



Chapter 6

Utilities Infrastructure, Energy & Communication



Sustainable Compact Growth



Infrastructure



Accessibility and Connectivity



Climate Action

Chapter 6: Utilities Infrastructure, Energy & Communication

Strategic Objectives

To enable development in line with the capacity and provision of supporting infrastructure and utilities, and to require the timely provision of infrastructure needed for the sustainable development of lands consistent with the principle of infrastructure led development.

To promote and facilitate the provision of energy efficient, low carbon infrastructure and utilities and support infrastructure, whilst supporting industry to innovate, decarbonising the energy sector in order to contribute to a national target of zero net emissions of greenhouse gases in Ireland by 2050.

6.0 Introduction

An adequate supply of infrastructure services is critical for effective and sustainable spatial, social, environmental and economic development and growth. It can also serve as an agent of change in addressing challenges like climate change and gender inequality. Adapting to climate change requires more resilient infrastructure, and mitigating its effects calls for less environmentally damaging provision.

The need for transport, water and sanitation, waste disposal, electricity and communications infrastructure (ICT) continues to grow in order to accommodate our increasing population.

Furthermore, our ability to secure significant new large-scale capital investment for both new residential and commercial developments is partly dependent on the ready availability of serviced sites of scale, with appropriate zoning and capacity for the required utilities to match the needs of large capital intensive projects. Such infrastructure provision must be implemented in a manner that protects public health, is environmentally appropriate, and supports our just transition to a low-carbon economy.

The provision of enabling infrastructure also requires a stronger focus on energy efficiency and renewable fuel sources, particularly in the construction, heating and transport infrastructure sectors, in order to reduce energy related GHG emissions, and contribute to meeting Ireland's binding EU 2030 and 2050 targets¹.

It is recognised that exchequer funding and various national sectoral programs cannot address all infrastructure investment requirements. The Council will therefore positively consider methods and innovative means of infrastructure provision and investment which include private and community sector involvement, collaboration and/ or delivery.

¹ Ireland's Climate Action Plan sets out an ambitious whole-of-society approach designed to enable Ireland to meet its EU targets of reducing carbon emissions by 30% between 2021 and 2030, and thereafter to achieve net zero carbon emissions by 2050.

6.1 Water Supply and Quality

Planning makes a significant contribution to water objectives by ensuring that:

- Development that could pose a risk is avoided in the first instance, where feasible.
- Water management is integrated into the planning system for the purposes of supporting the protection and enhancement of water quality and water resource zones.
- The performance criteria for future infrastructure is “Water Framework Directive (WFD) proofed”; and
- By including appropriate conditions in planning permissions for new development.

There are 48 No. Water Resource Zones (WRZ) in Waterford. The largest water resource zone is the East Waterford WRZ, and serves Waterford City and Tramore, as well as a large rural hinterland and several villages. The Dungarvan WRZ serves Dungarvan town, as well as some smaller villages and rural hinterland. Of the 48 no. water resource zones, 24 (including Dungarvan WRZ) are unlikely to have issues facilitating new connections, although further investigative studies or interventions may be required in some instances, and the capacity of water storage facilities are an issue in many of our towns.



Private bored wells used as a source of water supply to single dwellings are the responsibility of the householder. Such wells are not regulated under the European Communities (Drinking Water) Regulations 2014, and Irish Water has no regulatory function in this regard. The Council is responsible for providing guidance and advice in relation to the protection of water quality.

The protection of our surface and groundwater sources is a key challenge facing Waterford, as is ensuring that existing water services infrastructure and capacity is adequately managed. Water quality in Ireland has deteriorated over the past two decades. The objective of the EU Water Framework Directive² (WFD) is to protect and restore good water quality, which is carried out through the implementation of River Basin Management Plans. The River Basin Management Plan for Ireland 2018-2021 sets out the actions to improve water quality and achieve “good” ecological status in water bodies by 2027. The Development Plan aims to protect this invaluable resource (See Chapter 9).

6.2 Water Services

The provision of an adequate supply of water and wastewater treatment facilities is critical to facilitate and sustain the growth of the City and County over the lifetime of the plan and beyond. The Council delivers water services in accordance with a Service Level Agreement (SLA) with Irish Water who is responsible for the overall delivery, integration and implementation of water and wastewater projects and infrastructural improvements. The protection and improvement of water quality and water services infrastructure are major challenges, especially in the context of the need for climate change adaptation and resilience.

It is an objective of Irish Water to provide drinking water and wastewater capacity to facilitate growth in accordance with core strategies at county level, and in accordance with the policies and objectives at both national and regional level.

Despite investment in recent years, our strategic priorities as set out in this Development Plan and those of Irish water are poorly aligned and as a result development in certain locations is constrained. It is important to note that investment based solely on the priorities of Irish Water (as outlined in the Irish Water priorities under the Capital Investment Plan) will not be sufficient to meet the City and County's needs in achieving the population targets set out in this plan and in the NPF and RSES. Appendix 14 of this plan sets out details of the Council's suggested investment priorities in order to secure the delivery of the population targets set out in this plan and the targets of the NPF and RSES. Table 6.1 also sets out a baseline relating to water and wastewater service infrastructure across the City and County.

In general, water supply and wastewater facilities need to be improved throughout the City and County both to serve existing communities, and to accommodate plan and infrastructure-led growth. In the absence of investment by Irish Water, alternative developer-provided infrastructure, in collaboration with the Local Authority or otherwise, may be required.

In the event that alternative, developer provided infrastructure may be regarded as an appropriate solution to individual specific proposals or circumstances, it should be noted that nature-based solutions, which combine an explicit ecosystem/ integrated catchment based approach, would be the Council's preference, such as constructed wetlands (CWs) and integrated constructed wetlands (ICWs).

CWs and ICWs can also be utilised as part of a combination/ hybrid of measures for wastewater treatment, e.g. complementing existing mechanical treatment plants by providing a tertiary treatment step for effluents from mechanical units. Sites in catchment areas of water bodies with sensitivity towards eutrophication could utilise hybrid systems for zero discharge, whilst sites with very restricted space could employ tertiary CWs with storm management. This would increase compliance with environmental standards set by the Water Framework Directive (WFD) and associated legislation, e.g. the Bathing Water Directive. Waterford currently has 9 No wastewater treatment schemes that utilise Integrated Constructed Wetlands, and these range in size from 6 PE up to 250 PE.

Waterford City and County Council will work closely with Irish Water to identify the water services required to support development which aligns with the Council's Core and Settlement Strategies, and both the National Planning Framework and the Southern Regional Spatial and Economic Strategy (RSES), and to ensure that the provision of water/ wastewater services will not be a limiting factor in terms of sustainable growth and development.

Table 6.1 Water and Wastewater Capacity Assessment – Settlements in Waterford County
 (Source: Irish Water April 2022)

NB: Capacity assessments are subject to change – population targets are subject to change.

Settlement	CSO population 2016	CDP 2022-2028 - Population target to 2028:	Revised population ambitions	Water Resource Zone (WRZ):	Water source/treatment capacity update:	WWTP:	Wastewater treatment capacity update:
Waterford City & suburbs	53,504	70,088	62,382	East Waterford & South Kilkenny	Currently it is envisaged that capacity is available to cater for proposed population targets in CDP.	Belview WWTP	Currently it is envisaged that capacity is available to cater for proposed population targets in CDP. Irish Water is soon to commence a feasibility study for the Belview WWTP; this study will take the form of an assessment of capacity and discharge requirements for the WWTP and will take approximately 2 years to complete.
Dungarvan (Key Town) & Ballinroad	10,388	11,864	11,864	Dungarvan & Deelish/ Ballynacourty	Currently it is envisaged that capacity is available to cater for proposed population targets in CDP. IW has a project at concept design stage to provide new reservoir and new water treatment plant.	Dungarvan WWTP	Currently it is envisaged that capacity is available to cater for proposed population targets in CDP.
Tramore	10,381	11,549	11,549	East Waterford Regional	Currently it is envisaged that capacity is available to cater for proposed population targets in CDP. Storage requirements are being assessed through the National Water Resource Plan Full Options Assessment process, which is due to be completed in Q3 2021.	Tramore WWTP	Currently it is envisaged that capacity is available to cater for proposed population targets in CDP.
Dunmore East	1,808	2,002	2,002	East Waterford Regional	Currently it is envisaged that capacity is available to cater for proposed population targets in CDP. Storage requirements are being assessed through the National Water Resource Plan Full Options Assessment process, which is due to be completed in Q3 2021.	Dunmore East WWTP	Currently it is envisaged that capacity is available to cater for proposed population targets in CDP.

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Settlement	CSO population 2016	CDP 2022-2028 - Population target to 2028:	Revised population ambitions	Water Resource Zone (WRZ):	Water source/treatment capacity update:	WWTP:	Wastewater treatment capacity update:
Portlaw	1,742	1929	1,929	Portlaw	Limited capacity available, options for improving capacity are being assessed through the National Water Resource Plan Full Options Assessment process, which is due to be completed in Q3 2021.	Portlaw WWTP	Currently it is envisaged that capacity is available to cater for proposed population targets in CDP.
Lismore	1,374	1521	1,521	LCB Lismore	Currently it is envisaged that capacity is available to cater for the proposed population targets in the CDP.	Lismore WWTP	Currently it is envisaged that capacity is available to cater for proposed population targets in CDP.
Cappoquin	699			LCB Cappoquin	Currently it is envisaged that there is capacity available, but population targets are unknown.	Cappoquin WWTP	Currently it is envisaged that there is capacity available, but population targets are unknown.
Kilmacthomas	834			Kilmacthomas	Limited capacity available.	Kilmacthomas WWTP	Currently it is envisaged that there is capacity available, but population targets are unknown.
Tallow	946			Tallow	Limited capacity available.	Tallow WWTP	Currently it is envisaged that there is capacity available, but population targets are unknown.
Passage East & Crooke	827			East Waterford Regional	Currently it is envisaged that there is capacity available, but population targets are unknown.	Passage East WWTP & Crooke WWTP	Currently it is envisaged that there is capacity available, but population targets are unknown.
Baile na nGall / An Rinn (incl Sean Phobal) An Deise	499		583	Dungarvan	Currently it is envisaged that there is capacity available, but population targets are unknown.	Baile na nGall WWTP	Currently it is envisaged that there is capacity available, but population targets are unknown.
Stradbally	438			Stradbally	Currently it is envisaged that there is capacity available, but population targets are unknown.	Stradbally WWTP	Currently it is envisaged that there is capacity available, but population targets are unknown.
Ardmore	434			Ardmore Monea	Limited capacity available, and further assessment ongoing.	Ardmore WWTP	Currently it is envisaged that there is capacity available, but population targets are unknown.
Cheekpoint	318			East Waterford Regional	Currently it is envisaged that there is capacity available, but population targets are unknown.	Cheekpoint WWTP	Currently it is envisaged that there is capacity available, but population targets are unknown.
Aglish	333			Aglish/ Curraheen	Currently it is envisaged that there is capacity available, but population targets are unknown.	Aglish WWTP	Currently it is envisaged that there is capacity available, but population targets are unknown.

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NB: Capacity assessments are subject to change – population targets are subject to change.

Settlement	CSO population 2016	CDP 2022-2028 - Population target to 2028:	Revised population ambitions	Water Resource Zone (WRZ):	Water source/ treatment capacity update:	WWTP:	Wastewater treatment capacity update:
Villiarstown	276			Villiarstown	Currently it is envisaged that there is capacity available, but population targets are unknown.	Villiarstown WWTP	Currently it is envisaged that there is capacity available, but population targets are unknown.
Kilmeaden	259			Ballyduff/ Kilmeaden	Currently it is envisaged that there is capacity available, but population targets are unknown.	Ballyduff Lower WWTP	Currently it is envisaged that there is capacity available, but population targets are unknown.
Kill	271			Ballylaneen	Currently it is envisaged that there is capacity available, but population targets are unknown.	Kill WWTP	Currently it is envisaged that there is capacity available, but population targets are unknown.
Lemybrien	192			Kilrossanty	Currently it is envisaged that capacity is available, but population targets are unknown	Lemybrien WWTP	Small Towns and Villages Growth Programme has announced an investment in this WWTP; which will facilitate an upgrade to cater for the capacity as outlined in the CDP ambitions within the lifetime of the plan.
Dunhill	216			Dunhill/ Ballynageera	No capacity available, options for improving capacity are being assessed through the National Water Resource Plan Full Options Assessment process, which is due to be completed in Q3 2021.	Dunhill WWTP	Currently it is envisaged that there is capacity available, but population targets are unknown.
Clashmore	252			Clashmore/ Coolboa	Currently it is envisaged that there is capacity available, but population targets are unknown.	Clashmore WWTP	Currently it is envisaged that there is capacity available, but population targets are unknown.
Ballymacarbry	138			Ballymacarbry/ Knockalisheen	Very limited capacity available, options for improving capacity are being assessed through the National Water Resource Plan Full Options Assessment process, which is due to be completed in Q3 2021.	Ballymacarbry WWTP	Currently it is envisaged that there is capacity available, but population targets are unknown.

6.3 Storm and Surface Water Management

Adequate storm water drainage and retention facilities are necessary to accommodate surface water runoff from existing and proposed developments. Rivers, streams and ditches containing watercourses are important green infrastructure corridors and habitats, providing multi-functional eco-system services such as land drainage, recreational amenity, and clean/ cool air and wildlife corridors.

In the past, surface water management has tended to focus on intervention with the use of methods such as piping, culverting and installation of underground attenuation tanks. Increasingly, we need to embrace water management as an opportunity, rather than a challenge. Successfully delivered sustainable drainage provides communities and wider society with benefits set within the context of adapting to climate change, development and improving our natural environment, whilst removing storm water from combined sewer in some instances, thus also improving capacity in such systems.

The Development Plan provides an opportunity to find innovative solutions to infrastructural requirements, especially surface water and foul water, where enhanced biodiversity³ and green infrastructure as well as amenity value can be added to settlements, e.g. Dunhill Integrated Constructed Wetlands and the Anne Valley Walk. The Council will require compliance with best practice guidance for the collection, reuse, treatment and disposal of surface waters for all future development proposals. The use of SuDS⁴ offers a solution to rain and surface water management and is applicable in both urban and rural situations and will be central to any infrastructure provision and Green Infrastructure Strategies of the Council.

For new developments, the Council will require that all developments incorporate ‘Sustainable Urban Drainage Systems’ (SuDS) as part of the development proposals. The systems should aim to mimic the natural drainage of a site to minimise the effect of a development on flooding and pollution of existing waterways. In some exceptional cases, and at the discretion of the Planning Authority, where it is demonstrated that a SuDS system approach is not feasible, approval may be given to the installation of underground attenuation tanks or enlarged pipes, in conjunction with other measures/ devices to achieve the required water quality. Such alternative measures will only be considered as a last resort.



3 For guidance on maximising the ecological value of SuDS see Ponds, pools and lochans (Biggs, et al 2000)

4 SuDS components can include: Green roofs; Soakaways; Rainwater harvesting; Permeable Paving; Geocellular modular systems; Channels and rills; Bioretention; Infiltration trenches; Rain gardens; Filter strips; Filter drains; Swales; Trench troughs; Detention basins; Wetlands and Retention ponds

6.4 Energy

Energy comes in many forms from fossil fuels and renewables. The ESB (TAO & DSO) and EirGrid (TSO) are responsible for the electrical distribution and transmission system. The roll out of electrical infrastructure such as upgrades to transmission and distribution networks, increased electrical capacity to meet increased electrical demand, and for energy supply and security, will be vital for the continued growth and development of Waterford.

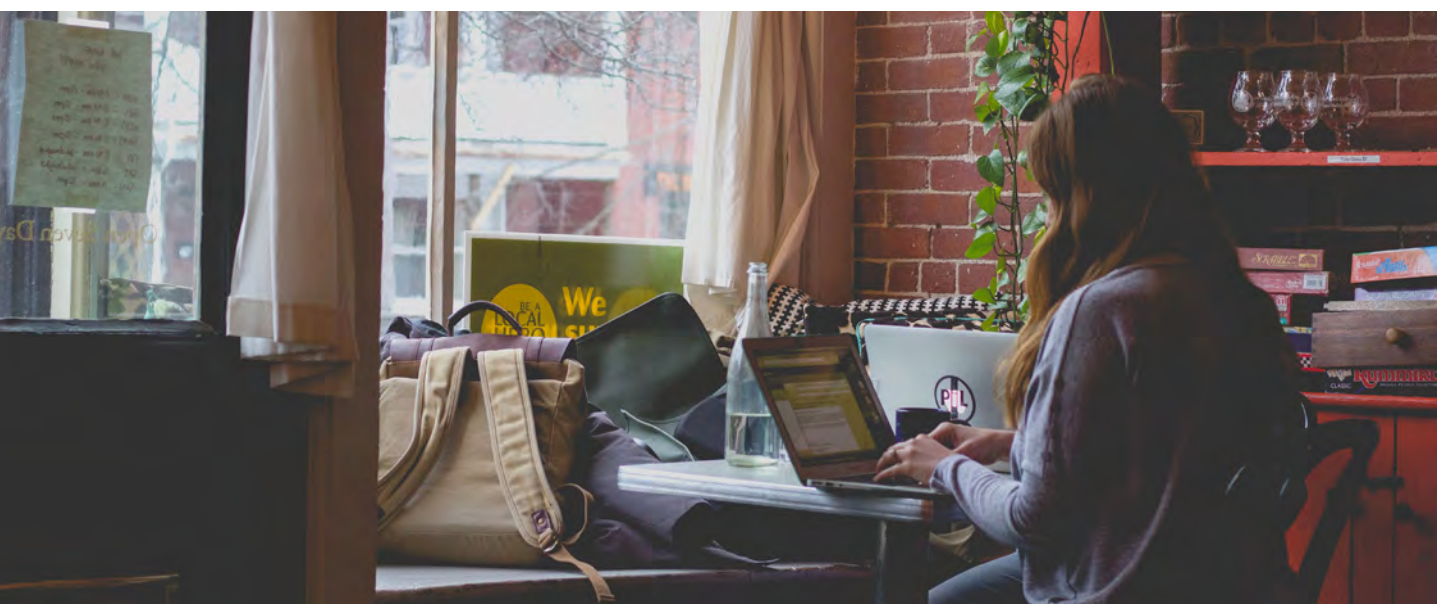
EirGrid has identified the following projects subject to upgrade during the lifetime of this Development Plan:

- CPO753: Waterford 110kV Station – Upgrade 110kV Bay (on hold).
- CPO779: Dungarvan 110kV Station – Transmission works assoc. with installation of new 38kV GIS
- CP1052: Knocknamona 110kV new Station – Wind Farm connection
- Need for the planned Aghada and Knockraha 220/220kV station (Cork) upgrades – without these projects, potential overloading of circuits in the Waterford area, may arise.

Electricity demand in Waterford is projected to increase by between 5-7% on an annual basis. The installation of the two electrical grid infrastructural interconnectors in adjoining counties (Great Island, Co. Wexford, and Ballycotton and Knockraha, Co. Cork respectively) via Greenlink (Ireland - Wales sub-sea cable) and the Celtic Interconnector (Ireland-France sub-sea cable), offers security of electrical energy supply.

Waterford's growth and development includes the need to make strategic and progressive progress toward accommodating the electrification of transport (e.g. Roll-out of EV charging infrastructure and hydrogen/fuel cells etc.), and decoupling the heating and power sectors, as part of our efforts towards decarbonising our power system, whilst nonetheless ensuring that renewable electricity generation (currently chiefly supplied by wind and solar) and 'dispatchable power' can be balanced or 'backed-up' through conventional energy generation or energy storage. A focus on renewable energy will thus also require the integration and implementation of projects which provide a wider range of renewable energy sources, such as offshore and onshore wind/renewable energy, hydro, wave, biogas (i.e. anaerobic digestion) and heat.

The Council supports the national policy shift to low carbon energy solutions for a greener future, as well as the need to enhance electrical generation and distribution infrastructure to ensure that current and future energy demands are met. Smart energy systems, and the conversion of the built environment into both a generator and consumer of energy, will also have a role to play.



6.5 Heating

The council also recognises the need for the transition from fossil fuel forms of heating to renewable energy sources of heating from heat pump technology, biomass boilers and other sources of renewable heat. The removal of fossil fuel heating systems will have an added benefit of improved air quality.

Waterford will make a significant contribution in meeting the 2030 national targets where 500,000 existing homes will be upgraded to B2 Building Energy Rating (BER), this will reduce heating demand and the risk of fuel poverty occurring. In addition, the local implementation of the national target of installing 400,000 heat pumps by 2030 will provide direct alternatives to fossil fuel heating systems and will contribute in the development of the Green Economy.

The installation of district heating has potential for further development in particular, in areas off the natural gas network and industrial estates, where there is sizeable energy demand.

Given national level oversight in respect of local level energy synergies and characteristics that allow for an optimal, least cost, low-carbon energy system design, the role of Waterford City and County Council as a local authority is crucial in terms of catalysing investment in low-carbon heating technologies, and their integrated development and implementation.



6.6 Renewable Energy

There is significant potential to use renewable energy (solar, biomass, anaerobic digestion, hydro, wave and on/offshore wind), including through micro-generation (which typically assist in lowering energy demand), to achieve climate change emission reduction targets. Low carbon technologies present economic opportunities for various sectors, and green technology development is emerging as a major field of innovation and growth.

Table 6.2 below provides an indication of current renewable energy generation capacity (c. 215MW⁵) in Waterford, as identified by EirGrid, and linked to the applicable 'node' for such generation.

Table 6.2 Current Renewable Energy Generation Capacity, EirGrid Enduring Connection Policy 1 (ECP1) - Constraints Report for Area K Solar and Wind, Oct. 2019

Node	Generator	Solar (MW)	Wind (MW)	Thermal (MW)
Butlerstown	Coolnagapogue Solar Farm (Ph. 1)	4		
	Beallough, Portlaw (1)		2	
	Ormond Organics Ormond Organics AD			2 1
Dungarvan	Ballycurreen (1)		5	
	Clashnagoneen Solar Farm	4		
	Drumroe East Solar Farm	15		
	Foxhall PV	4		
Rathnaskilloge	Rathnaskilloge Solar	95		
Woodhouse	Knocknamona Wind Farm		34	
	Woodhouse (1)		20	
Total⁶		122	90	3

Further to the details in Table 6.2, it is important in terms of meeting future energy demands, enhancing our energy security and meeting our ever increasing carbon emission reduction targets that we provide scope and support for new developments within the renewable energy sector i.e. wind, solar, hydro, ocean and bio energy. In this regard Table 6.3 identifies the quantum of renewable energy⁷ to be developed locally to ensure we play our part in delivering on national renewable energy and carbon emission reduction targets as per the Climate Action Plan 2021 in addition to the 2030 targets, a new wind energy map has been prepared which is proposed to be included in a new Appendix 2 to the Renewable Energy Strategy (Appendix 7 of the Development Plan).

5 In general, an installed capacity of 60MW has the potential to produce c. 183,960MWh of electricity per year. This would be sufficient to supply 43,800 households with electricity per year, based on the average Irish household using 4.2MWh of electricity.

6 This does not include uninstalled permitted projects, live planning applications with the Council, nor Strategic Infrastructure Development (SID) with An Bord Pleanála (ABP) – e.g. SID Pre-app PL93.301740 on 733Ha: <https://www.lyrenacarrigawindfarm.com/>: 17 turbines (11 in W/ford; each c. 5MW)

7 With respect to meeting the County's share of national renewable energy targets and having regard to the national target of 15.5GW and of this the wind energy targets being up to 8 GW of on-shore wind energy and at least 5 GW off shore (source: Climate Action Plan, 2021 or any update thereof)). County Waterford should endeavour to deliver 2.64% of the onshore growth requirement (Waterford comprising 2.64% of the land mass of the Republic of Ireland), which equates to +211.20 MW.

The targets set out in Table 6.2 are based on Waterford’s capacity to locally deliver on available renewable energy resources, in meeting our potential contribution to the State’s energy requirements and targets, as determined by available land, energy generation potential and environmental designations. This approach is considered to be in line with the increased ambition of the actions set out in the Climate Action Plan 2021.”

Table 6.3 Renewable Energy Targets 2030					
Source	Operational (MW)	Permitted Undeveloped (MW)	Target 2030 (MW)	Shortfall (MW)	Note
On shore	62.87	34.85	211.20	113.48	Note 1
Solar	0.00	220.70	345.70	125.00	
Other, including auto production solar PV, CHP and hydro	4.68	0.00	76.40	71.72	
Total	67.55	255.55	633.30	310.20	Note 2
<p>Note 1: Climate Action Plan 2021 target of 8GW onshore for 2030 based on Waterford land mass of 2.64% of Republic of Ireland. The Climate Action Plan 2021 states that 13.2 MW (5.57%) of this 2030 Waterford target will be delivered through local community-based projects, subject to competition as appropriate.</p>					
<p>Note 2: These targets are considered to be minimum targets.</p>					
<p>Note 3: There is a significant off-shore wind capacity that will go towards meeting the national renewable energy targets to 2030.</p>					

The Council recognises the importance of developing renewable energy resources in the interest of delivering NZEB (Near Zero Energy Buildings) and the National Climate Change Adaptation Framework, Climate Action Plans⁸ and the Climate Action and Low Carbon Development (Amendment) Act, whilst also balancing this against the need to maintain, and where possible improve, environmental quality.

Embodied carbon in buildings and infrastructure comprise a significant proportion of their overall carbon footprint. In addition, and given that buildings and infrastructure contribute around 40% of greenhouse gas (GHG) emissions; it is critical that the provision of such buildings and infrastructure plays a greater role in reducing the sector’s carbon footprint.



8 The Bill requires all Local Authorities to prepare individual Climate Action Plans which will include both mitigation and adaptation measures

6.7 ICT/ Communications

Physical and digital infrastructure improves connectivity, helping our cities, towns and region to drive growth, supporting our economy and social development. Digital technologies are increasingly critical in the day-to-day operations of businesses and households and in improving access to public services across our more rural areas. It is anticipated that the National Broadband Plan will address the lack of high-speed connectivity in rural areas. The Council will continue to support and facilitate operators to improve speed and service across Waterford in line with national policy.

6.8 Waste Services/ Infrastructure

The Circular Economy and Ireland's Waste Management policy is part of the waste hierarchy established by the EU's Waste Framework Directive, which sets out to prioritise waste prevention, followed by re-use, recycling, recovery and finally disposal into landfill. This is reflected in the new 'National Waste Management Plan for a Circular Economy', which seeks to ensure:

- The delivery of balanced and sustainable infrastructure in the waste sector.
- Increased sustainable waste management by reducing the amount of waste produced, maximising the re-use of waste through recycling and composting and minimising landfill waste, in line with becoming a more resource efficient and circular waste economy.
- Application of EC's Circular Economy Action Plan: A New Circular Economy Action Plan for a Cleaner More Competitive Europe, and Ireland's National Waste Policy 2020-2025 "A Waste Action Plan for a Circular Economy", the Southern Region Waste Management Plan 2015-2021 (and/ or any subsequent Plan), and a new Waste Management (Circular Economy) Bill.

The Southern Region Waste Management Plan 2015 – 2021 is a framework for the prevention and management of wastes in a safe and sustainable manner, and Waterford City and County Council has been actively involved in facilitating the delivery of a more sustainable approach to waste management in the City and County. The upcoming National Waste Management Plan for a Circular Economy (NWMPCE), which is likely to be made in Q1, 2022, will replace the Southern Region Waste Management Plan 2015-2021 and the regional waste management plans for the other two regions. The NWMPCE will include the new guidance document 'Waste Management Infrastructure – Guidance for Siting Waste Management Facilities', the scope of which includes broad siting criteria and facility specific guidance for consideration when siting a waste facility.

Waterford City and County Council plays a fundamental role in the transition from a linear to a circular economy through key policies in public services that affect citizens' wellbeing, economic growth and environmental quality. This plan will foster the linkages to transition from a linear model to a circular model which keeps resources in use for as long as possible.

Refuse collection is carried out by a number of private contractors in the City and County. Recycling facilities are located at Civic Amenity Centres located in Kilbarry (Waterford City) and Ballinamuck, Dungarvan. A privately run Civic Amenity Centre is also situated at Six Cross Roads, Waterford City, and a number of Bring Banks are located throughout the City and County.

6.9 Utility, Energy & Communication Policy Objectives

Utility, Energy & Communication Policy Objectives	
UTL 01	<p>New Development and Strategic Development Growth Areas</p> <p>Ensure that new development across the urban and rural settlements of Waterford is infrastructure led in a manner which:</p> <ul style="list-style-type: none"> - Supports communities and economic growth and development, - Enhances environmental quality, - Complies with the tiered approach to land use zoning which underpins the Development Plan. - Encourages and provides opportunities to improve and implement sustainable modes of travel. - Integrates nature-based solutions and climate change considerations into the design, planning, and implementation of infrastructure provision/ works and development proposals. - Incorporates green infrastructure to provide for carbon offset and carbon sinks and wider environmental benefits, including providing shade to alleviate heat stress, supporting urban biodiversity, water retention and flood alleviation. - Promotes and integrates energy efficiency and low carbon technologies and solutions; and, - Ensures sufficient heat density (e.g. compact growth) and diversity of connected heat loads (egg hospital, leisure centre, large retail, electricity production, industry) to facilitate the economic provision, viability and integration/ implementation of low carbon heating technologies in development proposals
UTL 02	<p>Water Services</p> <p>To collaborate support and work, in conjunction with Irish Water, to ensure the timely delivery and provision, extension and upgrading of existing and new high quality, climate resilient, water services infrastructure, in order to facilitate the sustainable growth and development of our City and County, in accordance with an ecosystem services and integrated catchment management approach, and the Development Plan Core and Settlement strategies.</p>
UTL 03	<p>Water Supply & Drinking Water Regulations</p> <p>We will collaborate with Irish Water in contributing towards compliance with the European Union (Drinking Water) Regulations Drinking Water Regulations 2014 (as amended) and compliance of water supplies with the parameters identified in these Regulations.</p> <p>All new developments must be satisfactorily served by either a mains water supply, or by a private water supply. The preferred option will always be a public water supply and drainage solution. It will be the responsibility of the developer to demonstrate that any new supply is adequate to serve the proposed development and that for domestic use; it is safe to be consumed as drinking water. Groundwater abstractions must comply with EPA policies and guidelines.</p>
UTL 04	<p>Drinking Water Report for Public Water Supplies</p> <p>In conjunction with Irish Water, we will have regard to the EPA 2020 publication “Drinking Water Report for Public Water Supplies 2019” (and any subsequent update) in the establishment and maintenance of water sources in the County.</p>
UTL 05	<p>EPA’s Remedial Action List</p> <p>In conjunction with Irish Water, undertake recommendations made by the EPA arising from any failure to meet drinking water standards and any enlistment on the EPA’s Remedial Action List.</p>

Utility, Energy & Communication Policy Objectives

UTL 06

Urban Wastewater Treatment Regulations

We will collaborate with Irish Water in contributing towards compliance with the relevant provisions of the Urban Wastewater Treatment Regulations 2001 and 2004 and the Wastewater Discharge (Authorisation) Regulations 2007 as amended.

It is the Council's preference that all new development connects to existing public wastewater treatment facilities without the need for upgrades being required to the facilities, and wastewater network connections are provided by the developer. Development will only be permitted in instances where there is sufficient capacity for appropriate collection, treatment and disposal (in compliance with the Water Framework Directive and River Basin Management Plan) of wastewater.

All new developments shall ensure that:

- A separate foul and surface water drainage system is provided - the discharge of additional surface water to existing combined (foul and surface water) sewers is prohibited in order to maximise the capacity of these collection systems for foul water.
- Where permitted, private wastewater treatment plants, are operated in compliance with:
 - 2021 Code of Practice for Domestic Wastewater Treatment Systems EPA, as may be amended.
 - EPA Wastewater Treatment Manuals – Treatment Systems for Small Communities, Business, Leisure Centres and Hotels (1999) and EPA Guidance on the Authorisation of Discharges to Groundwater (EPA 2011), as may be amended.

Where a connection to public drainage infrastructure is demonstrated to be unfeasible, and/ or is not available, alternative developer-provided infrastructure, developed in collaboration with the Local Authority or otherwise, may be required/ facilitated if it is satisfactorily demonstrated that disposal of foul water can be achieved without negative impacts on public health, amenity or the environment. The detailed design of any such alternative developer provided infrastructure to service new development within our settlements should meet the technical requirements of Irish Water and may be considered in the following order of priority preferences:

- I. Where the proposed development exceeds the capacity of the existing treatment plant, the developer shall provide for the upgrade of the treatment plant and connection to the public network. This may be best achieved in settlements such as Lemybrien where the existing ICW can be extended as a low tech/low risk design solution. (Note from Table 6 Irish Water proposal to upgrade the WWTP in Lemybrien as part of the STVGP).
- II. Where no existing public treatment system exists (certified or otherwise), the developer shall be responsible for developing a new ICW – preferably outside the respective settlement boundary. Such provision will involve the laying of a new network.
- III. Where no, or inadequate, public waste-water treatment facilities exist, serviced sites may be supported. In such instances, serviced site developments on 0.20 hectares (½ acre) plots with individual treatment systems will be required as a temporary measure, until such time as waste-water facilities become available. The serviced sites should be designed to permit the subdivision of each of the 0.20 hectare plots into two 0.10 hectare sites once adequate services become available. The residual land can then be developed for additional serviced sites in the future. Risk and maintenance lie with the individual homeowner. Note: As per Section 5.3 of the Draft Water Services Guidelines for Planning Authorities, 'Alternative solutions such as private wells or wastewater treatment plants should not generally be considered by planning authorities.

Planning permission may be granted on the condition that private drainage infrastructure may be used temporarily, with the requirement to connect to public drainage infrastructure when it becomes available.

Utility, Energy & Communication Policy Objectives

UTL 07

Water Conservation

To require that developments incorporate demand management and water conservation measures such as rain water harvesting and grey water use, among all users, to minimise wastage of water supply, and as viable alternatives to attenuation, and to support Irish Water in implementing water conservation measures such as leakage reduction and network improvements.

UTL 08

Protection of Water Resources

To work together with Irish Water towards a common goal of protecting our drinking water sources. This will be achieved by:

- Supporting the preparation and implementation of Drinking Water Protection Plans by Irish Water, to protect sources of public water supply, in accordance with the requirements of the Water Framework Directive.
- Having regard to the EPA 2019 publication 'Drinking Water Report for Public Water Supplies 2018' (and any subsequent update) in the establishment and maintenance of water sources in the County in conjunction with Irish Water.
- Protecting both ground and surface water resources including taking account of the impacts of climate change, the cumulative impacts of septic tanks and waste water treatment systems, and to work with and support Irish Water to develop and implement Water Safety Plans to protect sources of public water supply and their contributing catchment.

UTL 09

Storm and Surface Water Management

To require the use of Nature Based Solutions and Sustainable Drainage Systems to minimise and limit the extent of hard surfacing and paving and require the use of SuDS measures to be incorporated in all new development (including roads and public realm works and extensions to existing developments).

Surface water drainage must be dealt with in a sustainable manner, in ways that promote its biodiversity value, and in ways that avoid pollution and flooding, through the use of an integrated SuDS (including integrated constructed wetlands), where appropriate. This includes runoff from major construction sites.

Development proposals shall be accompanied by a SuDS assessment, which includes details of runoff quantity and quality and impacts on habitat and water quality and shall demonstrate how runoff is captured as close to source as possible with subsequent slow release to the drainage system and watercourse, as well as the incorporation of appropriate measures to protect existing water bodies and remove pollutant materials. The detail of the assessment should be commensurate with the scale of the development proposed.

Storm/ surface water management and run-off design should be carried out in accordance with Sustainable Urban Drainage Systems (SuDS) standards such as:

- 'The SuDS Manual' (CIRIA, 2015), "Sustainable Drainage: Design and Evaluation Guide" (McCloy Consulting & Robert Bray Associates).
- "Dublin Corporation Storm Water Management Policy Technical Guidelines".
- "Greater Dublin Regional Code of Practice for Drainage Works" incorporating "Greater Dublin Strategic Drainage Study, Volume 2, New Development" or any future updates; and
- The capacity and efficiency of the strategic road network drainage regimes in County Waterford will be safeguarded for national road drainage purposes.
- Nature-based Solutions to the Management of Rainwater and Surface Water Runoff in Urban Areas: Water Sensitive Urban Design Best Practice Interim Guidance Document 2022 (DHLG&H) and updates of same.

In all instances the use of Nature Based Solutions is preferred to engineered solutions.

Utility, Energy & Communication Policy Objectives

UTL 10

Flooding/ SFRA

To reduce the risk of new development being affected by possible future flooding by:

- Avoiding development in areas at risk of flooding,
- Where possible, reducing the causes of flooding to and from existing and future development,
- Increase the application of SuDS such as permeable paving, bioretention/infiltration ponds, swales and Natural Water Retention Measures, and the identification of existing areas which may be suitable for temporary storage/overflow of water during heavy storms,
- Where development in floodplains cannot be avoided, taking a sequential approach to flood risk management based on avoidance, reduction, and adaptation to the risk; and,
- Ensuring that all proposals for development falling within Flood Zones A or B are consistent with the “The Planning System and Flood Risk Management –Guidelines for Planning Authorities 2009”, “Climate Action and Low Carbon Development Act” (2021), and any amendment thereof, and the “Waterford Strategic Flood Risk Assessment” (2021) as included in Appendix 13.
- To support the making of Local Area Plan for larger urban centres we will prepare surface water management plans where adequate data exists to support their preparation. Where data is lacking, we will carry out a data review gap analysis and prepare conceptual surface water management plans as an initial step.
- We will support the development of new flood relief schemes by the OPW, in particular those at AGLISH, Ballyduff and Dungarvan & Environs while protecting public investment in flood relief schemes as detailed in Section 4.4.3 of the SFRA (Appendix 13).

UTL 11

Flood Plains

To contribute towards the improvement and/or restoration of the natural flood risk management functions of flood plains subject to compliance with the environmental legislation and availability of resources, and ensure each flood risk management activity is examined to determine actions required to embed and provide for effective climate change adaptation as set out in the OPW Climate Change Sectoral Adaptation Plan Flood Risk Management applicable at the time.

UTL 12

Energy Strategy/ Masterplan

Undertake a review/ update of the Waterford Renewable Energy Strategy during the lifetime of this Development Plan, in order to assist in creating evidence-based, realistic and costed pathways for Waterford to achieve its just transition to carbon emission reduction targets to 2030 and 2050.

In addition to comprising an update to the existing renewable energy context and technologies in Waterford, the review will chiefly comprise and provide an overall, integrated Energy Strategy/ Masterplan for Waterford, which takes into account (inter alia):

- A detailed and comprehensive energy assessment, incorporating a Spatial Energy Demand and Generation Analysis.
- Heat mapping which identifies areas for Strategic Energy Zones and District Heating (or other low carbon heating technologies) opportunities to support a just transition to clean energy and a circular economy.
- Identifying specific opportunities and projects, actions and targets associated with improved energy efficiency.
- Lessons learned from the Decarbonising Zone ‘living laboratory’, and the need to advance this concept across Waterford, in line with evolving climate policy and legislative requirements.
- The creation of a smarter local energy model, enabling a smarter, more coordinated approach to planning and meeting distinct local energy needs that will link with developments at the regional and national scale.

Utility, Energy & Communication Policy Objectives

UTL 13

Renewable Energy

It is the policy of Waterford City and County Council to promote and facilitate a culture of adopting energy efficiency/ renewable energy technologies and energy conservation and seek to reduce dependency on fossil fuels thereby enhancing the environmental, social and economic benefits to Waterford City and County. It must also be recognised that other sources of electricity generation such as natural gas, particularly renewable and indigenous gas, will continue to have a role to play in the transition to a low carbon economy. As such, renewable energy developments may require support from such sources in times of high energy demand. This will be achieved by:

- Supporting the delivery of renewable energy to achieve the targets identified in Table 6.3 of the Development Plan.
- Facilitating and encouraging, where appropriate, proposals for renewable energy generation, transmission and distribution and ancillary support infrastructure facilities including the necessary infrastructure required for the development of offshore renewable energy developments developed fully in accordance with the Waterford Renewable Energy Strategy, the wind energy designation map (Appendix 2 of the RES), the Waterford Landscape and Seascapes Character Assessment undertaken to inform this Development Plan, and the National Wind Energy Guidelines, or any subsequent update/ review of these
- The Council recognizes and supports the role that the County can play in facilitating the onshore infrastructure required for the construction, operation and maintenance of offshore wind farm developments. This infrastructure includes but is not limited to: construction facilities, storage and lay-down areas, cable landfalls, onshore cable routing to substations, port and harbour infrastructure and coastal operations and maintenance bases, as well as use, reuse or repowering of existing infrastructure where appropriate.
- The Wind Energy Designation Map and the Landscape and Seascapes Character Assessment Map identify different landscape character areas and associated landscape sensitivities. These designations encompass the concept of buffers between areas of sensitivity which vary across the different landscape character types and their different locations. These buffers allow for a gradual change between contrasting landscape sensitivities and associated wind energy designations to be considered, as necessary, when determining any development proposal.
- Promote and encourage the use of renewable energy, and low carbon resources, namely solar photovoltaic, geothermal, heat pumps, district heating, solar thermal, hydro, tidal power, offshore and onshore wind, biomass as well as micro-generation among business, agriculture, education, health, and other sectors.
- Promoting, encouraging, ensuring, and facilitating community engagement, participation and implementation of/ in renewable energy projects.
- Implementing, including in the Council's own activities and in the provision of services/ works, the use and integration of low carbon, renewable energy infrastructure and technologies.
- Supporting appropriate options for, and provision of, low carbon and renewable energy technologies and facilities, including the development and provision of district heating (and/ or other low carbon heating technologies); anaerobic digestion and the extraction of energy and other resources from sewerage sludge.
- The preparation and implementation of a Climate Action Plan (including adaptation and mitigation measures) for Waterford.
- To support in conjunction with other relevant agencies, wind energy initiatives, both onshore and offshore, and wave energy, and onshore grid connections and reinforcements to facilitate offshore renewable energy development when these are undertaken in an environmentally acceptable manner.

At initial design stage full consideration should be to reasonable alternatives and existing infrastructural assets. In this regard environmental assessments should address reasonable alternatives for the location of new energy developments, and where existing infrastructural assets such as sub-stations, power lines and roads already exist within proposed development areas, then such assets should be considered for sustainable use by the proposed development where the assets have capacity to absorb the new development.

All planning applications for Renewable Energy Projects such as wind farms and solar farms shall be accompanied by a Decommissioning and Restoration Plan (DRP) consistent with the Wind Energy Guidelines 2006 or any update thereof. Issues to be addressed shall include details of proposed restorative measures, the removal of above ground structures and equipment, the restoration of habitats, landscaping and/or reseeding roads etc.

Utility, Energy & Communication Policy Objectives

UTL 14

Energy Developments & Human Health

Proposals for energy development should demonstrate that human health has been considered, including those relating to the topics of:

- Noise (including consistency with the World Health Organisation’s 2018 Environmental Noise Guidelines for the European Region developments must comply with the Wind Energy Development Guidelines (2006), or any subsequent update/ review of these),
- Shadow Flicker (for wind turbine developments, including detailed Shadow Flicker Study),
- Ground Conditions/Geology (including landslide and slope stability risk assessment),
- Air Quality; and,
- Water Quality.

UTL 15

Decarbonising Zones

To progress the implementation, projects and lessons learned arising from the Waterford Decarbonising Zone ‘learning laboratory’, in collaboration with various stakeholders, in order to replicate such measures and initiatives throughout the city and county, to assist in advancing the wider roll-out of the decarbonising zone concept across the local authority area, in line with evolving climate policy and legislative requirements.

UTL 16

ICT/ Communications

We will work in collaboration with service providers to deliver a more enhanced connectivity service experience in a way that protects our footway and road surfaces and delivers the economic and community benefits of technology. We will facilitate the continued provision of communication networks, smart infrastructure, broadband and appropriate telecommunications infrastructure and services, subject to environmental considerations, in order to contribute to economic growth, development, resilience and competitiveness. In considering proposals for such infrastructure and associated equipment, the following will be taken into account:

- The installation of the smallest suitable equipment to meet the technological requirements,
- Solutions to deliver shared telecommunication physical infrastructure in new development to facilitate multiple service providers at a non-exclusive basis and at economically sustainable cost to service providers and end users,
- Concealing or disguising masts, antennas, equipment housing and cable runs through design or camouflage techniques; or
- A description of the siting and design options explored and the reason for the chosen solution, details of the design, including height, materials and all components of the proposals,
- A landscaping and screen planting plan (if appropriate),
- An assessment of the cumulative effects of the development in combination with existing equipment in the area; and a visual impact assessment (if relevant).

Proposed development will be required to have regard to the “Telecommunications Antennae and Support Structures - Guidelines for Planning Authorities, 1996 and Circular Letter PL07/12” issued by the Department of the Environment Heritage and Local Government and to any subsequent amendments as may be issued.

Utility, Energy & Communication Policy Objectives

<p>UTL 17</p>	<p>Waste Services (Infrastructure & Management)</p> <p>The Council will continue to promote and facilitate the principles of the circular economy in minimising waste going to landfill and maximise waste as a resource, with prevention, preparation for reuse, recycling and recovery prioritised in that order, over the disposal of waste. This will be assisted by:</p> <ul style="list-style-type: none"> • Promoting and facilitating high quality sustainable waste recovery and disposal infrastructure/ technology at appropriate locations in Waterford, subject to the protection of the amenities of the surrounding environment including European Sites, guidelines incorporated into the new Regional Waste Management Plan, the siting guidance ‘Waste Management Infrastructure – Guidance for Siting Waste Management Facilities’ that will be incorporated into the new National Waste Management Plan for a Circular Economy and in keeping with the EU waste hierarchy; • Continuing to facilitate and promote the provision of civic amenity sites, including ‘bring centres’ for the purposes of providing a collection point for the recycling of domestic waste, subject to siting, location, compatibility with adjacent land uses and other relevant development management criteria. • Requiring the facilitation of bring centres in larger retail developments. • Requiring, where necessary, Project Construction and Demolition Waste Management Plans as part of applications for development in accordance with “Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects” (DoEHLG, 2006). Such plans should be submitted for developments above the thresholds stated in these guidelines, and as required by the Planning Authority. • Ensuring all developments have adequate space to facilitate storage and segregation of waste arising from the development. • Supporting the implementation of the Southern Region Waste Management Plan 2015-2021 (SRWMP) and any updates made thereto, including through the assessment of planning applications by reference to the SRWMP siting and development guidelines for waste infrastructure.
<p>UTL 18</p>	<p>Heat Demand</p> <p>Incorporation of the Irish District Energy Association (IrDEA) Heat Atlas into the Council’s GIS system in order to assist in matching land use and co-locating of proposed developments with a high heat demand, with sources of heat supply. The completed Irish heat atlas is available here⁹.</p>
<p>UTL 19</p>	<p>Undergrounding Cables</p> <p>Where undergrounding of cables is being pursued, proposals should demonstrate that environmental impacts including the following are minimised:</p> <ul style="list-style-type: none"> • Habitat loss as a result of removal of field boundaries and hedgerows (right of way preparation) followed by topsoil stripping (to ensure machinery does not destroy soil structure and drainage properties). • Short to medium term impacts on the landscape where, for example, hedgerows are encountered. • Impacts on underground archaeology. • Impacts on soil structure and drainage; and • Impacts on surface waters as a result of sedimentation.

Utility, Energy & Communication Policy Objectives

UTL 20

Waste Management Regulations and Closed Landfills

The Council shall continue to fulfil its duties under the Waste Management (certification of historic unlicensed waste disposal and recovery activity) Regulations 2008 (S.I. No 524 of 2008), including those in relation to the identification and registration of closed landfills.

UTL 21

Construction and Environmental Management Plan

Construction Environment Management Plans shall be prepared in advance of the construction of relevant projects and implemented throughout. Such plans shall incorporate relevant mitigation measures which have been integrated into the Plan and any lower tier Environmental Impact Statement or Appropriate Assessment. CEMPs typically provide details of intended construction practice for the proposed development, including:

- a) location of the sites and materials compound(s) including area(s) identified for the storage of construction refuse.
- b) location of areas for construction site offices and staff facilities.
- c) details of site security fencing and hoardings.
- d) details of on-site car parking facilities for site workers during the course of construction.
- e) details of the timing and routing of construction traffic to and from the construction site and associated directional signage.
- f) measures to obviate queuing of construction traffic on the adjoining road network.
- g) measures to prevent the spillage or deposit of clay, rubble or other debris.
- h) alternative arrangements to be put in place for pedestrians and vehicles in the case of the closure of any public right of way during the course of site development works.
- i) details of appropriate mitigation measures for noise, dust and vibration, and monitoring of such levels.
- j) containment of all construction-related fuel and oil within specially constructed bunds to ensure that fuel spillages are fully contained (such bunds shall be roofed to exclude rainwater).
- k) disposal of construction/demolition waste and details of how it is proposed to manage excavated soil, including compliance with 'Best Practice Guidelines for the preparation of Resource Management Plans for Construction & Demolition Waste Projects' EPA: 2021, (or any final updates thereof).
- l) a water and sediment management plan, providing for means to ensure that surface water runoff is controlled such that no silt or other pollutants enter local watercourses or drains.
- m) details of a water quality monitoring and sampling plan.
- n) if peat is encountered - a peat storage, handling and reinstatement management plan.
- o) measures adopted during construction to prevent the spread of invasive species (such as Japanese Knotweed).
- p) appointment of an ecological clerk of works at site investigation, preparation and construction phases. and
- q) details of appropriate mitigation measures for lighting specifically designed to minimise impacts to biodiversity, including bats.

UTL 22

Construction Wastes

We will safeguard the environment by seeking to ensure that residual waste is disposed of appropriately. All waste arising during construction will be managed and disposed of in a way that ensures the provisions of the Waste Management Acts and the Southern Waste Management Plan 2015-2021.

Utility, Energy & Communication Policy Objectives**UTL 23****Waste Minimisation**

We support the minimisation of waste creation and promote a practice of reduce, reuse and recycle where possible.

UTL 24**Electricity Infrastructure**

Subject to appropriate environmental assessment and compliance with the policy objectives and development management standards of the development plan, we will support and facilitate the development of a safe, secure and reliable supply of electricity, associated electricity networks and transmission infrastructure to serve existing and future demand.