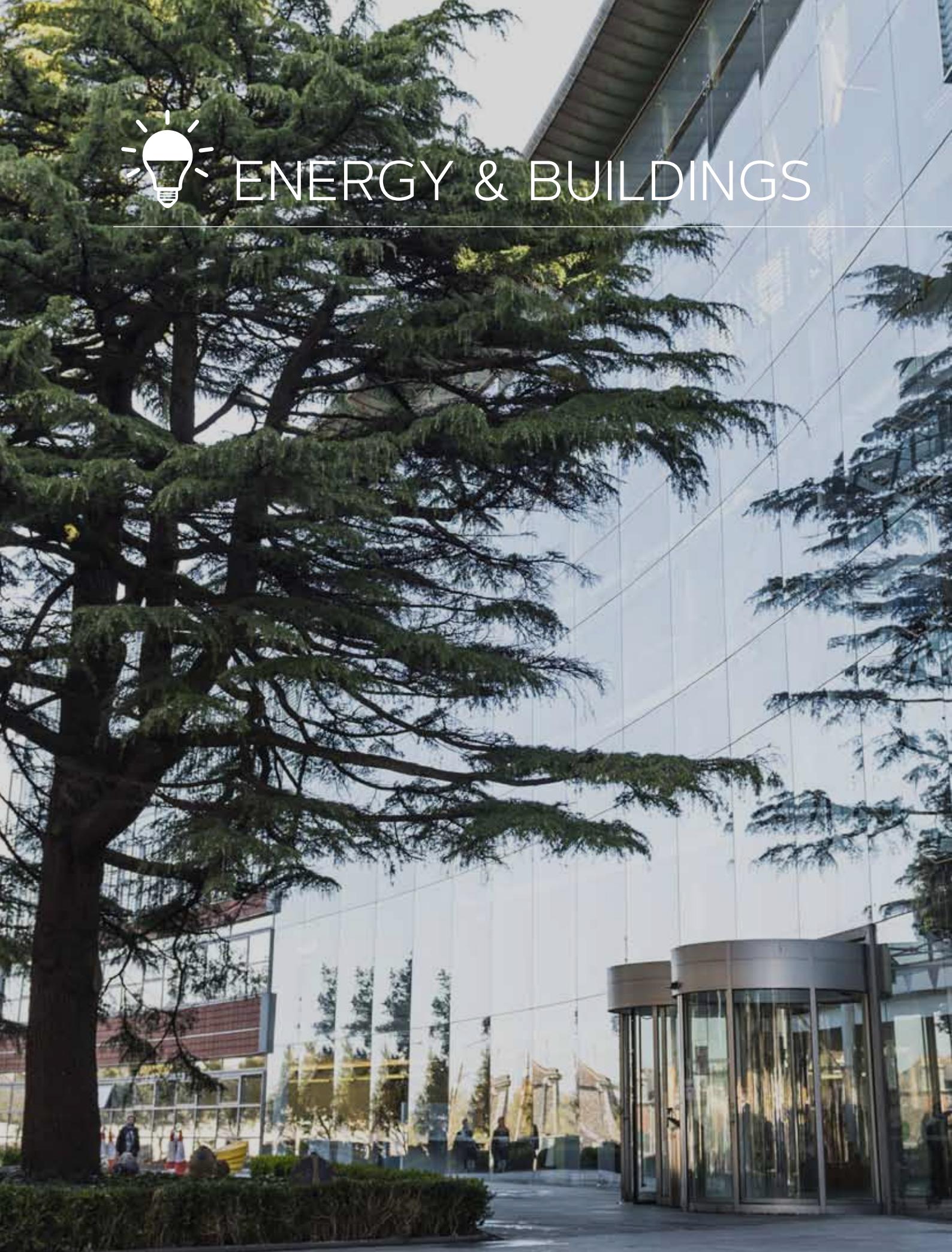
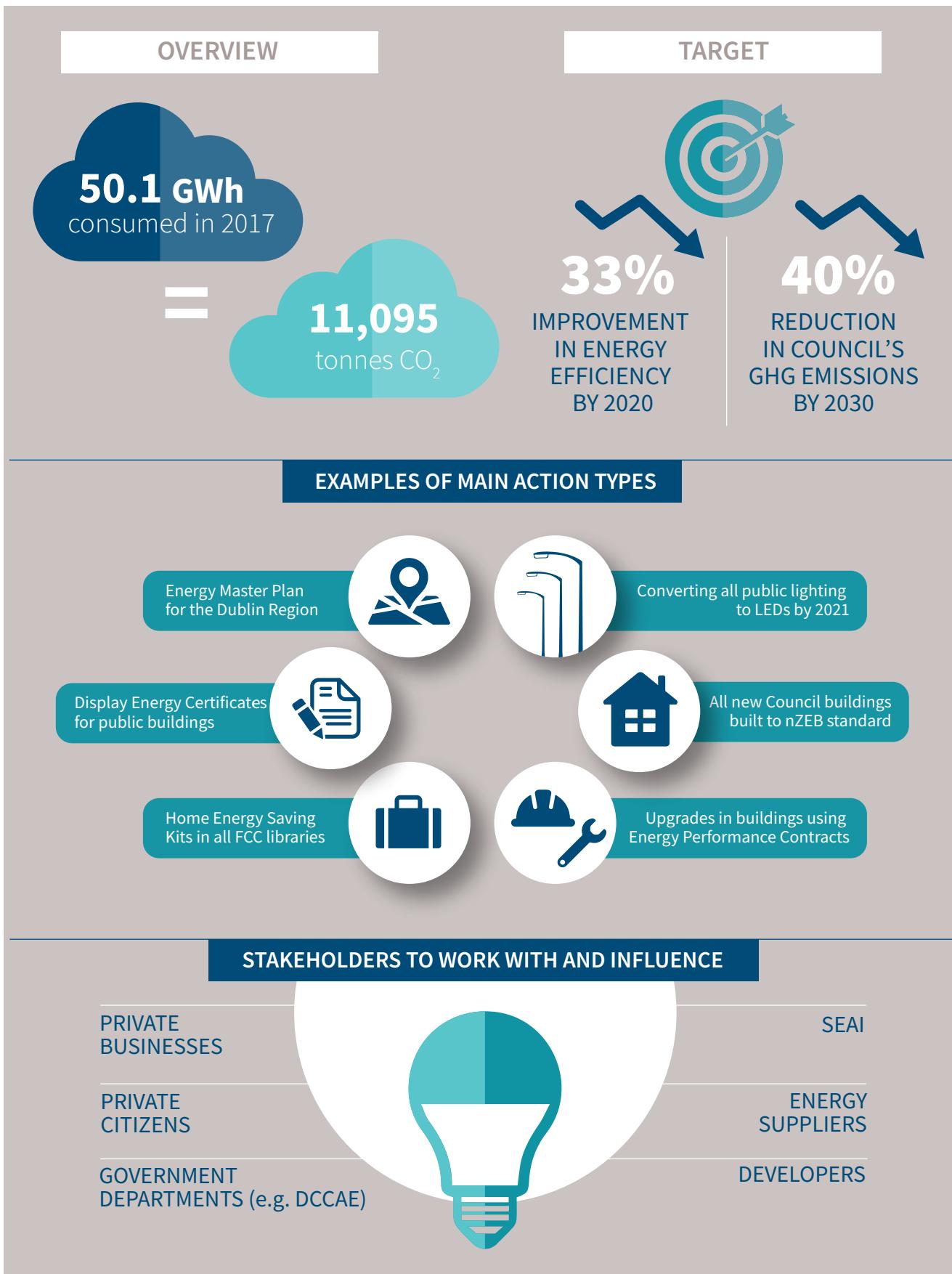




# ENERGY & BUILDINGS





**Despite a reduction in energy consumption in recent times, Ireland still spends a significant amount of money on energy imports. International, EU and national policies all work for a rapid transition to a much more energy-efficient society relying on sustainable renewable energy sources. This transition also leads to increased use of and demand for indigenous resources and increased security of supply. Therefore, consideration and commitment to policies, which create energy efficiencies and further the development of indigenous resources, is crucial over the lifetime of the [County Development] Plan.** - Fingal Development Plan 2017-2023

In 2017, Fingal County Council consumed 50.1 GWh of primary energy across its buildings and operations (excluding transport), which amounted to 11,095 tonnes of CO<sub>2</sub>. The actions outlined in this section show how, through better energy master-planning, improvements in building energy efficiency, and the use of renewables and innovation, FCC will reduce the emissions from its operations and service delivery. As FCC is not responsible for the upgrading of private buildings in the Fingal area, it will provide information on how the Council has retrofitted social housing and Council-owned buildings, and how it has deployed renewable energy systems. FCC is also helping citizens reduce 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 for the identification of low-carbon solutions that are specifically designed to the distinct energy characteristics of the region examined.

Codema produced the *Fingal Spatial Energy Demand Analysis* (SEDA) in 2016 to better understand the current and future energy demand and local energy resources of the area, 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. This will now be built-upon with the creation of an energy master plan for the whole of Dublin (see case study below).



Photo Source: Fáilte Ireland / Brian Morrison

**The Dublin Region Energy Master Plan**  
Building on the Spatial Energy Demand Analyses (SEDAs) that were developed for the four Dublin Local Authorities, the Dublin Region Energy Master Plan will create evidence-based, realistic, and costed pathways for the Dublin Region to achieve its carbon emissions 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. This master plan will be created by Codema and will be funded for over two years through SEAI's Research, Development and Demonstration (RD&D) programme. It will focus on the energy areas where actions can be taken to introduce energy efficiency measures and reduce CO<sub>2</sub> emissions, such as district energy systems and renewable energy technologies.



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’

## ENERGY EFFICIENCY AND RENEWABLES

FCC will lead in renewable energy uptake and energy efficiency through retrofits of its buildings and social housing stock. Presently, FCC has several ongoing programmes to replace boilers, update lighting, improve insulation, upgrade windows and doors, and install solar photovoltaic (PV) panels in FCC owned buildings.

### Annual Energy Reviews

Codema has produced Energy Reviews for FCC for 2016 and 2017. The aim of these Energy Reviews is to help the Council in its energy planning programmes, in order to meet the public sector 2020 energy targets. The Energy Reviews show a breakdown of FCC’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 FCC on how best to tackle their Significant Energy Users (SEUs) and meet public sector energy targets.

Codema will continue to produce these annual Energy Reviews, in order to guide the Council on the best action to take to meet the 2020 target.



*Photo Source: Fáilte Ireland / Rob Durston*



### Community Centres and Libraries

In 2017, the Community Department commissioned conditioning reports of 16 older community centres ranging in size from converted, small domestic buildings to larger sport centres. The reports focused on a review of the mechanical and electrical services within these facilities and highlighted issues such as old heating systems and boilers and inefficient lighting systems across many of these buildings.

The Community Department has prioritised many of these issues and has asked the Architects Department to look at how the works may be undertaken. A current budget of €1.5 million has been allocated to begin addressing these issues in the community centres from 2018 onwards. From analysis of the energy consumption within these buildings, 0.6 GWh of primary energy and 289 tonnes of CO<sub>2</sub> could be saved by upgrading these facilities, and will reduce the energy consumption within this area by a further 12%.

### Display Energy Certificates (DECs)

The information from Codema's energy database and energy surveys is used to prepare Display Energy Certificates for FCC's public buildings with a floor area greater than 250m<sup>2</sup>, as required under the Regulation S.I. 243 of 2012. Codema assisted FCC with the annual inspection and certification of 15 public buildings in 2018.

This information was entered into the SEAL system and Codema issued certificates to the managers of all of these FCC 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 Programme of Works

Fingal County Council is continually upgrading its social housing units. These deep retrofits include measures such as insulation, lighting, water conservation, window and door replacement, and solar PV installations, in estates across Fingal County, such as Cappaghfinn, Moyne Park and Racecourse Common.

Through FCC's upgrade programme, many units have been refurbished, resulting in significant energy and cost savings and improved comfort levels for residents. The programme is set to continue over the next few years.

### Public Lighting

As it accounts for 51% of Fingal County Council's overall energy use, public lighting is key to the Council achieving its 2020 energy efficiency target.

Within the Council's stock of public lighting, there is currently 9,366 SOX lamps. The manufacture of these SOX lamps is in the process of being phased out, so these will have to be replaced, and LED lights, with their very high energy efficiency, are the obvious replacement.

By replacing 1,000 SOX lamps and 1,000 SON lamps by 2020, FCC can achieve savings of 1.8 GWh of primary energy and 850 tonnes of CO<sub>2</sub> per year. This would have a significant impact on the Council's 2020 targets. In addition, an ongoing programme to replace the remaining street lighting with LEDs by 2021 is also planned.



## CASE STUDY

**Energy Performance Contracting**

FCC, in partnership with Codema, is currently developing an Energy Performance Contract (EPC) as an innovative way of improving the energy use and efficiency of its buildings.

An EPC is a contractual agreement by an Energy Service Company (ESCo) to guarantee energy savings over an agreed period of time.

Following a detailed assessment, a project involving FCC's headquarters at County Hall in Swords and the Civic Offices, Draíocht Arts Centre and public library in Blanchardstown has been deemed suitable for an EPC and can now advance to the procurement stage.



*Photo Source: Fingal County Council*

**RESEARCH AND INNOVATION**

To maximise the benefits of advances in technology, FCC is part of the Smart Dublin programme 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.

**ENERGY AWARENESS**

A key aspect of reducing energy use is public awareness, as retrofits, technology and innovation can only achieve a portion of FCC's goals. FCC, 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.

Through Engineer's Week and the Green Schools Programme, FCC engineers are also actively engaging with students about energy projects and the work being undertaken to transition Dublin to a low carbon society. FCC hopes to build on these programmes and expand its engagement with the public, for example through the Public Participation Networks (PPNs).



### Home Energy Saving Kits

FCC, in partnership with Codema, is actively encouraging citizens to become more energy-aware by making Home Energy Saving Kits available for the public to borrow from all of its public libraries. The kits contain six tools for householders to assess how energy-efficient their homes are, and to identify areas for improvement. 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.

Codema has also made a kit available for staff in Fingal's County Hall to trial. FCC and Codema will continue to work together to build on this initiative over the coming years, and energy-saving information 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
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## ACTIONS CURRENTLY BUDGETED

### ENERGY PLANNING

1	Create Energy Master Plan for the Dublin Region	2018 onwards	Codema	Website with e-Map	
2	Prepare Fingal Sustainable Energy and Climate Action Plan	2019	Codema	SECAP complete	
3	Prepare Local Authority Renewable Energy Strategy	2019	Planning & Strategic Infrastructure	Strategy prepared	
4	Outputs and recommendations from the <i>Fingal Spatial Energy Demand Analysis (SEDA) 2016</i> to inform the review of the <i>Fingal Development Plan 2017-2023</i>	2020	Planning & Strategic Infrastructure	Content in Development Plan review	

### ENERGY EFFICIENCY & RENEWABLES

5	Complete the roll out of LED public lighting by 2021 (27,000 units remaining)	2018-2021	Operations	100% of lighting converted to LED by 2021	
6	Fingal Energy Management Team established	2018 onwards	Operations	Team established	
7	Develop ISO 50001 compliant energy management system	Ongoing	Facilities Management, Codema	System developed and ISO 50001 compliant	
8	Comply with S.I. 426 under the EU (Energy Efficiency) Regulations 2014	Ongoing	Facilities Management, Codema	Compliant	
9	Procure upgrades through an Energy Performance Contract for County Hall (Swords) and Civic Offices, Draíocht Arts Centre and public library in Blanchardstown	2019	Facilities Management	EPC awarded, measurement and verification of energy savings	
10	Participate in the SEAI Energy Public Partnership Programme	2018 onwards	Facilities Management	Signed up to programme	
11	Annual Monitoring & Reporting to SEAI	Ongoing	Codema	FCC's energy use monitored and reported	
12	Publish Fingal County Council's Energy Review annually	Ongoing	Codema	Review published, # of recommendations implemented	
13	Display Energy Certificates for public buildings	Ongoing	Codema	# of DECs generated for public buildings	



# ENERGY & BUILDINGS

NO	ACTION	TIMEFRAME	LEAD DEPT(S)	INDICATORS	TARGET(S) IMPACTED
14	All new Council buildings built to nZEB standard	Ongoing	Housing, Facilities	All new builds nZEB standard	
15	Refurbishment programme for Fingal Corporate buildings to include energy reviews and retrofits as standard	2018 onwards	All departments / Architects	# of buildings upgraded	
16	Boiler replacement programme in social housing stock underway	2018 onwards	Housing	150 boilers upgraded annually	
17	Insulation of all Council owned social housing stock; extended to include acquisitions and long term leasing where feasible	2019	Housing	All Council owned social housing insulated by 2019	
18	LED lighting changeover of social housing voids and tenant changeover	Ongoing	Housing	100% of all voids and re-lets upgraded	
19	Complete single glazing replacement programme in social housing stock and extend to include long term leases and acquisitions	2019	Housing	All single glazing replaced by 2019	
20	Conduct a pilot to deep retrofit social housing voids to inform potential for roll out for all stock	2019	Housing	Pilot underway	
21	Automatic shutdown of computers and lighting in all of Fingal's offices and depots	Ongoing	I.T., Facilities	# of systems installed	

## RESEARCH & INNOVATION

22	Study potential for viable district heating projects within Fingal	2019-2021	Codema / Climate Action	Study complete	
23	Study potential for viable renewable energy projects on a temporary/permanent basis, on Council controlled lands	2019-2021	Climate Action/ Economics & Tourism	Study complete	
24	Work with SMEs in partnership with SEAI to promote energy efficient adaptations	Ongoing	LEO / EETD	# of SMEs availing of funding from SEAI	
25	Engage with SEAI to help develop education programme for SME sector	Ongoing	LEO / SEAI	# of programmes developed/delivered	
26	Support Small Business Innovation & Research (SBIR) programme	Ongoing	Smart Dublin / Enterprise Ireland	Energy and climate change challenges identified for SBIR programme	
27	Work with CARO / Codema on research and project proposals for grant funding	2019 onwards	Climate Action / CARO / Codema	# of research projects initiated	



NO	ACTION	TIMEFRAME	LEAD DEPT(S)	INDICATORS	TARGET(S) IMPACTED
<b>ENERGY AWARENESS</b>					
28	Monitor and develop the Home Energy Saving Kits scheme in Fingal Libraries	Ongoing	Fingal Libraries, Codema	Borrowing rates from libraries	
29	Annual energy awareness event	2019	Climate Action / Codema	Annual event held	
30	Promote and support SEAI's Better Energy Communities and Sustainable Energy Communities	2019 onwards	Climate Action / All Depts	# of communities supported	
31	Develop and encourage CPD training in energy awareness amongst Fingal staff	Ongoing	All Depts / Architects	Ongoing programme	
32	Expand tenant induction programme to include tenant energy awareness	2019	Housing / Architects	100% of tenants provided with energy saving tips	
<b>ACTIONS AWAITING BUDGET</b>					
33	<i>Install high visibility PV panels on suitable Council roofs such as libraries and community buildings</i>	2020	Facilities Management	Panels installed	

## 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
- Energy Act 2016
- Energy Efficiency Directive (Article 14)
- Fingal Development Plan 2017-2023 (Objectives EN06; LP01; PM02; PM12; PM28; PM30)
- Fingal Local Economic and Community Plan (LECP) 2016-2021 (Actions A85; A91; A 92; A102)
- Fingal Sustainable Energy Demand Analysis (SEDA)
- Ireland's National Renewable Energy Action Plan (NREAP) - Energy White Paper
- National Energy Efficiency Action Plan (NEEAP)
- Support Scheme for Renewable Heat
- S.I. No. 243/2012 - European Union (Energy Performance of Buildings)
- S.I. No. 426/2014 - European Union (Energy Efficiency) Regulations