

Climate Action Roadmap

February 2023

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Overview

At Maynooth University academics across a range of faculties and departments, in particular the department of Geography and the Icarus Climate Research Institute, are researching climate change and helping guide public policy on the urgency of the adaptation and mitigation measures needed in Ireland and internationally.

Maynooth University has always had a strong green agenda and our green focus is a whole community approach and is heavily lead by the Maynooth Green Campus (MGC) committee which has been in place since 2014. The MGC has achieved three Green Flags, a National Pollinator award and been accredited to ISO 50001. We have worked hard in the area of energy efficiency and exceeded our 2020 energy efficiency target.

This document sets out to communicate how Maynooth University aims to meet the requirements of the Climate Action Mandate 2022 (the Mandate) and reach its 2030 carbon and energy efficiency targets.

This first iteration of the roadmap focusses primarily on reducing total energy related emissions and fossil fuel related emissions from our operations in line with the targets in the Climate Action Plan 2021 (CAP21).

The projects targeted in this roadmap are primarily on the North Campus and in buildings that are owned by Maynooth University with the exception of the JPII pathfinder project which is in the library, a building on which Maynooth University has a long term lease.

The focus has also been on the newer buildings that can be upgraded to heat pumps with a minimum of interventions to the building fabric.

It is noted that future iterations of the Roadmap Guidance will address how the scope may be expanded to potentially include other non-energy greenhouse gases, indirect emissions, and adaptation to climate change.

The commitment and co-operation of all staff and students at the University is essential for the implementation of this climate action roadmap, and I would like to thank you in anticipation for your co-operation in this regard. This roadmap will be reviewed regularly. The reviews will consider any changes in legislation and when necessary take account of developments at the University and any updates to the CAP.

Caleen

24th April 2023 Date

Professor Eeva Leinonen President Maynooth University

Compliance with legal requirements

The Maynooth University Climate Action Roadmap is primarily focussed on meeting or going beyond the requirements of the Climate Action Mandate 2022. However, it is acknowledged that there are legal requirements relating to energy and climate action such as.

- Climate Action and Low Carbon Development (Amendment) Act 2021, which requires all public bodies to perform their functions in a manner consistent with Ireland's climate ambition.
- SI393/2021 Energy Performance of buildings, which requires installation of Building Automation and Control by 2025, for buildings with HVAC rated output over 290kW; requires installation of electric vehicle charging points in carparks for new or refurbished buildings with more than 10 car parking spaces.
- SI381/2021 Clean Vehicles Directive, which sets targets for the procurement of clean light and heavy-duty vehicles, with the first target falling in 2025 and the second in 2030. The definition of clean vehicle changes to zero emission vehicles in 2025.
- SI4/2017 Energy Performance of Buildings, which requires all new public sector buildings built since 2018 to be "nearly zero emissions".
- SI646/2016, which requires that public bodies only procure energy using products and vehicles that are on the 'Triple E register'.
- SI426/2014, which requires the public sector to demonstrate exemplary energy management and requires public bodies to undertake energy audits every four years.

Introduction and progress to date

Maynooth University has made significant progress to date (2021 most recent results) in improving its energy usage since the baseline of 2009 as indicated by the graph below.



Energy Performance Indicators - 2021

This has been achieved during a period of exceptional growth in the university where the Student numbers grew by more than 50% to the current number of 15,500 students. During this time the built

Total Final Consumption - As Reported

environment also grew, increasing by almost 34,000m² with the addition of the Arts Annex, Iontas, Rowan House, Product Design, JPII Library extension, Eolas, Education Hub, Courtyard residences. This represents a growth of 42% over the period and more recently in 2022 an additional 10,500m² has been added in the new Technology Society Innovation building.



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Energy	Unit	Energy Efficiency Baseline	2021	2020	2019	2018
 Electricity 	kWh	8,013,489	7,724,476	7,550,394	8,743,474	8,748,171
 Thermal 	kWh	18,642,888	16,806,927	16,427,772	18,804,843	20,034,961
 Transport 	kWh	16,208	29,710	34,147	49,132	13,411
Total Final Energy	kWh	26,672,585	24,561,114	24,012,313	27,597,449	28,796,543

The years 2020 and 2021 were both affected by Covid 19 as normal campus activity ceased in March 2020 and did not resume until September 2021.

The most recent energy consumption figures, as taken from the SEAI M&R system above, show the significant progress that has been made. This has been achieved through the delivery of new buildings that are more energy efficient and the retrofitting of energy improvement projects or initiatives to the existing building stock.

These projects have included improvements to the Building Management System (BMS), upgrading lighting efficiency, fabric insulation improvements, and heating and air handling upgrades or improvements to deliver more efficient buildings. The university has also been accredited with ISO 50001 energy management system.



The progress in de-carbonisation has been achieved through improvements in thermal efficiency as older heating systems were replaced with more efficient condensing gas boilers and fabric upgrades reduced the heating load requirements. Only since 2021 has the push been to eliminate rather than reduce carbon. The most recent projects have involved the installation of heat pumps in both the new TSI building, which is totally heated via heat pumps, and the retrofit of the original John Paul II library (a 1984 building) as a Pathfinder Project where the gas boilers were replaced with a heat pump that can carry most of the load.

Leadership and Governance for climate action

The chart below outlines the Maynooth University structure for leadership and governance in respect to climate action.



The University president Prof. Eeva Leinonen is the Chief Officer of the University, she accounts to the Governing Authority of the University and is the Chair of the University Executive (UE).

The Chief Operations Officer, Dr. Mike O'Malley, is the Bursar and Secretary of the University and a member of University Executive. He is the nominated Climate and Sustainability Champion and is the UE member that Estates reports to, as Bursar he can address the project budgets required to advance this plan.

The Director of Estates and Capital Development Mr. Michael Rafter is the director responsible for the functional and capital estate. He is a member of the senior management team and is the Energy Performance Officer. In his role he has decision making powers with regard to estates facilities, budgets and procurement.

The Green Team Includes the following:

Michael Rafter

Director of Estates and Capital Development (Energy Performance Officer) and member of Green Campus Committee

Ivan Griffin	Head of Campus Services, which includes waste management, traffic management, security and maintenance personnel. He is also a member of the Green Campus Committee
Ciaran Coffey	University's Energy Manager and member of Green Campus Committee
Michael Lennon	Powerhouse Manager who looks after mechanical and electrical plant including the Building Management System.
Heather Meldrum	Campus Services
Mireia Guardino Ferran	Campus Services Green Campus Co-ordinator and member of the Green Campus Committee.
Dorena Bishop	Member of Green Campus Committee
Sarah Coughlan De Silva	Representative from Academic Administrators
James Cotter	Representative from Technicians
Karen Jago	Representative from IT Services

The Green Team is primarily focussed on energy targets and reducing use where possible to achieve the 15% reduction target over the winter.

Initiatives being targeted include:

- Adjusting heating set points to 19°
- Adjusting heating schedules to reflect core hours (some exceptions made for research needs that take place outside of these times).
- Moving all evening and out of hours classes to just two locations (our newest and most efficient buildings).
- Working with Timetable Office to match lecture theatre AHUs to usage times.
- Switching off computer equipment when not in use, particularly the labs (central controls by IT Services and Departments).
- Reviewing freezer set points with technicians/research groups.
- Security lock up procedures to check lights.
- Plug in Heaters removed from the procurement system.
- Regular reviews of BMS to cut down physical plant usage where possible.

Engaging our people

Maynooth University has been engaging the campus in energy reduction and climate action significantly since 2009 as indicated by the glide slope in energy reduction to achieve our 2020 energy reduction target of 33%.

As a campus we have the Maynooth Green Campus which was officially launched in 2014. It is a partnership of the three entities on the shared campus: Maynooth University (MU), St. Patrick's College

Maynooth (SPCM), and the development organisation, Trócaire who are also based on the campus.

The Organogram of Maynooth Green Campus is below.



Since its establishment in 2014, the Maynooth Green Campus (MGC) committee has been a vigorous agent for bottom-up and top-down change on the environment. The committee has cross-campus representation and has achieved widespread buy-in by staff and students in a broad range of actions. The actions link local sustainability work and best practice on campus with national and international leadership on environmental sustainability and climate justice issues.

For example MGC promotes activities such as Maynooth Unplugged to reduce unnecessary energy use; Marchathon, Stepathon and Biodiversity walks to encourage walking for health. MGC also campaign to improve behaviour in relation to waste including litter pick up activities, labelling bins, organising recycling workshops and promoting Wonders of Waste (WoW) bags. MGC encourage a civic dimension and partnership across all University stakeholders which is a key part of the sustainability programme success on this campus.

In addition, the approach of MGC is also designed to make links between local good practice and a push for national and global policy change on environmental sustainability. From the outset action on climate change and its relationship to social justice globally has been intrinsic to MGC's work.

As well as working closely with campus services, grounds and estates departments, MGC works actively with staff and students across departments in the Humanities, Social Sciences, Science and Engineering, Primary Level Teacher Education (Froebel), Secondary Level Teacher Education, Adult Education, Community & Youth Work, Social Policy, Business and Law. Each of these areas has its own possibilities for incorporating sustainability into teaching and research and MGC has sought to work with all of them in one way or another.

The Green Campus initiative has reached out to all academic departments to promote research and teaching relevant to environmental questions, and MGC has also sought wider public engagement at local, county and regional levels and has emphasised the importance it attributes to this element of the Green Campus methodology.

MGC are an important vehicle to engage with the wider campus community and as seen above the Green Team includes several MGC members.

MGC regularly sends out updates and reminders to people regarding green agenda items and holds several awareness events throughout the year as well as being active on social media.

The green team in conjunction with MGC are now targeting areas/groups to raise awareness and are working with the relevant staff and students to effect change and reduce our use.

The initial focus is on the Reduce Your Use campaign which aims to reduce energy consumption by 15%.

Achieving our targets

There are two targets to be achieved by 2030, a reduction in greenhouse gas (CO₂) emissions and an improvement in energy efficiency.

The first target is a reduction in absolute CO₂ emissions of 51 % from our 2016-2018 baseline.

Maynooth University has been reducing its CO₂ emissions, however these reductions have largely been attributed to improving energy efficiency projects rather than eliminating the need for fossil fuels. The focus must now change to reducing fossil fuel use and changing the university heating systems to electric heat pumps to reduce our non-electric emissions.

The SEAI have produced a gap to target tool that takes into account the greening of the electricity grid and can be used to model the carbon emissions reductions that need to be achieved.

The non-electric greenhouse gas emissions for 2021 were 3,472,261 Kg CO_2 and these need to be reduced to 1,964,261 Kg CO_2 which means that reduction of 1,508,000 Kg CO_2 is required based on the current building stock and level of activity i.e. without any new buildings or expansion taken into consideration.



As can be seen above the Green House Gas (CO₂) emissions are largely from thermal (heating) and electric (power from the grid) sources.

Transport emissions represent a small proportion of CO₂ emissions. The University has already made significant changes to its vehicle fleet and since 2014 has only purchased electric vehicles, the campus services vehicles are now all electric with the exception of two ford transits and two grounds tractors.

The University has planned projects (list on page 14) to achieve this reduction and some of these projects are already in train or complete.

These projects have been inserted into the Gap to Target Tool (GTT) and the following assumptions have also been incorporated.

- The student population will grow to 22,000 or ~17.500FTEs and an increased electrical load has been included to allow for increased activity.
- There will be a new building developed during this time of ~6,000m² (It will be heated by heat pumps like the TSI building so will not increase carbon emissions except from grid electricity)

When the proposed projects (retrofits, efficiency improvements, Heat Pumps and Photo Voltaics) and growth factors outlined above are inputted into the gap to target tool the model indicates that the university should achieve the desired reduction in greenhouse gas emissions in conjunction with expected decarbonisation of the grid (supply side reduction).



The Gap to Target Tool (GTT) modelling results are shown below.

The second target is an energy efficiency performance improvement target of 50%. This target is not as challenging as the University has already achieved a 47.4% improvement from the 2009 energy efficiency baseline.

Energy Performance Indicators - 2021



The GTT has also been used to model the effects of the proposed projects on energy efficiency and indicates the following results.

EE savings summary since 2009 baseline				
Year	EE target	BAU savings	Savings with projects	
2020	33.0%			
2021		47.4%	47.4%	
2030	50.0%	60.9%	69.9%	



This indicates that Maynooth University is well below the required glidepath and that the 50% energy efficiency target will be achieved either with or without the proposed projects.

Maynooth University is projected to achieve ~61% without the projects and ~70% with the projects

		Thormal	Floctricity	c02				Diannad
Project	Description	Savings KWh	Savings KWh	reduction Kg	Stage	Esti	mated Cost	Delivery
ibrary Pathfinder Project	Roof insulation, AHU upgrade, Boilers and Heat pumps, and Solar panels	773340	6200	161000	Complete	€.	1.000.000.00	2022
Auxilia Roof	Upgrade and improve insulation of roof	9824		2034	Complete	€	50.000.00	2022
Rve Roof	Upgrade and improve insulation of the roof	1098	3 10806	4513	Complete	€	600.000.00	2022
3MS Upgrade	BMS upgrade to IQ vision to allow greater controls and improved handling of exce	1666749	899634	543090	Upgrade complete programming work ongoing	€	100,000.00	2022/3
colas heat Pumps	Changing Eolas heating and cooling to Heat pumps	56432	.89781	83000	Detailed engineering assessment	€	470,000.00	2023
olas Improved Controls	Improved controls	127518	67328	49000	Detailed engineering assessment	€	17,500.00	2023
chool Of Education Heat Pumps	Changing Heating and Cooling to heat Pumps	30332	-48257	44613	Engineerinmg assessment in train	€	350,000.00	1023
Arts Upgrade	Fabric upgrade to windows which are currently old single glazing	372763	3	77195	Design work ongoing	€	3,000,000.00	2024/5
Bioscience Controls	improved controls	701705	5 133803	189000	Detailed engineering assessment	€	17,500.00	2024
Bioscience heat pumps	Changing heating to heat Pumps	325139	-50032	49000	Detailed engineering assessment	€	470,000.00	2024
ontas Controls	Improved Controls	66655	5 35193	25613	Detailed assessment planned	€	17,500.00	2024
ontas heat Pumps	Changing heating to heat Pumps	294980	-46930	43385	Detailed assessment planned	€	350,000.00	2024
P 2 Extn	heat Pump to carry most of the load and existing gas boilers left for top up in extr	43067	-68517	63342	Detailed assessment planned	€	400,000.00	2025
PII hot water	change from gas to heat pump	28234	L	5800	detailed engineering assessment	€	35,000.00	2025
Bioscience Solar Panels	50KWp		40000	14000	under consideration	€	61,200.00	2025/6
olas Solar Panels	100KWp		84519	29000	Detailed Engineering Report	€	135,000.00	2025/6
School of Education Solar Panels	50KWp		40000	14000	under consideration	€	61,200.00	2025/6
Arts Solar Panels	200KWP		169038	58000	under consideration	€	258,000.00	2025/6
Science Solar panels	21KWp		18400	6000	under consideration	€	27,000.00	2025/6
Rowan Solar Panela	21KWp		18400	6000	under consideration	€	27,000.00	2025/6
Phoenix Sports Solar	50KWp		40000	14000	under consideration	€	61,200.00	2025/6
Callan Solar Panels	21КWp		18400	6000	under consideration	€	27,000.00	2025/6
Callan Heat pumps	Changing heating to heat Pumps to carry most pof the load with gas boilers retain	902499	-143583	132738	Being investigated as part of arts project	€	470,000.00	2026/7
Rowan House	heat pumps	65028	-10006	9800	Planned	€	175,000.00	2028
ohn Hume	Improved Controls	77659	7 148084	209172	Under investigation	€	17,500.00	2028
ohn Hume Heat Pumps	replacing boilers with Heat Pumps	359840	-55372	54230	Under investigation	€	400,000.00	2028
Courtyard heat pumps	Replacing boilers with heat pumps	721423	-114774	106106	Under consideration	€	470,000.00	2029
otals		8501608	1102552	1999631		€	9,067,600.00	

Complete and already funded Partially complete

Funded from another project

The CO₂ reduction target is 1,508,000 and the modelling of the projects indicates a reduction of 1,999,613 which allows some additional headroom for possible expansion or if projects do not quite deliver the expected savings.

The projected energy reduction from these projects is the combination of thermal and electrical savings and represents a saving of 9,604,160 KWh which, when coupled with the projected increase in student numbers, delivers the required improvements in energy efficiency.

Energy Efficiency and Greenhouse Gas Reduction Projects Modelled in GTT

Energy and environmental management systems

Maynooth University has recently upgraded its Building Management System to Trend IQ Vision, this upgrade allows greater controls of the buildings and facilitates exception events to be addressed more easily with exceptions automatically cancelled post event and the normal time schedules resumed.

The new system is more user friendly and is easily accessible through a web portal.

Maynooth University in conjunction with our campus partner, St. Patricks College Maynooth, achieved ISO 50001 certification in 2018 and was re-certified in 2021. The initial certification was to the 2013 standard whist the re-certification was to the newer 2018 standard.

The ISO 50001 certification is included as an appendix.

The campus has also achieved several accreditations for the campus and grounds



The Green Campus Flag award was under several headings (Biodiversity, Energy, Climate Justice, Transport and Travel, Water and Waste).

The campus is currently working towards ISO 14001 Certification.

Greening our procurement

Maynooth University has adopted green procurement in the set up of central contracts many of which are drawdowns from larger OGP (Office of Government Procurement) frameworks or contracts. The purchase of equipment from the "Triple E register" is implemented and our Procurement and Contracts Officer is developing a 'Maynooth Guide to Green Public Procurement' based on the EPA (Environmental Protection Agency) green procurement guidance for the public sector second edition as published in 2021.

Reducing resource use

Paper and Cardboard Reduction

Maynooth University has several initiatives targeted to reduce the use of paper and cardboard on campus.

- The use of "Moodle" a virtual learning environment for Students.
- The use of Microsoft Teams for meeting minutes and management of various committees.
- A managed print service rolled out across the campus in last year includes setting all machines to print on both sides and in black and white as standard.
- The campus restaurants use delph for dining in.
- Campus restaurants offer a discount for keep cups. Staff, students and visitors are encouraged to keep a cup, and to reduce the dependency on single-use cups. The University issued a university branded reusable coffee cup to all incoming 1st Years students in 2018 and repeated this in September 2019. The "Keep Cup" raises awareness of the importance of recycling.
- Maynooth university has an extensive network of drinking water fountains where people can
 refill their water bottles. Maynooth University has sought to promote changes in behaviour in
 water use, particularly in substituting the use of drinkable tap water for the use of disposable
 bottled water. The University issued a university branded reusable water bottle to all incoming
 1st Years students in 2016, 2017 and 2018. These reusable water bottles can also be purchased
 by staff, students and visitors in campus retail outlets.
- Where caterers use disposables they are mandated to use compostable disposables and to eliminate the need for single use plastics.

Waste Management / Recycling

Waste management and recycling has seen significant improvement over the years as outlined below with several initiatives aimed at reducing waste.



Maynooth University has a community-based approach to managing environmental concerns. Waste management features strongly in the work of the Maynooth Green Campus committee, the Campus Services team and at an individual level across the campus community.

To achieve best practice in waste management, efforts by the campus community and by the waste management service provider have been co-ordinated. They have been designed to increase awareness, promote waste recycling and actively reduce the amount going to landfill. The University has an extensive recycling programme which is a combination of onsite source segregation and off-site processing to achieve high recycling rates.

This is illustrated by the chart above, the source segregation into recoverable streams (Compostable, Mixed Dry Recyclables, Shredding, Cardboard Waste, Electrical and Electronic Equipment (WEEE) and Glass) accounts for 56%, a further 34% is recovered in post collection processing giving an overall recycling rate of 90%.

In 2010/11 67% of waste went to landfill. In 2020/21 less 10% of the campus waste ultimately arrived at landfill. This waste was in the form of fines (dust) generated by offsite general waste processing. This reduction was achieved through the implementation of strategic procurement, campus community engagement and a wide range of waste recycling and recovery measures including the bin-less office, cardboard recycling, self-compacting bins, food waste recycling, landscape and grounds recycling initiatives.

Catering service providers on campus recently discontinued the use of single-use plastic cups, cutlery and straws, in tandem with the introduction of Fair-Trade tea and coffee and the wider promotion of re-usable "keep-cups". The installation of additional Drinking Water Fountains on campus actively reduces the dependency on bottled water purchase and therefore reduces plastic bottle waste.

Waste Electrical and Electronic Equipment (WEEE) recycling is active across the Maynooth campus together with deposit and collection points for glass, batteries, CDs and clothes.

We are working with our waste service provider and expect to have the amount sent to landfill reduced to zero going forward as the fines will be used in a manufacturing process.

A broad range of measures undertaken on campus to reduce waste, and to increase recycling and recovery are outlined in more detail below:

The Bin-less Office

Maynooth Campus operates a bin-less office system, this system encourages each staff member to actively consider waste segregation and recycling waste elements such as paper, batteries, ink cartridges, electrical waste, food, etc. Each office user is issued with a recyclable's cardboard desk tray and has easy access to a mixed dry recyclables bin (green) and a general waste bin (red) for the correct disposal of waste. Each kitchen is supplied with a food waste bin (brown).

This "user segregates" waste management approach supports streamlined and more efficient office cleaning service operations.

Cardboard Baling and Recycling

Cardboard is a separate waste stream, it is segregated into dedicated 1,100 litre yellow bins which are provided at key locations. A Goupil electric van is deployed to gather and deliver the cardboard to a central campus location where it is baled on campus and issued to the waste management contractor for recycling. The main campus restaurant has a dedicated baling machine.

Public Realm Self-compacting Bins

The University has piloted solar powered self-compacting bins as part of the campus public realm over the last twelve months. Each self-compacting bin has telemetry which alerts the operations team when it is full, typically every three days. The bin "emptying frequency" requirement is reduced from daily to "only when full". The roll- out of the self-compacting bins visually promotes sustainable waste management strategies, while ensuring more efficient use of limited human and financial resources.

Food Waste Recycling

Food waste has a separate waste stream. The food waste from restaurants, catering concessions and departmental kitchens is collected in brown bins and then taken off-campus to a composting facility in Nobber, Co. Meath. Compost is returned to the campus for use by campus landscape and grounds staff or for taking home by staff and students for their own gardens, closing the waste management cycle.

Catering Outlet Initiatives

The University supports the Fairtrade initiative and catering concessions serve Fairtrade tea, coffee and sugar on campus. This Fairtrade initiative is allied with the promotion of other sustainable Go Green measures including the reduction of single use plastics on campus. In support of the Go Green initiative, a surcharge now applies to tea and coffee purchased on campus where a "single-use compostable disposable cup" is required.

Where takeaway food is offered, compostable cups, containers, cutlery and straws are provided to eliminate the need to have single use plastics.

The Maynooth Green Campus regularly run sustainability related campaigns to help get the message out and to encourage change. See overleaf a sample of the "Go Green" campaign encouraging the use of Keep Cups.

Individual Water Bottles

Maynooth University has sought to promote changes in behaviour in water use, particularly in substituting the use of drinkable tap water for the use of disposable bottled water.

To promote the reusable water bottle initiative, additional drinking water fountains were installed on campus to encourage multiple-use bottles and to reduce the dependency on buying plastic bottles of water. A further six water fountains were added in 2022 as part of the new TSI Building

Campus Landscape and Grounds Waste Recycling

The Campus Grounds team work to ensure that footpaths, carparks and roadways are kept clear of leaves to both reduce the risk of slips, trips and falls, and to mitigate blockage of road gullies and drains in adverse weather. Leaves are collected, stored on site in large concrete bays and developed into leaf mould over a three-year period. The leaf mould is a clean, weed free growing media that is used for seed propagation and flower beds.

In an effort to reduce herbicide use on the Maynooth campus, woodchip/bark mulch is applied around the base of trees and in flower beds every season. Providing a thick layer of mulch around the base of a tree allows for effective weed suppression without the negative effects of using weed killer.

Tree cutting works that are carried out on campus incorporate wood chipping and storing the chip until the chip is mature enough to use as a decorative mulch.

All larger green waste that cannot be composted on site is collected from the campus and transported 5kms to a local green waste processing facility. As part of reducing unnecessary transport, mulch is brought back to campus on return journeys from the green waste facility, to be used by our grounds team.



Some sample pictures

Improving our buildings and Vehicles

The campus is cycle and pedestrian friendly with the campus core pedestrianized. There is a campus speed limit of 25kmph on all internal roads.

The University has a policy of prioritising sustainable transport modes on campus, and in particular encouraging pedestrian and cyclist movement over vehicular movement. All sites have cycle racks in a variety of designs which are currently being standardized as sheltered Sheffield stands. The University offers access to shower and changing facilities for cyclists, supports a "Cycle to Work" scheme for staff as well as a Bike Buy Back scheme for students. MU encourages cycling through several services, events and groups, and provides bicycle repair stands and cycle clinics on campus. Travelling by bicycle | Maynooth University

Maynooth University has Display Energy Certificates prominently located in each building indicating its energy use, these have been improving because of the project work undertaken over the years.

Maynooth university has already embarked on the projects outlined in this roadmap and some projects are already complete including the replacement of gas boilers with a heat pump in the Library as a pathfinder project.

Our design guidelines have been updated to take account of the public sector mandate and the requirement for no fossil fuel heating after 2023.

Our newest building just opened is the first A rated building on campus and has EXEED certification with no fossil fuels in its operation other than grid electricity, hot water and space heating being provided by heat pumps, it also incorporates rainwater harvesting to provide grey water for toilet flushing and a solar array on the roof.

Since 2014 any new campus vehicles have been electric and most of the campus service vehicles both operated by the university and service providers are now EVs. (A sample below) These EVs allowed the pedestrianisation of the campus core as only these narrow track EVs can fit between the bollards to access the heart of the campus.



In the last year there has been a significant investment in the grounds team decarbonisation with the purchase of an EV, an electric ride on mower and an electric forklift all replacing diesel powered vehicles.





The small petrol powered hand tools were also replaced with battery operated equivalents.

Our wider climate action plans

The Green Campus Flag award was under several headings - Biodiversity, Energy, Climate Justice, Transport and Travel, Water and Waste. Significant achievements have been made in all these areas, and many have already been mentioned above.

As an example in Commuting, highlighted below, our modal splits have improved significantly by looking at where our students are coming from and working with bus operators to put on a service whilst promoting sustainable travel modes.

Mode	Survey 2009	Target 2013	Survey 2014	Survey 2016	Survey 2018
Walking	19%	22%	17%	16%	16%
Cycling	3%	5%	2%	2%	3%
Bus	8%	9%	23%	27%	32%
Train	10%	12%	14%	16%	16%
Total Sustainable					
Transport	40%	48%	56%	61%	67%
Car- single occupancy	44%	34%	35%	31%	21%
Car sharing	16%	18%	7%	6%	11%
Total Car	60%	52%	42%	37%	32%

(2020 survey was not completed as campus was not operating normally due to Covid, next survey due March 2022/23)

The University has a current ISO 50001 action plan which includes the following:

Objectives	Action Plan/Targets	Responsibility	Due	Verification Method	Status
Meet public sector energy efficiency targets	Reduce top level EnPI by 50% and greenhouse gas emissions by 51% by 2030	сс	Q4 2030	PSMR Reporting	Open
	Lower thermal EnPl by 15% in 2022	CPDO	Q4 2022	Annual Review	Open
Achieve ISO 50001	Achieve ISO 50001:2018 Certification	CC/MR/TZC	Q4 2021	External Accreditation	Closed
Certification	Transition to web based system	TZC	Q4 2022	Visual inspection/system commissioning	Open
	Develop awareness handout for staff	СС	Q4 2022	Material documented	Open
Improve ISO 50001 training and energy	Hold awareness day on campus	СС	Q4 2022	Documented records	Open
awareness	Involve Green Campus committee in EnMS	CC/TZC	Q4 2022	Meeting Minutes	Open
Review feasibility of moving to bulk gas meters	Savings in tariff costs equating to approx. €150,000	CPDO	Q1 2023	Feasibility report	Open
Verify heating upgrade phase 2 project savings	M&V project	TZC	Q2 2023	Project M&V	Open

Appendix 1: Energy policy





Energy Policy

We are committed to the provision of a vibrant sustainable campus environment, rich in learning, culture, heritage and nature, with modern inclusive facilities and infrastructure commensurate with the needs of a growing community of students, staff and visitors. We are committed to showing leadership in sustainability and care of the environment, and continuous energy performance improvement across campus buildings.

We aim to deliver this through;

- raising awareness of the importance of energy efficiency at all levels of the organisation, promoting the concept that a sustainable campus involves all parts of the community to act collectively, including staff, students and service providers;
- the communication of the Energy Policy and active promotion of good practice in the conservation of energy across all campus users, through staff and student energy awareness campaigns, and encouraging active engagement for continuous improvement of energy use across the community;
- provision of staff education and training to support positive attitudes and behaviours towards efficient energy usage and to foster a shared responsibility for the optimum development of a sustainable campus community;
- the implementation of a structured energy management programme and IS050001 Energy Management Systems, advancing initiatives designed to achieve the national energy efficiency improvement target of 50% by 2030, and beyond;
- The continuous roll-out of an integrated centralised energy management system to provide more accurate control and monitoring of building systems, the definition of specific energy conservation plans, clear energy objectives, data collection, monitoring and review procedures;
- allocation of adequate resources to enable the successful implementation of the Energy Policy and compliance with relevant building regulation, energy legislation, legal and other requirements;
- targeted investment in the roll-out of sustainable design measures in new construction and building refurbishment, incorporating Near Zero Energy Building design, high energy efficient plant, systems and strategies;
- careful consideration of building energy efficiency, life-cycle costs and opportunities to showcase sustainability as part of the decision-making, procurement and building design development processes;
- the reduction of our carbon footprint through the promotion of renewable energies and energy efficient technologies, and through initiatives aimed at reducing dependency on primary fossil fuels.
- undertake to fulfill the terms of the Government's Climate Action Mandate.
- the periodical review of the Energy Policy to reflect energy performance progress, national energy targets and planned developments, and will be ideally reviewed every 3 years.

Faca leur Signed:

Professor Eeva Leinonen, President Maynooth University

President St. Patrick's College Maynooth

Appendix 2: ISO 50001 certification

Certifi	cate of Registration	n	LUC	IDEC	N
This is t	o certify that the Energ	gy Management Sys	stem of		
Mavn	ooth University	/St Patricks	College Ma	avnooth	
Maynoo	th. Co Kildare. Ireland	,,	concycia		
Meets th	he requirements of				
ISO 5	0001:2018				
Scope o	of Registration				
The En College	ergy Management Sy e, Maynooth.	stem of Maynoot	h University an	d St Patrick's	
This inc	cludes all buildings or	n the North and S	outh campus.		
Signed f	for and on behalf of Lu	cideon CICS Limite	d		
S.Ba	unbridge. ^{Signatory}				
	Certificate No:	24854	Date of Issue:	01 November 20	021
UKAS MUNAGEMED SVSTEMS 0006	5 Issue NO.	I: OI November 2021	Date of Expiry:	5 April 2024	
Certification to a The use of the A	an Energy Management System has been mai	intained since April 2018. espect of those activities covered by t	the accreditation certificate no 0	006	
This Certificate of Re poverning the registr Further clarifications	gistration is granted subject to conformance ration. regarding this certificate may be obtained by	with the conditions of contract consulting the organisation.	Lucideon CICS Quieens Road, P Stoke-o Staffordshire ST4 7	Limited T +44 (enkhull support@ n-Trent www LQ, UK Reg. En	0)1782 411008 Ilucideon.com Jucideon.com gland 1871628

Appendix 3: TSI building accredited with A rating.

This is a new 10,500 m² academic building with over 2,200 centrally timetabled lecture seats and is home to the School of Business and the Department of Sociology.

The building uses air source heat pumps for both space heating/cooling and domestic hot water. It has an intelligent lighting system to reduce use and take advantage of daylight harvesting where possible. It also has a PV (Photo Voltaic) array on the roof and a rainwater harvesting system providing grey water.

R for the building de fechnology, Society ar worth Campus daynooth University	tailed below is: A3 Id Innovation (TSI)	The Building Energy Rating (BE performance of this building, It and cooling, water heating, ven the basis of standard operating emissions indicator. These indi ratios of primary energy use an would apply for a similar buildi	R) is an indicator of the energy covers energy use for space heat titlation and lighting, calculated on patterns. It is accompanied by a (aators are expressed as respective dd Co ₂ emissions, relative to what ng generally satisfying the Buildin
101 Wildare 101 Wi23		Regulations 2005. 'A' rated prop and will tend to have the lowes	perties are the most energy efficie t energy bills.
3ER Number: 3uilding Type: Jseful Floor Area (m²): 4ain Heating Fuel: 3uilding Environment:	800884074 Residential Institutions: Univ ersities and colleges 10616 Grid Supplied Electricity Heating and Natural Ventilation	Date of Issue: Valid Until: BER Assessor No.: Assessor Company No Assessor Scheme:	02 Dec 2022 01 Dec 2032 108711 0.: 101068 SEAI
Building Energy Rating Indicator) MOST EFFICIENT			Carbon Dioxide (CO ₂) Emissions Indicator
<0.17 A1			BEST
≥0.17 A2			0
≥0.34 A3	A3		
≥0.50 B1	110.81 kWh/m²/yr 0.48		Calculated annual CO ₂
≥0.67 B2			21.79 kgCO ₂ /m ² /
≥0.84	61		0.49
>1.00	C2		1.0
>1.34	C3		
≥1.50	D1		
≥1.75	D2		
≥2.00	E1		2.0
≥2.25	E2		
≥2.50		F	WORST
≥3.00		G	>3.0
			the less the building contributes to global
EAST EFFICIENT			warming.