Ollscoil Chathair
Bhaile Átha Cliath
Dublin City University

DCU Climate Action Roadmap

2023

Approved 4th April 2023

Contents

Executive Summary

This is the first Climate Action Roadmap for Dublin City University and it builds on our existing commitments of our Climate Action Plan 2021-2023 and on the measures taken by DCU over the past decade in increase energy efficiency and reduce water consumption. This roadmap addresses the actions outlined in the guidance provided by the Sustainable Energy Authority of Ireland and the Environmental Protection Agency and goes beyond these to provide a holistic plan for our university and all its related communities.

DCU recognises the immense scale of the Climate Change and Biodiversity Emergency challenge. The ambition of this iterative DCU Climate Action Roadmap is to set out the adaptation and mitigation actions that DCU will deliver to address the mandate as set out in the National Climate Action Plan 2021/2023. The challenge is daunting and we recognise that the timescales for action are short. We also recognise that the delivery of all the actions, as laid out in this current roadmap, do not meet the overarching necessary targets and that further mitigation and adaptation measures will be needed. We will continue to work towards identifying and implementing these additional measures appreciating that urgent action is required.

DCU and the Irish university sector has a crucial role to play in supporting Climate Action through the education and up-skilling of the next generation, supporting research that can inform climate action and potential mitigation measures and through our day to day operations to reduce our own GHG emissions. Sustainable Development is identified as one of the University's drivers in its Strategic Plan 2023-2028 and this Climate Action Roadmap

The actions laid out in this Roadmap address education, training and engagement initiatives for our broad DCU community, technological solutions to decarbonise our buildings and vehicles, along with a suite of actions that examine our ways of working and our resource use and seek to reduce our indirect operational emissions.

There are substantive risks that will impact on DCU's ability to deliver on the current set of actions targeting our energy GHG emissions for 2030 include:

- Resourcing – the estimated scale of investment required (€115m+), in particular to decarbonise heating, far exceeds the current resource envelope of the University.

- Electrification and grid capacity – it remains uncertain if ESB Networks/ National Grid can provide the additional electricity capacity (Maximum Import Capacity, MIC) that will enable DCU to migrate buildings from gas to electric heat pump technology.

Introduction

Dublin City University, originally established in 1989, is located to the north of Dublin City and is the most significant and comprehensive provider of university education in the rapidly growing and economically important north Leinster region. There are six campuses - three academic (DCU Glasnevin, DCU St Patricks and DCU All Hallows), one innovation focused (DCU Alpha) and two focused on sports (Sports Campus and Morton Stadium – The National Athletics Stadium). All are within a 4 km radius with over 75 buildings (~300,000m^2) on 150 acres. In 2020 DCU has over 19,000 students and 2,500 staff.

The estimated carbon emissions associated with all DCU activities in 2019 is just over 52,000tCO2e. To provide some idea of scale of these emissions, assuming, very broadly, that six trees will fix approx. 1tCO2, over 300,000 trees would be needed to fix our emission for 2019 alone for the trees entire lifetime i.e. we would need an additional 380,000 additional trees to fix the emission from 2018 (64,000tCO2e).

The DCU Climate Action Roadmap 2023 is DCU's account of the specific measures and actions being undertaken by DCU to meet its obligations under the Climate Action Legislation and mandates under the National Climate Action Plans (2021 & 2023) – see excerpt in Annex 1 of this doc. The scale and range of these required actions is substantial. The DCU Estates team is working to address many of the technical energy/decarbonisation related actions. This working group of Executive is focused on identifying the action necessary for DCU to address the mandated obligations outlined below.

The final DCU Climate Action Roadmap will combine the input from both our Estates team and this workgroup which will then be submitted to DCU Executive for approval. The final Roadmap will be submitted to the HEA and SEAI by end March 2023. Note this is the first version of this roadmap and we will be revising it on an ongoing basis as new National Climate Actions Plans are released - expected at least annually.

Energy Decarbonisation Progress to date

Since 2009, public bodies, under the National Energy Efficiency Action Plan, (NEEAP), and the European Communities, (EC), Regulations, set out and targeted a 33% energy performance improvement target for 2020. DCU played its part and surpassed the objective, achieving a 59.4% energy performance improvement over the target period, with an equivalent area energy performance indicator of 193kWh per square metre, the target set at 318kWh per square metre. DCU was the top performing university, and in the top tier of the public sector best performing organisations.

Along the way DCU won a number of energy and water conservation awards, and with considerable cost and carbon savings accumulated over

that time too. Similarly, our water conservation campaigns reaped significant results, with over 50% savings across all campuses.

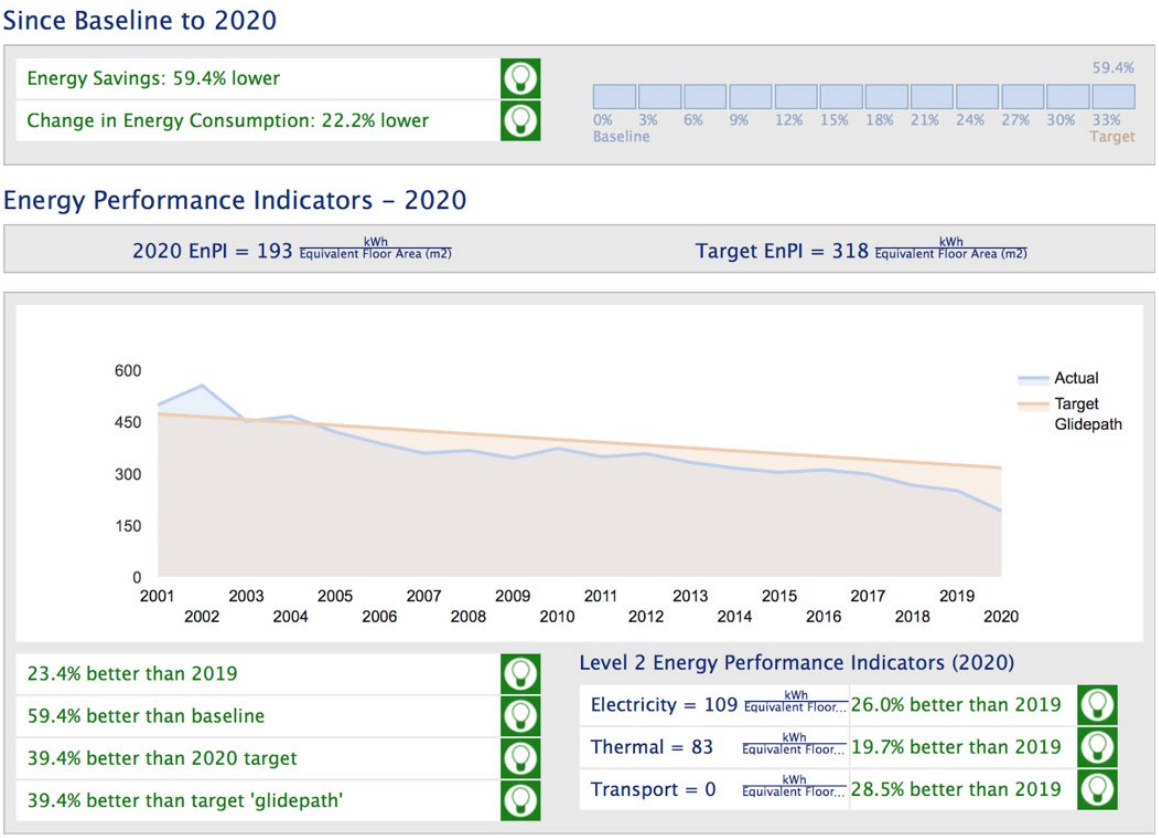


Figure 1: 20 Years of Energy Performance at Dublin City University

DCU manages its energy and water systems through a combination of a structured, motivated, forward thinking, strategic and innovative utilities management plan.

The process began with the establishment of an energy team in 2016, to combine the crucial operational elements needed to manage energy daily, while ensuring the strategic side focused on sustaining consumption, cost and carbon into the future. A four-stage approach was devised to align utilities planning across all campuses. It included, the implementation (and full independent certification) of the DCU energy management system, the implementation of a multi-campus energy and water conservation strategy, the formalisation and structuring of all energy operations, and the setting up three energy management teams to manage the overall process; the estates office energy management team, the university energy management team, and the senior energy management team.

Energy and Water conservation are now fully embedded into all facilities, operational, and project activities, and focussed throughout the entire staff and student populations. Our ISO 50001 Energy Management System

certification, of which the scope is all natural resources across all campuses, has enabled this delivery and is the bedrock for our ambitious and aggressive plans for 2030 and beyond.

COVID had a serious effect on our utilisation and consumption of energy. With the lockdowns over 2020 and 2021, there was some positive news in terms of reduced energy requirement, but safety protocol to ensure clean safe air was, and still is, provided to spaces in the post COVID environment, has meant that our efficient heat recovery air systems are disabled until further notice, and pumps and fans are running longer than ever to ensure all our learning and working environments are safe for both students and staff. This will continue into the future and is an additional challenge for us as we step up our ambitions to decarbonise our energy systems.

As of 2021, and with new Irish and European targets, DCU is 55.7% towards achieving its overall objective. This includes a slight deterioration from 2020, which was expected as the university re-opened and we felt the impact of COVID bounce-back.

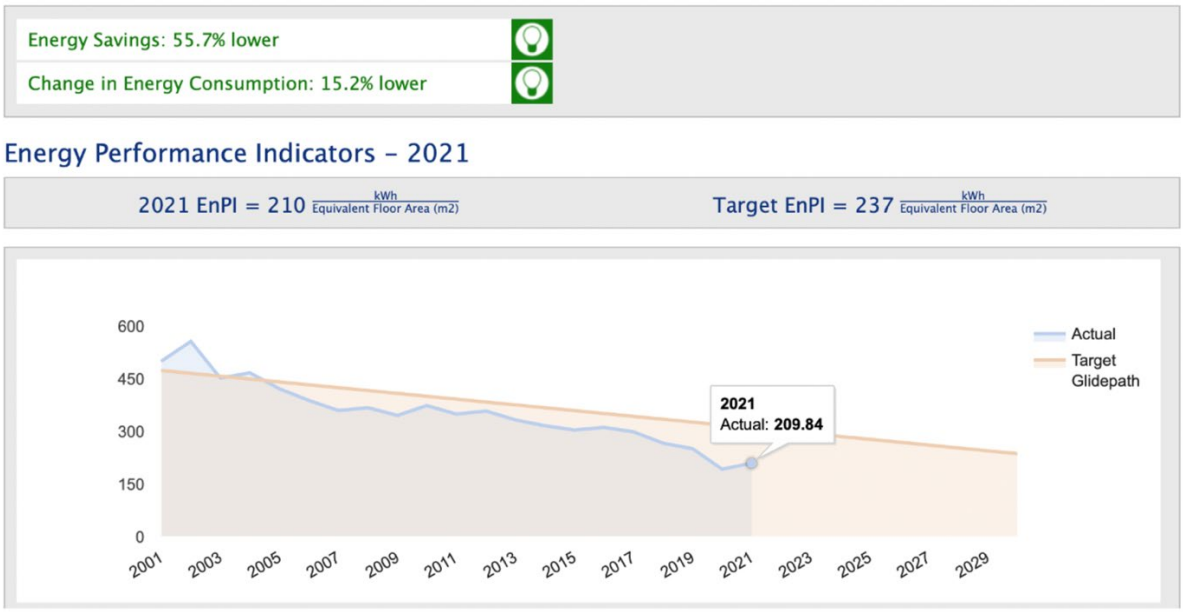


Figure 2: 2021 DCU Monitoring & Reporting Glidepath

2021 DCU Monitoring & Reporting Glidepath

Energy management in itself is an all-encompassing process that must include every aspect of our thinking from leadership, finance, human resources and public relations right through to operations, maintenance, purchasing and planning. The purpose of this climate action plan is to show that we will address all aspects of our energy requirements and incorporate a culture of energy conservation and consciousness into our everyday university operations, whether they be in the learning, research, operations, or administration.

Our People

DCU's has demonstrated leadership in embedding sustainability across the institution. The DCU Estates Energy team has been working for decades on the implementation of energy saving and efficiently measure right across all the DCU Campuses. In 2012 DCU was the first university to appoint a sustainability manager and went on to establish, in late 2018, the DCU Sustainability Council, chaired by the DCU Chief Operations Officer (COO) has representation from all faculties, the SU and professional support units. Together this Council have developed the DCU Climate Action Plan 2021-2026 (see Appendix for full details) and work to monitor its iterative development and implementation.

Leadership and Governance for Climate Action

In this section there is a summary of the key position and roles within DCU and their responsibilities in respect to sustainability.

- Our President, Prof. Daire Keogh, has overall responsibility for the leadership and strategic direction of DCU and is committed to demonstrating DCU continued leadership in Sustainability.

- Our Chief Operations Officer, Dr. Declan Raftery is our Climate and Sustainability Champion, and has overall responsibility for our Climate Action Mandate.

- Our Head of Sustainability, Ms. Samantha Fahy, has responsibility for Sustainability and Climate Action. The DCU Sustainability Unit has currently one additional sustainability officer and two research assistants.

- Our Energy Performance Officer and Director of Estates, Mr. Gerard McEvoy, has responsibility for Energy Performance.

- Our Energy Team, Mark Argue, Joe Fallon, and Richard Kelly, have responsibility for the management of our Energy and Water Management Systems.

- The Senior Energy Management Team consists of the Estates Manager, Richard Kelly, The Director of Estates and Energy Performance Officer, Gerard McEvoy, the Sustainability Manager, Ms Samantha Fahy, and the Chief Operations Officer, Dr. Declan Raftery.

- The Sustainability Council consists of 20-25 members from across the university with representation from all faculties and professional units and the DCU Students Union.
- The DCU An Taisce Green Team, consists of volunteers from the staff and student bodies and has currently over 70 members. The An Taisce Green Committee work closely with DCU Sustainable clubs and societies to deliver of student focused actions each year and work.
- Smarter Travel Working Group: with membership from across the university this working group actively works to address travel and transport issues across our campuses working closely with the National Transport Authority.
- Faculty Technician Green Team – drawn together over the past number of years to address in particular lab-based energy concerns, this team of technicians works closely with the DCU Estates Energy Team.

The figure below outlines the current structures at DCU.

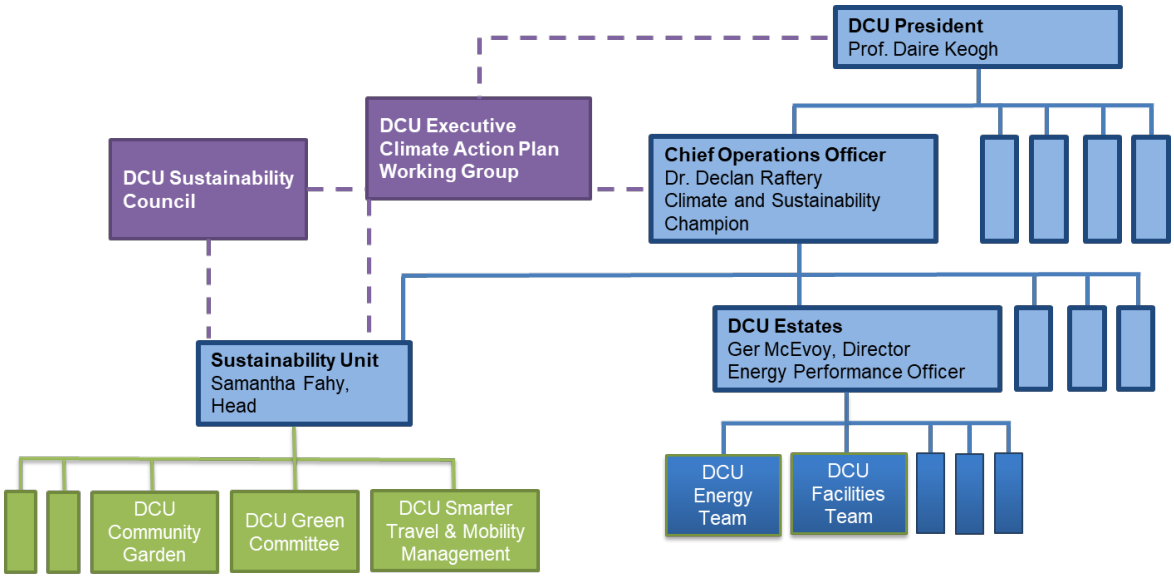


Figure 3: Organigram of Sustainability teams at DCU

DCU Strategic Plan 2023-2028: Transformation for an Unscripted Future

DCU is currently developing its strategic plan for the coming seven years to 2030 and recognising the importance of sustainability is core to this strategy with Sustainability being one of DCU's agreed primary drivers. The figure below provides a draft snapshot of the plan.

Building on the strategic intent of this plan DCU is committed to intensifying the cross-campus engagement with sustainability and to support this will seek to establish additional Green/Sustainability teams at Faculty Level as well as across the professional units (Draft terms of reference in appendices).

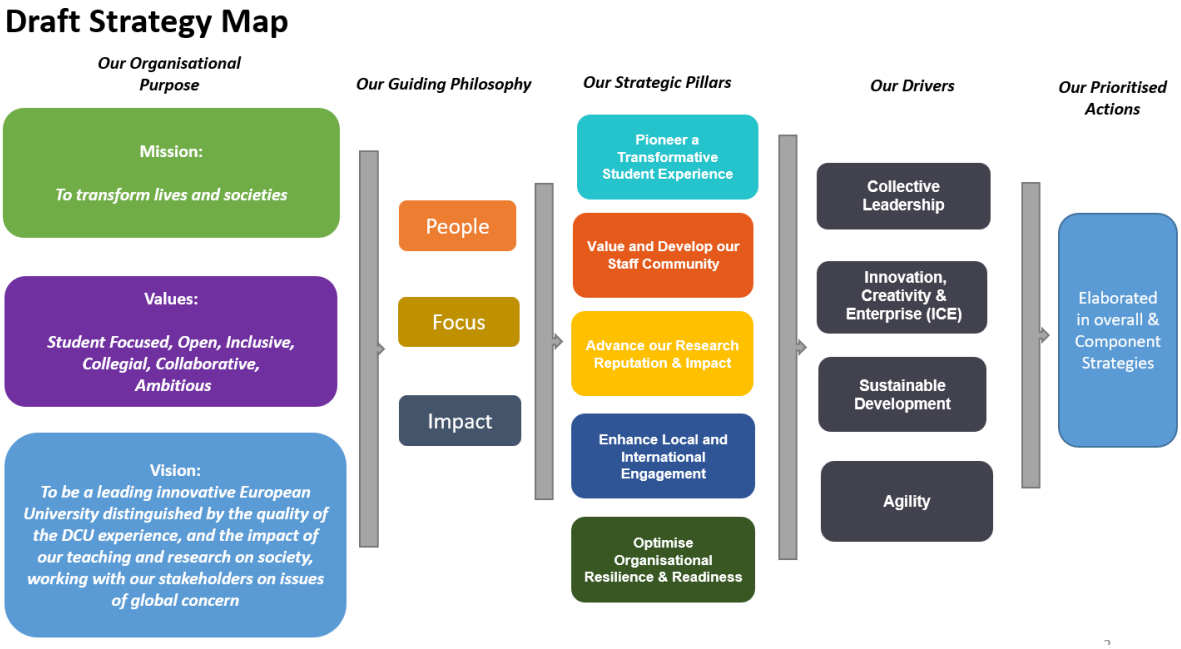


Figure 4: DCU Strategic Plan Map 2023-2028 (DRAFT)

Engaging and Training

As a higher education institution, DCU is proud to lead on the delivery of education and training for our staff, students and community, supporting all to understand the scale of the challenges we face and the urgent need for action. We will continue to work together with all stakeholders to identify the mitigation and adaptation actions necessary to transform ourselves and society to deliver on sustainability and climate justice.

Existing Engagement and Training

- Regular lectures/talks by Head of Sustainability (8/10 per annum)
- Information Sessions by DCU Estates Energy Team (1/2 per annum)

- Newsletter by DCU Estates Energy Team (1/2 per annum)
- Sustainability information session with University Senior Management & Faculty Management Boards (4/6 per annum)

DCU are committed to undertaking the following Climate action and sustainability training in 2023:

- A tailored one-day Climate Leadership programme will be taken by DCU Senior Management in Q2 2023
- In conjunction with internal and external experts an education and training workshop will be delivered to DCU Head and Deans in Q3 2023.
- DCU will investigate the development of a short online course to communicate simply the requirement and implication of Irish National Climate Change Legislation for delivery in Q4 2023.
- Regular information sessions from Sustainability DCU (online).
- Examine information session/training for Green Teams.

In addition, DCU will organise the following workshops open to both staff and students

- Annual Green Week Sustainability Workshop bringing together staff and students to discuss the key challenge of climate change/biodiversity loss and co-creation and gathering of potential solutions.
- The DCU Sustainability website provides information on the challenges and will encourage staff and students to submit suggestions for additional actions.
- Online DCU Community 'jamboard' will be created to allow staff and students identify their concerns and suggestions for actions.

Directly addressing ***Student Engagement*** is of utmost priority for DCU, while we recognise that there is enormous urgency and changes should be implemented now, we are educating our students for the next 40/50 years of their working lives – we need to ensure that we support the development of the necessary skills they will need to thrive in our climate impacted future. Education for Sustainable Development (ESD) is an important dimension of our Teaching and Learning Strategy and the DCU SATLE investment plan 2023-2025, and sustainability literacy is prominent in our flagship DCU Futures initiative.

In this context DCU is committed to the following:

- Opportunities for students to develop their competence in sustainability literacy embedded in DCU Futures programmes (as part of the Transversal Skills Competency Framework).
- An Education for Sustainable Development (ESD) mapping and integration exercise which will incorporate sustainability in a pedagogically-relevant manner, staff development opportunities for ESD, and curation of shared resources to support this work.
- Continuing to support the An Taisce Green Campus Programme.
- Supporting the Student Union as a key advocates and communication channel to the student body.
- Work with the SU to investigate the possibility for a new SU Sustainability Sabbatical Officer role.
- Work with all relevant stakeholder to investigate the need/possibility of an optional or mandatory sustainability module.

DCU is also committed to working with our Communities Local/Global/Alumni/Politicians etc. As a higher education institution we recognise that many look to us for knowledge and inspiration. We will therefore work to communicate a clear message that sustainability is an existential challenge that will require the transformational change of our current working and living models, and to increase understanding of the measures required by individuals, organisations and communities to mitigate and live with the consequences of climate change and for a sustainable future:

- Engage with communities local to global, prioritising initial actions with its large students and staff community.
- Support and promote engagement through our research centres including the Centre for Climate & Society and Centre for Engaged Research.
- Investigate potential public lecture series.
- Investigate and further develop our continuing role of engagement with our external community (local/enterprise/social..) to inform and engage on the challenges of climate change and biodiversity loss and support these communities in transition to sustainable future.

Specifically on Energy as part of our ISO 50001 Energy Management System accreditation, DCU hosts an annual energy awareness seminar for staff and students, and which comprises energy champions from across all of our buildings, facilities and campuses. Whilst the emphasis is on Scope 1 and 2 emissions, there is additional content on the scope 3 carbon. The engagement workshops include;

- Energy Policy and its communication,
- Contributions to the effectiveness of our Energy Management System (EnMS), including achievement of objectives and energy targets, and the benefits of improved energy performance.
- The impact of our activities or behaviour with respect to Energy Performance.
- The implications of not conforming with our EnMS requirements.
- Overview of our EnMS processes and components.
- The ISO 50001 Energy Management System and its role within DCU.
- Our DCU Energy Manual – how the DCU EnMS works.
- Review of DCU Energy Performance: Past, Present and Future plans.
- Carbon Emissions in DCU; Scope 1,2 and 3.

In addition, the Estates Office hosts faculty, school and unit focus groups, and the intention is to build on our *Unplugged* and *Reduce Your Use* campaigns to organise more workshops and increase collaboration and engagement across the whole community. For this effort, both the Sustainability Office and the Estates Office will combine to ensure the wider climate agenda is included, and so that the staff and student learnings can ensure our overall organisational carbon footprint can reduce year on year through awareness, behaviour, and culture change.

In terms of training, the DCU Energy Team have Corporate Membership with the Energy Institute, and have Chartered Engineer, Certified Energy Manager, Certified Energy Auditor, and Certified Measurement & Verification Professional status. Continuing Professional Development is key and an important element in our overall system accreditation, and our planning for the future.

Our energy management system ensures that any person(s) working for, or on our behalf, and related to significant energy usage, are competent on the basis of appropriate education, training, skills and experience. This ensures that everyone that can have a significant impact on energy performance

shall understand the importance of conformity with our energy policy, the procedures and the requirements of our DCU energy management system, the roles, responsibilities and authority across the university, the benefits of improved energy performance, the impact, actual or potential, with respect to energy use and consumption, how their activities and behaviour contribute to the achievement of our overall energy objectives and targets, and the potential consequences of departure from these procedures, and crucially as part of our continual improvement process.

Our Targets

Overview

DCU, as a statutory body is required to undertake measures necessary to meet the National Carbon Budgets as set by Legislation1. DCU understands that, at present, there is no mechanism to translate the National Carbon Budgets to Institutional Level. Therefore the current targets are set by the National Climate Action Plan and include :

- 51% reduction in Greenhouse emission by 2030
- Net zero carbon emissions by 2050
- 50% Energy Efficiency by 2030

However, DCU does have Greenhouse Gas/Carbon emissions data for the institution from 2018-2021 and can therefore use this data to identify and support the measures necessary to establish our internal DCU Targets. The DCU Climate Action Roadmap (see appendices) will advance DCU on the journey to meeting these targets. DCU is committed to the open and transparent reporting of targets and actions along with an honest assessment of the impact of these actions to achieve our targets.

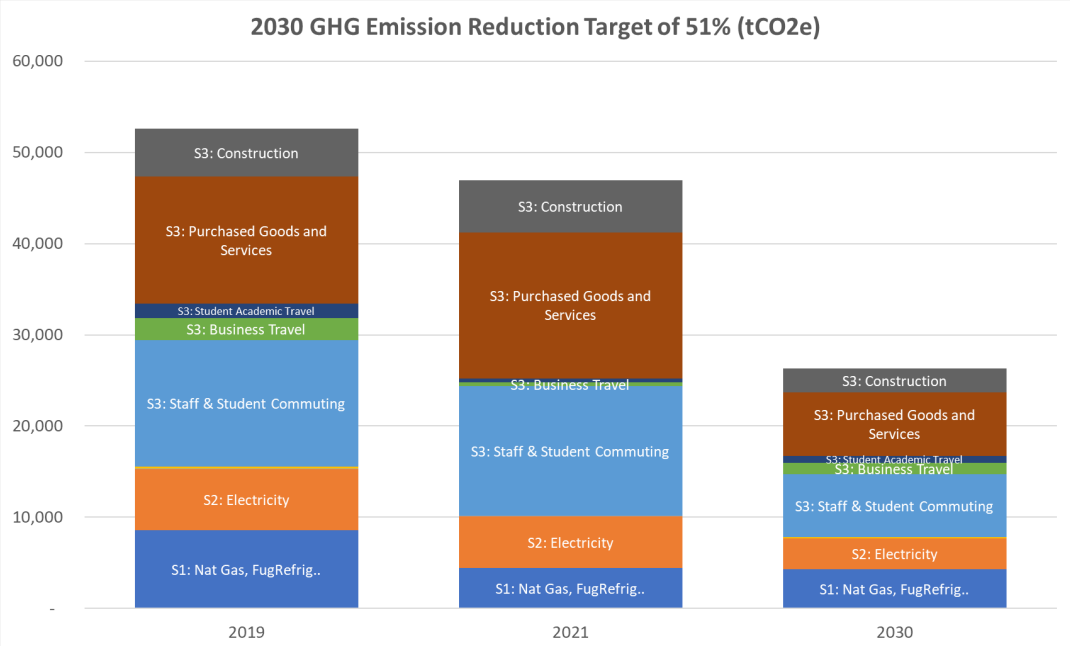


Figure 5: DCU GHG Emission 2019, 2021 and target for 2030 (Note 2050 target is Net ZERO)

[1] https://www.gov.ie/en/press-release/9336b-irelands-ambitious-climate-act-signed-into-law/?s=03 https://www.irishstatutebook.ie/eli/2021/act/32/section/15/enacted/en/html

Energy

In relation to the specific energy emission reduction targets DCU has very aggressive and ambitious energy plans to reach the 2030 targets and beyond. We shall continue to try and reduce our consumption and costs but there will now be a real emphasis on carbon reduction and decarbonisation. This will be in line with EU and Irish legislation. We will adopt a Science Based Targeting (SBT) approach and set targets to fully reflect the university's commitment to sustainability. We have a responsibility to reduce costs and consumption, be recognised by our local communities as a leader in climate action. Our ambition shall be to go further than government targets and reduce our emissions as practically and as cost effectively as possible, but these targets must be set out in a way that can reduce carbon in a sustainable way. Balancing carbon with cost, and consumption, will be a key component of our energy strategy through to the end of this decade.

We also understand that the university must expand to meet the increased needs of our students, and our research. By 2030 we could have up on a 40% increase in building stock. At least 25,000m^2 is in planning with our *Polaris* and Phase I of *Campus Residences* developments, and with the recent acquirement of land adjacent to the Glasnevin Campus, this could be the catalyst for further building development. We have to plan for these increases and build them into our energy planning. If the university continues to expand, the facilities must be designed and built to be net zero ready. All of the current University new building projects incorporate electric heat pump heating solution combined with PV local generation.

For the purposes of setting out our Climate Action Plan towards a more sustainable energy future, we can assume that our energy related emissions could increase by at least an additional 10,000 tCO_2en by 2030. With a do-nothing business-as-usual approach, our energy related carbon figures could rise to over 25,000 tCO_2en by 2030, but with a resourced aggressive plan, we can reduce our energy emissions to less than 6,000 tCO_2en, giving DCU a good platform to completely reduce our overall energy related emissions well before 2050, and all going well, before 2040. That is our ambition and that is the target we are confident of achieving.

There are three drivers on which to build our carbon reduction strategy, and to enable an ambitious and aggressive plan to be defined, put in place and ultimately achieved over the remainder of this decade. These are;

- Generation,
- Conservation, and
- Decarbonisation.

As the grid decarbonises, so will our electricity related carbon emissions. To take advantage of this national network decarbonisation, DCU plans to generate its own renewable power and heat energy through photovoltaics and heat pump installations and integrations. These measures will decarbonise our thermal (gas) and power (electricity) requirements, whilst conservation measures will continue to focus on fabric, plant, equipment, motor, lighting, and controls works, to continue to drive down our energy demand and consumption. Alongside these measures, awareness, behaviour, and culture change will deliver an energy conscious DCU.

Through this three-pronged approach DCU achieve close to 90% net zero electricity emissions, at least a 70% energy performance improvement, and over 60% overall energy related carbon reduction. This will set DCU on a pathway towards complete net zero energy before the end of 2040.

Our new capital project developments will be built to near zero energy building (NZEB) standards with innovative non-fossil fuel heating solutions de-carbonising their thermal needs. Our refurbishments to existing buildings will decarbonise the areas of the buildings being refurbished, and ensure compliance, ultimately, with ZEB requirements.

It is important to note that our targets will evolve as new legislation and more targets are included in the overall scope of government requirements. For example, we understand Staff Business Travel will be included in the Monitoring and Reporting Scheme over the next few years. Hopefully as the decade progresses the Monitoring & Reporting System will evolve, to become a complete carbon targeting tool, for all emissions types and scopes.

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

Our 2030 targeting baseline is set at the average of our 2016-2018 time period, with base loaded emissions calculated as approximately 14,500tonnes of energy related CO_2. Our breakdown being thermal emissions of 5,200tonnes and electricity emissions of 9,300CO_2e respectively.

The anticipated reduction from the *greening* of the electricity supply grid will leave a direct (gas) emissions target of approximately 2,600CO_2e and a total overall emissions target for DCU of 6,400CO_2e. Our target decarbonisation glidepath is summarised below.

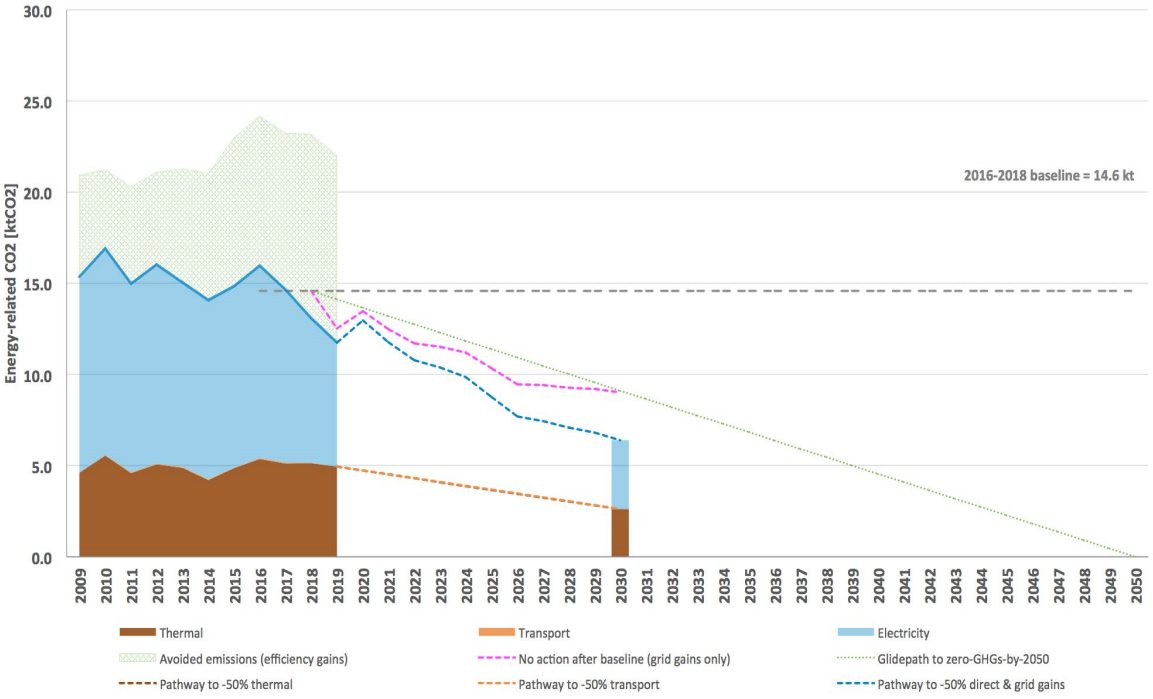


Figure 6: DCU 2030 Decarbonisation Glidepath

The DCU targets have been set as follows:

Dublin City University	PB-00137

Baseline emissions 2016-18	
Thermal (kt)	5.2
Transport (kt)	0.0
Electricity (kt)	9.3
Total (kt)	14.6
Avoided emissions (kt)	9.0

Emissions reduction by 2030	
Anticipated reduction from electricity supply-side decarbonisation (kt)	5.6
Reduction from own action (kt)	2.6
Total reduction (kt)	8.2

2030 emissions targets	
Direct emissions target (kt)	2.6
Total emissions target (kt)	6.4

Figure 7: DCU 2030 Energy Decarbonisation Targets

The real challenge for DCU is our direct gas emissions. We must absolutely reduce our current gas usage by at least 51%. Conserving, and more importantly decarbonising heat is our biggest challenge at DCU.

Our first target is for a 14GWh (gigawatt-hour) decarbonisation of our gas consumption, just over half of our 2016-2018 baseline. We plan to do this through 11 GWh of heat pump integrations across our Glasnevin and Alpha Campuses, and 3 GWh across our St Patricks, All Hallows' and Sports Campuses. This will provide a betterment of the 51% absolute decarbonisation target as illustrated below in our modelled glidepath. *1 GWh = 1,000,000 kWh, 1MWh = 1,000kWh*

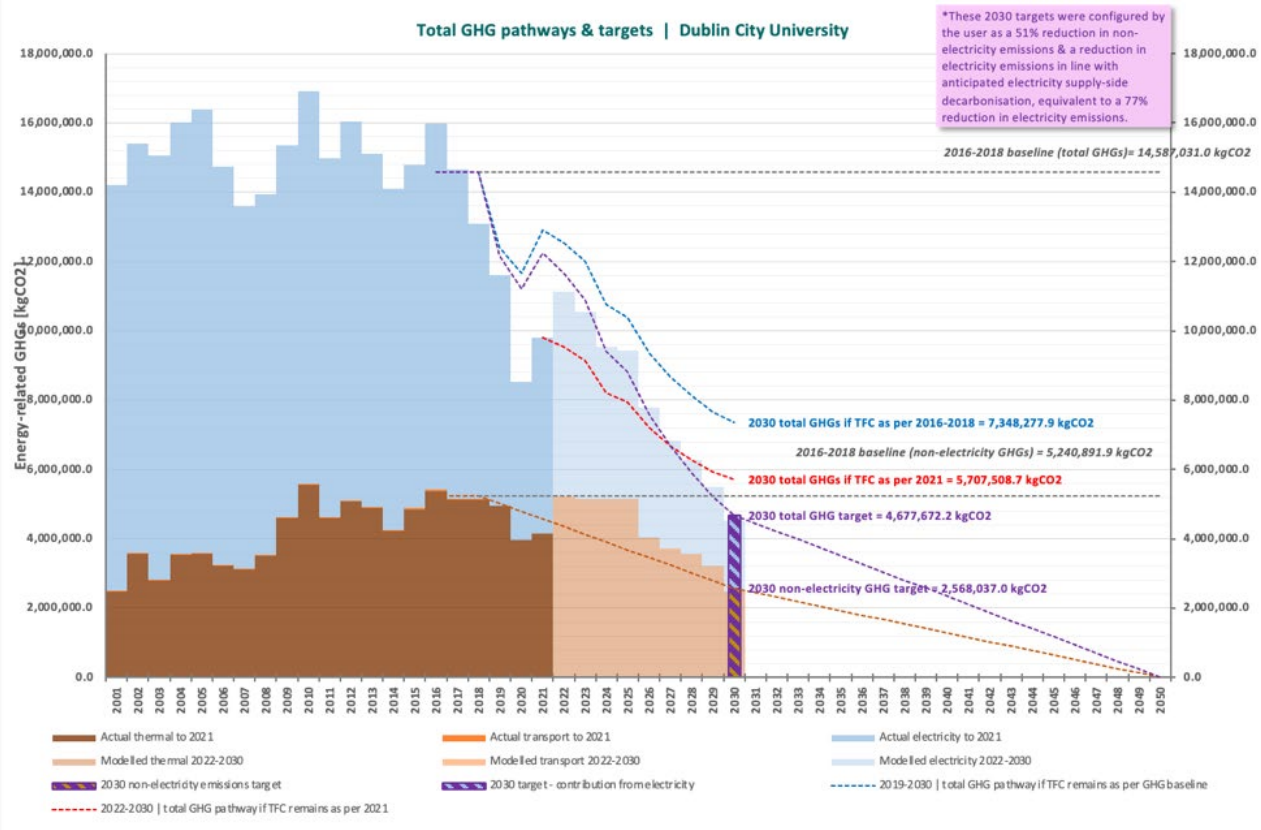


Figure 8: DCU Energy Decarbonisation Target Glidepath towards 2030

To decarbonise gas will require significant additional power capacity, as our heat electrifies, but we intend to combat this with on-campus, decentralised, renewable power generation. Our target is to install at least 1.5 MW_p of renewable power by 2030.

Through the continuation of our annual energy conservation projects this will enable DCU to achieve the remainder of our energy decarbonisation target, and surpass the 50% energy performance target.

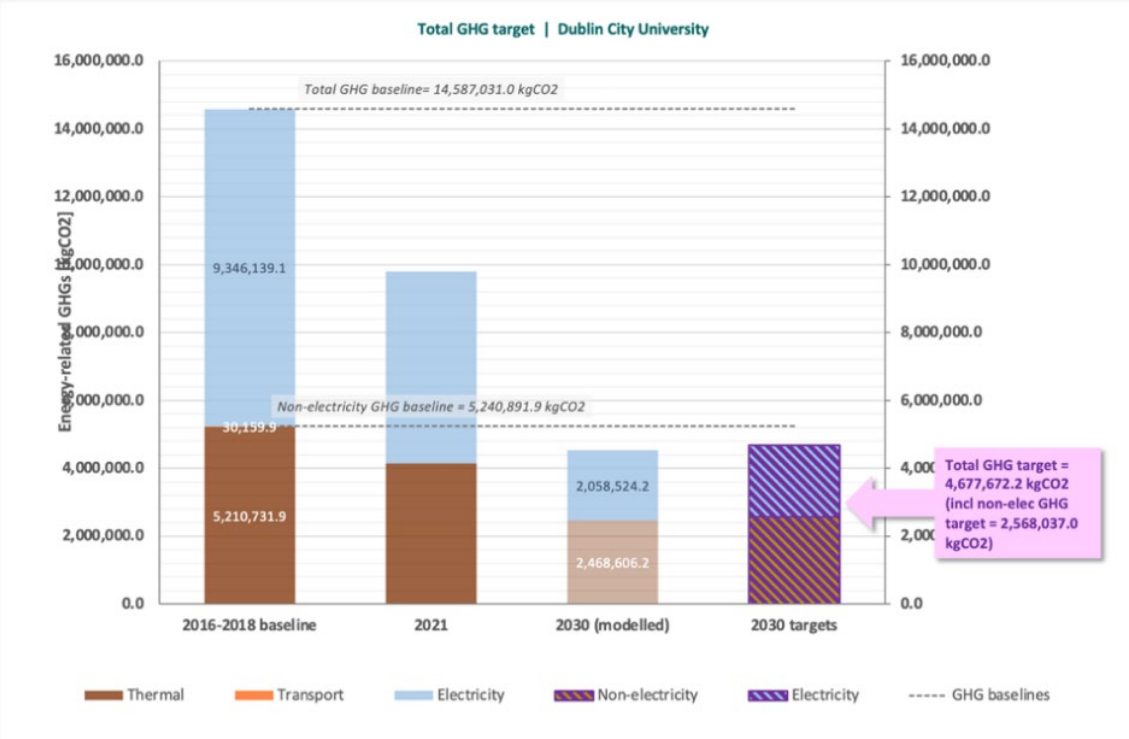


Figure 9: DCU Energy Decarbonisation Planning v 2030 Target Requirement

In terms of timelines, 2023 will be the year in which we will attempt to fully baseline our consumption, as much as is possible, through the continuation of our no and low-cost conservation projects, and our *unplugged* and *reduce your use* campaigns. Alongside these measures we will be finalising our conservation, renewable power and renewable heat projects, ready for implementation throughout the period 2024-2030. 2023 will also be a very important year in our financial planning, as these measures, and this plan, will require both financial and human resourcing.

Figure 10 below provides a summary 'waterfall' view of the intervention being proposed and their impact on the energy emission reduction targets. Table 1 gives a summary outline of these projects and as estimated carbon savings and costs associated with each project. These are estimates but it is clear that significant resources will be required to enable the delivery of this plan. Costs are associated with retrofit costs and so do not include project management or decanting costs associated with the university's requirement to continue to operate while building retrofitting is underway.

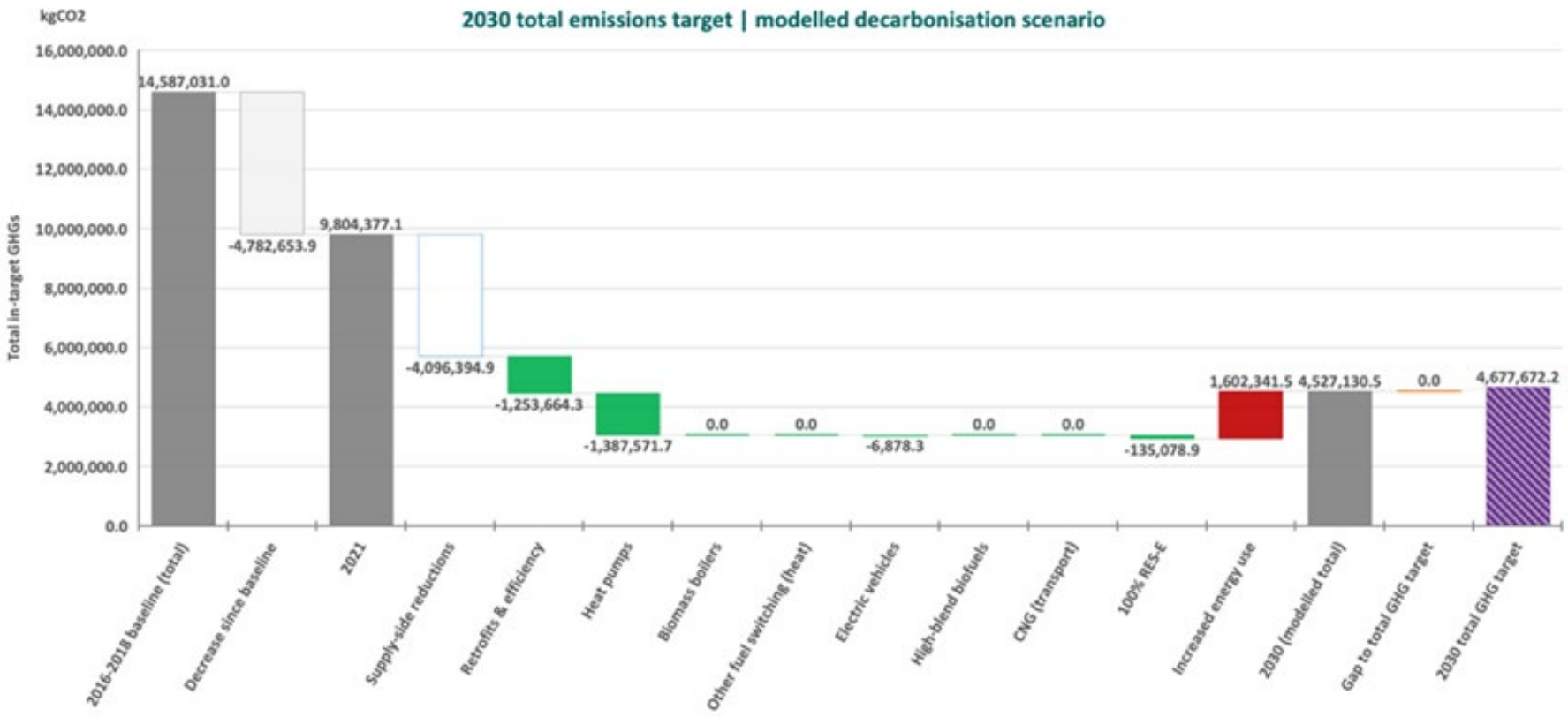


Figure 10: DCU Energy Decarbonisation Cumulative Waterfall Target Planning for 2030

Table 1: Summary of Projects with estimated carbon equivalent emission reduction and costs

Year	Campus Facility	Project	Carbon Savings (kgCO2e)	Cost €
2024	GLA Library	Fabric Retrofit, Heat Pump Integration & Renewable Power Installation	225,000	6,500,000
2024	All Campuses	Conservation & Efficiency Projects (EAP)	50,000	1,000,000
2024	SPC	Renewable Power (PV)	25,000	250,000
2025	GLA Stokes GLA NRF	Fabric Retrofit, Heat Pump Integration and Renewable Power Installation	400,000	12,000,000
2025	All Campuses	Conservation & Efficiency Projects (EAP)	50,000	1,000,000
2025	SPC	Renewable Power (PV)	50,000	500,000
2026	GLA Nursing GLA Albert C.	Fabric Retrofit, Heat Pump Integration and Renewable Power Installation	250,000	9,000,000
2026	All Campuses	Conservation & Efficiency Projects (EAP)	50,000	1,000,000
2026	SPC	Renewable Power (PV)	50,000	500,000

Year	Campus Facility	Project	Carbon Savings (kgCO2e)	Cost €
2027	GLA Helix GLA Sports	Fabric Retrofit, Heat Pump Integration and Renewable Power Installation	400,000	14,000,000
2027	All Campuses	Conservation & Efficiency Projects (EAP)	100,000	2,000,000
2027	SPC	District Heating Heat Pump Integration	200,000	8,000,000
2028	GLA Henry G. GLA Hamstead	Fabric Retrofit, Heat Pump Integration and Renewable Power Installation	375,000	14,000,000
2028	All Campuses	Conservation & Efficiency Projects (EAP)	100,000	2,000,000
2028	AHC	Geothermal Heat Pump Integration	75,000	4,000,000
2029	GLA U GLA College Park	Fabric Retrofit, Heat Pump Integration and Renewable Power Installation	500,000	20,000,000
2029	All Campuses	Conservation & Efficiency Projects (EAP)	100,000	2,000,000
2030	GLA Lonsdale GLA NICB GLA Hamilton	Fabric Retrofit, Heat Pump Integration and Renewable Power Installation	400,000	16,000,000

Year	Campus Facility	Project	Carbon Savings (kgCO2e)	Cost €
2030	All Campuses	Conservation & Efficiency Projects (EAP)	100,000	2,000,000
		Total	3,500,000	115,750,000

From 2024, on our Glasnevin Campus, we will focus on fabric retrofits and/or heat pump integrations of our Library and NRF buildings, Hamilton and Stokes will follow in 2025, Nursing and the Albert College in 2026, The Helix and Sports in 2027, the Henry Grattan and Hamstead in 2028, U and College Park in 2029, and Lonsdale and NICB in 2030. These buildings have been specifically identified to hit our targets, but require agreement and finalisation with senior management, and must be co-ordinated with estates operations planning, in terms of plant and fabric upgrading, and resilience additionality.

This list is not definitive, and other buildings on the Glasnevin campus will be included over time, but for now our planning is centred on trying to finalise a list that can enable DCU to plan, budget, target, and ultimately hit our decarbonisation targets.

On our St Patricks Campus we plan to rationalise, recommission, and electrify the district heating network with the addition of heat exchangers and heat pumps on the sub-main building branch networks. 500kW_p of renewable power will complement the heat decarbonisation strategy.

On our All Hallows Campus we have a geothermal solution that will completely decarbonise the thermal emissions. Renewable power generation is not planned here.

Both the Alpha and Sports Campuses have numerous possibilities for heat pump integrations, and PV installations, which will be studied and developed throughout 2023.

Our *Unplugged* and *Reduce Your Use* campaign, together with timetabling optimisation, has the potential to save 500tCO_2e annually across all of our buildings and facilities, but will require buy-in from senior management, staff and students.

Our new Total FM contract has the potential to save 500tCO_2e annually. It will require new ways of operating the contract, but there is potential to have this as a significant enabler of our strategy.

In essence, our energy plan in DCU is to have multiple conservation, decarbonisation and generation targets and pathways. This can also help combat the added energy through refurbishments, new builds, additional students, further research initiatives, and general university advancements, that will contribute to added energy consumption from our current baseline. Our early 2022 modelling exercise shows that this planning will enable us to reach or even exceed our targets, all things being equal. However, this excludes the Campus Residences developments, and other plans for buildings like the DCUBS. We await a decision on whether these developments will proceed, but they have to be included in our next glidepath exercise, if there is a decision to proceed.

Our glidepath exercise will be further developed and updated in mid-January 2023 to take account of as many additional energy users we can foresee. These projects will increase energy use and make the absolute decarbonisation target more difficult.

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

As of 2021 DCU are ahead of our targets, and below the energy efficiency glidepath. If we continue with our current annual energy conservation projects and combine them with our planned generation and decarbonisation initiatives, DCU should reach at least a 70% energy performance improvement by 2030.

Achieving our Water Conservation Target

In 2016, at the start of our water conservation strategy, DCU consumed approximately 250,000 cubic metres of water each year. Following an extensive leak audit survey initiative, and the associated repairs, and alongside a focus on reducing water conservation across our significant water users, the DCU usage reduced to 200,000 cubic metres by 2019. We are targeting an ambitious campus-wide overall consumption of 100,000 cubic metres for 2030. This will be a 60% reduction.

Our Way of Working

DCU is committed to examining all ways of working to identify both the mitigation and adaptation actions necessary to meet the climate and biodiversity challenge. DCU has for several years published its annual carbon footprint on the DCU Sustainability website. It will continue this practice and also report GHG emissions and sustainability activities in our annual report.

Energy & environmental management systems and accreditation

DCU has demonstrated leadership and exemplar practice in monitoring, targeting, and documenting all our GHG emissions with annual report since 2018.

Focusing on energy and water management, the DCU Energy Team report annually DCUs energy performance through the SEAI Monitoring & Reporting mechanism and this energy performance is reviewed annually through the DCU Senior Energy Management Team and by DCU Executive. Energy and environmental management system in place or planned are:

- DCU achieved ISO 50001 certification of its energy management system in 2017 and were recertified in 2020 and will complete recertification again in 2023. Accreditation is on a 3-year cycle. All campuses are within the scope of the standard.

- DCU has full compliance with SI No. 426, European Union (Energy Efficiency) Regulations, 2014.
- DCU is a member of the SEAI Public Sector Energy Efficiency Programme.
- As we progress our targeting of Scope 3 emissions, DCU plan to get ISO 140001 certification for our overall environmental management systems from 2025.
- DCU plan to go beyond ISO 50001 and ISO 140001 and certify to the EMAS Eco Management and Audit Scheme before 2030.
- DCU has An Taisce Green Flag certification for all Academic Campuses.

Green public procurement

The University acknowledges that its purchasing decisions have major socioeconomic and environmental implications, both locally and globally. We aim to manage our procurement activities in an environmentally responsible and sustainable manner and to achieve this we will:

- Provide guidance to staff involved in purchasing to help them make more sustainable purchasing decisions;
- Consider whole life costs and environmental impacts when making purchasing decisions;
- Include environmental performance in supplier appraisal criteria during supplier selection;
- Encourage suppliers to operate cleaner production processes, supply more environmentally friendly products and help spread environmental improvements through the supply chain;
- Working with the University's Procurement Team and the OGP to take procurement decisions based on a balance between economic, social and environmental factors; &
- Encourage suppliers to minimise the use of packaging.

In addition, DCU is actively investigating the following potential actions:

- Investigate the mechanisms to improve the accuracy of our scope 3 ghg emission estimations including engaging with our top suppliers

to provide carbon footprint of their product or service delivered to DCU as an initial step.

- Engage with SEAI regarding an agreed methodology for companies to calculate their carbon footprint and how to allocate to customers/orders. Agreed methodology to be shared with all public sector bodies to engage and inform on scale of emissions.

- Examine up coming EU and National legislation in relation to sustainability regulations and reporting requirements such as Circular Economy Act and Corporate Sustainability Reporting Directive (CSRD) and the implication for DCU.

- Examine if there is potential for finance systems to capture carbon emissions/footprint at procurement stage.

Resource use

The appropriate use of resources will be a fundamental change necessary to meet carbon/ghg emission reduction targets. As demonstrated in DCUs carbon footprints from 2018 a significant proportion of our scope 3 emission is from the procurement of goods and services. The DCU Climate Action Plan 2021-2026 (see appendices) outlines several of the measures being undertaken at DCU to address this. Below is a summary of actions being taken that directly address the requirements of the National Climate Action Plan 2023, but it should be noted that these are not the only actions being taken, see the DCU CAP for further details of additional actions.

Paper-based processes

Below is a summary of actions being undertaken that directly address 'paper-based processes' within DCU:

- DCU is promoting *digital first* in all communications from Communications & Marketing Dept leading to a reducing the volume of material being printed. Further communications and supports are needed to translate this university wide, ensuring that the community is engaged and informed as to the need to make this change.

- Create guidelines on paper printing that engage and inform students and staff on the need to reduce consumption levels and provide guidance on what documents merit printing and alternatives to printing. These guidelines will include full lifecycle analysis to provide the evidence base that printing documents produces more ghg emissions that the digital use/storage of the same documents.

- DCU supports a policy of centralised printing across all campuses / units where there are no individual printers in offices but central

unit/school printers. This model is more efficient on energy and paper use, larger more energy efficient machines and individuals tend to print less when printer is not within arm's reach. This system also facilitates the central monitoring of paper use. DCU will investigate that mandatory implementation of this policy.

- All DCU Energy Team administration and procedures are fully digital, and the DCU Energy Management System is paperless. Any paper documentation within the Estates Office Energy Office is deemed uncontrolled and printers are prohibited.

- Establish target of 80% reduction in paper use by 2025

Single Use Items (disposal cups etc)

In 2018 DCU Executive approved the removal of all single use plastic cups/disposal cups over a phased period from 2018-2020. Significant progress has been made but unfortunately the impact of the COVID pandemic has seen the return of many of the single use items for health and safety reasons. Post COVID work has restated on the removal of all single use items. The following action are ongoing:

- DCU to work with Trispace (DCU Catering Company)/Helix teams to enable the removal of all single use canteen ware. In March 2023, DCU Trispace introduced a new scheme for reusable canteen ware. Working with Vytal Ltd, DCU introduced an app-based scheme where reusable cups/bowls etc can be scanned out at the till, used on-site or taken away. Several models have been tried by DCU Trispace over the years, but it is expected that this scheme will prove the most effective particularly as it supports the removal of all single use disposable items.

- All DCU outlets provide a discount for 'own cup' use.

- DCU is developing an 'Events Guidelines' for small and large scale event organised on the DCU campus to include guidance on the elimination of single use catering as well as other material such as balloons (single use plastic waste and using valuable essential healthcare gas! – here are some alternatives https://greenecofriend.co.uk/eco-friendly-alternatives-to-balloons/) and supports on remote participation options that reduce ghg emissions and can also significantly broadens access to such event - https://hiltner.english.ucsb.edu/index.php/ncnc-guide/#intro

Travel & Commuting Emissions

Travel and commuting emissions are a significant proportion of DCU carbon footprint (~30-35%). This is particularly significant when compared with DCU energy emissions (~20-25%). From 2021 DCU has reported with an agreed methodology DCU Business Travel GHG emissions to SEAI. At present there is no reporting requirement or agreed methodology for staff and student commuting. DCU has developed its own methodology and shared it with other Higher Education Institutions, where data is gathered via the annual staff and student travel survey conducted in conjunction with the National Transport Authority from which an estimate of total commuting ghg emissions are identified. Measures being undertaken by DCU to address these emissions include:

Business Travel

- Examine the development and implementation of a pilot policy for reducing business travel emissions addressing potential for carbon budgets, traveller priortisation for 2023/24 academic year. Investigate the inclusion of student travel undertaken as part of their programmes at DCU.
- Examine the possibility of additional time/cost for those who commit to not taking flights to promote ‘slow travel'.
- Examine if funding agencies have or intend to have policies/guidelines on travel/travel emissions.

Commuting

- Examine the learnings from the Remote Working Pilot and assess the related reductions in commuting emissions.
- Examine potential measures that could also lead to better space management /reduction in need for future builds /reduction in energy consumption etc including hot-desking.
- Continue to work closely with NTA/ Dublin Bus and other providers to enhance the provision of public transport connections to the DCU campuses.
- Examine car parking measures and solutions to promote active commuting and reduce single person car usage and align with proposed city and national strategies.

Green Labs

It is estimated that the GHG emissions from laboratories within Higher Education Institutions is 30-40% of the total GHG emissions. This is of course not just energy but includes all scopes. The DCU Energy team along with a team of DCU technicians have been working on the identification and reduction of major energy users within laboratories. Technical and behavioural change actions have been implemented. DCU has also developed virtual labs and is continuing to investigate the potential for further virtual labs. DCU is also an active member of the new collaborative network of Irish Green Labs and currently chairs the SEAI Public Sector Labs Working Group. The network and working group aim to work collaboratively with all stakeholders to minimise the negative impact of work in laboratories by sharing information and knowledge including case studies and best practice. Together with others within this network DCU is supporting the following actions:

- Share and promote best practice – technical and behavioural within laboratories in DCU and communicate with all labs users to identify necessary changes.
- Encourage labs to assess their current procedures and working to identify more sustainable operating procedures (SOP2.0).
- Investigate the potential for virtual labs including an assessment of the full carbon lifecycle comparison between physical and virtual but also taking into consideration the pedagogical underpinnings of labs.
- Promoting the development and establishment of a standard for sustainable labs.

Our Buildings and Vehicles

This section covers DCUs actions to meet requirements within our buildings and with our vehicles.

- All DCU Buildings have their Display Energy Certificates and the DCU Energy Policy displayed at the entrances. These are updated annually and the DCU Estates team runs energy information sessions as well as circulating newsletter to support staff and students' understanding of this information. The DCU Energy team is open to engagement with staff and student on any energy queries.

- DCU has an F-Gas Register and is in full compliance with European Regulation (EC) No. 517/2014.

- The Estates Vehicular Fleet has begun the purchase of electric vehicles. As current leases of ICE vehicles end, they are replaced with the equivalent electric version.

- Before 2030, all DCU owned vehicles will be electric, and in compliance with the Clean Vehicle Directive.

- All new build developments and projects prohibit the use of fossil fuel. This has been policy since 2020. This includes our *Polaris* building which is currently under construction and due for completion in Qtr2 2024.

Optional Content

A copy of the DCU Climate Action Plan 2021-2026 is attached for information. Below is a breakdown of DCU's full carbon footprint for 2020 and 2021 for information and guidance.

Carbon Footprint 2020-2021 Summary

The term carbon footprint refers the measure of the total amount of greenhouse gases (GHGs) emitted across all the activities of an organisation (Carbon Trust 2012). A carbon footprint is calculated by constructing a GHG inventory, in which organisations quantify, report and manage their GHG emissions. This report constructs a GHG emissions inventory for the Dublin City University (DCU) for the 2020 & 2021 calendar years and thus estimates its carbon footprint using the internationally recognised methodology 'Greenhouse Gas Protocol Corporate Standard'[2]. The final figures are presented as tonnes of carbon dioxide equivalent (tCO_2e). Table 1 below, summarises the estimated GHG emissions from 2018-2021 for DCU under scope 1&2 and for scopes 1, 2 and 3. Also presented are these emission per DCU Full Time Equivalent – which is taken at the addition of Staff FTE and Student FTE for the University and its subsidiaries. Subsidiaries are included as our carbon footprint covers all activities within the university including our subsidiaries.

Table 1: Summary 2018 - 2021

	Scope 1 & 2 tCO2e	All Scopes (1,2 & 3) tCO2e	Scope 1&2 per FTE tCO2e	All Scopes per FTE tCO2e	All Scopes per m2 tCO2e
2018	15,196	64,230	1.05	4.43	0.11
2019	15,300	52,632	0.99	3.40	0.09
2020	12,180	39,466	0.80	2.58	0.07
2021	10,111	47,630	0.64	3.01	0.08

[2] http://www.ghgprotocol.org/standards/corporate-standard

Table 2: Staff and student numbers and total campus area for 2018 - 2021

	Staff (FTE)	Total Students	Students (FTE)	Total FTE	Campus m2
2018	1,874	15,558	12,619	14,493	578,701
2019	2,056	16,276	13,423	15,479	578,701
2020	1,963	17,047	13,315	15,278	578,701
2021	1,883	17,317	13,956	15,839	623,891

Table 2 provides a summary of DCU Full time equivalents and campus areas. Staff numbers are from DCU Consolidated Financial Statements[3], and student numbers from (total) HEA Statistics[4] and (FTE) Times Higher Ranking data[5].

Figures 1 and 2 below presents the CO2 footprint for the Dublin City University for 2020 and 2021 respectively, identifying emissions sources and their % contribution to the total university carbon footprint.

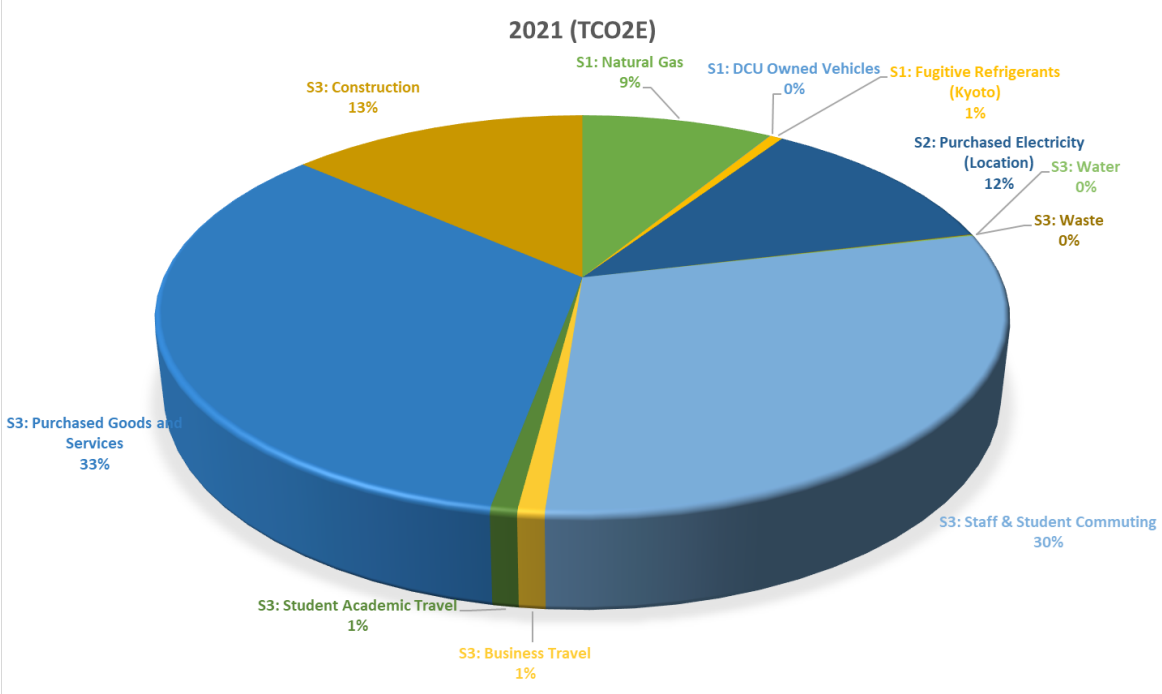


Figure 1: DCU estimates Carbon Footprint for 2021 – total emissions (47,630 tCO2e))

[3] https://www.dcu.ie/finance/finance-office-financial-statements
[4] https://hea.ie/statistics/data-for-download-and-visualisations/key-facts-figures/
[5] https://www.timeshighereducation.com/world-university-rankings/2023/world-ranking#!/page/0/length/25/name/dublin/sort_by/rank/sort_order/asc/cols/stats

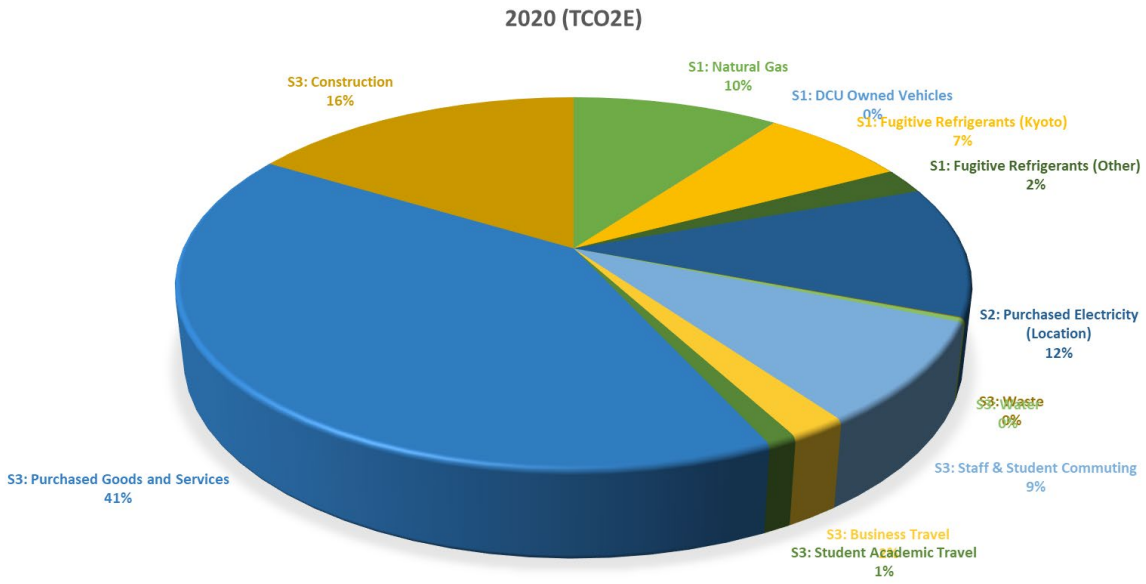


Figure 2: DCU estimates Carbon Footprint for 2020 – total emissions (39,466 tCO2e))

A key objective of DCU in the completion of this Carbon Footprint report is to demonstrate the GHG Protocol methodology and promote it as a proposed methodology for all Higher Education Institutions (HEIs) in the measurement of their carbon footprints. To aid this discussion DCU has made the data from all our CO2e Report open source and is opened to sharing this with those who may be interested. DCU have also submitted their 2020 data to the CDP for external validation of the methodology used.

Appendices:

Appendix 1: DCU Energy Policy
Appendix 2: DCU Energy Management System
Appendix 3: DCU ISO 50001 Certification
Appendix 4: DRAFT Faculty Green Team Term of Reference
Appendix 5: DCU Climate Action Plan 2021-2026

Appendix 1 : DCU Energy Policy

DCU

Energy Policy

Dublin City University is committed to responsible Energy Management and will strive to efficiently manage and reduce the consumption of Energy whilst providing an optimal Learning and Research Environment.

We shall continue to meet or exceed Best Practice in Energy Efficiency, and to minimise Environmental Impact as far as is practicable. In order to do this, Senior Management will ensure the availability of the necessary information and resources to continually review and achieve our objectives.

We shall use Energy in a prudent and responsible manner throughout all of our Campuses, in addition to it being a key element of our overall Sustainability and Environmental Strategies.

To Achieve our objectives, we plan to:

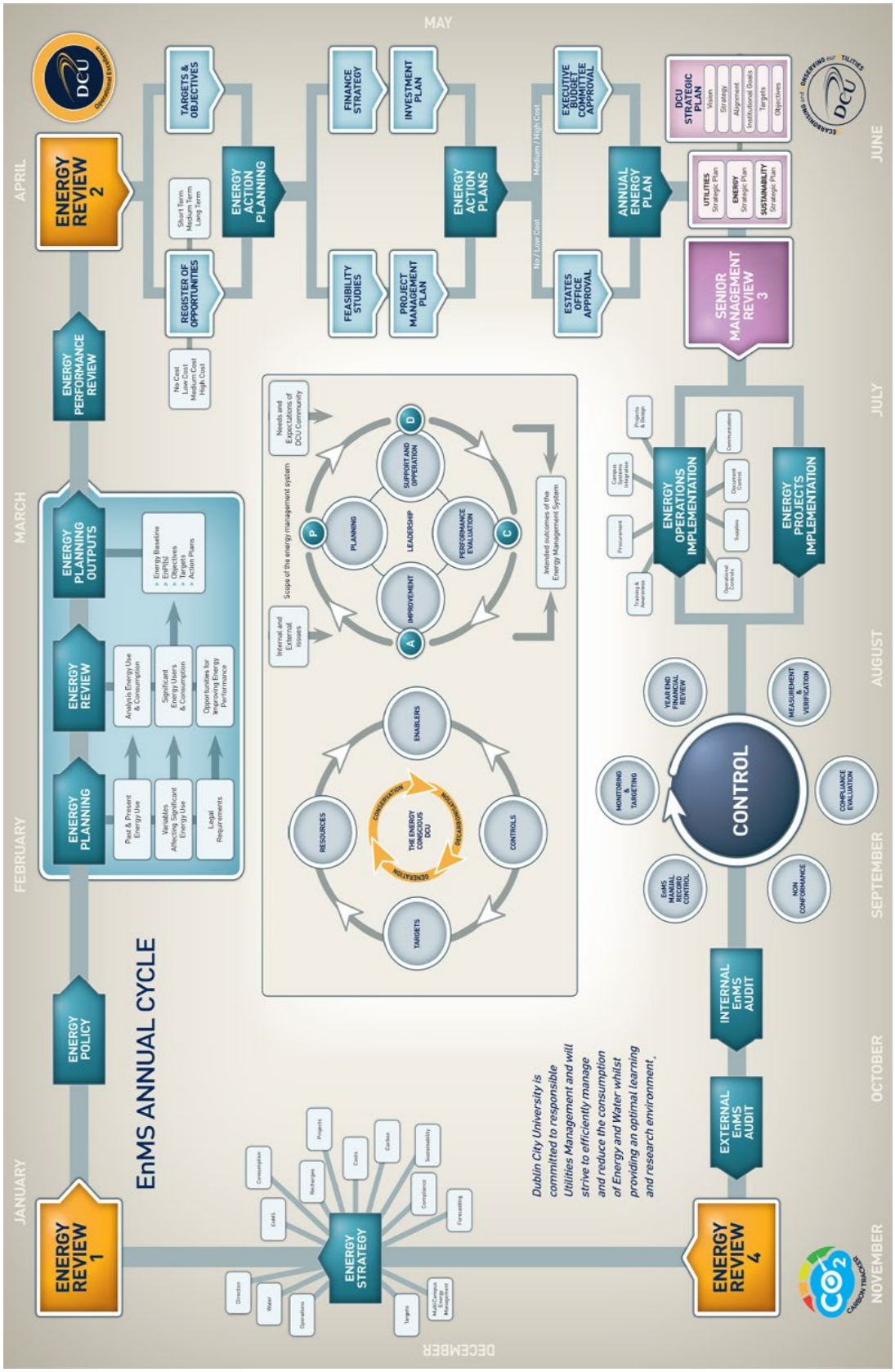
- **Commit to Continual improvement in our Energy Performance and Management**
- **Comply with all relevant Legal and Other requirements**
- **Procure Fuels and Energy at the most favourable Economic Cost**
- **Utilise Energy from Sustainable Sources where practical and Promote Sustainable Energy Management Practices**
- **Promote Energy Awareness amongst both Students and Staff**
- **Support the Purchase of Energy Efficient Products and Services that impact energy performance**
- **Identify and implement Energy Efficiency Measures**
- **Incorporate Energy Efficient and Sustainable Designs for both New Build and Refurbishment Building Projects**
- **Target a reduction in Energy Consumption and Pollution Emissions in line with Ireland's National Energy Efficiency Action Plan**
- **Review our Objectives and Targets and Report on our Energy Performance**

Updates and regular reviews shall be implemented to ensure our Energy Policy is relevant, well documented and communicated fully throughout the University.

Prof Daire Keogh
President
Dublin City University

Date 17 June 21

Appendix 2: DCU Energy Management System (DCU EnMS)



Appendix 3: DCU ISO 50001 Certification

CERTIFICATION EUROPE™

This is to certify that the

Energy Management System

Of

Dublin City University (DCU)

At

Glasnevin Campus, Glasnevin, Dublin 9
Sports Campus, Glasnevin, Dublin 9
St. Patricks Campus, Drumcondra Road Upper, Drumcondra, Dublin 9
All Hallows Campus, Grace Park Road, Drumcondra, Dublin 9
Alpha Innovation Campus, Old Finglas Road, Glasnevin, Dublin 11

Has been assessed by Certification Europe and deemed to comply with the requirements of

ISO 50001:2018

This certificate is valid for the activities specified below:

All natural resources across all campuses under the direct control of DCU.

Certification of Registration remains the property of Certification Europe Ltd.
The validity of this Certificate is maintained on the condition that the Management System is assessed through an on-going surveillance programme and continues to adequately meet the requirements of the standard.
To verify this certificate validity please contact us at info@certificationeurope.com

Date of Initial Certification: 19th December 2017 | This Certificate is valid until: 18th December 2023

Chief Executive: Michael Brophy

Signature:

Client Registration No.: 2017/2603
Certificate Reference No.: A/2

Date of certificate issue: 8th October 2020

ISO 50001 CERTIFICATION EUROPE™

INAB

Sarah King

Certification Europe Ltd Block 20A Beckett Way, Park West Business Park, Dublin 12, Ireland

Appendix 4: DRAFT Terms of Reference for the Faculty Green Teams

These Terms of Reference were agreed and approved at the ….Faculty Green Team of xxx Month Year.

1. The Faculty Green Team is a sub-committee of the University Green Team, with representation from each faculty green team at the University Green Team level.
2. The Faculty Green Team shall:
   - Develop of a comprehensive **Sustainability Plan** that will be a roadmap for operating a healthier and more sustainable faculty. Annual targeted actions will be identified and cost benefit analysis undertaken.
   - Establish an **Ecological Footprint Metrics (**including Energy, Water, Waste, and Carbon) for the faculty and set ambitious annual and stretch targets to reduce these. Progress towards targets will be monitored and reported to University Green Team and Sustainability Unit on a regular basis.
   - Embed **Sustainability as a key driver** in operations of the faculty including procurement, building management, energy, water, CO_2 emissions, transportation, operational resilience, public realm spaces and in the construction/refurbishment of buildings.
   - Develop an **adaptation plan** that will examine the transformative changes necessary for the continued operation of the faculty in the net zero carbon future. Note National legislation required all statutory bodies to be net zero by 2050 (27 yrs and counting!). While the pathway is still unclear faculties should develop scenarios in relation to meeting delivery requirements within future carbon budgets.
   - Build on the Teaching & Learning Strategy commitment to Education for Sustainable Development through the Faculty Teaching and Learning Committees.
   - Promote and support **Sustainability Research** across the University. Research and Innovation drivers must bring the impact of our economy and society back to within the carrying capacity of the planet otherwise it is promoting business as usual irrespective of how cool or novel a new product or service might be.
3. Membership of the Faculty Green Team is drawn from all parts of the Faculty and should represent all areas, Students (UG + PG), Academic, Technical, Research and Management & Administration.
4. The XXXXXXX shall be the Chair of the Faculty Green Team
5. A minimum of four meetings of the Faculty Green Team shall take place every academic year.

6. The term of office of representative membership on the Faculty Green Team shall be three years; a maximum of two terms per person normally applies.
7. The minimum composition of the Faculty Green Team should include

Membership	Minimum no. of Reps
UG Students	2
PG/Research Students	2
Academic	2
Technical	2
Research	2
Management	2
Administration	2

8. A quorum of one half plus one of the membership of the Faculty Green Team applies.
9. A review of the Faculty Green Team membership shall be conducted in the spring of every year; change-over of Faculty Green Team members, if applicable, shall take place at the start of the academic year.
10. Minutes of the Faculty Green Team shall be circulated to all members shared with the Sustainability DCU Unit.

Appendix 5: DCU Climate Action Plan 2021-2023

DCU Climate Action Plan 2021-2023

https://www.dcu.ie/sustainability/dcu-climate-action-plan-2021-2026