ENERGY & BUILDINGS

OVERVIEW

163 GWh
consumed in 2017

=

35,010
tonnes CO_2

TARGET

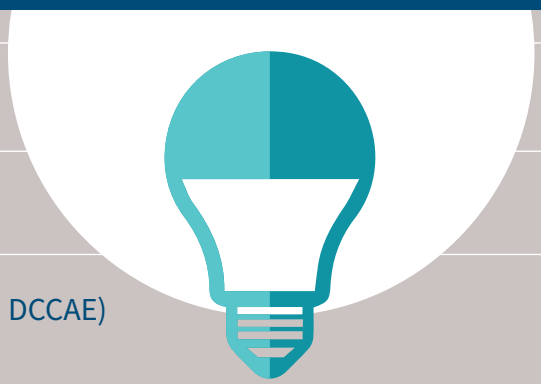
33%
IMPROVEMENT IN ENERGY EFFICIENCY BY 2020

40%
REDUCTION IN COUNCIL'S GHG EMISSIONS BY 2030

EXAMPLES OF MAIN ACTION TYPES

- Energy Master Plan for the Dublin Region
- Public lighting upgrades
- Dublin District Heating System
- Social housing retrofits
- Home Energy Saving Kits in all DCC libraries
- Upgrades in buildings using Energy Performance Contracts

STAKEHOLDERS TO WORK WITH AND INFLUENCE



- PRIVATE BUSINESSES
- PRIVATE CITIZENS
- GOVERNMENT DEPARTMENTS (e.g. DCCAE)
- SEAI
- ENERGY SUPPLIERS
- DEVELOPERS

Our vision is for a zero carbon City with all energy coming from renewable sources. All buildings will have been built or retrofitted to near zero building standards which will provide comfortable, warm, living and working environments.
- Dublin City Development Plan 2016-2022

In 2017, Dublin City Council's buildings and public lighting accounts consumed 163 GWh of primary energy, which amounted to 35,010 tonnes of CO_2. The actions outlined in this section show how, through better energy planning using energy mapping, improvements in building energy efficiency, the use of renewables, and increased innovation, DCC will reduce the emissions from its operations and service delivery. As DCC is not responsible for the upgrading of private buildings in Dublin City, it will provide information on how DCC has retrofitted social housing and Council-owned building stock, and how it has deployed renewable energy systems. DCC is also helping citizens to become more aware of their energy use by making Home Energy Saving Kits available in all of its public libraries.

ENERGY PLANNING

Currently, analyses of energy use and related emissions are carried out at a national level and are used to develop strategic national level energy policies. However, local level energy planning allows the identification of low-carbon solutions that are specifically designed to the distinct energy characteristics of the region examined.

In 2015, Codema produced the *Dublin City Spatial Energy Demand Analysis* (SEDA) to better understand the current and future energy demand and local energy resources of the City within a spatial context. Its methodology allowed for 'energy character areas' to be defined, i.e. areas with distinct types of energy needs, consumption patterns and fuel types used. These needs were then matched to the best-available technical solution incorporating renewable resources and energy-efficient solutions.

The Dublin City SEDA was the starting point for holistic energy planning in the City and, building on this work, Codema will develop an Energy Master Plan for the Dublin Region as a whole.

CASE STUDY

Photo Source: Failte Ireland / David Soanes

The Dublin Region Energy Master Plan
The Dublin Region Energy Master Plan, which will be supported by SEAI's Research, Development and Demonstration (RD&D) programme for over two years, will create evidence-based, realistic, and costed pathways for the Dublin Region to achieve its carbon emission reduction targets to 2030 and 2050. The scenario analyses will include all areas of energy use in the Dublin Region, and will be evaluated based on the socio, economic and environmental impacts. The resulting scenarios will give local authority and regional level planners, architects, engineers and other policy-makers the tools to create effective, low-carbon policies and make strategic decisions to influence the use of energy in Dublin. The plan will focus on the areas where actions can be taken to introduce energy efficiency measures and reduce CO_2 emissions, such as district energy systems and renewable energy technologies.

Across Europe there is a recognised need for increased local authority led integration between planning for climate change and spatial planning tools and strategies. In the Dublin context, City Development Plans and other plans and strategies have a key role in directing evidence-based policy responses to both climate change mitigation and adaptation.

The key objectives of advancing evidence-based climate change policy at the local level are:

- To develop a closer link between European and national climate change policy and spatial planning policy for both climate change mitigation and adaptation
- To base climate change policies and objectives on a robust spatial understanding of the existing and future energy profiles across sectors at a local authority scale
- To promote the generation and supply of low-carbon and renewable energy alternatives, having regard to the opportunities offered by the settlement hierarchy of local authority areas, the variety of land uses present, and the built environment
- To stimulate the development of a more evidence-based regional methodology for spatial mapping of future climate risks and vulnerabilities and climate change adaptation policy development
- To educate local authorities, public and private sector organisations and climate stakeholders on measures and responses that are most relevant at the local level
- To encourage greater local authority involvement and leadership in the roll-out of climate change projects in partnership with other stakeholders
- To inform and support the EU Covenant of Mayors for Climate and Energy initiative, a key aim of which is to act 'together towards sustainable, climate-resilient and vibrant cities'

With regards to the preparation of future City Development Plans, Strategic Development Zone Planning Schemes and Local Area Plans, there is an opportunity to develop or further develop integrated and standalone 'Climate Change' chapters that address both climate change mitigation and adaptation. Future spatial planning policies and objectives can become more spatially based, having regard to mapping areas suitable for energy networks, district heating projects, larger scale renewable energy projects, areas suitable for sustainable urban drainage systems and green infrastructure etc., in the urban context.

CASE STUDY

Photo Source: Fáilte Ireland

Dublin District Heating System

Through the North Lotts and Grand Canal Dock and the Poolbeg Strategic Development Zones, DCC is developing the Dublin District Heating System (DDHS) to supply low-carbon heat to houses and businesses in these areas. Waste heat will be taken from the Poolbeg Waste-to-Energy Plant and delivered through insulated pipes to the buildings connected to the system, replacing fossil fuel heating systems and therefore reducing air pollution and GHG emissions.

The project will consist of three phases; Phase 1 will focus on connecting buildings in the Poolbeg SDZ, Phase 2 will include buildings in Ringsend and Irishtown and Phase 3 will connect buildings in the North Lotts and Grand Canal Dock. This project will be the largest district heating network in the country and will save over 16,000 tonnes of CO_2 when the three phases are up and running.

Codema has already produced a Detailed Financial Appraisal and Market Research Report and Communications Strategy on behalf of the Council and the project has now secured €20 million through the Climate Action Fund. Through detailed feasibility studies, the project has shown to be technically and economically viable for a public sector investment, and once all funding is secured, the project team will procure a qualified Economic Operator to deliver the project. This project is expected to begin delivery phase in 2019/2020.

ENERGY MANAGEMENT

Monitoring and Reporting

Under S.I. No. 426 of 2014, the DLAs have an obligation to report annually on their energy performance. In practice, this annual reporting entails compiling full data of their previous year's energy consumption. This comprises mainly of MPRN data for all electricity accounts and GPRN data for all natural gas accounts, along with the annual consumption data for non-metered public lighting, heating oil and transport fuels. Codema has supported DCC with this statutory reporting to the national energy Monitoring and Reporting (M&R) system operated by the Sustainable Energy Authority of Ireland (SEAI) on behalf of the Department of Communications, Climate Action and Environment (DCCAE).

Annual Energy Reviews

Codema has produced Energy Reviews for DCC for 2016 and 2017. The aim of these Energy Reviews is to help DCC in its energy planning programme, in order to meet the public sector 2020 energy target. The Energy Reviews show a breakdown of DCC's energy use for these years, highlighting where energy was used, what drove its consumption, and where the greatest energy savings can be achieved.

This data allows Codema to develop a specific list of energy-saving recommendations, which will guide DCC on how best to tackle their Significant Energy Users (SEUs). Codema will continue to produce these annual Energy Reviews on behalf of DCC's Energy Oversight Committee (see below), in order to guide the Council on the best action to take to meet the 2020 target.

Energy Oversight Committee

Based on the findings from its Energy Reviews and the appointment of its Energy Performance Officer (EPO), Dublin City Council established an Inter-Departmental Energy Oversight Committee in 2017. Codema helped facilitate these committee meetings in order to identify and cost potential projects in areas such as Public Lighting, Offices and Depots, Housing, Fire Stations, Sports Centres, Libraries, and Transport, which will help the Council stay on track of the 2020 energy target. The first project proposals were finalised in December 2017, and are earmarked for completion in 2019. Codema will continue to work with the Energy Oversight Committee, and will aim to develop an Energy Management System within DCC, as part of this process.

Display Energy Certificates (DECs)

The information from Codema's energy database and energy surveys is used to prepare Display Energy Certificates for DCC's public buildings with a floor area greater than 250m^2, as required under the regulation S.I. No. 243 of 2012. Codema assisted DCC with the annual inspection and certification of 44 public buildings in total in 2018. This information was entered into the SEAI system and Codema issued certificates to the managers of all of these DCC buildings, along with information on how much energy would need to be saved in the following year to improve their energy rating. Each building manager also received a copy of Codema's *Guide to Display Energy Certificates in Local Authority Buildings* to accompany these certificates and encourage direct action.

ENERGY EFFICIENCY AND RENEWABLES

Council Buildings

DCC will increase its renewable energy uptake and energy efficiency through retrofits of its buildings and social housing stock. For example, the Council has already implemented energy efficiency actions in its Civic Offices, which has reduced its electrical energy consumption from 5,220 megawatt hours (MWh) in 2012 to 3,770 MWh in 2017. This has been achieved through a wide range of measures such as boiler upgrades, new pumps and a rooftop solar photovoltaic (PV) system. These PVs generate 43,000 kilowatt hours (kWh) per year and reduce DCC's dependency on fossil fuels.

PV panels were also installed in three of the Council's library branches (Cabra, Coolock and Raheny), and as a result, have cut the libraries' electricity bills by an average of 20%. DCC will aim to replicate these PV projects in other suitable buildings across the City.

In the next few years there are plans to implement further energy efficiency measures in Civic Offices and to demonstrate climate change adaptation measures (i.e. green walls and rainwater harvesting).

For example, DCC is investigating the potential to install a combined heat and power (CHP) unit in its Civic Offices to provide electricity to the building and backup power in the case of a blackout. This project aims to save 80 MWh of primary energy and 30 tonnes of CO_2. Dublin City Council is also committed to investing €2.5 million over the next three years to upgrade the HVAC systems within the Civic Offices and there is an ongoing programme to replace the lights in the building with LEDs and install additional motion sensors.

The Council is also planning on retrofitting a number of additional buildings throughout the City, including its homeless facilities, senior citizen units and social housing complexes. These upgrades will include measures such as insulation, window and door replacements, gas boiler replacements, heating controls, LED lighting, solar PV panels and heat pumps, and the combined projects could save 3.2 GWh in total, or 837 tonnes of CO_2.

A number of large projects are in planning to regenerate flat complexes by upgrading the existing buildings, and often adding additional apartments on the site. The upgrade involves not only a deep energy retrofit but also better space standards, better accessibility and better use of external spaces.

Work is under way at Phase 1 of Dolphin House. Feasibility studies carried out for Constitution Hill, Ballybough House and Gardiner Street flats suggest that upgrading the buildings may be an economic option. At other complexes, it may be more economical to replace the older buildings. These are all deep retrofit projects, exceeding the nearly Zero Energy Building (nZEB) level as defined in the Technical Guidance Document Part L 2017[28] for existing buildings (120 kWh/m^2) and aiming for the target of achieving the same energy efficiency as a new building (70 kWh/m^2).

CASE STUDY

DCC Fabric Upgrade Programme

Dublin City Council is continually upgrading its social house units through its Fabric Upgrade Programme. Since 2013, over 8,000 units have been refurbished, resulting in significant energy and cost savings, and improved comfort levels for residents. This includes the recent fabric upgrade works undertaken at St Bricin's social housing scheme at Arbour Hill, Dublin 7.

The energy upgrades carried out as part of Phase 1 of the programme involved measures such as attic, water tank and pipe insulation, new windows, lagging jackets for hot water cylinders and cavity wall fill insulation.

Altogether, the Fabric Upgrade Programme has saved an estimated €29.6 million on energy bills to date; Phase 2 of the programme is ongoing, and will provide external insulation to a further 5,243 units.

CASE STUDY

Energy Performance Contracting

DCC, in partnership with Codema, is using Energy Performance Contract (EPC) projects to improve the energy use and efficiency of its sports and fitness centres across the City. An EPC is a contractual agreement by an Energy Service Company (ESCo) to guarantee energy savings over an agreed period of time.

In 2016, DCC awarded its first EPC for the upgrade of three of its largest leisure centres (Markievicz, Finglas and Ballymun Sports and Fitness Centres). These upgrades included the following measures:

- New LED lighting
- New or refurbished combined heat and power systems to efficiently heat the swimming pools
- Improved building control systems for effective management of all equipment

The works on the three leisure centres were completed by December 2016, and Codema is now overseeing the project's Measurement and Verification (M&V) process. The latest figures show that in its first year alone, the project has saved the Council €122,228 on energy and maintenance costs, and has achieved average energy savings of 38%. Based on this successful model, Codema is now developing a second EPC project with DCC, which will involve an upgrade to the existing lighting, heating and ventilation systems across seven Council buildings. The largest building is Ballyfermot Sports and Fitness Centre; the other six buildings are dry sports halls - St Catherine's Community Centre, Ballybough Community Centre, Cabra Parkside, Irishtown Sports and Fitness Centre, Bluebell Sports Centre, and Poppintree Community Sports Centre. Boiler upgrades may also be considered, including a review of the existing CHP system in Ballyfermot. Expected savings are in the region of 25% to 30% in total.

Council Depots

The Transformation Unit in Dublin City Council is working with all of the operational areas in developing a consolidated depot model, which will result in the construction of two large-scale depot facilities, one on the northside of the City, and the other on the southside. The northside depot was granted planning permission in February 2017 and will be located along St Margaret's Road in Ballymun. Fourteen depots from across a variety of divisions such as waste management, road maintenance, housing maintenance and electrical services will be based in this proposed new facility, which will include an office and welfare building, workshop facilities and a central store. This large-scale depot will be designed and constructed to nZEB standard and the move could result in savings of 2.1 GWh of primary energy and 672 tonnes of CO_2.

Public Lighting

Public lighting is one of the largest energy users within the Council, accounting for 25% of DCC's total primary energy consumption in 2017. Within the Council's stock of public lighting, there is currently over 20,500 SOX lamps. The manufacture of these lamps is currently being phased out, so these will have to be replaced, and LED lights, with their very high energy efficiency, are the obvious replacement. Up to 5,500 have already been replaced. By replacing a further 4,000 of these SOX lamps by 2020, DCC could achieve savings of 1.7 GWh of and 388 tonnes of CO_2. This would have a significant impact on the Council's 2020 target.

Dublin Fire Brigade

The Dublin Fire Brigade is looking to replace the old boilers at the O'Brien Institute with a more carbon-neutral alternative, such as a condensing gas boiler and micro CHP hybrid system, to reduce both the electrical and gas consumption within the facility. Another option is to install a heat pump and micro CHP hybrid system.

Codema is also looking at an Energy Performance Related Payment (EPRP) contract for this project, which will incentivise the contractor to remain involved until savings are established, thereby reducing the risk to the Council. Codema is currently facilitating the design and procurement of the new heating system for this project, which could result in a saving of 198 MWh and 41 tonnes of CO_2.

The Dublin Fire Brigade has also committed to retrofitting its lighting stock to LEDs. This will be achieved by integrating a new policy within their maintenance contracts that states that any failed fittings should be replaced with LEDs. These LEDs will also comply with local government procurement rules and will be on the SEAI Triple E register.

Historic Buildings

Local authorities have a role in protecting and maintaining the archaeological and architectural resource for future generations. Climate change actions should be carried out in consultation with local authority Architectural Conservation Officers, Heritage Officers and other relevant stakeholders. Proposals to improve the thermal performance of or insert renewable energy technologies into historic buildings need to be sensitive to traditional methods of construction to ensure that the proposed works are appropriate and do not actually cause damage to the structure, require the removal of historic fabric such as original windows, doors and floors, or have a detrimental visual impact. National guidance is available to owners to direct appropriate interventions through the Department of Environment, Heritage and Local Government publication "Advice Series: Energy Efficiency in Traditional Buildings" (2010). Dublin City Council will be mindful of this when carrying out works on any of its own historic building stock and will seek to promote and develop best practice in this area.

RESEARCH AND INNOVATION

To maximise the benefits of advances in technology, DCC is using its Smart Dublin programme as a platform to engage with academia, the private sector and citizens, to co-create solutions to the challenges facing the Dublin Region. The Smart Dublin programme was established in 2016 to enable the four Dublin Local Authorities to collaboratively take advantage of some of the big tech trends that are transforming how we live and work. In partnership with Enterprise Ireland, Smart Dublin runs Small Business Innovation Research (SBIR) competitions, which challenge smart technology providers, researchers and citizens to come up with solutions that will improve the operation and resilience of the Dublin Region. To date, €750,000 in funding has been awarded to small businesses to develop solutions in areas such as cycling, wayfinding, illegal dumping and flooding.

Phase 2 of the SBIR competition was launched in April 2018, and has a further €800,000 in funding to develop solutions for areas such as bathing water quality, staff workplace mobility and last mile delivery in urban centres.

DCC is a partner in a consortium for the 'Geo-Urban' project, the objective of which is to identify the geothermal resources available in Dublin and Vallés in Catalonia, Spain. Geophysical data collected during this project will feed into an economic appraisal of using heat from deep geothermal resources in challenging urban environments like Dublin, and will draw upon existing knowledge and experience from partners in Denmark, where the deep geothermal heat industry is more established. The specific objectives of the project can be listed as follows:

1. Feasibility analysis for commercial geothermal district heating
2. Improved conceptual understanding of the subsurface geology
3. Promotion of geothermal energy as an option for district heating

The aim is to complete this project by the middle of 2021.

Photo Source: WikiCommons / YvonneM

ENERGY AWARENESS

DCC works closely with Codema to continuously implement initiatives and projects to raise awareness of energy issues, monitor energy use, and increase the share of renewable energy and improve energy efficiency at work and in the home.
- Dublin City Development Plan 2016-2022

A key aspect of reducing energy use is public awareness, as retrofits, technology and innovation can only achieve a portion of DCC's goals. DCC, in partnership with Codema, is actively engaging with staff and citizens about energy, from the benefits of renewables to providing tips on small steps that can be taken to reduce energy use and save money on their bills.

CASE STUDY

Home Energy Saving Kits
Dublin City Council's Public Libraries partnered with Codema to pilot the Home Energy Saving Kits in a selection of library branches in 2016. The kits contain six tools for householders to assess how energy-efficient their homes are and were available for the public to borrow free-of-charge from these libraries.

The pilot year was very successful, with huge demand from the public. As a result, the scheme was expanded to all of DCC's public library branches in 2017 and the Council also partnered with Codema and SEAI to host energy-saving workshops in Cabra, Raheny and Rathmines libraries, which provided the public with a range of information on saving energy at home, from low-energy lighting, right through to draught-proofing and insulation. Codema also ran two staff trials of the kits, so that Council staff could assess the energy efficiency of their homes and bring this awareness into the workplace.

The scheme is the first of its kind in Ireland, and has had great success, garnering awards and recognition, both nationally and at an EU level. The Home Energy Saving Kits were expanded once again in 2018 to other DLA areas and to selected libraries across Ireland.

Locally, DCC and Codema will continue to work together to build on this initiative over the coming years, and energy-saving information and events will continue to be made available by the Council through its public libraries.

ENERGY & BUILDINGS

NO	ACTION	TIMEFRAME	LEAD DEPT(S)	INDICATORS	TARGET(S) IMPACTED
ACTIONS CURRENTLY BUDGETED					
ENERGY PLANNING					
E1	Create Energy Master Plan for the Dublin Region	2018 onwards	Codema	Website with e-Map	
E2	Requirement for all new developments to be district heating-enabled in Poolbeg West, North Lotts and Grand Canal SDZs	Ongoing	Planning and Property Development	# of buildings DH-enabled	
E3	Prepare Dublin City Sustainable Energy and Climate Action Plan	2019	Codema	SECAP complete	
E4	Evidence-based climate change chapter in *City Development Plan 2022-2028*	2020 onwards	Planning and Property Development	Chapter with policies and development management standards	
ENERGY MANAGEMENT					
E5	Develop ISO 50001 compliant energy management system	Ongoing	Environment and Transportation	System developed and ISO 50001 compliant	
E6	Annual Monitoring & Reporting to SEAI	Annually	Codema	DCC's energy use monitored and reported	
E7	Publish Energy Review annually	Ongoing	Codema	Review published, # of recommendations implemented	
E8	Display Energy Certificates for public buildings	Ongoing	Codema	Compliant with legislation	
ENERGY EFFICIENCY & RENEWABLES					
E9	Dublin District Heating System	2023	Environment and Transportation	# of buildings connected	
E10	Identify sites for trialling renewable energy projects, including solar PV	2020	Planning and Property Development	Properties identified, project plans	
E11	Energy efficiency works in 30 Council owned and operated buildings	Ongoing	Housing	# of buildings upgraded	
E12	Dublin Fire Brigade energy efficiency works	Ongoing	Dublin Fire Brigade	# of buildings upgraded	
E13	Continue the Fabric Upgrade Programme of housing stock	Ongoing	Housing	Completion of 100 - 200 retrofits per annum, to C1 level	

NO	ACTION	TIMEFRAME	LEAD DEPT(S)	INDICATORS	TARGET(S) IMPACTED
E14	Develop and implement Public Lighting Master Plan	2020	Environment and Transportation	% public lighting converted to LEDs	
E15	Landlord lighting upgrades in 15 complexes across the City	Ongoing	Housing	# of lights retrofitted	
E16	Facilitate EPC project in 7 leisure centres/dry sports centres across Dublin City	2019	Culture, Recreation and Economic Services, Codema	EPC project delivered	
E17	Install PV panels on Council buildings in Dominick Street, North King Street, Cornamona Court	2020	City Architects	PVs installed	
E18	New nZEB Super Depots	2021	Transformation Unit	Completion of depots, # of depots merged into super depots	
RESEARCH & INNOVATION					
E19	Develop proposal to use Docklands SDZ to test smart public lighting infrastructure	2020	Smart Dublin	Proposal developed	
E20	Expand and develop Small Business Innovation & Research (SBIR) programme	Ongoing	Smart Dublin	Energy and climate change challenges identified for yearly SBIR challenge	
E21	Work with CARO on research and project proposals for grant funding	2019 onwards	CARO, Codema	# of research projects initiated	
E22	Develop an understanding of deep geothermal resources in Dublin though the GEO-URBAN Project	2021	Environment and Transportation	Report complete	
ENERGY AWARENESS					
E23	Continued staff energy awareness in Council buildings	Ongoing	Codema	# of staff participating in events and activities	
E24	Engage with students about energy and buildings through CPD Programme/Engineers Week	Ongoing	Environment and Transportation	# of students participating in events and activities	

NO	ACTION	TIMEFRAME	LEAD DEPT(S)	INDICATORS	TARGET(S) IMPACTED
E25	Provide citizens with energy awareness material in public buildings	Ongoing	Communications	# of materials available in public buildings	
E26	Provide City Council tenants with energy awareness materials at home, particularly at the time of taking up new tenancy	Ongoing	Housing	% tenants receiving information	
E27	Monitor and develop the Home Energy Savings Kits in DCC's public libraries	Ongoing	DCPL, Codema	# of kits borrowed	
ACTIONS AWAITING BUDGET					
E28	*Develop research and funding opportunities for renewable and efficiency projects*	*2019 onwards*	*Codema*	*Research and funding management group established*	GHG
E29	*Undertake programme of flat complex regenerations*	*2022 onwards*	*Housing, City Architects*	*Complete 200 regenerated flats to nZEB standard each year from 2022*	GHG
E30	*The Dublin City Council Energy Review (2019 and going forward), will include a glide path illustrating the energy efficiency and GHG emission targets for the City Council up to and including 2030*	*2019 onwards*	*Codema*	*Glide path included*	GHG
E31	*Appendix II: Total Emissions in Dublin City of the CCAP will also be updated every two years in accordance with EU Covenant of Mayors for Climate & Energy protocol*	*2022*	*Codema*	*Baseline updated*	GHG
E32	*The City Architects Division of Dublin City Council is committed to participating with the Irish Green Building Council and other European organisations in BUILD UPON 2**	*2019-2021*	*City Architects*	*Complete participation in project work packages*	GHG
E33	*The City Architects Division of Dublin City Council is committed to participating with the RIAI, in particular the Sustainability Task Force, in seeking new and innovative approaches to climate action in the built environment*	*Ongoing*	*City Architects*	*# of meetings with task force*	GHG
E34	*Identify sites for trialling renewable energy projects, including solar PV and geothermal technologies*	*2020 onwards*	*Environment and Transportation*	*# of sites identified*	GHG

** Please see Appendix IV for full action*

NO	ACTION	TIMEFRAME	LEAD DEPT(S)	INDICATORS	TARGET(S) IMPACTED
E35	*The City Council will undertake a research study to investigate the Lifecycle Assessment of traditional and new construction methods for residential projects in Dublin, with a view to formulating initial recommendations by end 2019*	*2020 onwards*	*City Architects*	*Publish research report*	
E36	*In all building projects, new build or retrofit, Swift Bricks or other nesting sites for swifts will be provided where practicable. The presence of swift breeding sites will be identified to ensure that known breeding sites are not lost as a result of construction work*	*2020 onwards*	*City Architects*	*# of nesting sites provided*	
E37	*Develop maintenance and condition survey programmes for Council-owned historic and ancient monuments that are informed by climate change impacts*	*2020 onwards*	*City Architects*	*# of surveys completed*	
E38	*Conduct research and seek to develop City Council-based case studies on appropriate and sensitive retrofitting/ energy upgrading of traditional buildings to inform works both to Council-owned properties and to guide private owners*	*Ongoing*	*City Architects*	*# of case studies developed*	

EXAMPLES OF RELEVANT LEGISLATION/POLICIES/GUIDANCE

- Technical Guidance Document L – Conservation of Fuel and Energy – Dwellings 2017
- Technical Guidance Document L – Conservation of Fuel and Energy - Buildings other than Dwellings 2017
- Climate Action and Low Carbon Development Act 2015
- Docklands SDZ (Objective SI14)
- Dublin City Development Plan 2016-2022 (Policies C2; CC3; CCO7; CCO8; CC09; CCO10; CCO12, QH12)
- Dublin City Sustainable Energy Action Plan (SEAP)
- Energy Act 2016
- Energy Efficiency Directive (Article 14)
- Ireland's National Renewable Energy Action Plan (NREAP) - Energy White Paper
- National Energy Efficiency Action Plan (NEEAP)
- S.I. No. 243/2012 - European Union (Energy Performance of Buildings)
- S.I. No. 426/2014 - European Union (Energy Efficiency) Regulations
- Support Scheme for Renewable Heat