Physical Infrastructure Strategy

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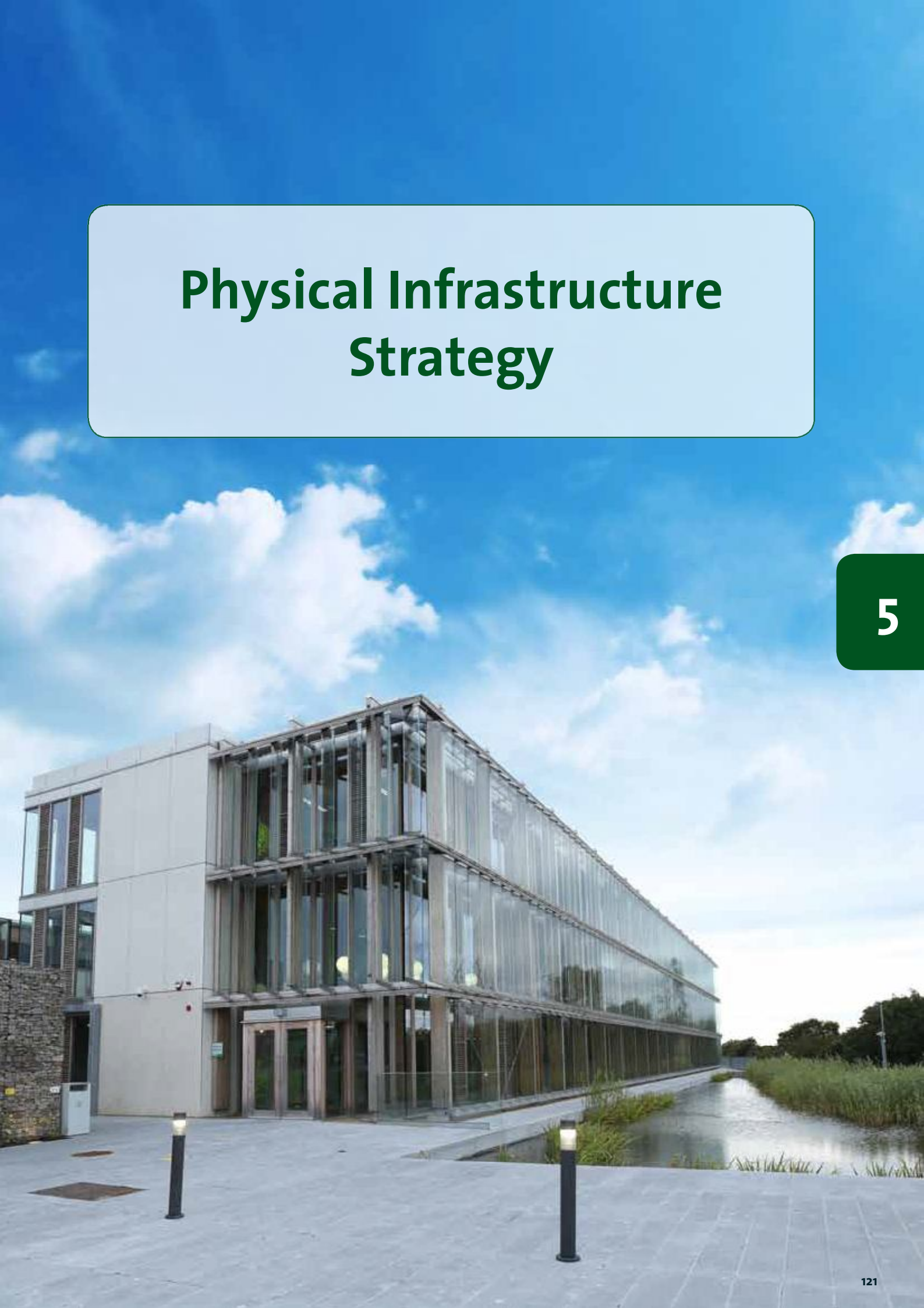


Vision Statement: To continue protecting both the environment and the citizens of Dún Laoghaire–Rathdown through the provision of high quality, resilient environmental infrastructure and by aspiring to a carbon–neutral County through the promotion of resource preservation and energy efficiency and through the application of considered climate change mitigation policies for the duration of this Development Plan and beyond. At a more strategic level, and where considered necessary and appropriate, the Council will promote and champion the development of evidence - based climate change adaptation systems targeted at moderating the negative effects of climate change.

5.2 Climate Change, Energy Efficiency and Flooding

5.2.1 Climate Change Mitigation and Adaptation

In line with global trends, Ireland's climate is changing and the scientific consensus is that more changes are inevitable. The changes are directly related to man-made greenhouse gas emissions. There is also an economic consensus that the cost of inaction will greatly outweigh the cost of action, and that progressive Climate Change policies, based on innovation and investment in low-carbon technology, are consistent with global economic growth.

It is accepted that action is required to manage and deal with Climate Change impacts. Measures to deal with Climate Change can be defined as either mitigation measures or adaptation measures.

Mitigation is defined as action to reduce emissions of greenhouse gases (DoECLG, 2012). Mitigation measures include green building measures and the delivery of more compact, less carbon intensive forms of development.

Climate Change Adaptation refers to "*the adjustment or preparation of natural or human systems to a new or changing environment, with the aim of moderating harm or exploiting beneficial opportunities*" (DoECLG).

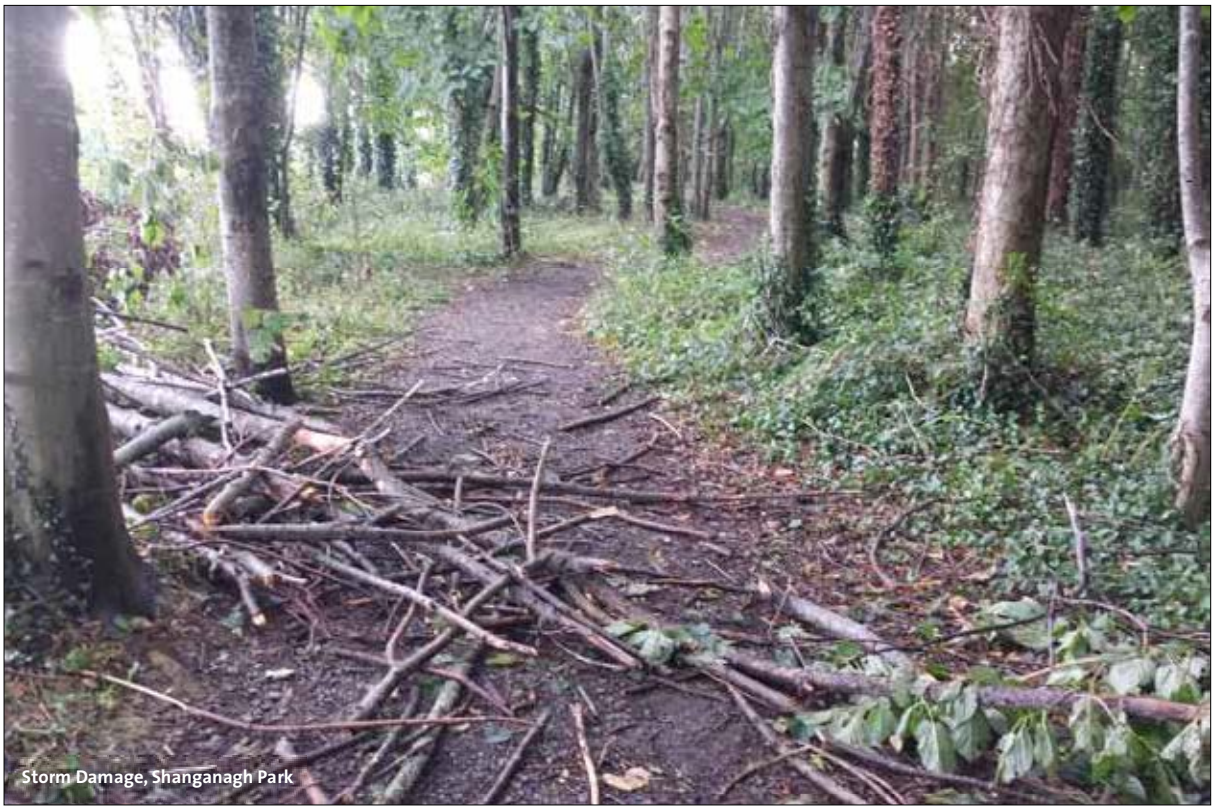
Examples of adaptation measures include but are not limited to flood Risk Assessment and Management. Within this County Development Plan policies which are Climate Change mitigation and/or adaption measures have been marked with an asterix thus *

5.2.1.1 Policy CC1: National Climate Change Adaptation Framework.*

It is Council policy to implement the 'National Climate Change Adaptation Framework - Building Resilience to Climate Change' by supporting the preparation of a Climate Change Adaptation Plan.

In 2012 the DoECLG published the 'National Climate Change Adaptation Framework - Building Resilience to Climate Change'. The Department has been identified in this Framework as the lead body on National Adaptation Policy. Local Authorities have been given the role to prepare Local Adaptation Plans through the Development Plan Review process. National guidance in relation to the preparation of Climate Change Adaptation Plans is still to be prepared. The new Climate Action and Low Carbon Development Bill is of relevance.

It is envisaged that the preparation of a Dún Laoghaire-Rathdown Adaptation Strategy will, in due course, be carried out by an interdisciplinary team, in liaison with



Storm Damage, Shanganagh Park

relevant stakeholders and that the resultant plan will become part of the County Development Plan 2016 – 2022 by way of a post-adoption Variation.

The Adaptation Plan will ensure that Climate Change Adaptation measures are embedded into all relevant sections of the Development Plan - including those sections on promoting the use of alternative and renewable energy sources, sustainable built environment, sustainable transport through reductions in the use of the private car, flood risk assessment, biodiversity and land use planning.

As an interim measure the previous Dún Laoghaire-Rathdown County Development Plan 2010-2016 has been assessed to identify Climate Change issues pertaining to Climate Change adaptation and mitigation present in that Plan. Where gaps were identified additional policies are recommended for inclusion in this current 2016–2022 Plan. It was concluded that many of the policies in this Development Plan aimed at achieving a sustainable County can be regarded as policies which are also intrinsically Climate Change adaptation or mitigation measures.

5.2.1.2 Policy CC2: Development of National Climate Change Policy and Legislation.*

It is Council policy to support on an ongoing basis the Government programme for the development of a National Climate Change Policy and Legislation through the inclusion and implementation of supporting and complementary County Development Plan policies.

In January 2012 the Government initiated a two-year programme for the development of 'National Climate Change Policy and Legislation'. The Department of the Environment, Community and Local Government is currently preparing the Climate Action and Low Carbon Development Bill due to go before the Oireachtas imminently. The 2014 DoECLG Climate Action and Low Carbon Development National Position Policy paper sets 2050 as the target year for the reduction of greenhouse gas emissions and will put in place a framework to meet European Union and International commitments on Climate Change.

The fundamental objective encapsulated by this document is to achieve transition to a competitive, low-carbon, climate resilient and environmentally sustainable economy by 2050.

The Government Programme has also resulted in the publication of a report by the National Economic and Social Council (NESC) entitled 'Ireland and the Climate Change Challenge: Connecting How Much with How To' (2012).

The National vision encapsulated by this document is for a carbon-neutral society by 2050, based on an approach to economic development that is socially and environmentally sustainable.

5.2.2 Energy Efficiency

5.2.2.1 Policy CC3: Development of National Energy Policy and Legislation.*

It is Council policy to support on an ongoing basis the Government Programme for the development of Energy Policy and Legislation through the implementation of supporting policies in this County Development Plan - particularly those promoting use of renewable energy sources, energy efficiency, sustainable transport and land use planning.

Ireland is committed to a range of renewable energy and efficiency targets, many of which are being implemented as Climate Change policy measures to reduce carbon emissions. At a European level, the '20/20/20' commitments agreed under the EU 'Climate Change and Energy Package' set three new targets for 2020:

- A minimum 20% reduction in greenhouse gas emissions based on 1990 levels.
- 20% reduction in primary energy use compared with projected levels, to be achieved by improving energy efficiency.
- 20% of final energy consumption to be produced by renewable energy resources.

Under the European Renewables Directive, the National 2020 target for Ireland is to source 16% of all energy consumed from renewable sources. In addition, Ireland must achieve a 10% share of renewable energy in transport consumption by 2020 (known as RES-T).

5.2.2.2 Policy CC4: Sustainable Energy Action Plan*

It is Council policy, in consultation with relevant stakeholders, to prepare a 'Sustainable Energy Action Plan'.

Ireland published the first 'National Energy Efficiency Action Plan' (NEEAP) in 2009. The exemplary role of the public sector was identified as a key factor for Ireland to achieve the EU's 2020 Energy Efficiency targets. The NEEAP stated that "*The public sector will improve its energy efficiency by 33% and will be seen to lead by example – showing all sectors what is possible through strong, committed action.*"

Leading by example Dún Laoghaire-Rathdown has a two-fold obligation as follows:

- To address in-house energy consumption and be in compliance with relevant energy efficiency directives.
- To future proof the County from an energy perspective in liaison with relevant stakeholders.


Ballyogan Depot

Dún Laoghaire-Rathdown established a cross-departmental Energy Team in 2010 and participated in Sustainable Energy Authority of Ireland's (SEAI) public sector pilot project to measure and record in-house energy consumption prior to the National collection of energy data. The Council is affiliated to a number of Inter-County organisations and Governmental agencies tasked with promoting good energy governance. The Council aims to further strengthen compliance with good energy management practice within the County Development Plan period, as set out in SI 426 of 2014 which gives effect to Energy Efficiency Directive 2012/27/EU.

The Council will aim to future-proof the County from an energy perspective through the preparation of a 'Sustainable Energy Action Plan'. An interdisciplinary team, in liaison with relevant stakeholders will prepare the recommendations arising from this Action Plan.

5.2.2.3 Policy CC5: Limiting Emissions of Greenhouse Gases.*

It is Council policy to support National and International initiatives for limiting emissions of greenhouse gases.

This will be addressed in a number of ways including, but not limited to, the promotion of sustainable transport and travel and sustainable development and construction. It is important that all new building development employ materials with a low embodied energy, preferably sourced from local sustainable sources and ultimately readily capable of being recycled.

5.2.3 Energy Efficient Design

Two European Directives 2010/31/EU 'Energy Performance of Buildings Directive' and 2012/27/EU 'Energy Efficiency Directive' will inform National energy policy for the immediate future.

Energy Performance of Buildings Directive, promotes

"....the improvement of the energy performance of buildings...taking into account outdoor climatic and local conditions, as well as indoor climate requirements and cost-effectiveness."

The Directive also outlines policy for increasing the number of 'near Zero Energy Buildings' (nZEB) within each Member State. A 'near zero energy building' is defined as:

"A *building that has a very high energy performance, as determined in accordance with Annex 1. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby,"*

Constructing less carbon-intensive forms of development will build resilience to Climate Change. This also negates concerns related to security of fossil fuel supply and the rising costs as a result of the limited future availability of fossil fuel.

Much of the existing built fabric, which will last until 2050 or beyond, has already been constructed and the residual available land zoned for development is a finite resource. In order to meet National energy

targets and increase the aggregate energy level, all new development should conform to the highest standard possible.

The primary focus with regard to the efficient use of energy and natural resources is to design buildings that create a thermally-efficient building envelope. Such buildings will make optimum use of free heat gains in order to minimise the requirement of space heating and, in turn, will retain this heat gain through a high standard of insulation and heat recovery systems. Where required, the use of on-site 'micro renewables' or district heating systems can offer significant opportunities.

In support of the DoECLG Climate Action and Low Carbon Development National Position Policy Paper it is the vision of the Council to become a carbon neutral County. Policies CC6, CC7 and CC8 below support this vision.

5.2.3.1 Policy CC6: Energy Performance in Existing Buildings *.

It is Council policy to promote innovative building design that demonstrates a high level of energy conservation, energy efficiency and use of renewable energy sources in existing buildings.

Dún Laoghaire-Rathdown is committed to encouraging more sustainable development, the efficient use of energy and the use of renewables in refurbishment and extension projects.

The Council shall have regard to DoECLG 'Towards nearly Zero Energy Buildings in Ireland' and the EU Directive 2010/31/EU 'Energy Performance of Buildings Directive', which promote the increase of near Zero Energy Buildings (nZEB). The Council will, where appropriate, promote development in existing buildings to reach low carbon standards.

Building to nZEB standard provides better build quality, energy conservation through improved building fabric, use of on-site renewable energy and thereby reduction of demand on grid, increases security of supply within the County and security of energy cost as well as minimising emissions.

In cases where the building is of architectural or historic interest, it may not be possible to meet these values, such work should endeavour to meet the principles of nZEB design.

5.2.3.2 Policy CC7: Energy Performance in New Buildings.*

It is Council policy that all new buildings will be required to meet the passive house standard or equivalent, where reasonably practicable. By equivalent we mean approaches supported by robust evidence (such as monitoring studies) to demonstrate their efficacy, with particular regard to indoor air quality, energy performance, comfort, and the prevention of surface/interstitial condensation. Buildings specifically exempted from BER ratings as set out in S.I. .No 666 of 2006 are also exempted from the requirements of CC7. These requirements are in addition to the statutory requirement to comply fully with Parts A-M of Building Regulations.

Dún Laoghaire-Rathdown is committed to a pro-active approach to raising the energy efficiency standards of the building stock of the County.

Climate Change affects us all. Dealing with Climate Change means ensuring the efficient use of available energy and placing maximum priority on saving energy. Local authorities have an important role in encouraging every individual and community within the County to play their respective part in promotion of climate protection.

The 2014 DoECLG 'Climate Action and Low Carbon Development National Position Paper' outlines the National objective as a transition to a competitive, low carbon, climate resilient and environmentally sustainable economy by 2050. Given the long lead in time for new development, the policy advocates designing and building to improved standards now. .

On average, about 40% of the total energy consumption in industrialised countries is used for buildings. Due to the long service life of buildings, a consistent approach is especially important in this respect in improving energy standards at the earliest design stages. Significantly improving energy efficiency standards at the outset could prove cost optimal as any additional costs can be recouped over the life cycle of the building. Improvement in the energy efficiency of buildings should be encouraged as it will have a considerable impact on the overall assessment of the County in terms of energy.

The Sustainable Energy Authority of Ireland (SEAI) in conjunction with the National Standards Authority of Ireland (NSAI) has developed and published IS 399:2014 Energy Efficient Design Management – Requirements with Guidance for Use. IS 399 is a tool to demonstrate achievement of exemplary energy efficient design and to ensure consideration of energy design at the earliest stage in the design process.

Dún Laoghaire-Rathdown is committed to encouraging more sustainable development, the efficient use of energy and the use of renewables in new buildings. The Council shall have regard to the DoECLG 'Towards Nearly Zero Energy Buildings in Ireland' (2012) and the EU Directive 2010/31/EU 'Energy Performance of Buildings Directive' which promote the increase of near Zero Energy Buildings (nZEB). The Council in addition supports the integrated energy concept of Passive House that will result in high quality constructed, economic, comfortable and healthy future proofed buildings.

The Council will promote development in new buildings to reach near Zero Energy Build and/ or Passive House standard. The current National

standard energy rating methodology and software may be used to certify any nZEB developments and the PHPP certification software may be used to design and certify works to Passive House standard.

The 'Towards Nearly Zero Energy Buildings in Ireland - Planning for 2020 and Beyond' (DoECLG) envisages nZEB provisions for new dwellings will be in place - via incremental changes to the Building Regulations – by 2020 (Refer also Section 8.2.10.3).

5.2.3.3 Policy CC8: Excellence in the Built Environment.*

It is Council policy to lead by example by developing a strategy for effective climate protection within its building stock.

In compliance with EU Energy Efficiency Directives of 2014, the Council will develop a strategy to promote the exemplary role of the public sector in demonstrating excellence within the built environment. Included in this strategy the Council will establish procedures and develop case studies to achieve best practice in relation to buildings of architectural or historical interest. It is the intention of this policy to develop this strategy within the period of this County Development Plan. (Refer also to Section 2.1.3.8 Policy RES8).

5.2.3.4 Policy CC9: Sustainability in Adaptable Design*.

It is Council policy to promote sustainable approaches to the improvement of standards for habitable accommodation, by allowing dwellings to be flexible, accessible and adaptable in their spatial layout and design.

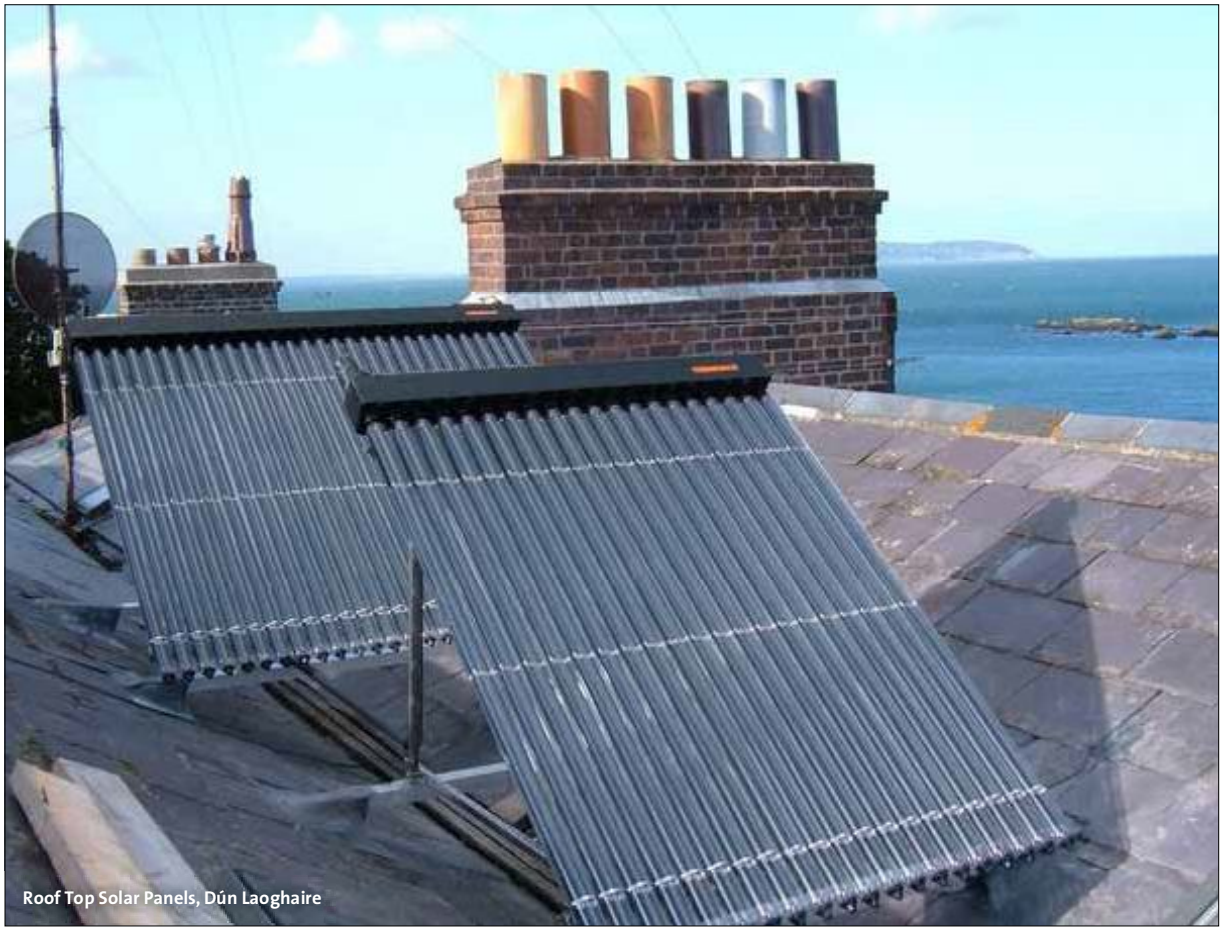
It is important that the design of individual buildings facilitate a good quality of life for residents and secures long-term sustainability of the overall development. The design of new residential developments should consider not just the immediate needs of the prospective occupants but also their possible changing needs over the life of the building.

5.2.3.5 Policy CC10: Radon Gas

It is Council policy, in partnership with other relevant agencies, to promote best practice in the implementation of radon prevention measures.

The Radiological Protection Institute if Ireland (RPII), in a recent survey of over 2,200 houses in the Dublin Metropolitan found that, on average, 6% of dwellings exceed the National Reference Levels of radon gas.

Technical Guidance Document C of the current Building Regulations provides technical information on the importance of radon prevention measures within dwellings and how they should be installed effectively. In an era of increasing sustainability of



Roof Top Solar Panels, Dún Laoghaire

design and air tightness of construction systems, it is increasingly important that correct measures to deal with radon gas are fully implemented at the preliminary design stage.

5.2.4 Renewable Energy

5.2.4.1 Policy CC11: Renewable Energy and Energy Networks.*

It is Council policy to support National and International initiatives to encourage the development and use of renewable energy sources.

The Council encourages the use of renewable energy resources including photovoltaic, biomass, off-shore wind, domestic wind, hydro and tidal where appropriate. These sources can offer sustainable alternatives to fossil fuels which, in turn, can reduce greenhouse gas emissions and dependency on imported fuels. Use of district heating systems, geothermal, air-to-water heat pumps and solar water heating panels are further encouraged. Installation of energy networks at development stage will allow for ease of future change as technology develops and mitigates against dependency on fossil fuels. This will build resilience in maintaining energy supply and will safeguard from an economic perspective. The Council will support and encourage the development of district energy and community co-op projects as a way of contributing to meeting the National 2020 renewable energy targets and encouraging local employment.

5.2.4.2 Policy CC12: Wind and Wave Energy*.

It is Council policy to support and promote, in conjunction with other relevant agencies, wind energy initiatives – both on-shore and offshore – when these are undertaken in an environmentally acceptable manner.

It is acknowledged that wind and wave energy as renewable energy sources could have an important role to play in achieving National targets in relation to reductions in fossil fuel dependency and, by implication, greenhouse gas emissions. The Government's 'Wind Energy Development Guidelines for Planning Authorities' (2006) sets out a detailed methodology to help identify optimum locations for the development of commercial wind generating facilities. The 2010 - 2016 County Development Plan included an analysis of wind speeds and the sensitive landscapes of the County at a broad level, and their relationship to the existing electricity grid network was undertaken. It was concluded that there was no realistic or practical potential for economic on-shore wind farm development in the County without significant and overriding adverse visual and environmental impacts. This earlier analysis has been subsequently updated to take cognisance of recent changes to Government Guidelines on Wind Energy. The same conclusions in relation to there being no practical potential for economic on-shore wind farm development in the County were reaffirmed. (Refer also to Appendix 6).

The Council remains supportive of offshore wind energy initiatives and will cooperate with the Department of Communications, Energy and Natural Resources in any practical fashion in relation to the implementation of additional wind and wave projects in the Irish Sea, subject, as always, to compliance with the Habitats Directive.

5.2.4.3 Policy CC13: Small-Scale Wind Energy Schemes*.

It is Council policy to encourage small-scale wind energy developments within industrial areas, and support small community-based proposals in urban areas provided they do not negatively impact upon the environmental quality or residential amenity of the area.

Dún Laoghaire-Rathdown will encourage domestic households in appropriate locations to install micro wind energy units. Central Government support to such small-scale renewable energy projects is implicit in the various planning exemptions provided for under the Planning and Development Regulations 2007.

5.2.5 Flood Risk

One of the effects of Climate Change that can be anticipated, and a key Climate Change adaptation issue, is the management of water and the maintenance of quality standards as the global temperature increases and rainfall patterns change. Flood risk needs to be considered at all stages of the land use planning process and managed in an environmentally sensitive way. The Government publication 'Flood Risk Management Guidelines', (2009), intends to ensure a more rigorous and systematic approach to integrating flood risk management in the preparation of Development Plans, Local Area Plans and in the determination of individual planning applications.

5.2.5.1 Policy CC14: Catchment Flood Risk Assessment and Management (CFRAM)*.

It is Council policy to assist the Office of Public Works (OPW) in the preparation of the Regional Catchment

Flood Risk Assessment and Management (CFRAM) Study being carried out for the Eastern District. Any recommendations and outputs arising from the CFRAM study for the Eastern District that are relevant for Dún Laoghaire-Rathdown will require to be incorporated into the Development Plan.

The CFRAM programme commenced in Ireland in 2011. The programme delivers on core components of the National Flood Policy and on requirements of the EU Flood Directive. The CFRAM programme involves 3 phases: (i) Preliminary Flood Risk Assessment, (ii) CFRAM Studies on-going and (iii) Implementation and Review.

The Eastern District CFRAM Study commenced in 2011 to (i) assess flood risk through the identification of flood hazard areas, (ii) identify viable structural and non-structural measures and options for managing the flood risk, and (iii) prepare a Flood Risk Management Plan (FRMP) and Strategic Environmental Assessment that sets out the measures and policies to be pursued.

The Council will actively work with the CFRAM Programme and any catchment-based Flood Planning Groups where catchments extend beyond the County's administrative boundary, in the development and implementation of catchment-based strategies for the management of flood risk.

5.2.5.2 Policy CC15: Flood Risk Management*.

It is Council policy to support, in cooperation with the OPW, the implementation of the EU Flood Risk Directive (2007/60/EC) on the assessment and management of flood risks, the Flood Risk Regulations (SI No 122 of 2010) and the Department of the Environment, Heritage and Local Government and the Office of Public Works Guidelines on 'The Planning System and Flood Risk Management, (2009)' and relevant outputs of the Eastern District Catchment and Flood Risk Assessment and Management Study (ECFRAMS Study).

The Council will ensure the implementation of the DoEHLG/OPW Guidelines 'The Planning System and Flood Risk Management', (2009) and DoECLG Circular Pl2/2014 (or any updated/superseded document) in relation to flood risk management within the County. A Strategic Flood Risk Assessment of the County has been carried out as part of this County Development Plan process (Refer to Appendix 13).

Implementation of the Guidelines will include the following:

- Avoid, reduce and/or mitigate, as appropriate, in accordance with the Flood Risk Management Guidelines, the risk of flooding within the flood risk areas indicated in the ECFRAM study and the Strategic Flood Risk Assessment of the County and any other flood risk areas that may be identified during the period of the Plan or in relation to a planning application (Refer to Section 6 of Appendix 13).
- Development proposals in areas where there is an identified or potential risk of flooding or that could give rise to a risk of flooding elsewhere must be accompanied by a Site-specific Flood Risk Assessment, and Justification Test where appropriate, (Refer to Development Management section 8.2.10.4 and Appendix 13 SFRA for further detail).
- Development that would be subject to an inappropriate risk of flooding or that would cause or exacerbate such a risk at other locations shall not normally be permitted.
- Where certain measures proposed to mitigate or manage the risk of flooding associated with new developments are likely to result in significant effects to the environment or European sites downstream, such measures will undergo environmental assessment and Habitats Directive Assessment, as appropriate.
- Flood Risk Management and Strategic Flood Risk Assessment (SFRA) shall be incorporated into the preparation of all Local Area Plans and any other lower tier plans.
- Regard shall be had to any future flood hazard maps, flood risk maps and flood risk management plans prepared as part of the Eastern District Catchment Flood Risk Assessment and Management Study and future iterations of other similar studies of impacts of climate change.
- Where flood protection or alleviation works take place the Council will ensure that the natural and cultural heritage and rivers, streams and watercourses are protected and enhanced.
- Existing wetland Habitats within the County which serve as flood protection/management measures shall be managed and enhanced.
- The Council will also require that all proposed flood protection or alleviation works will be subject to Appropriate Assessment (AA) to ensure there are no likely significant effects on the integrity, defined by the structure and function, of any Natura 2000 sites and that the requirements of Article 6 of the EU Habitats Directive are met.


Coastline at the 40 Foot

5.2.5.3 Policy CC16: Cross-Boundary Flood Management.

It is Council Policy to work with neighbouring Local Authorities when developing cross-boundary flood management work programmes and when considering cross boundary development.

5.2.5.4 Policy CC17: Coastal Defence*.

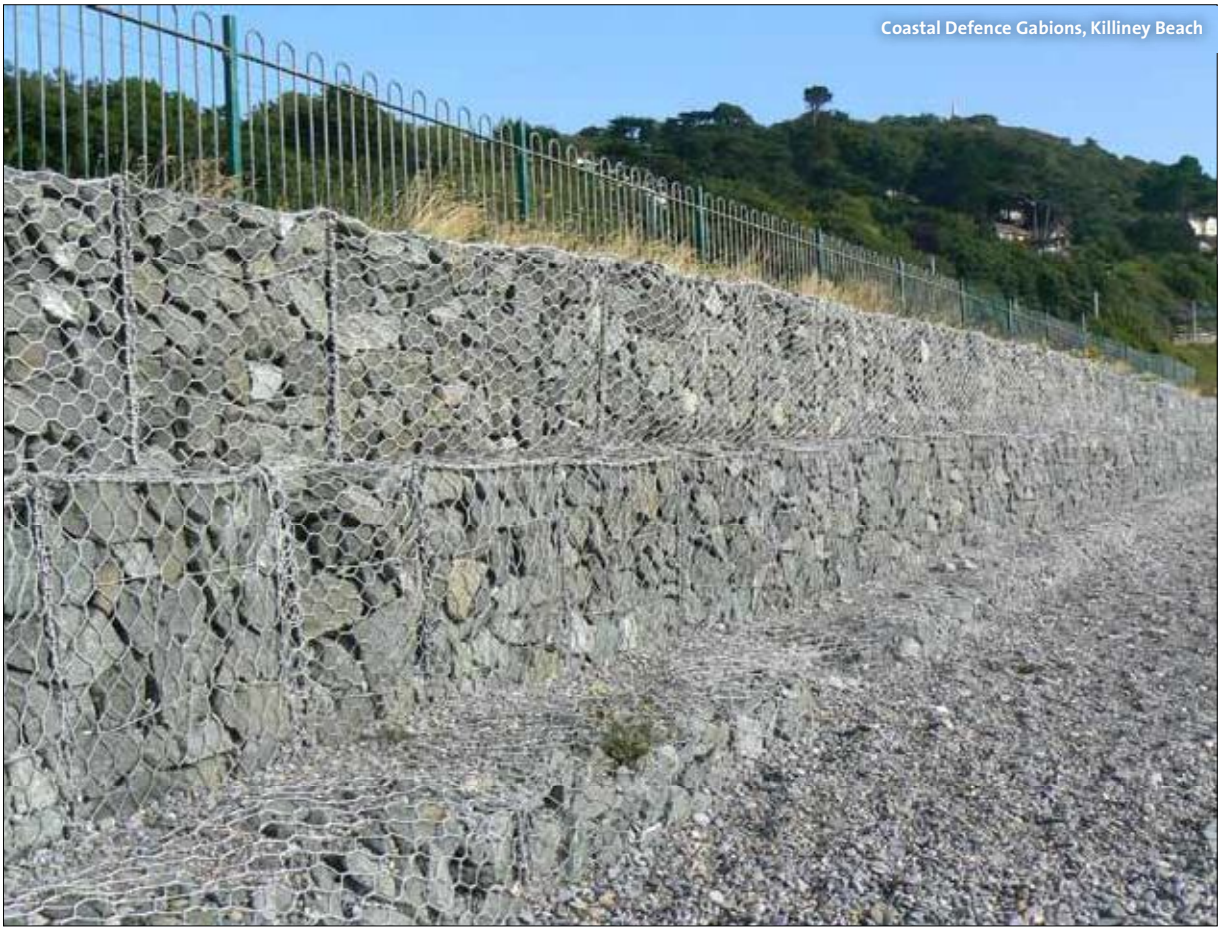
It is Council policy to implement and have regard to the recommendations of the Coastal Defence Strategy (2010) for the County where feasible. The Council will endeavour to obtain funding from the Office of Public works in order to undertake defence measures for specific areas as prioritised in the Strategy.

A Coastal Defence Strategy Study was prepared for the County by specialist Consulting Engineers in 2010. The Study details a coastal protection strategy identifying specific coastal protection measures on a priority basis and undertakes a risk assessment of the vulnerability of the Study area and hinterland to both erosion and coastal flooding. The Study provides a framework for decision making in relation to development along the coast.

Risk mechanisms along the coastline were identified as erosion, cliff instability, tidal flooding, wave overtopping and wave flooding. Thirty four areas at risk were identified along the Study coastline. Erosion and cliff instability apply to the coastline south of Sorrento Point and to localised areas to the north. To the north of Sorrento point the principal risk mechanisms are due to wave impact and wave overtopping. Tidal flooding during extreme events may occur to parts of the DART rail line between Dún Laoghaire Harbour and Merrion Gates, particularly in the vicinity of Blackrock Station.

During the course of the Study, areas were identified where it was considered that the risks relating to coastal defence issues were likely to be highest. Measures to be applied to these specific areas were prioritised. Not all of these areas are in the ownership of the Council. The Study also recommends that the findings be adopted into the County Development Plan.

The Council will also require that all coastal defence works will be subject to Appropriate Assessment (AA) to ensure there are no likely significant effects on the integrity of any Natura 2000 sites and that the requirements of Article 6 of the EU Habitats Directive are met.



Coastal Defence Gabions, Killiney Beach