementing and reporting on the Mandate.
- Incorporate appropriate climate action and sustainability training (technical and behavioural) into learning and development strategies for staff.
- Organise staff workshops (at least annually) to engage on climate issues, including a focus on decreasing the organisation's carbon footprint.

5 The Public Sector Climate Action Mandate (Box 9.2, page 71 of CAP21, approved by Government on 4th July 2022 and issued to all Departments by the Minister for Environment, Climate and Communications) requires public sector bodies to show leadership in climate action by taking, and reporting on, the actions of the Mandate.

2.1.1 Leadership and Governance for Climate Action

MINIMUM REQUIREMENTS

Governance structure for climate and sustainability including chart showing responsibilities.

RESPONSE	FURTHER INFORMATION
The current Governance structure is set out in Appendix 1. Trinity's Sustainability Committee has been an advisory group to the Estates Policy Committee, which is a Principal Committee of Trinity's Board. However, Trinity is currently revising its governance structures, and a new committee at the level of Principal Committee to Board will be established to directly address environmental sustainability at the highest governance levels. This is planned to be in place by January 2024.	The Governance structure for climate and sustainability has been strengthened in Trinity with the appointment in May 2022 of a Vice President for Biodiversity and Climate Action. There is also a newly created Sustainability Manager position which has been in place since July 2022. These full-time positions will lead the ongoing development of sustainability in the university.

MINIMUM REQUIREMENTS

Name of nominated Climate and Sustainability Champion.

RESPONSE	FURTHER INFORMATION
Prof. Jane Stout, Vice President for Biodiversity and Climate Action.	Visit Prof. Stout's profile: https://peoplefinder.tcd.ie/Profile?Username=STOUTJ

MINIMUM REQUIREMENTS

Name and role of Energy Performance Officer (EPO).

RESPONSE	FURTHER INFORMATION
Prof. Jane Stout, Vice President for Biodiversity and Climate Action.	Visit Prof. Stout's profile: https://peoplefinder.tcd.ie/Profile?Username=STOUTJ

MINIMUM REQUIREMENTS

Names and roles of individuals appointed to Green Team, and terms of reference for Green Team (note that the first version of roadmap should focus on the energy targets).

RESPONSE	FURTHER INFORMATION
→ Jane Stout, VP for Biodiversity & Climate Action → Orla Cunningham, Chief Operating Officer → Peter Reynolds, Chief Financial Officer → Jane Hackett, Sustainability Manager → Mike Clark, Director of Campus Infrastructure → John Kelly, Head of Engineering & Maintenance Services → Greg Power, Head of Capital Projects & Planning → Ben Hartnett, Procurement Manager → Moira O'Brien, Catering Manager → Paul Bolger, Technical Services Manager → Director of Public Affairs and Communications* → Antoinette Quinn, Director of Human Resources *Recruitment process is underway for this role. Trinity's Green Campus Committee, established in the early 1990s, comprises staff and students, is co-chaired by the Students Union Environment Officer, and supports a partnership approach to environmental management and action. Members actively engage in changing behaviours for better environmental stewardship across key areas. www.tcd.ie/provost/sustainability/greencampusprogramme/	There is not a formal operational 'Green Team' in Trinity College, but a wide range of senior management, who oversee core operational areas and are involved in delivery of the Climate Action Plan. These areas include: energy, waste, food, procurement, capital projects, finance, communications and human resources. Each area is responsible for reporting to its own senior management, and the VP for Biodiversity and Climate Action is responsible for overseeing development and implementation of Trinity's Sustainability Strategy and Action Plan across the entire University. With the changes in governance elevating environmental sustainability issues to the highest level, formal management structures reflecting these changes will then be scoped.

ADDITIONAL CONTENT

How climate action links to strategic energy management (if in place) and to Energy Performance Officer responsibilities.

RESPONSE	FURTHER INFORMATION
In addition to the actions listed in this current document, Trinity's Sustainability Strategy and Action Plan are currently being drafted. These will outline in further detail how strategic energy management will be addressed and define responsibilities. The Campus Energy Officer role is currently being recruited, and will encompass the core responsibilities of the Energy Performance Officer.	The consultation process is currently underway in the university to inform, engage and gain support from the college community in the development of the Strategy and Action Plan, which is due to be completed in Q2 2023. The Strategy will focus on biodiversity and climate action and how these areas intersect with human health. The Strategy will steer a path towards a nature positive and climate neutral university.

ADDITIONAL CONTENT

As annex: energy strategy or policy/environmental strategy or policy.

RESPONSE	FURTHER INFORMATION
The existing Trinity Sustainability Policy is available here: https://www.tcd.ie/about/policies/assets/pdf/sustainability-policy-15112017.pdf	This will be updated along with the development of the new Strategy (as above).

ADDITIONAL CONTENT

Sustainability strategy if available.

RESPONSE	FURTHER INFORMATION
A specific sustainability strategy is currently in development (see above). The Trinity Strategic Plan 2020-2025 Community and Connection specifically refers to sustainability across four main areas, including: → Civic action → Organisation → Research → Education The Strategic Plan can be read in full here: https://www.tcd.ie/strategy/	Goal 5 of the current Trinity Strategic Plan states: *We will shape our organisation and focus research around the challenge of achieving a sustainable and healthy planet.* To achieve this goal, we will: *Provide leadership in sustainability through improvements in energy use, reduction in waste including single use plastics, promoting areas such as sustainable transport and biodiversity, and ensuring all new buildings are based on sustainability principles.* (Goal 5, Action 5.4)

2.1.2 Engaging and Training Staff

MINIMUM REQUIREMENTS

Set out plans for at least annual staff engagement workshops, focussed specifically and initially on energy related emissions, and over time on wider climate issues and reducing organisational carbon footprint.

RESPONSE	FURTHER INFORMATION
The Sustainability Strategy 2023-2030 is currently being drafted and will include an action plan that will detail annual staff engagement, including workshops. It is envisioned that existing and new staff will be offered training about: → Energy related emissions → Climate action → Carbon footprinting → Biodiversity footprinting.	In the last 6 months, workshops have been held on Carbon footprinting (with Financial Services Division, Trinity Business School, Trinity Sustainability), Biodiversity footprinting (open to all staff), and the Doughnut Economics model which consists of an ecological ceiling along with a social foundation (with HR, Financial, Library, Estates, Health staff, school administrators and others). In addition staff who are trained engineers, architects and surveyors have completed training in the following areas: → Thermal resistivity → U-values → Building fabric design → Part-L building regulations → Environmental design → Carbon calculation

MINIMUM REQUIREMENTS

Set out a plan to identify appropriate climate action training for staff that will be incorporated into ongoing staff learning and development (training needs analysis and plan for delivery).

RESPONSE	FURTHER INFORMATION
The Sustainability Strategy 2023-2030 is currently being drafted and will include an action plan which will detail appropriate climate action training for staff.	The sustainability team will work with colleagues in Human Resources to determine how & when climate action training can be offered to new and existing staff. A training needs analysis will be used to determine the following: → What are the objectives of the strategy? → What skills are required to meet these goals? → What existing training is available to meet this requirement? → If gaps exist what new courses or support is required? → What is the capacity available to deliver these new skills?

ADDITIONAL CONTENT

Information of any training needs analysis undertaken.

RESPONSE
None undertaken yet, but this is a priority. The Sustainability Strategy will address the training needs of academic and operational staff (see above).

ADDITIONAL CONTENT

Information on staff engagement already undertaken.

RESPONSE

- A staff sustainability induction programme was launched in 2017 and updated most recently in 2020; 285 staff have received this orientation since its launch.
- A staff sustainability network and sustainability guides are accessible on the TCD website
- Staff have been and continue to be involved in the Green Campus Committee (established in 1993).

Staff were involved in developing a draft Climate Action plan for Trinity in 2021 and in a climate-focussed “away day” in 2022

2.2 EMISSION REDUCTION AND ENERGY EFFICIENCY TARGETS

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

- Reduce GHG emissions by 51% in 2030
- Increase the improvement in energy efficiency in the public sector from the 33% target in 2020 to 50% by 2030
- Put in place a Climate Action Roadmap by the end of 2022

2.2.1 Achieving the carbon emissions reduction targets (51% reduction by 2030)

Set out analysis of target to 2030 based on the SEAI Gap to Target tool or equivalent. The analysis should cover:

MINIMUM REQUIREMENTS

Energy related carbon emissions baseline (average of 2016-18 emissions).

RESPONSE	FURTHER INFORMATION
Baseline: - Total 24,689 tCO2 per annum. - Thermal 8,523 tCO2 per annum.	Data source: SEAI (Gap to Target (GTT), from the SEAI Monitoring and Reporting System (M&RS data).

MINIMUM REQUIREMENTS

Total emissions and thermal (heating and transport) emissions if no new projects implemented.

RESPONSE	FURTHER INFORMATION
- Estimated total emissions if no new projects: 12,171 tCO2 in 2030. - Estimated thermal emissions if no new projects: 8,522 tCO2 in 2030.	Data source: SEAI (GTT, from M&RS). Assumes national decarbonisation of electrical grid; no additional projects that would reduce or decarbonise energy use; also assumes no change to building stock.

MINIMUM REQUIREMENTS

Any growth in emissions between the baseline and target years based on planned increase/growth in services (if applicable).

RESPONSE	FURTHER INFORMATION
New build projects at planning or under construction include: → New E3 Learning Foundry (E3LF – under construction) → New Student Accommodation at Trinity Halls, Dartry (planning permission granted) → New Law School (funding being sought) → New Student Centre (funding being sought) E3LF and Trinity Halls energy-related emissions have been calculated based on design data and therefore estimates/projections are included in the GTT tool already. Estimates are not yet available for Law School and Student Centre.	E3LF will not use fossil fuels – the heating and cooling of the building will use an embedded slab piping known as a Thermally Activated Building System (TABS). The final design includes Air Source Heat Pumps, water to water heat pumps and PV panels reducing energy consumption and carbon emissions. 25% of the total material value of building elements (elements described in the specification) are to be certified as responsibly sourced. The design includes for 70 cycle spaces and six showers in a welfare facility to facilitate active travel and reduce travel-associated emissions. Law School, Student Centre & Trinity Halls Student Accommodation, Dartry, will be constructed to the highest energy efficient building standards applicable at the time of construction, and be designed as low-emission buildings.

MINIMUM REQUIREMENTS

Any planned energy related carbon reduction activities.

RESPONSE	FURTHER INFORMATION
Feasibility Study for the decarbonisation of the Western District Heating System to be undertaken during 2023.	This system, currently gas-fired, supports c. 24,000m^2 of space mostly in the heritage buildings around Front Square.

RESPONSE	FURTHER INFORMATION
Completion of Rubrics and the Chief Steward's House (end Q1-23/early Q2-23), including: → Ground sourced heating from 21 boreholes → Reroofing with a warm roof construction and with Irish sourced slate → Ground floor insulation with recycled foamed glass → Refurbishment of all existing windows and shutters Rubrics/Chief Steward's House are targeted to have a BER rating of B2 (from D2).	Since Rubrics was not fully occupied during the 2016-18 baseline years (approx. 25% occupation), full occupation may result in an increase in emissions, albeit a very small one given the decarbonised source of heat. Initial tests have shown 100% of space heat and 84% of domestic hot water now come from the decarbonised ground source heat pumps in Rubrics.
O'Reilly Building Decarbonisation Pilot Project to be completed during late 2023, funded by HEA Devolved Grant 2022/23. The objective is to ensure >80% of heating and hot water from heat pump, rather than the existing gas boiler arrangement. Where there is potential for solar PV arrays on the roofs, this will require additional surveys and planning consent will be required.	A set of templates will be prepared which could then be utilised for the adjoining Watts & Hamilton Buildings, Panoz Institute and Smurfit Institute (all located at Trinity's East End)
Old Library Redevelopment Project will conserve and safeguard the Old Library and its collections. This will involve improving insulation to minimise heat loss; refurbishment of the windows; installation of a ground source heat pumps to meet heating and cooling requirements. (28 no. 260m deep boreholes with twin loop probes); Energy Efficient Active Systems including sensors (Temp, RH, CO2, Particulates, VOCs), Building Management System Control, Automatic LED lighting controls, Automatic daylighting controls in the Long Room; Use of Air Handling Units with energy efficient motors and incorporating heat recovery.	In addition, a waste management plan following the waste hierarchy rules of eliminate, reduce, re-use, recycle and dispose will be established. Refurbishment works will improve the BER rating from a D2 to a B2 rated building.

MINIMUM REQUIREMENTS

Analysis of significant emitters.

RESPONSE	FURTHER INFORMATION
As a research-intensive university, these are spread around the estate and are concentrated in our research centres.	More detailed analysis required in terms of emissions and scope for each key research area. This will be progressed during 2023.

MINIMUM REQUIREMENTS

Identify any 'Gap to Target' that needs to be addressed.

RESPONSE	FURTHER INFORMATION
Compared with the 2016-18 baseline, a reduction of approximately 16.8 thousand tCO_2 per annum is required to reach the target emissions of 7.8 thousand tCO_2 by 2030[6]. By modelling projected savings from decarbonisation of the grid and from ongoing and planned projects (outlined above and below), emissions by 2030 can be reduced to 9.7 thousand tCO_2. This leaves a residual GTT of 1.9 thousand tCO_2. The majority of estimated emission reductions will be associated with decarbonisation of the national grid (supply-side reductions) and heating system changes (heat pumps).	Estimated emission reductions are subject to: → more detailed predictive modelling, and → financial resources required to deliver proposed projects (outlined below).

6 The GTT tool creates estimates based on data inputted to the SEAI M&RS and include assumptions around project funding and delivery. Although current estimates are based on the best available data, they are still high level, subject to projects being funded, and may vary considerably from what can be achieved during the time period

If there is a gap, identify additional decarbonisation pathway(s), covering:

MINIMUM REQUIREMENTS

Proposed actions to achieve energy related carbon target, detailing specific projects and timelines.

RESPONSE	FURTHER INFORMATION
Projects under consideration in the GTT tool include: **Retrofits & other decreases in consumption** → O'Reilly Building LED & controls retrofit → East End LED & controls retrofit → Arts Refurbishment (excl. Heat Pump) → LED upgrade to other areas of college (~ 50,000 m_2) **Fossil fuel boiler to Heat Pump (HP)** → O' Reilly Decarbonisation HP → Main boiler house HP for 90% → Arts Refurbishment HP → Ussher Library HP (80%) → Berkeley Library HP (80%) → Panoz & Smurfit HP (80%) → SNIAMs HP (80%) → Lloyd HP (80%) → Naughton (80%) → Sports (80%) **Electricity | Grid electricity® 100% renewable** → Arts → Ussher Library → SNIAMs → Lloyd → Sports/Craan → O'Reilly → Hamilton → Panoz & Smurfit	→ Projects are modelled in the GTT tool, item by item, with associated emissions projections → These projects are subject to a detailed feasibility study to ensure the optimal solutions are chosen and delivered to achieve emission reduction targets → These projects require funding → % figures indicate approximation of works to be done by the heat pump

RESPONSE	FURTHER INFORMATION
Arts Building Built in 1978, the current 20,283 m_2 building is a relatively high consumer of energy in its day-to-day running. Under this project, the existing infrastructure will undergo a deep energy and functional retrofit, and is part of a current Higher Education Strategic Infrastructure Fund (HESIF) bid, alongside the proposed new Law School.	The Arts building has a current estimate of "D" BER band, but the proposed project have been estimated to provide carbon savings of 50%, enabling a "B" rating to be achieved from the proposed works.
Existing Trinity Hall student accommodation PV installation to existing Buildings 1, 2 & 3. Installation of ground source heat pumps and LED lighting upgrades.	Trinity Hall currently houses 1,176 students in student accommodation dating from 2003. Installing renewable energy sources will reduce GHG emissions. but needs to be developed in conjunction with the implementation of the Trinity Hall (2022) consented scheme.
Western District Heating System Decarbonisation and upgrade of the main boiler plant which heats an area of c. 24,000m_2 in heritage buildings.	Initial modelling undertaken as part of the GTT exercise.
Other Boiler Upgrades There are a further 40+ boilers across the estate ranging from 25kw to 1,500kw in output that will require upgrading or removal before 2030.	Initial modelling undertaken as part of the GTT for: → Ussher Library HP (80%) → Berkeley Library HP (80%) → Panoz & Smurfit HP (80%) → SNIAMs HP (80%) → Lloyd HP (80%) → Naughton (80%) → Sports (80%) (% figures indicate approximation of works to be done by the heat pump)

MINIMUM REQUIREMENTS
Resources in place or to be mobilised.

RESPONSE	FURTHER INFORMATION
In House personnel already in place: → Director of Campus Infrastructure → Head of Capital Projects and Planning → Head of Engineering & Maintenance Services → Technical Services Manager → Engineering Services & Carbon Reduction Manager → Campus Energy Officer	The role the Campus Energy Officer is currently going through the recruitment process.

MINIMUM REQUIREMENTS
Resources required, both people and financial.

RESPONSE	FURTHER INFORMATION
Funding continues to be a challenge to implement these projects. Additional strategic funding will be required and the personnel resources to apply for these funds. External resources to be engaged: Engagement of suitably qualified consultants to support the planning and delivery of the various projects and programmes.	→ External assistance will be required in terms of securing the financial resources required to implement these projects. → The challenge of recruiting a sufficient number of appropriately qualified staff, within the limits of the public pay scales, is also proving challenging. → In addition, Trinity faces the challenges associated with its numerous Heritage Buildings, which are valuable cultural capital for Ireland, and important for tourist-driven revenue. Planning permission is required to sensitively retrofit these buildings, which takes time and additional resources.

MINIMUM REQUIREMENTS

Project readiness status

RESPONSE

Projects are at different stages of readiness:

- **Arts Building**
  Basic assessment u/taken as part of the HESIF bid. If successful, further detailed design and analysis will be required. Initial GTT analysis undertaken
- **Western District Heating System (WDHS)**
  Initial GTT analysis undertaken, feasibility study to be commissioned
- **Other Boiler Upgrades**
  Initial GTT analysis undertaken, timing of future studies, partly dependent on feedback from the WDHS completed
- **Trinity Hall Ground Source Heat Pumps/PVS etc.**
  A more detailed feasibility study is required to ensure that this would not impact negatively on the Trinity Hall (2022 planning consent).

ADDITIONAL CONTENT

Incorporating opportunities from any Register of Opportunities from your energy management programme, or an SI426 compliant audit3.

RESPONSE

Opportunities relating to LED lighting replacement and removal of fossil fuel boilers have been captured in the GTT modelling undertaken.

ADDITIONAL CONTENT

Opportunities arising from a detailed design team-led assessments for the purposes of achieving a high Building Energy Rating (B or higher).

RESPONSE

As detailed above, the Rubrics, Chief Stewards House, Old Library and proposed Arts Building projects could improve BER to B rating.

ADDITIONAL CONTENT

Plans for financing projects.

RESPONSE

Funding to meet emissions targets will be a combination of:

- Annual Maintenance Investment Programme
- Annual Government grants administered through the HEA.
- Specific funding to be provided by the University as part of a planned investment towards the 2030 target.

ADDITIONAL CONTENT

Detail the project pipeline to 2030, including specific projects and actions, timelines, financing requirements and responsibilities. For multi-site organisations, there may be a capacity building phase where one or two projects are completed to develop learnings and models and a delivery phase where the programme is ramped up and the remainder of projects are completed.

RESPONSE

- Completion of Rubrics and the Chief Steward's House (end Q1-23/early Q2-23) which is fully funded
- O'Reilly Building Decarbonisation Pilot. Project to be completed towards end 2023. The Project has funding from 2022/23 Devolved Grant
- Old Library Redevelopment project. Started in 2022, due for completion 2027. Co-funded by TCD, philanthropy and Government
- E3LF. Started in 2022, due for completion 2024. Co-funded by TCD, philanthropy and Government
- O'Reilly project, due to start in 2023. Funded by HEA Devolved Grant 2022/23
- Arts Building – funding proposal submitted
- Other projects are subject to feasibility studies and funding

2.2.2 Achieving the energy efficiency target (50% improvement by 2030)

Set out analysis of target to 2030 based on the SEAI Gap to Target tool or equivalent. The analysis should cover:

MINIMUM REQUIREMENTS
Energy efficiency baseline (note that baseline(s) for energy efficiency differs from energy related carbon emissions baseline).

RESPONSE	FURTHER INFORMATION
414.73 kWh/m_2 per annum.(i.e. kWh of primary energy per m_2 research equivalent floor area).	Data source: SEAI M&R system

MINIMUM REQUIREMENTS
Energy efficiency in target year if no new projects implemented.

RESPONSE
222 kWh/m2 per annum.

MINIMUM REQUIREMENTS
Any planned energy efficiency activities.

RESPONSE	FURTHER INFORMATION
LED lighting upgrades to our historic buildings (c. 86,000m2) to be undertaken in phases.	This includes ongoing (E3LF, Old Library, O'Reilly building) and proposed (East End, Trinity Hall) projects, as well as annual upgrades (e.g. Berkeley Library Ground floor LED lighting upgrades will achieve savings of circa 15,000kWh).

MINIMUM REQUIREMENTS

Any growth in energy use or change in the activity metric between the baseline and target years based on planned increase/growth in services (if applicable).

RESPONSE	FURTHER INFORMATION
Ongoing and proposed building projects are designed to the highest energy standards and will have high levels of energy efficiency.	E3LF is designed to be a Nearly Zero Energy Building (NZEB) and to achieve Building Research Establishment Environmental Assessment Method (BREEAM) Excellent certification (outstanding buildings, this rating takes into account the energy efficiency, how sustainably it was built and how well it will respond to user need). The building will have a high specification Building Management System (BMS) allowing full control and adjustment of systems and equipment. Air Source Heat Pumps, water to water heat pumps and PV panels will contribute positively to the facility's energy consumption. Energy efficient equipment includes the use of premium efficiency motors with variable frequency drives where practical. The building is designed for flexibility and future adaptation to a different use.

MINIMUM REQUIREMENTS

Identify any 'Gap to Target' that needs to be addressed.

RESPONSE
14.69 kWh/m2 per annum; this gap to be closed in 2030.

MINIMUM REQUIREMENTS

Analysis of significant energy users.

RESPONSE

An Benchmark Energy Audit of Trinity College Dublin was completed in 2022 by an external consultant, showing that research buildings were the largest energy users, followed by residential and technical and non-technical academic buildings **(Figure 1)**.

TOTAL ENERGY SPLIT BY BUILDING TYPE

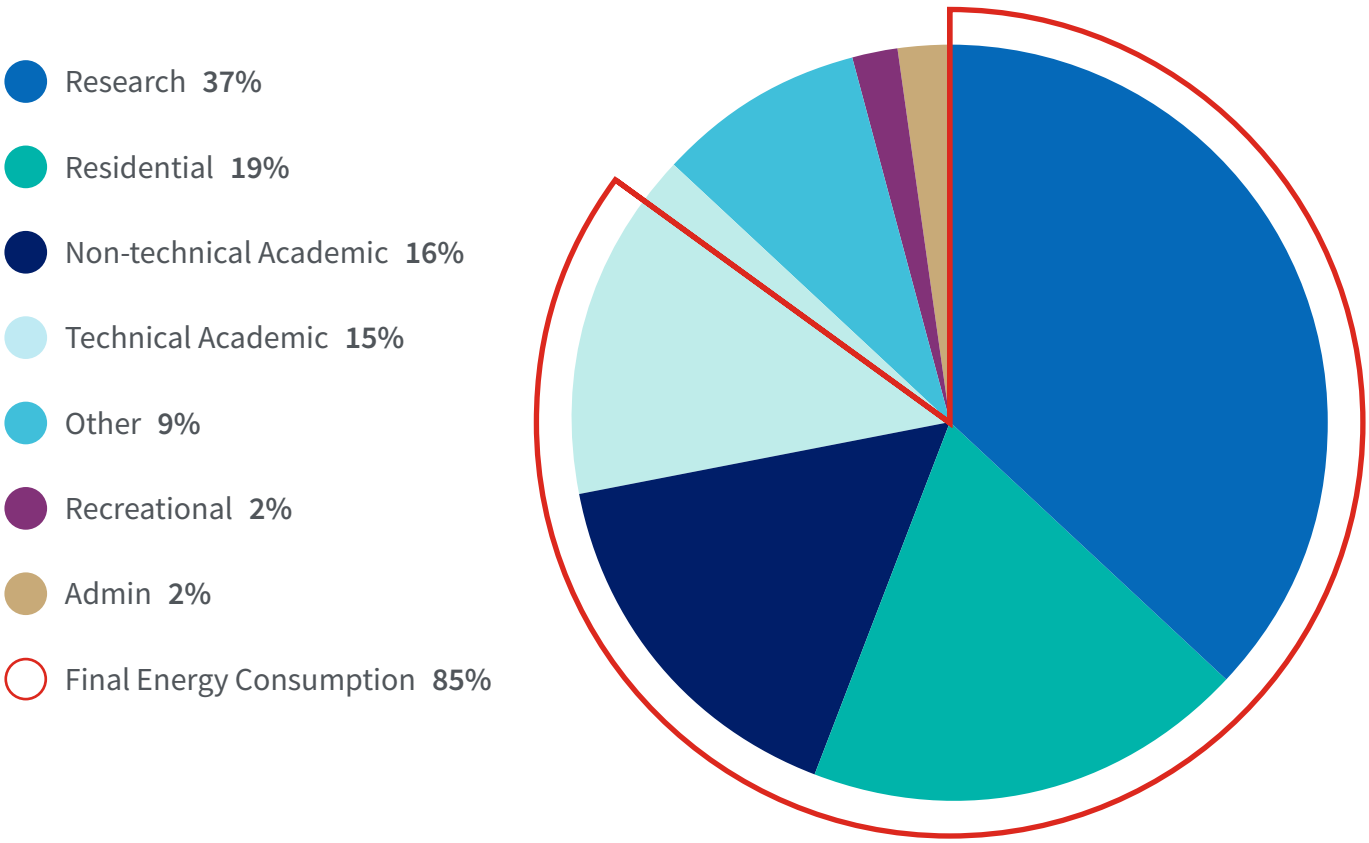


FIG 1 Proportion of energy use across areas within Trinity College Dublin Research, Residential, Non-Technical Academic, and Technical Academic, cover more than 85% of TCD's final energy consumption. The 85% is denoted by the red outline. Source: Benchmark Energy Audit of Trinity College Dublin (2022).

If there is a gap, identify additional energy efficiency pathway, covering:

MINIMUM REQUIREMENTS
Proposed actions to achieve energy efficiency target, detailing specific projects and timelines.

RESPONSE	FURTHER INFORMATION
Refer to **Section 2.2.1** above	We anticipate a reduction in emissions as a result of using more energy efficient machinery/plant. Becoming more effective in our use of space will also reduce our emissions and energy use.

MINIMUM REQUIREMENTS
Resources in place or to be mobilised.

RESPONSE
Refer to **Section 2.2.1** above

MINIMUM REQUIREMENTS
Resources, both people and financial.

RESPONSE
Refer to **Section 2.2.1** above

MINIMUM REQUIREMENTS
Project readiness status.

RESPONSE
Refer to **Section 2.2.1** above

2.3 RESOURCE USE, ENVIRONMENTAL MANAGEMENT AND ACCREDITATION

The Climate Action Mandate sets requires large public sector bodies to achieve formal environmental and/or energy management system accreditation as well as reviewing resource use in certain areas. The key targets for public bodies are as follows:

- Report GHG emissions and sustainability activities in the annual report
- Review any paper-based processes, and evaluate the possibilities for digitisation so it becomes the default approach
- Achieve formal environmental accreditation for large public sector bodies, such as ISO 50001 (Energy Management Standard) or ISO 14001 (Environmental Management System), with a view to going beyond ISO14001 to adopting EMAS (Eco Management and Audit Scheme

2.3.1 Energy & environmental management systems and accreditation

MINIMUM REQUIREMENTS

SEAI's guide to Demonstrating Exemplar Energy Management details the appropriate energy management programme depending on the energy spend of the organisation, how it should be assessed annually and relevant SEAI supports.

RESPONSE	FURTHER INFORMATION
Once adequate resources are in place, we will implement a ISO50001-based energy management system, with a view to achieving accreditation by 2028.	SEAI runs a series of workshops with participating public bodies to help implementation of ISO50001 and achieve certification. Resources will be required to meet this target.

MINIMUM REQUIREMENTS

Set target date for achievement of the energy management programme appropriate to your organisation. For larger public bodies, detail specifically when formal accreditation to ISO50001 energy management system will be achieved.

RESPONSE	FURTHER INFORMATION
An ISO50001 system will be put in place as soon as possible, but implementing the system to achieve certification will take longer, typically takes 18-24 months. As above, we anticipate achieving certification by 2028.	It will take until 2028 to achieve certification because (a) Trinity does not have sufficient human resources in place (b) It will be complicated to implement in Trinity and (c) it will give a low return on investment in terms of management time (high) versus decarbonisation impact (low). Building an energy project delivery pipeline is far more urgent than achieving certification.

ADDITIONAL CONTENT

State any environmental management system accreditation achieved or planned, such as ISO140001, EMAS, Green Campus etc

RESPONSE	FURTHER INFORMATION
Trinity College has been accredited under the Green Campus programme since 2013. EcoCampus is being considered as the pathway to achieving ISO14001 accreditation.	See: https://ecocampus.uk/

2.3.2 Green public procurement

MINIMUM REQUIREMENTS

Include green criteria for selection and award criteria when procuring all goods and services (reference Circular 20/2019), using the published GPP guidance and criteria sets.

RESPONSE	FURTHER INFORMATION
Our Contract Management System records the use of GPP.	The procurement team have established a Top 50 Supplier Sustainability Engagement Programme. The programme is working key suppliers to assess their current practices how we can develop a roadmap towards sustainable procurement.

MINIMUM REQUIREMENTS

Set up a system to gather and record data on GPP implementation in your organisation, using the reporting template and guidance developed for government department reporting as a reference.

RESPONSE
Our Contract Management System records the use of GPP.

ADDITIONAL CONTENT

Measure the environmental and climate benefits achieved through the application of green criteria in future procurements

RESPONSE	FURTHER INFORMATION
We are evaluating the methodology and outputs from a recent Carbon Measurement exercise at a single School level. This, combined with increased awareness of best practice, will lead to the selection of the appropriate measurement tool.	The university is carrying out a biodiversity and carbon foot printing exercise which will focus on establishing a baseline with which to set key GHG targets as well as setting targets to become a nature positive university by 2030.

2.3.3 Resource use

MINIMUM REQUIREMENTS

Timeline for review of paper-based processes to understand potential for digitisation.
Additional Content

RESPONSE	FURTHER INFORMATION
The use of paper has reduced significantly since baseline data was collected in 2011. There has been a 66% reduction in the use of paper as a result of digitisation and behaviour change.	In addition, paper purchased for use on campus is post-consumer recycled paper.

MINIMUM REQUIREMENTS

Describe plans to digitise paper- based processes.

RESPONSE
A managed print solution is being rolled out in a number of faculties throughout the university. This will offer a shared multi-functional device for printing/copying and scanning.

2.4 OUR BUILDINGS AND VEHICLES

- Create bicycle friendly buildings for employees and visitors, by putting bicycle parking in place by 2022 – which is secure, accessible, and simple for cyclists to recognise and use
- Display an up-to-date Display Energy Certificate in every public building that is open to the public to clearly show energy use
- The public sector will not install heating systems that use fossil fuels after 2023, unless at least one of the following exceptions applies: the fossil-fuel use is only through the use of electricity from the grid, there is no technically viable non-fossil alternative (generally only related to applications for a purpose other than space heating) , the installation of a renewable space heating system would increase final CO_2 emissions, the fossil-fuel use is provided for backup, peaking, or operational purposes (and makes up less than 10% of annual heating energy), where the direct replacement of existing fossil fuel heating is required for an emergency maintenance purpose
- Purchase only zero-emission vehicles where available and operationally feasible from end of 2022, enabling Ireland to go beyond the requirements of the Clean Vehicle Directive and act as an international leader in this area

2.4.1 Our Buildings and Vehicles

MINIMUM REQUIREMENTS

Ensure procurement of vehicles to meet CAP21 target for purchase of zero emission vehicles where operationally feasible, as well as the minimum targets set out by SI381/2021 Clean Vehicles Directive.

RESPONSE	FURTHER INFORMATION
Vehicles: Transport accounts for less than 1% of our annual energy use. We have a small number of college-owned vehicles and these will be replaced by full electric models at time of renewal. Grounds maintenance equipment is already being replaced by electric equivalent at time of renewal and this process is 50% complete.	We will review the current fleet and assess the need for replacement on a 'like for like' basis with a view to reducing the number of vehicles required by requiring shared use across the different academic/operational areas.

MINIMUM REQUIREMENTS

Ensure there is a Display Energy Certificate (DEC) in every building 'frequently visited by the public'.

RESPONSE	FURTHER INFORMATION
The main campus is very integrated and difficult to break down energy use by building – with some exceptions. It has been recommended to implement DECs at a campus level initially.	SEAI/DCCAE may be changing legislation to reduce the admin burden on this in the future.

MINIMUM REQUIREMENTS

Plan for creating bicycle friendly buildings for employees and visitors, by putting bicycle parking in place by 2022.

RESPONSE	FURTHER INFORMATION
Extensive bike parking has been installed in various locations across the university to support cycling. In 2023 alone there will be a further upgrade of >1000 bike parking spaces with support from the National Transport Authority. The university also operates the Bike-to-Work scheme for all staff. In addition, car parking is restricted on all sites.	Trinity College is part of the National Transport Authority's Smarter Travel Campus programme and celebrated it's 10 anniversary in 2021. Travel surveys are undertaken every three years to determine modal shift and over average 90% of all students and staff travel in a sustainable way to campus.

MINIMUM REQUIREMENTS

Update procurement and design procedures to comply with the requirement for no fossil fuel heating after 2023.

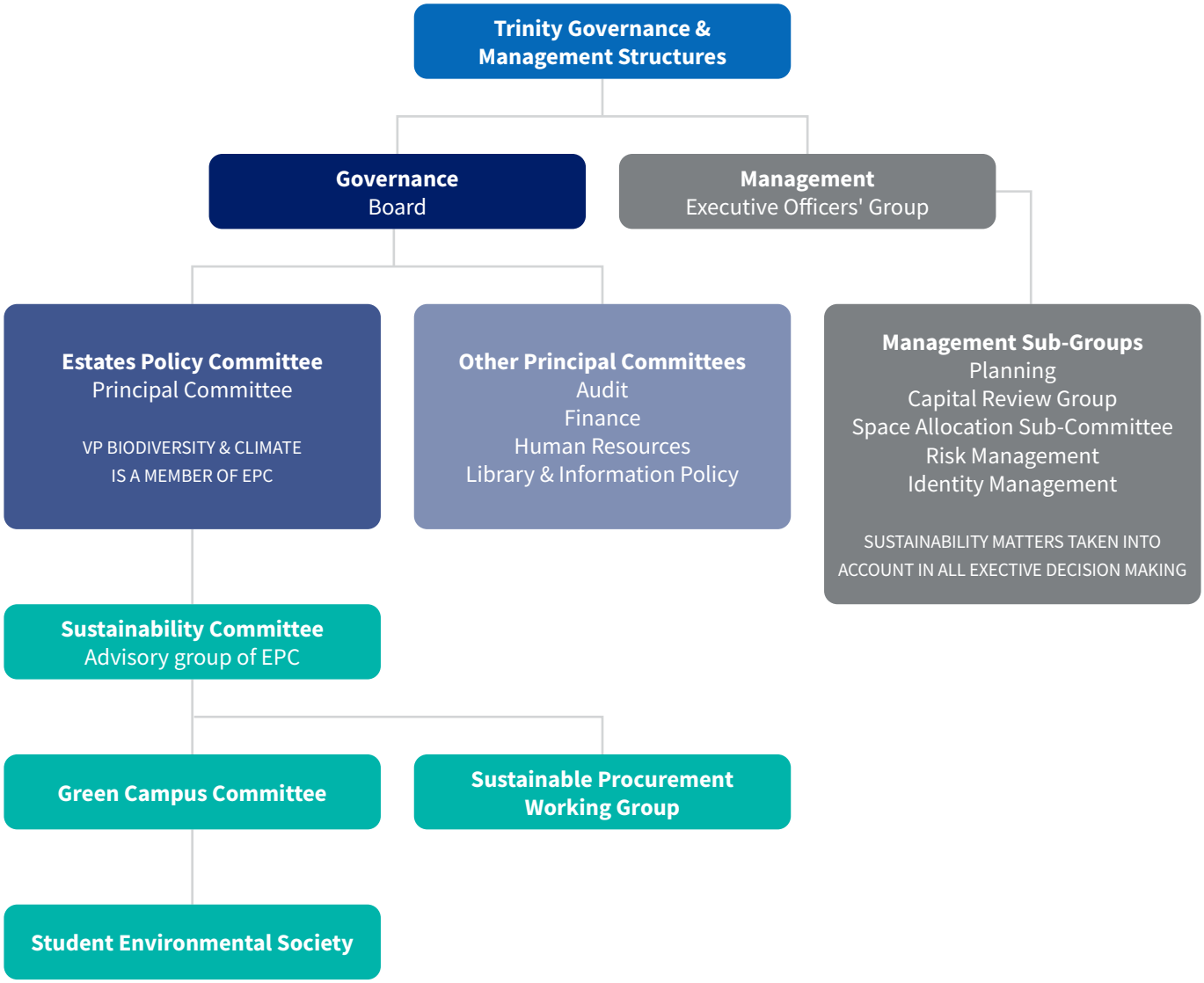
RESPONSE
The procurement and design procedures will be updated to comply with the requirement for no fossil fuel heating after 2023.

3. Conclusion

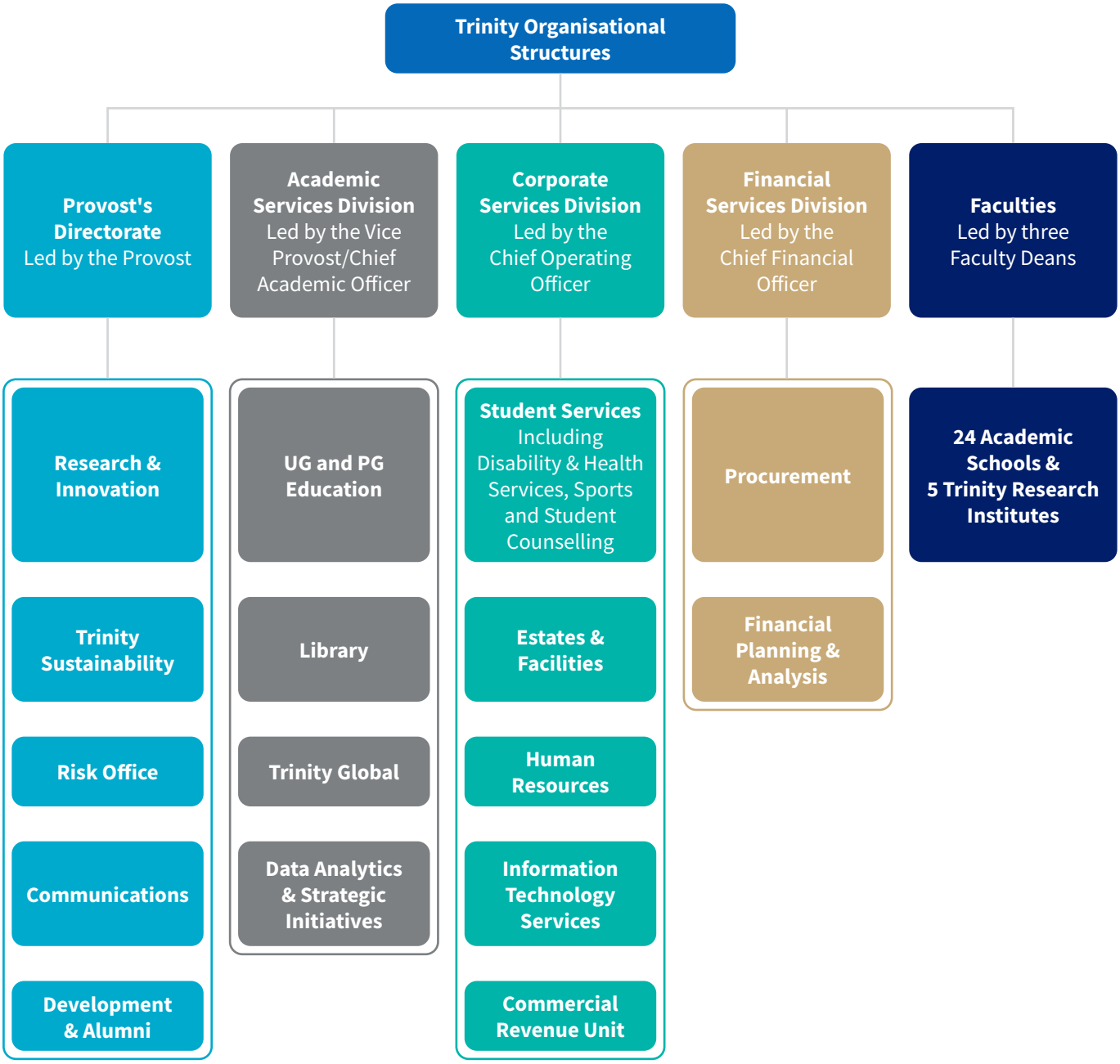
Trinity College is highly motivated to reduce its GHG emissions in line with Government targets by 2030 and is establishing a robust governance structure to support the ongoing decarbonisation and energy efficiency of the university. There is also college-wide support to go beyond these targets and focus on wider sustainability challenges, and to set meaningful targets to become a nature positive, low carbon university. The staff and students of the university are strongly supportive of these actions and our aim is to embed environmental sustainability across everything we do including education, research, operations and engagement.

However, the challenges we face are complex, and will not be overcome without strategic support from Government to build the human and financial capital needed to radically and ambitiously change the systems that we are currently operating within. The dual crises of climate change and biodiversity loss will require substantial financial investment from external sources, as well as ongoing leadership, innovation, collaboration and practical solutions. Trinity is well placed to provide this leadership and work with others in the sector, and within across the city, for climate and biodiversity action in central Dublin and beyond but cannot do this without external funding.

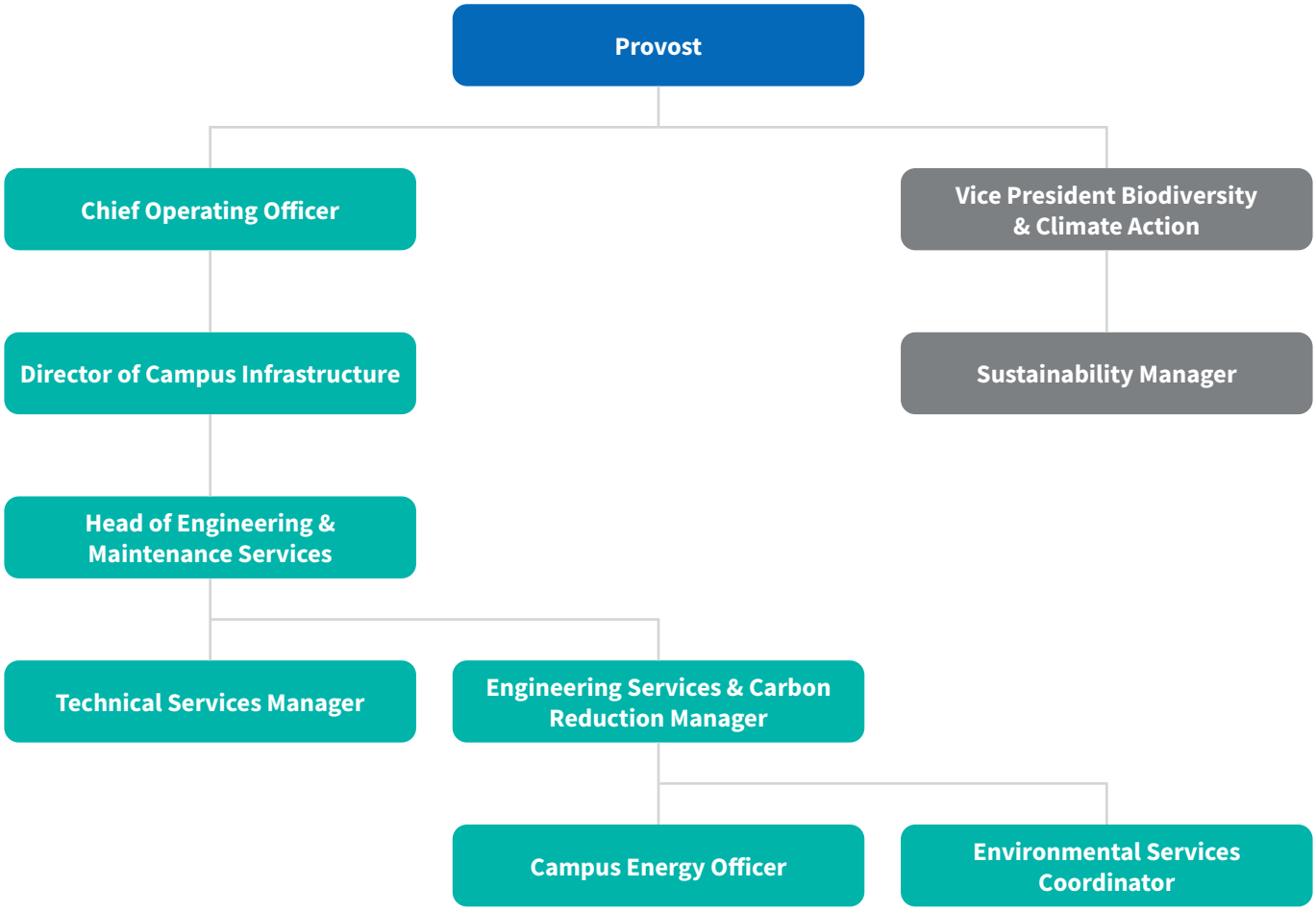
APPENDIX 1A CURRENT GOVERNANCE STRUCTURE FOR SUSTAINABILITY



APPENDIX 1B KEY UNITS SUPPORTING THE IMPLEMENTATION OF CLIMATE ACTIONS



APPENDIX 1C KEY ROLES CURRENTLY SUPPORTING THE IMPLEMENTATION OF CLIMATE ACTIONS



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

Climate Action Roadmap

MARCH 2023