



# **Sustainability Charter and Climate Action Plan 2019-2022**

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## *Executive Summary*

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In our strategic plan 2017-2022 DCU committed to putting Sustainability at the core of the university.

The newly established cross institutional Sustainability Council has developed a new sustainability charter for DCU and a Sustainability Plan (2019-2022) to enable and demonstrate our commitment to transforming ourselves, our institution and the community surrounding us to meet these sustainability challenges.

This is the first Climate Action Plan for Dublin City University. It identifies the sheer scale of the challenge across all University activities and the initial actions we will undertake to address these challenges and deliver on the objectives of the Government's Climate Action Plan.

We are committed to ensuring that all our graduates understand the challenges of environmental sustainability and have the sustainability competencies that will equip them with them to be Global Citizens, inspired and empowered to take the actions necessary for a sustainable future. We are equally committed to undertaking sustainability focused research and to demonstrating sustainable solutions within our Living Lab campuses.

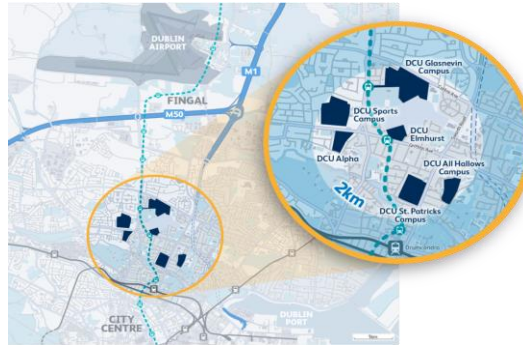
DCU is also committed to demonstrating leadership in our operational sustainability and is committed to understanding the impacts of all our activities and establishing science based targets and action plans to reduce and mitigate these impacts. It has become apparent through the work of the Sustainability Council that meeting our science based targets (4.2% annual reduction to 2030 based on a 1.5deg scenario) will be extremely challenging given the current practices and resources available. To meet these challenges systemic changes, both within the University, at policy level with Government and within Irish society, will be required. This current iterative plan does not address these systemic changes but the actions that can and will be implemented to begin our journey.

- i. Teaching and Learning
- ii. Research, Development and Innovation
- iii. Operations
- iv. Water
- v. Waste
- vi. Biodiversity
- vii. Transport

In year one of this plan, will require substantial investment by the University in a range of projects to.....

## 1. 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 on the rapidly growing and economically important Eastern corridor. There are five campuses - three academic, one innovation and one sports all within a 2.5 km radius with over 75 buildings (~300,000m<sup>2</sup>) on 128 acres (Figure 1).



**Figure 1: DCU Campuses 2019 (Note DCU Elmhurst is a green field site)**

In 2018/2019 DCU has a total of 17,396 students (10,120 Female and 7,276 Male). Appendix 1 gives a breakdown of the student numbers across disciplines at DCU and the type of award registered for. There are also 1,561 staff across all campuses.

2017 saw the launch of the new **DCU Strategic Plan: TALENT, DISCOVERY, AND TRANSFORMATION (2017 – 2022)**<sup>1</sup>. In presenting this plan the DCU President Prof. Brian MacCraith said

*“Our purpose must surely be to address the major challenges facing the world today and to develop the talent and knowledge that society needs.”*

## 2. Strategic Plan 2017-2022

Under the Strategic Plan 2017-2022, DCU seeks **To place Sustainability at the core of the University**. This reflects not only our commitment to play our part as a responsible organisation but also our realisation of the messages we can convey as an exemplar organisation to both our students and society around us. The DCU cross-institutional Sustainability Council plays a key role in the identification and implementation of a system wide series of actions to support our transformation to a University with Sustainability at the core.

<sup>1</sup> <http://www.dcu.ie/sites/default/files/marketing/digitalmedia/presidents-office/strategic-plan/index.html>

### 3. Sustainability Charter<sup>2</sup>

DCU is a young, dynamic and ambitious university with a distinctive mission to transform lives and societies through education, research and innovation. Since admitting its first students in 1980, DCU has grown in both student numbers and size and is now a multi campus university located just north of Dublin city centre.

This charter includes the following principles and commitments:

- We will **embed sustainability at the core of our university**, in its teaching and learning, research, development and innovation, its operations and promoting it through its national and international engagements,
- We will communicate and promote the **United Nations Sustainable Development Goals** and will encourage all staff and students to engage in the delivery of these goals,
- We will **actively advocate for climate action through all our circles of power and influence**, encouraging and supporting our staff and students in their actions,
- We will **demonstrate our commitment** through our own actions,
- We will measure our **environmental impact** and publish an **annual carbon footprint**,
- We will establish and work to achieve them **science based targets** to meet the 1.5 degree scenario requirements as per the Paris Climate Change agreement,
- We will identify and implement, in so far as possible, all measures to **reduce our carbon footprint**,
- We will **share knowledge and best practice** with national and international partners and communities and work together to reduce all our impacts,
- We will encourage and **promote progressive actions** undertaken elsewhere and where possible emulate these,
- We will identify the **carbon footprint of goods and services** consumed by our university and work with our suppliers to reduce these,
- We will include sustainability on our **risk register** and examine all our **policies, practices and major decisions** on a systematic basis to ensure that they do **not lock us into future high carbon pathways** but identify a pathway to a zero carbon organisation.
- We will support our **staff and students** in the identification of their personal carbon footprints and identify and support measure to reduce our impacts.
- We will actively **communicate both internally and externally** about climate change and our actions to mitigate our impact and adaptation measures needed for a sustainable future for all.

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<sup>2</sup> Replacement for current DCU Sustainability Policy

## 4. Baselines

This section will set baselines across Teaching and Learning, Research, Development and Innovation, Operations, and Engagement.

### Teaching and Learning

It is important when assessing the level to which sustainability is addressed in our curriculum to clearly articulate the distinction between education for environmental sustainability and education for sustainable development. Many of our education programmes address environmental sustainability where topics such as climate change, planetary boundaries, carbon footprints etc are covered. Education for Sustainability is somewhat different in that it seeks to integrate curricula and pedagogic approaches that enable higher education students to critically consider the interconnectedness of, and the interdependencies and challenges within sustainability across social/cultural, economic, political, and environmental contexts.

There is currently no assessment of ESD across the DCU programmes, an indicative assessment of programmes addressing sustainability undertaken for UI green metrics reporting indicated that in 2016 36% of programmes at DCU (UG and PG) addressed some aspect of sustainability, in 2017 it was reported at 41% of programmes.

### Research, Development and Innovation

To create a baseline for *Research, Development and Innovation*, information from the TORA<sup>3</sup> system was assessed. A summary of the DCU priority research areas including Sustainable Economies and Societies is shown below. However, it is important to note that it is highly likely that projects classified under other priority research areas include elements of sustainability.

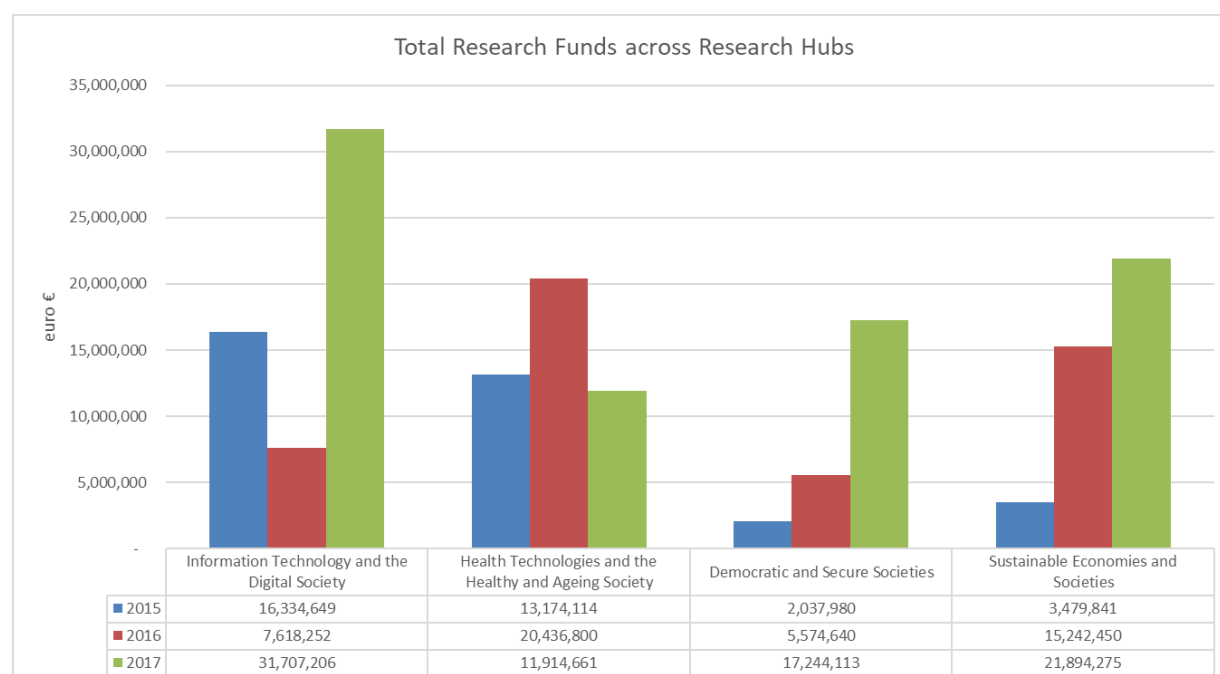


Figure 3: Research Funds

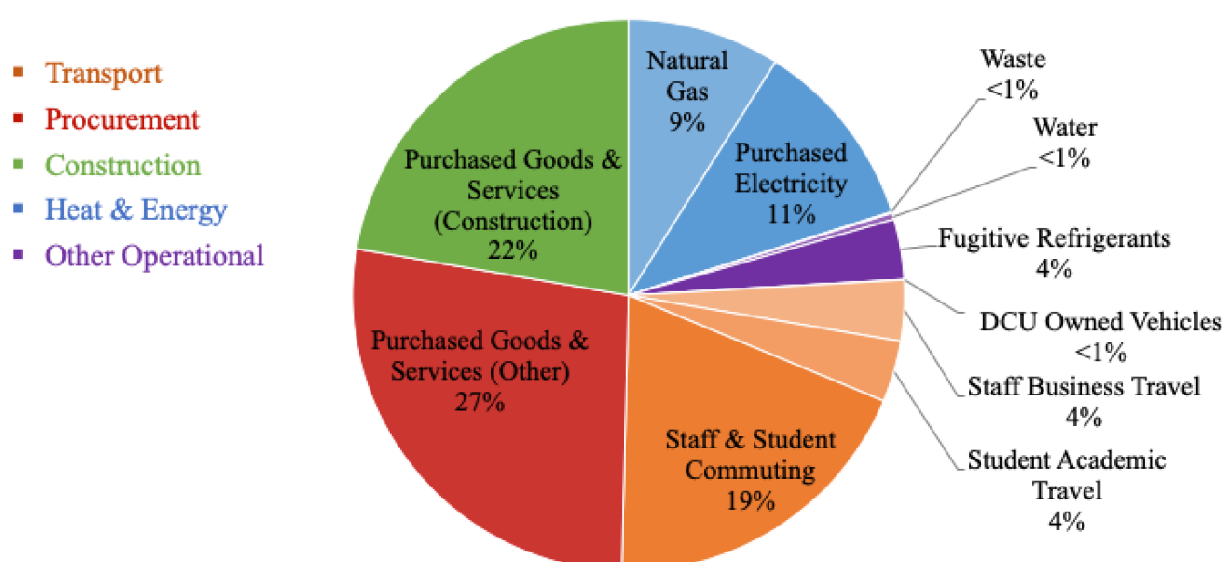
<sup>3</sup> TORA is the DCU research application and award management system

## Operations

Operations focuses on Energy, Water, Waste, Transport, Biodiversity and Carbon footprint of the DCU campuses. The table below identifies the total consumption for 2017 and 2018 and identified the change from 2017 to 2018. It can be seen that absolute energy consumption reduced by 0.2% while consumption of water reduced by 14% and the production of waste reduced by 12%. It should be noted that our carbon footprint was revised from 2017 (24,659 tCO<sub>2</sub>e) to 2018 (64,212 tCO<sub>2</sub>e) as a result of improved measurement and not an actual increase in emissions.

**Table 2: DCU Operations 2017 & 2018 (NOTE: NEW categories indicate additional categories include in the 2018 footprint analysis)**

		2017 (tCO <sub>2</sub> e)	2018 (tCO <sub>2</sub> e)	% change
<b>Scope 1</b>	Natural Gas	5,685	5,739	1%
	DCU Owned Vehicles		16	NEW
	Fugitive Emissions		2,266	NEW
<b>Scope 2</b>	Purchased Electricity	8,180	7,174	-12%
<b>Scope 3</b>	Staff & Student Commuting	9,346	12,291	32%
	Business Travel	1,113	2,284	105%
	Academic Travel		2,300	NEW
	Waste	58	52	-9%
	Water	277	237	-15%
	Purchased Goods & Services		31,851	NEW
<b>Totals</b>		<b>24,659</b>	<b>64,212</b>	<b>160%</b>



**Figure 10. Further breakdown of DCU's carbon footprint**

## Energy

DCU continues to work toward its agreed target of 33% energy reduction on 2010 figures by 2020, and has undertaken several infrastructural projects include LED retrofit, insulation upgrades,

building fabric and glazing upgrades with several more in the pipeline. In 2017 DCU exceeded the 2020 Energy Efficiency improvement target of 33% set in 2009, reaching 35.3% and in 2018 has further improved the energy efficiency on campus to 43% above 2009 levels. This should of course not be confused with absolute energy reductions and ultimately CO<sub>2</sub>e emissions. DCU strives to reduce overall consumption and in 2018 the total consumption across all the DCU campuses fell by 80,348 kWh (fig below). This was despite the increased need for heating that was caused at the start of the year from abnormally cold weather.

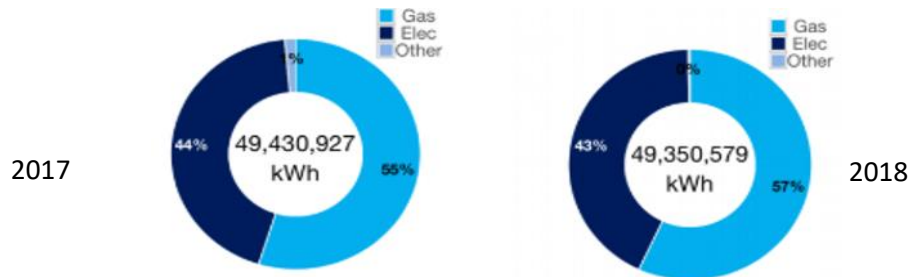


Figure 4. Energy consumed in 2017 vs. 2018

This reduction in energy is largely due to the strong energy management by the DCU Estates Office. DCU achieved ISO 15001:2011 certified in 2017 and makes efforts annually to manage and reduce their energy consumption.

## Water

With a specific focus on addressing water as a theme in 2016, DCU commissioned LowFlow to undertake a full audit of water consumption on the St. Patricks and All Hallows Campuses. In addition, leak detection surveys were undertaken on Glasnevin campus following the previous year's audit. DCU has saved a considerable amount of water through identifying and repairing leaks on all campuses and water consumption in 2018 reduced by 14% from 262,000 m<sup>3</sup> to 225,000 m<sup>3</sup> (Figure 5). This reduction of 37,000m<sup>3</sup> of water equates to approx. 15 Olympic swimming pools (mega liters)!

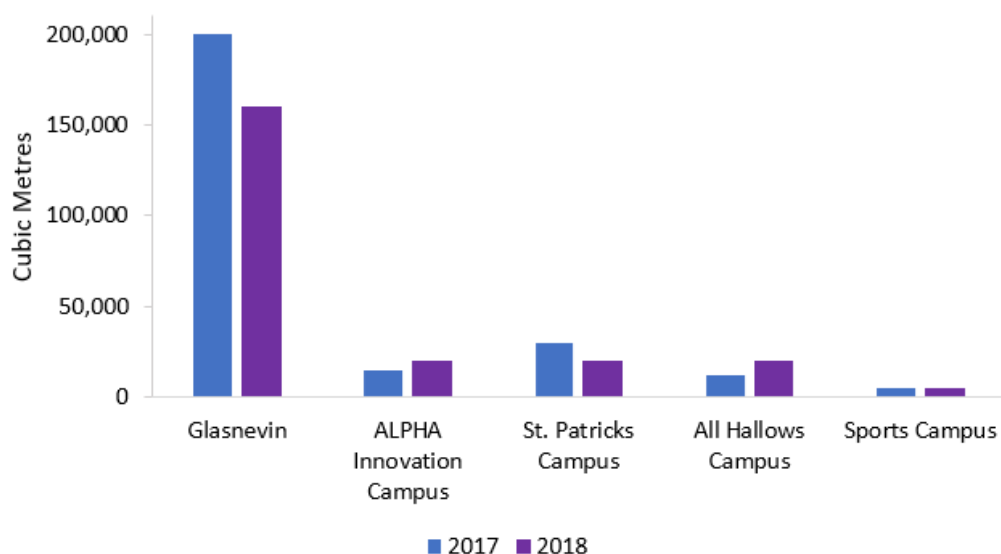










Figure 5. Water consumption 2017 vs 2018 across each DCU campus



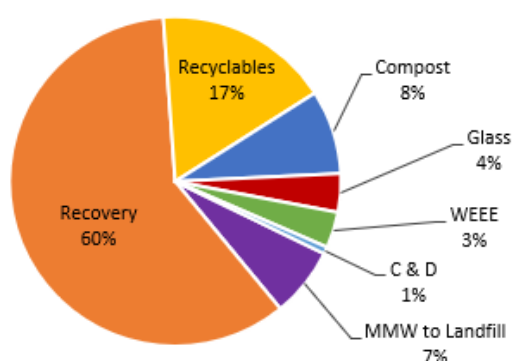
## Waste

DCU continues to closely monitor its waste and is working towards reducing total waste. The table below identified the progress made between 2017 and 2018. The campus had an overall 8% reduction of waste.

**Table 2: DCU Glasnevin Waste for 2017 and 2018 in metric tonnes.**

	MMW to Landfill		*Recovery		Compost		Recyclables	
2018	60.53		529.62		73.19		151.63	
2017	65.13		578.92		81.63		189.48	
	Glass		WEEE		C & D		Total	
2018	33.43		31.33		6.0		885.73	
2017	45.37		44.46		0		1004.99	

**Percentage Breakdown of DCU Waste 2018**



**Figure 7. Percentage breakdown of 2018 DCU waste all campuses**

## Biodiversity

As part of the Sustainability Council actions in 2018/2019 DCU commissioned a full Biodiversity plan for the campus including how such a plan should link to the national pollinator plan. This plan has not yet been approved by the DCU Sustainability Council but a copy will be forwarded just as soon as it is.

In summary this plan provides a range of action DCU can take to protect biodiversity and embedding this protection into decision making across all sectors of the University including: building and grounds management, public realm spaces and in the construction of new buildings.

The overall aim of DCU's Biodiversity Action Plan is to enhance and protect biodiversity, and to ensure that every member of the DCU community understands its importance in our lives.

This Biodiversity Action Plan has been developed to:

- I. Highlight DCU's unique biodiversity value

- II. Propose recommendations to maintain the University's biodiversity
- III. Enhance pollinator diversity and increase the carbon absorption by vegetation
- IV. Identify opportunities for the University to enhance and protect its biodiversity
- V. Communicate the importance of biodiversity to the DCU community
- VI. Support the Dublin City Council Climate Change Action Plan 2019-2024, the All Ireland Pollinator Plan 2015-2020, the EU Biodiversity Strategy and the United Nations Sustainable Development Goals.

## Transport

Dublin City University is now a multi campus university and the second largest commuting hub in the north Dublin region after the airport. In early 2018 DCU undertook a survey of all staff and students across all incorporating institutions to assess current transport choices vs a similar survey undertaken in 2017. This project was undertaken in conjunction with the National Transport Authority. The survey received over 2,000 responses from staff and students in 2018 with an overall response rate of 12%.

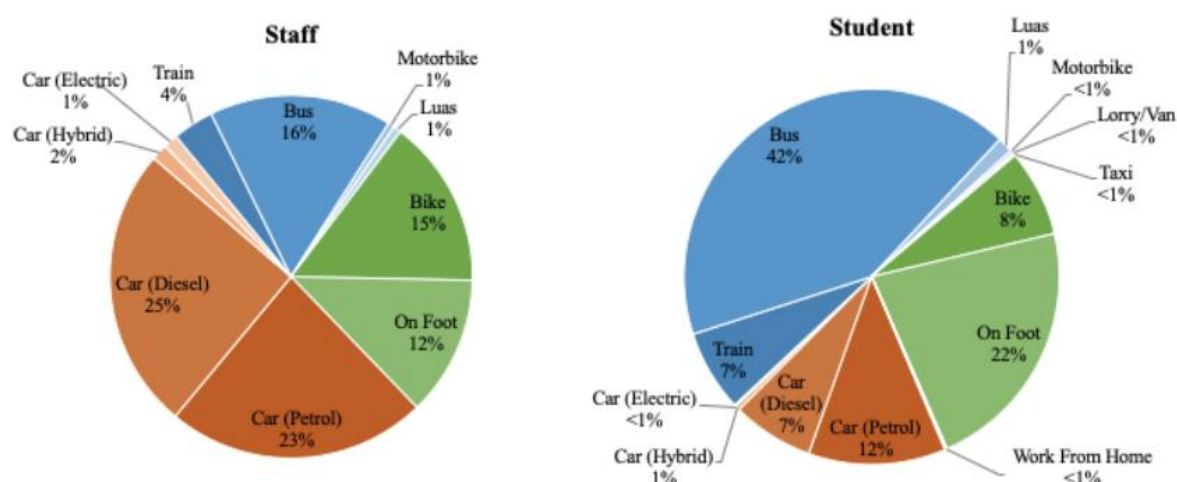


Figure 8. Percentage breakdown of each mode of transport for staff versus students

Table 5. Summary of Staff and Student sustainable and non-sustainable transport choices by percentage in 2017 v 2018

	Students		Staff	
	2017	2018	2017	2018
<b>Sustainable Commute</b>	76%	78%	47%	47%
<b>Non-Sustainable</b>	23%	19%	52%	51%
<b>Other</b>	1%	3%	1%	2%

## Engagement

Civic engagement is best defined as a mutually beneficial relationship between the university and the community, understood in its broadest sense to encompass local, national and global individuals and associations committed to social, economic, political and cultural development. It encompasses a range of activities through which staff and students engage with the needs of communities and also seek a development of their own social understanding through active and global citizenship. In brief, civic engagement means working to 'make a difference' in the civic life of our communities through the development of appropriate knowledge, skills and values.

*"Engagement with the wider community must become more firmly embedded in the mission of higher education institutions. Higher education institutions need to become more firmly embedded in the social and economic contexts of the communities they live in and serve" (National Strategy for Higher Education to 2030)* Goal 9 of the Strategic Plan describes the 4x4 Engagement Strategy which utilizes the Quadruple Helix (Enterprise, Government, Citizens, Academia) model of engagement with four of our primary communities (Local, Regional, National, Global).

Therefore, the university's role in promoting sustainability is not confined to the teaching, research and operational activities situated within the physical footprint of DCU. DCU is an important regional asset and a key stakeholder of the city. "Cities are where the battle for sustainable development will be won or lost if we all fail." (U.N Deputy Secretary-General Jan Eliasson, 2015). The university has a multi-faceted role to play in tackling climate change and localising the Sustainable Development Goals.

Civic engagement at DCU has developed a strong national and international profile, widely recognised as a model of best practice. The table below lists some of the existing engagement activities;

Organisation	Activity
Cloughjordan Eco Village	Memo of Understanding, Working together on shared learning journey.
DCU Sustainable Living Society	Strongly linked to green committee and activities to promote sustainability to student body
DCU Students Union	Work together with Sustainability and Green Committee to communicate message and organize and support events
Global Consortium for Sustainability Outcome (GCSO)	The Global Consortium for Sustainability Outcomes is a non-profit international consortium of universities that collaborate to implement and scale solutions to sustainability challenges. GCSO membership spans seven countries on three continents, enabling universities to work together in partnership with each other and with governments, businesses, schools and NGOs.
Sustainable Energy Authority of Ireland (SEAI)	DCU have several links to SEAI including grant aid under the Better Energy Communities Awards, as members of the Better Energy Communities Network, and also working with SEAI to increase awareness of energy reduction and efficiency by DCU Staff through energy awareness workshops
Union of Students of Ireland (USI)	DCU is one of the four universities participating in the EU funded SAVES (Students Achieving Valuable Energy Savings) Programme in conjunction with DCU Residences.

<b>Other third level institutions</b>	DCU participated in several forums and event where it works together with other HEI's to develop and delivery the sustainability message! Eg coffee cups campaign.
<b>An Taisce Green Communities</b>	DCU and particularly DCU community gardens work with the An Taisce Green Communities team to provide access and support for project in the community.
<b>Mens Shed Association &amp; Ballymun Mens Shed Association</b>	DCU is working together with the Mens Shed association and Ballymun Shed to establish a Shed on the DCU Community Garden.
<b>Dublin City Council</b>	DCU Sustainability/Green Committee have several engagements with DCC including the removal of hot water from public sanitary facilities, refurbishment of sheds on the DCU Glasnevin Community Garden and the Adopt a Street programme
<b>Drumcondra Tidy Towns Association</b>	DCU Sustainability/Green Committee are working with the Drumcondra TT Ass to help increase biodiversity on the Drumcondra facing perimeter of St. Patricks Campus including new flower baskets, propagation of native ivy, support maintenance of DTT planters etc
<b>Phibsboro Tidy Towns Association</b>	DCU Sustainability/Green Committee are working with the Phibsboro TT Ass on waste and water issues
<b>The DCU Vegan Society</b>	To support positive choices in the DCU restaurants
<b>DCU Cycling Club</b>	To promote cycling facilities on campus and intercampus
<b>IBikeDCU Society</b>	To promote biking, basic skills incl rules of road etc.
<b>Smarter Travel Campus Group</b>	Working to achieve a 90% of campus users using a sustainable form of transport.
<b>DCU Office of Student Life</b>	Several linkages including sustainable bottle/cups, community employment and engagement
<b>Rediscovery Centre</b>	Several linkages including weekly bike clinics, fashion workshop and education and awareness raising programmes.
<b>North Dublin Chamber of Commerce (NorDubCo)</b>	Working on sustainable project implementation including hot water and policy recommendations
<b>RCE Dublin United National Regional Centre for Expertise in Education for Sustainable Development</b>	RCE Dublin is coordinated by Dublin City University (DCU) and its partnership includes educational organisations (DCU, Educate Together), Public bodies (An Taisce, Dublin City Council), industry-academia networks (Sustainable Nation) and non-governmental organisations (FightingWords, Exchange House Ireland and ECO-UNESCO).
<b>National Transport Authority</b>	Smarter Travel Campuses programme and several support awards to improve transport related initiatives at DCU
<b>Eastern and Midlands Regional Authority</b>	Memorandum of Understanding; DCU as a HEI has forged valuable links within the region with industry, local government, other public bodies and community. DCU can therefore contribute to the development and implementation of the Regional Economic and Spatial Strategy for the Eastern and Midlands region a number of ways.

## 5. Targets & Actions

This section sets out the overarching targets and some of the short and medium term actions (2019-2022) for each of the following Teaching and Learning, Research, Development and Innovation, Operations and Engagement.

The Table in Appendix A outlines the current status of the actions, estimated costs and delivery dates.

### Teaching and Learning

DCU recognises that there is a distinction between environmental sustainability education and education for sustainability (EfS)– we are committed to addressing both. We aim to

- Analysis 100% of DCU undergraduate programmes identifying existing contributions to education for sustainability by 2020;
- The development of a Sustainability 101 module and providing 100% of all staff and students have access to module by 2021;
- the development and rolling out of workshop on infusion of education for sustainability to academic staff by 2022;
- ensuring that 100% of DCU undergraduates graduate with a high competency in sustainability (to be assessed by Sulitest or similar) by 2030

Our initial actions to accomplish these target are:

**Environmental sustainability:** Development of an online remote participation enables sustainability 101 module will be developed as a series of stackable micro modules. This series of micro modules will be available to all staff and students and will include:

- Principles of Sustainability- Social, Cultural, Economic and Environment
- Sustainable Development Goals (SDGs) and Global Challenges
- Climate Change, Planetary Boundaries, Carbon Footprints and Budgets
- Global Justice, Human rights, equality

**Education for Sustainability (EfS):** As opposed to environmental education ESD is more focused on the development of sustainability competencies that seek to equip learners with the knowledge, skills and values that will inspire and empower them to take action to be Global citizens understanding their global and generational interdependencies. These competencies include Systems thinking, Anticipatory or futures thinking, Normative competency, Strategic competency, Collaboration competency, Critical thinking competency, Self-awareness competency, Integrated problem-solving competency many of which are included already in the DCU Graduate Skills competencies.

In directly addressing the infusion of education for sustainability, DCU is committed to a review of all programme descriptors for undergraduate programmes via course builder, identifying existing and potential spaces for sustainability. Working together with the micro modules on environment sustainability, which will provide the environmental context and understanding, a series of hands on workshops will be undertaken with lectures to support the tailored infusion of sustainability into their programmes.

## Research, Development and Innovation

DCU is committed to promoting and supporting sustainability research across the University. To achieve this DCU will:

- clearly articulate the scale of the sustainability challenge and the changes necessary and DCU commitment to demonstrate leadership in the delivery of sustainable solutions;
- promote and utilise the DCU campuses as living labs for demonstration of sustainability solutions, sharing the solutions and lessons learnt openly to support other to implement such solutions; [Could we include a financial commitment/ internal funding mechanisms?]
- identify Sustainability as a priority area of research at DCU and provide the necessary supports to increase the number of researchers working in this area and the level of research income;
- Foster and support researchers to address sustainability issues through DCU engagement in national and international sustainability focused networks such as Global Consortium for Sustainability Outcomes

## Operations

This section will deal with the operational emissions of the DCU Campuses and the proposed actions to be taken to meet the targets set. In identifying the operational challenges of climate change, DCU will undertake a full Risk assessment for all areas of this Climate Action Plan, assign owners, and identify resources. The completed risk assessment should be a living document regularly updated and reports to the DCU Risk Committee.

### **OA1: Inclusion of Sustainability/Climate Action on DCU Risk Register**

In addition to current challenges, as identified in table below, there are significant near future challenges of meeting new space requirements to accommodate increasing student numbers and research activity while reducing overall emissions. While efficiencies can have some impact they will not be enough for example the Irish Public Sector over the past decade has reported 25-30% improvement in energy efficiency (43% at DCU) which has resulted in over 750,000 tCO<sub>2</sub>e of avoided emission but with no absolute reduction in actual consumption levels. The construction of new buildings such as the Future Tech or the Campus Residences development even at BREAM Excellence standard and exceeding the national requirement of Near Zero Energy Buildings (NZEB) will not be carbon neutral and therefore lead to an increase in GHG emissions.

Include note on DCU Estates Energy Partner tender to be issued in Qtr4 2019.....

The table below identifies operational science based targets based on DCUs GHG emissions in 2018. Over all these targets indicate a 4.2% annual reduction year on year for DCU to be aligned with the 1.5deg scenario for 2030.<sup>4</sup>

*Table 1: Operational Targets*

		<b>Total GHG Emissions 2018 (tCO<sub>2</sub>e)</b>	<b>% of total</b>	<b>Science Based Target Reduction per annum (tCO<sub>2</sub>e)</b>
<b>Scope 1</b>	Natural Gas	5,739	9%	241
	DCU Owned Vehicles	16	0%	1
	Fugitive Emissions	2,266	4%	95
<b>Scope 2</b>	Purchased Electricity	7,174	11%	301
<b>Scope 3</b>	Staff & Student Commuting	12,291	19%	516
	Business Travel	2,284	4%	96
	Academic Travel	2,300	4%	97
	Waste	52	0%	2
	Water	237	0%	10
	Purchased Goods & Services	31,851	50%	1,338
		64,212	100%	2,697

### Scope 1 : Natural Gas, DCU owned Vehicles, Fugitive Refrigerants

Natural gas is 9% of the DCU total carbon budget and the primary source of space heating. The challenge to decarbonise heat is immense both in scale of works needs and cost.

DCU is piloting the use of Ground-source heat pump technology on the All Hallows Campus to provide 300KW of renewable energy for XXXm<sup>2</sup> of space.

In the National Climate Action Plan it is proposed that all public sector building would be retrofitted to a building energy rating (BER) of B2, DCU currently have two B2 or above buildings – The U Student Centre and the NRF. A ‘back-of-envelope’ calculations for a retrofit programme at DCU would give:

10 buildings at ~ 5000 sq. metre per building = 50,000 sq.metres

<sup>4</sup> <https://www.ipcc.ch/sr15/chapter/spm/>



50,000 sq.metres @ €2,000 per sq. metre to retrofit to B2 = €100,000,000

To quantify this challenge more accurately, DCU is undertaking a full ***feasibility study of retrofitting the McNulty Building to B2 standard***. There are some additional points to consider here – this is only to B2 standard, and while significantly better than current majority D-F ratings, building will continue to be carbon emitting rather than neutral or net positive. All retrofit and new buildings at DCU will undertake a full assessment of proposed ***energy source*** to ensure that DCU does not align with a high emission future. Under the national Climate Action plan it is proposed that the electricity grid will move to 70% renewable over by 2030<sup>5</sup>. In addition Gas Networks Ireland have in Oct/Nov 2019 launched a ‘Vision 2050’<sup>6</sup> strategy aiming to evolve to become net zero carbon by 2050. In all assessments the full lifecycle impacts of proposed new or retrofit technologies should be utilised to ensure appropriate decision making – for example the direct emission reductions that would result for the installation of solar panels may not off-set the full embodied impacts of solar panel production, installation, maintenance etc.<sup>7</sup> Also the above calculation does **not include any decanting costs** of buildings while they are being deep retrofitted. We anticipate, although not confirmed, that there will be grant aid/funding available to help meet this challenge. We have estimated that this grant aid would need to be within the 50-80% bracket to enable DCU to proceed with such projects.

- **Retrofit:** DCU to develop a high level retrofit plan for all buildings on campus and over the next three year, with grant support, will seek to reduce our campus carbon emissions by 3% over the three years.
- **Fugitive Refrigerants:** Fugitive emissions from refrigerators, air conditioning units and cold rooms account for 4% of DCU's total CO2FP due to the impact of the specific gases used in these devices. The average GWP for DCU refrigerants is 2161. This is as a result of older systems not being adequately funded for forward maintenance renewal programmes. Consequently, DCU is reliant on high GWP refrigerants such as R22, R410a and R404a to provide cooling. Aligning to EU refrigerant phase-down and EPA guidance, planning suitable replacement equipment and procuring same with energy and GWP as an explicitly evaluated criteria is now and will remain as Estates office function independent of the FM provider. Going forward, DCU will procure new refrigeration equipment with the stipulation of low and ultra-low GWP refrigerants as standard, as the Estates Office has recently begun to do. A GWP of <10 is the benchmark that should be used in any RFP which allows for the specification of low GWP synthetic refrigerants like R1234ze. Over the next decade, refrigeration systems will move towards CO2 as refrigerant (GWP of 1) but commercially available solutions currently do not allow a migration to CO2. As the market becomes available, DCU should seek to move towards CO2 where the opportunity arises.
- **DCU e-Fleet:** Over the coming three years DCU will investigate the potential to move its vehicle fleet (0.02% of total DCU CO2FP) to electric, given the scale of the DCU Fleet (5 vehicles) this will have some but limited overall impact.

Over all this will lead to proposed emission reduction of just under 4% over the three year to 2022. This is **significantly shy of the 4.2% annual reduction required** under our science based targets for a 1.5deg scenario by 2030.

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<sup>5</sup> <https://assets.gov.ie/10206/d042e174c1654c6ca14f39242fb07d22.pdf>

<sup>6</sup> <https://www.gasnetworks.ie/vision-2050/>

<sup>7</sup> <http://www.etoologlobal.com/wp-content/uploads/2013/06/ReNew-Solar-PV-Sustainability.pdf>



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## Scope 2 : Purchased Electricity

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Purchased electricity at DCU accounts for 11% of our total carbon footprint. As with Scope 1 above, it is very expensive to reduce the carbon emission of purchased electricity and there is no single project that can accomplish this task by itself.

With grant support, DCU aim to reduce our carbon emission from purchased electricity by just over 5% over the three year to 2022 through the continued deployment of energy efficiency measures including:

- **LED lighting:** several buildings have been identified for retrofitting for LED lighting in 2019/2020 (Sports and Library). This model will continue to be rolled out across all buildings. Insert more details including KWhr savings etc [Net cost €600k]
- **Local generation:** Following on the success of ground source heat pump on the All Hallows DCU will continue to investigate the local generation of energy including solar and all heat pumps technologies.
- **Solar Panels:** Insert details on PV Roof Top project cost and electricity savings

It is imperative that the targets set under the National Climate Action Plan for decarbonising the national grid e.g. 70% renewable by 2030 are met.

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## Staff & Student Commuting

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Staff and student community account for 19% or 12,291 tCO<sub>2</sub>e of the total DCU Carbon Footprint. With a reduction target of 4.2% or 516tCO<sub>2</sub>e per annum we will need to for example remove 337 cars (approx. 9% of current cars) completely from the road OR move 749 car users (approx. 20% of current car users) to bus. There are a number of initiatives supporting smarter travel that have running at DCU for several years now which include:

- **Promotion of active community to DCU**
  - o Showers and changing facilities on all campuses
  - o Free cycle clinics
  - o Free introduction to cycling in Dublin with Cycle Ireland trained instructors
  - o Bike to Work scheme
  - o High quality locks available on DCU campus
- **Car Pooling:** Working with a Sharo, DCU will pilot the development and implementation of a car sharing app across all campuses. 100 car sharing spaces will be designated across all DCU car parks. It is estimated that this could reduce cars to campus by approx 5-10%. [Qtr4 2019]
- **Upgrade of cycle parking facilities** –Sheffield stands as standard across all campuses, secure cycle parking cage installed in DCU Glasnevin Multi-storey Car Park [Qtr4 2019]
- **Ecar Charging points:** Fast charge point to be installed on the DCU Glasnevin and DCU St. Patricks Campuses where ecars can charge to 80% within 20-30 mins.[Qtr1 2020]

- **Car Parking permits:** Introduction of car parking permits (permission to park not guaranteed space) for all campus. Initial charge €20 per semester for permit with all revenue generated reinvested in sustainable transport measures on campuses.

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### *Staff Business Travel & Student Academic Travel*

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In 2018 DCU's aviation related emission were 1,893 tCO<sub>2</sub>e, accounting for 4% of total emission<sup>8</sup>. This initiative would systematically review university-related air travel (whether directly paid by the university or external sources) categorising across faculties and profession units. An agreed framework to be developed to establish short- and medium-term benchmarks for aviation emissions reduction, commensurate with the constraints of climate science and global justice. In tandem with this additional resources would be invested in remote participate technology to support academic/staff participation in international meetings. A one-year monitored pilot programme will be rolled out with an agreed school (Law and Gov have volunteered!). Following a review of the impacts of the pilot and any adjustments to required emission reductions that programme will be rolled out across DCU.

<https://blogs.lse.ac.uk/impactofsocialsciences/2019/06/21/do-the-best-academics-fly-more/>

Similar to DCU business travel, student academic travel accounts for 4% of the total DCU Carbon footprint. Student academic travel arises from student traveling as part of their education programmes at DCU for placements, semesters abroad etc. Addressing these emissions is difficult given the significant positive impact of such engagement for the individual students. Some possibilities could be

- **Flying less** – promotion of lower carbon intensive transport models, identification of alternative exchange locations to address transport requirements
- **Remote participation facilities** – how can technology be employed to provide similar outcome to actual travel.

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### *Waste*

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In the 2018 carbon footprint for DCU, waste accounts for 0.08% (52tCO<sub>2</sub>e). Although was is only a small fraction of our total carbon footprint it is a very visible reflection of our approach to sustainable consumption and a very engaging focus for staff and students alike<sup>9</sup>. Below are some of the actions will continue/commence in 2019/2020:

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<sup>8</sup> It is possible that this is an underrepresentation of aviation emissions as not all flights etc are booked through the DCU Travel partner (currently Club Travel) for where this data is sourced.

<sup>9</sup> In annual green committee surveys over 50% of respondents indicate a preference to engage on a waste related project.

- **Single use plastics (catering):** Removing 700,000 non-recyclable coffee cup for the DCU waste stream aims to reduce total waste by 1.5%. Focus for 2019/2020 will be the provision of a reusable option (cups/plates/bowls, cutlery) at all cafes, the acceptance of a personal cup/lunch box and the introduction of a levy for single use compostable cups, bowls, cutlery.
- **Waste Segregation:** A phased introduction of segregation bins across DCU along with a series of education programmes of recycling.
- **Paper reduction programmes:** This is a multi-strand project including ISS printers' initiative, promotion and encouragement of paperless assessment with TEU, paperless person pilot – one yr no printing
- **Sustainable Kitchens:** Investigating the energy/water/waste nexus in kitchens. Initially focusing on framework and methodology this project would seek to address consumption habits and potentially investigate the Food/Planet/Health<sup>10</sup> nexus.
- **DCU Green Labs:** Single use plastics (laboratory), commencing in 2019/2020 this DCU Green Labs project will investigate the potential for reducing single use plastics in laboratories.
- **Zero waste to landfill:** Just over 6% of DCU waste goes to landfill. A waste audit will be undertaken to identify key component of this and implement initiative to eliminate all waste to landfill from DCU by 2022.

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### *Water*

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In 2018, the consumption and disposal of water at DCU accounts for 237tCO<sub>2</sub>e or 0.37% of our total carbon footprint. Similar to waste, water does not have a large impact on our total carbon footprint but has significant visibility and public engagement. Measure being actioned at DCU include

#### **Proposed Actions**

- **Leak testing on campuses:** DCU intends to focus on leakage and waste control within each building across all campuses for 2019. The university aims to reduce consumption even further on all campuses with a target set to reduce 25,000 m<sup>3</sup> of annual water consumed within the next 2/3 years (2020-2022).
- **Cistern Displacement Device (CDD):** procurement and installation of CDDs across all DCU facilities. Estimates savings of 9,000M<sup>3</sup> of water or 3% of total water use.<sup>11</sup>
- **Standardise low flow taps:** Estates agreed retrofit procedure across all campuses with particular focus on Sports and Residences.

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<sup>10</sup> <https://eatforum.org/eat-lancet-commission/>

<sup>11</sup> With an average toilet using between 7 to 13 litres of water and each CDD can save approx. 2.5 litres per flush giving estimated savings of just under 9,000M<sup>3</sup> of water or ~3% of total water use on campus.

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### *Purchased Goods & Services*

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As the largest element of the 2018 DCU carbon footprint, procured goods and services account for 50% of our total carbon footprint or 31,851 tCO<sub>2</sub>e. Of these emission 45% is direct related to construction related procurement and 55% to other university procurement such as business services, catering, printing etc. With support from the DCU Procurement office, these carbon emissions have been estimated using a financial model and while this give us an overview of the total emission the level of detail is limited. It is therefore proposed, in order to support better decision making regarding procurement choices, that DCU will undertake the following:

- **Procurement Policy:** Sustainability is currently taken into consideration under the [DCU Procurement Policy](#)<sup>12</sup>. DCU will seek to enhance and enforce this policy.
- **DCU Tender actions:** Introduction of a voluntary clause, in the first instance, in all tender actions/large orders to include:
  - o Greater than 500,000: All tenders require the inclusion a validated carbon footprint of the product or service across Scope 1, 2 and 3 emissions – with immediate effect.
  - o Less than €500,000: All tender requests that suppliers provide a validated carbon footprint of the product or service across Scope 1, 2 and 3 emissions – this is advisory until 2022 when it becomes mandatory
  - o Work with OGP to seek to make such a clause mandatory.
- **Packaging:** Include requirement where feasible that suppliers should remove packaging following delivery ensuring that such packaging is appropriately disposed of.
- **Procurement bans:**
  - o Prohibit the procurement of all single use plastics (catering) from all departments.
  - o Prohibit the procurement of all balloons (including helium and biodegradable) for decorative purposes.

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### *Biodiversity*

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The overall aim of DCU's Biodiversity Action Plan (Appendix) is to enhance and protect biodiversity, and to ensure that every member of the DCU community understands its importance in our lives.

The Convention on Biological Diversity state that biodiversity is the critical foundation of the Earth's life support system on which the welfare of current and future generations depends. Humans depend on biodiversity and the ecosystem services that stem form it for many basic needs. Biodiversity is important for sustainable development and relates to all 17 Sustainable Development Goals but there are two proposed goals that explicitly refer to it; goals 14 (Life below Water) and 15 (Life on Land).

DCU is committed to protecting biodiversity and embedding this protection into decision making across all sectors of the University including: building and grounds management, public realm

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<sup>12</sup> [https://www.dcu.ie/sites/default/files/finance/90%20-%20procurement\\_policy\\_fin\\_v1.pdf](https://www.dcu.ie/sites/default/files/finance/90%20-%20procurement_policy_fin_v1.pdf)

spaces and in the construction of new buildings. The use values associated with biodiversity are immense and can be categorised as economic, socio-cultural and health values, with each category having a number of benefits associated with it.

- **Habitats for pollinators:** To provide habitats where pollinators can survive and thrive, DCU will reduce the frequency of mowing and collect clippings, introduce artificial solitary bee nests and bird boxes and introduce and maintain a wildflower meadow.
- **Invasive alien species:** DCU aims to identify and monitor all medium and high impact invasive plant species and remove where feasible. This measure will align with the DCC Climate Actions plan.
- **Landscape management:** to maintain and enhance biodiversity DCU will Prioritising native plants in new planting schemes (at least 75% of plants to be pollinator friendly), reduce hedge cutting and cut between November and January and keep fertilisers, pesticides and herbicides well away from trees, hedges and verges, identify at least 10 locations that are mown under a pollinator friendly regime (5 cut and lifts per year after 15th April), and identify at least 4 areas that can be converted to perennial planted boarder.
- **Dublin City Council's Climate Action Plan:** DCU will work with DCC and other local stakeholders such as Drumcondra Tidy Towns, local residence associations etc and will assess the feasibility of further green walls, potential for wetland. Seek to create and promote a DCU Tree Trail.
- **Biodiversity Team:** DCU will seek to build a biodiversity team with representatives from the student body, expert academic and professional staff. This team would continue to log existing and new 'Actions for Pollinators' on the mapping system (pollinators.ie) and promote these across all campuses, provide or facilitate training on biodiversity and how to take action to protect it.

## Engagement

DCU is an important regional asset and a key stakeholder of Dublin City. "Cities are where the battle for sustainable development will be won or lost if we all fail." (U.N Deputy Secretary-General Jan Eliasson, 2015). Our role in addressing sustainability and tackling climate change is multi-faceted where engagement with our internal and external communities and localising and understanding and acceptance of the Sustainable Development Goals and the actions that are required to achieve these goals. To enable this DCU will:

- **4 x 4 Engagement Strategy:** supporting whole of community engagement - incorporate DCU's climate and sustainability related research and activities into the 4x4 Engagement Strategy
- **DCU Sustainable Energy Community:** Disseminate the learnings and expand the reach of the DCU Sustainable Energy Community to the local community in north Dublin (in partnership with local libraries?)
- **Partnerships:** Continue to research, test and transfer sustainability solutions across contexts through partnerships with city and council councils, the Dublin metropolitan Climate Action Regional Office and the Eastern and Midlands Regional Authority.

- **Civic Engagement:** Implement the principles and objectives of the sustainability charter through the civic engagement activities of DCU; Student Volunteer: DCU in the Community, NorDubCo; North South Social Innovation Network.
- **DCU Community Gardens:** Develop the DCU Community Garden at Glasnevin as a living lab for the demonstration of new and innovation solutions to local and global issues; social, cultural, economic and environmental, hosting social enterprises such as GrowDome and Garden Gnomes. Develop a further community garden on the DCU All Hallows campus.
- **SDGs:** Explore the possibility of working with the Artist in Residence , Visual Arts Officer, and local community to communicate the principles and objectives of the SDG's in a public space.

		Percent of total	2018 total (tCO2e)	SBT to Reduce per annum (tCO2e)	Budget request 2019/2020 €	2019/2020 Estimates reduction	
						%	tCO2e
Scope 1	Natural Gas	9%	5,739	241	250,000	1%	3
	DCU Owned Vehicles	0.02%	16	1	-	0%	0
	Fugitive Emissions	4%	2,266	95	50,000	20%	19
Scope 2	Purchased Electricity	11%	7,174	301	768,865	3%	9
Scope 3	Staff & Student Commuting	19%	12,291	516	282,000	10%	52
	Business Travel	4%	2,284	96			0
	Student Academic Travel	4%	2,300	97			0
	<b>Staff &amp; Student Travel</b>	<b>7%</b>	<b>4,585</b>	<b>193</b>	<b>30,000</b>	<b>20%</b>	<b>39</b>
	Waste	0.08%	52	2	115,000	25%	1
	Water	0.37%	237	10	50,000	20%	2
	Purchased Goods & Services	50%	31,851	1,338		20%	268
			64,212	2,889	1,545,865	14%	391

NOTE : It is very difficult in this initial phase to estimate the actual emission reduction. This process will improve over the coming years.