

CHAPTER 9 - INFRASTRUCTURE

9.1 Roads and Transportation

9.1.1 Introduction

While the overarching rationale for the production of a development plan is to guide land-use, the integration of good land use planning with transportation is a key that can unlock significant improvements in the quality of life, in ways that are tangible to many in Wicklow, who have long identified car dependency and commuting as being a major drawback to living in the County. Reducing the need to travel long distances by private car, and increasing the use of sustainable and healthy alternatives, can bring multiple benefits to both our environment and communities.

The Council will continue to provide for all components of the transportation system which are within its own remit and will encourage and facilitate the development of those other elements provided by external agencies, such as the National Transport Authority (NTA) and Transport Infrastructure Ireland (TII, made up of the former NRA and RPA). In addition the strategy and objectives of this plan are required to be consistent with the transport strategy of the NTA¹.

It is therefore the strategy of this plan to:

Craft land use policies to produce settlements of such form and layout that facilitates and encourages sustainable forms of movement and transport, prioritising walking and cycling, and for larger settlements, bus transport. Integrated land use and transport studies will be used to:

- inform future policy formulation;
- promote development that facilitates the delivery of local transport links within towns (such as feeder buses to train stations), between towns and in rural areas;
- promote development that delivers improvements to public transport services, in particular the upgrading of the Dublin – Rosslare train line, improved Dart Services, bringing the LUAS or other mass transit to Bray and Fassaroe and the development of improved bus services;
- allow for the improvement or provision of new walking and cycling facilities throughout the County;
- facilitate the improvement of the existing road network, to remove bottlenecks and increase free flow;
- to improve east – west linkages in the County, as well as linkages between the west and south of the County to other counties; and
- to improve facilities for pedestrians and access for people with special mobility needs.

9.1.2 Public Transport

Wicklow County Council recognises the progress made in the national public transport network over the past number of years, while acknowledging that deficiencies still exist within County Wicklow. Over the lifetime of the previous two development plan periods (2004 – 2016), the delivery of public transport failed to keep pace with the population growth of the County, reinforcing the already well-established car based commuting pattern towards Dublin.

¹ At the time of publication of this plan, the prevailing strategy is as set out in the 'Greater Dublin Area Transport Strategy 2011-2030' and the 'Integrated Implementation Plan 2013-2018'.

The key to getting people out of their cars and into public transport is to have a reliable, convenient and fast service available, that brings people to the places they want to go, and in the case of Wicklow, this will primarily mean the main centres of employment and retail in Wicklow) and Dublin, namely Dublin city centre, Sandyford and the M50 ring (pending the rebalancing of employment and retail opportunities into Wicklow).

As new employment opportunities develop in the County, particularly in the growth centres of Bray, Greystones, Newtownmountkennedy, Rathdrum, Wicklow Town, Arklow, Blessington and Baltinglass, the challenge will also be to make these towns more accessible.

While Wicklow County Council is not itself a public transport provider, and cannot force providers to deliver services in any particular area, this County Development Plan can put in place the necessary policy framework to encourage and facilitate the improvement of public transport.

Public Transport Objectives

- TR1** To cooperate with NTA and other relevant transport planning bodies in the delivery of a high quality, integrated transport system in the Greater Dublin Area.
- TR2** To promote the development of transport interchanges and 'nodes' where a number of transport types can interchange with ease. In particular:
- to facilitate the development of park and ride facilities at appropriate locations along strategic transport corridors which will be identified through the carrying out of required coordinated, plan-led transport studies and consultation with the appropriate transport agencies ;
 - to enhance existing parking facilities at and/or the improvement of bus links to the train stations in Bray, Greystones, Wicklow and Arklow;
 - to promote the linkage of the LUAS extension or other mass transit to Bray town centre, Bray train station and Fassaroe;
 - to encourage the improvement of bicycle parking facilities at all transport interchanges;
 - to improve existing and provide new footpath / footway linkages to existing / future transport interchange locations; and
 - to allow for the construction of bus shelters, particularly where they incorporate disabled access and bicycle parking facilities.
- TR3** To continue to work with Iarnrod Eireann and the NTA on the improvement of mainline train and DART services into Wicklow and in particular, to facilitate all options available to increase capacity through Bray Head and along the coastal route south of Greystones.
- TR4** To ensure that possibilities for improvement of the Dublin – Rosslare line, including the re-opening of closed stations, are maintained and to ensure that land uses adjacent to former stations are appropriate and would facilitate future improvements. In particular:
- to resist any development within 20m of the railway line;
 - to resist demolition or removal of any former train station structures or apparatus, other than for safety reasons; and
 - to require any development proposals in the vicinity of former train stations to be so designed to facilitate future access to the station and to reserve adequate space for future car parking.
- TR5** To facilitate, through both the zoning of land and the tie-in of new facilities with the development of land and the application of supplementary development contributions, the extension of the LUAS or other mass transit to Bray town centre, Bray train station and Fassaroe.
- TR6** To improve the capacity of the N11 / M11 from Rathnew to the County boundary at Bray in a manner capable of facilitating greater free flow of public transport.

TR7 To promote the delivery of improved and new bus services both in and out of the County but also within the County by:

- facilitating the needs of existing or new bus providers with regard to bus stops and garaging facilities (although unnecessary duplication of bus stops on the same routes / roads will not be permitted);
- requiring the developers of large-scale new employment and residential developments in the designated metropolitan and large growth towns in the County that are distant (more than 2km) from train / LUAS stations to fund / provide feeder bus services for an initial period of at least 3 years;
- promoting the growth of designated settlements to a critical mass to make bus services viable and more likely to continue;
- to work with Bus Eireann and the NTA to improve services in south and west Wicklow.

Wicklow Rural Transport Initiative

The Wicklow Rural Transport Initiative was launched in 2003 and enables people living in rural areas to have access to a responsive travel system, contributing towards more sustainable rural communities. The initiative plays an important role in the daily lives of those living in rural areas by providing access to local shops, services and amenities available within urban centres and larger villages. Wicklow County Council recognises the success of this initiative to date and will encourage its future development.

Rural Transport Objective

TR8 To support and facilitate the existing service provided and encourage the further development of the Wicklow Rural Transport Initiative.

9.1.3 Cycling and Walking

Government policy, as set out in “Smarter Travel – A New Transport Policy for Ireland 2009-2020” and the “National Cycle Policy Framework 2009-2020”, clearly places an emphasis on walking and cycling as alternatives to vehicular transport. The provision of walking and cycling routes within and connecting towns and villages to each other forms an essential part of a linked-up transport system, involving a variety of transport modes, where public transport facilities can be availed of. While it is acknowledged that these forms of movement may make up only a small part of a longer journey, they are the most environmentally and cost efficient form of transport for local journeys.

There are a number of factors that will influence whether one will walk or cycle to a destination (rather than taking the car), including distance, weather, safety, topography, bicycle parking facilities and the availability of car parking at the destination. A land-use plan such as this County Development Plan cannot influence many of these factors, but through the implementation of the following objectives, it is intended that facilities will be significantly improved, thereby promoting these forms of transport.

Cycling and Walking Objectives

TR9 To improve existing or provide new foot and cycleways on existing public roads, as funding allows.

TR10 To require all new regional and local roads to include foot and cycleways, except in cases where shared road space is provided².

² Streets where real and perceived barriers to movement within and between modes of transport are removed to promote improved interaction between users in a safe and traffic calmed environment.

TR11 To facilitate the development of foot and cycleways off road (e.g. through open spaces, along established rights-of-way etc), in order to achieve the most direct route to the principal destination (be that town centre, schools, community facilities or transport nodes), while ensuring that personal safety, particularly at night time, is of the utmost priority.

TR12 To encourage the provision of secure covered bicycle-parking facilities at strategic locations such as town centres, neighbourhood centres, community facilities and transport nodes.

TR13 To facilitate the development of a cycling and walking amenity routes throughout the County.

9.1.4 Public Roads

Wicklow County Council is responsible for the provision and maintenance of all non national roads and bridges within the County. Funding for improvements and maintenance is allocated yearly from the annual Council budget and the Department of Transport, Tourism and Sport, the National Transport Authority and Transport Infrastructure Ireland.

General Road Objectives

TR14 To improve public roads in the County as necessary, including associated bridges and other ancillary structures, as funding allows, having due regard to both the transportation needs of the County and the protection of natural habitats.

TR15 Traffic Impact Assessments will be required for new developments in accordance with the thresholds set out in the 'Design Manual for Roads and Bridges' the 'Traffic & Transport Assessment Guidelines' (TII) and the Design Manual for Urban Roads and Streets (DoECLG & DoTTS).

TR16 Road Safety Audits and/or Road Safety Impact Assessments shall be required at the discretion of the Planning Authority, but shall generally be required where new road construction or a permanent change to the existing road layout is proposed.

National Roads

The County of Wicklow is served by two national roads - the N11 and the N81, both of which connect to the M50 motorway, providing ease of access to and from the County. The national road network in the County provides an essential means of access to the metropolitan area. The capacity of these existing roads has come under increasing pressure from the ever-increasing number of commuters to Dublin.

N11/M11

While the N11/M11 has undergone significant upgrading over the past number of years, works are still required in order to fully upgrade this national road. Wicklow County Council will continue to promote the upgrading of the N11/M11 to ensure:

- access to the south east of the country is enhanced, to maintain access to international markets for freight and tourist traffic through Rosslare Euro-port and via the M50 through Dublin Port and Airport,
- the requirements of existing development within the County is met, and
- the necessary population and employment growth for the County will be accommodated, with particular respect to capacity and accessibility to/from the N11/M11.

Wicklow County Council will work closely with the various road agencies to achieve all necessary upgrading works, which should include, but not be confined to, the following essential improvements to the N11/M11.

Objectives for the M/N11

- Upgrading of the N11/M11 between the County boundary and Ashford including road capacity and safety improvements to the main carriageway and all necessary improvements to associated junctions;
- Improving the M11 / M50 merge;
- Upgrading of the N11 to motorway status between Bray and Cullenmore;
- Upgrading the N11 interchange at the Glen of the Downs to facilitate the provision of a northern link road from the N11 to Greystones;
- Upgrade Ballyronan Interchange to facilitate improved access to Newtownmountkennedy and a possible link road from Ballyronan to Kilcoole; and
- The provision of a third interchange on the Arklow by-pass, linking the M11 to Vale Road

N81

The N81 has also been upgraded during the lifetime of the previous plan but not to the same extent as the N11. The TII's priority in the last number of years has been firstly the national primary roads and more recently, the Major Interurban Routes (MIUs) and the N81, being a national secondary route, has been somewhat overlooked for investment.

The TII National Road Design Office characterise the N81 as having poor horizontal and vertical alignment. The route consists of a single lane carriageway without a hard strip or hard shoulder along sections of the road way. The road has limited over-taking capacity and as a result platooning regularly occurs. In 2008 the National Roads Design Office began the process of assessing the possibility of upgrading this road network between Tallaght and Hollywood Cross incorporating a bypass of the town of Blessington. Stage 2 of this process has now been completed with a preferred route option being identified.

Objectives for the N81

- Tallaght to Hollywood Cross upgrade;
- Upgrades at Deering's and Hangman's bends; and
- Local alignment and width improvements south of Hollywood cross.

The Council will work to ensure the N81 receives much greater funding than received to date for improvements.

Leinster Outer Orbital Route (LOOR)

The Regional Planning Guidelines for the Greater Dublin Area identify a need for a 'Leinster Outer Orbital Route', the purpose of which would be to provide an alternative bypass of Dublin for national road traffic not wishing to access the Metropolitan Area and to provide a transport link between development centres in the Hinterland Area of the Greater Dublin Area, in a way which supports their sustainable, physical and economic development.

Both Transport 21 and the National Development Plan 2007 committed the NRA (now the TII) to carrying out a feasibility study on the LOOR. In 2009, the NRA completed a draft study, which included the identification of possible route corridors. A corridor linking Drogheda to Navan to Naas is identified as the optimum route having regard to the objectives set out in the policy documents. While this study does not identify a link to Wicklow, it does recommend that further studies be carried out into this possibility. The linkage of Wicklow to this outer orbital network is considered critical to the future growth of the south of the County and in particular to the viability of future port activities in Arklow. It is therefore considered appropriate to identify possible route corridors for this link up in this Plan.

National Road Objectives

- TR17** The Council will, in line with Government and Transport Infrastructure Ireland (TII) policies, and in accordance with the "Roads Needs Study", published by the TII, seek to bring national primary and secondary roads up to the appropriate standards.
- TR18** To support major road improvements by reserving the corridors, as and when these are identified, of any such proposed routes free of development, which would interfere with the provision of such proposals.
- TR19** To co-operate with TII in the upgrade of existing interchanges on the National Routes and where appropriate and necessary, to restrict development immediately adjacent to interchanges to provide for the future enlargement of interchanges.
- TR20** To co-operate with TII and other Local Authorities to improve existing or provide new links from Wicklow (in particular, the growth centres and ports of Wicklow) to other counties in the region, including the Leinster Outer Orbital Route as proposed in the Regional Planning Guidelines.
- TR21** To safeguard the capacity and safety of the National Road network by restricting further access onto National Primary and National Secondary roads in line with the provisions of the 'Spatial Planning and National Roads' Guidelines' (DoECLG 2012). In particular, a new means of access onto a national road shall adhere to the following:
- (a) Lands adjoining National Roads to which speed limits greater than 60kmh apply: The creation of any additional access point from new development or the generation of increased traffic from existing accesses to national roads to which speed limits greater than 60kmh apply shall generally be avoided. This provision applies to all categories of development, including individual houses in rural areas, regardless of the housing circumstances of the applicant.
 - (b) Transitional Zones: These are areas where sections of national roads form the approaches to or exit from urban centres that are subject to a speed limit of 60kmh before a lower 50kmh limit is encountered. Direct access onto such road may be allowed in limited circumstances, in order to facilitate orderly urban development. Any such proposal must, however, be subject to a road safety audit carried out in accordance with the TII's requirements and a proliferation of such entrances, which would lead to a diminution in the role of such zones, shall be avoided.
 - (c) Lands adjoining National Roads within 50kmh speed limits: Access to national roads will be considered by the Planning Authority in accordance with normal road safety, traffic management and urban design criteria for built up areas.
- TR22** To ensure that all new developments in proximity to National Routes provide suitable protection against traffic noise in compliance with S.I No. 140 of 2006 Environmental Noise Regulations and any subsequent amendments to these regulations.
- TR23** To protect the carrying capacity, operational efficiency and safety of the national road network and associated junctions, significant applications either in the vicinity of or remote from the national road network and associated junctions, that would have an impact on the national route, must critically assess the capacity of the relevant junction. If there is insufficient spare capacity to accommodate the increased traffic movements generated by that development taken in conjunction with other developments with planning permission that have not been fully developed, or if such combined movements impact on road safety, then such applications must include proposals to mitigate these impacts.

Regional Roads

Regional roads play a key role in the future development of the County, by linking the principal towns and villages to each other, serving local traffic and providing access to the national road network within the County. Road links between the designated growth centres are particularly important to allow synergy to develop between towns and to develop the County as a self-sustaining economy. While linkages on each side of the County are reasonably good, the topography of the central mountains provides a major barrier to the development of road links between the east and west of the County. As it is an overarching aim of this County Development Plan to develop stronger linkages between the east and west, road improvements must be facilitated. However, any such improvements must be considered in light of the environmental sensitivities of the mountain area and the designations that apply.

Objectives for Regional Roads

- To maintain and improve the R756 (Wicklow Gap), having due regard to the designation of the Wicklow Mountains as a Natura 2000 site³;
- to improve the R747 (Arklow – Aughrim – Tinahely – Baltinglass), including re-alignment or by-passing of existing sections where necessary, having particular regard to the role this route may play in a future LOOR;
- the provision of a 'northern access road' from north Greystones to the N11 (at the Glen Of The Downs N11 interchange); and
- to provide other smaller, more localised road improvement schemes required during the lifetime of the plan, as funding allows.

Regional Road Objectives

TR24 To continue to improve regional roads to the appropriate standards consistent with predicted traffic flow and in accordance with Government policy and the Roads Programme adopted by the Council. New and existing road space will be allocated to provide for bus, cycle and pedestrian facilities.

TR25 To improve the regional road links between the national road network and the growth centres of County Wicklow in order to cater for anticipated additional traffic flows and to facilitate the economic development of these settlements.

TR26 To improve regional road links between Wicklow and other counties, in particular the Blessington to Naas route and routes from Dunlavin and Baltinglass to the M9/N9.

TR27 New means of access onto regional roads will be strictly controlled and may be considered if one of the following circumstances applies:

- The regional road passes through a designated settlement and a speed limit of 50km/h or less applies;
- where the new access is intended to replace an existing deficient one⁴;
- where it is demonstrated that the entrance is essential and no other means of access is available.

³ Natura 2000 sites are sites subject to European designations, normally known as SAC (Special Area of Conservation) and SPA (Special Protection Area). These are protected under the Habitats Directive of 1992 (EU directive 92/43/EEC).

⁴ This does not imply that permission will be granted for additional vehicular movements onto the regional road on the basis that the existing access is being improved.

Local Roads

Local roads provide the principal circulation networks through the County, meeting the needs of local journeys and providing connections to higher order routes. Local roads are classified as primary, secondary and tertiary and all local roads in the control of the Local Authority have been classified and given a unique ID. The Design Manual for Urban Roads and Streets (March 2013) set out the following street hierarchy and functions for roads within urban areas:

Arterial Routes: These are the major routes via which major centres/nodes are connected. They may also include orbital or cross metropolitan routes within cities and larger towns.

Link Roads: These provide the links to *Arterial* streets, or between *Centres, Neighbourhoods, and/or Suburbs*.

Local Roads: These are the streets that provide access within communities and to *Arterial* and *Link roads*.

Rural local roads serve an important function providing access to rural properties and agricultural lands within the countryside while also providing linkages to regional and local collector roads.

Local Road Objectives

TR28 To continue to improve local roads to the appropriate standards (given the location), consistent with predicted traffic flow and in accordance with Government policy and the Roads Programme adopted by the Council.

TR29 To provide new and improve existing roads in urban areas in accordance with objectives identified in local area, town and settlement plans.

TR30 To require all new or improved urban local roads to make provision for public lighting, foot and cycleways and bus stop facilities, where deemed appropriate by the Local Authority.

TR31 To improve local road links to the regional and national road network and between towns and villages, to facilitate the sharing of employment and community facilities between settlements.

TR32 Where a proposed development is adjoining future development lands or provides the only possible access route to other lands, new roads will be required to be designed to ensure that future access to other lands can be facilitated.

TR33 Rural local roads shall be protected from inappropriate development and road capacity shall be reserved for necessary rural development.

Road Improvement Reservation Objective

TR34 The Council will preserve free of development, all published alternative road improvement lines and route corridors, where development would seriously interfere with the road's objective, until such time as a final decision on a preferred route has been made. The Council will endeavour to ensure that a decision with respect to final road lines is decided upon as expeditiously as possible in order to prevent unnecessary sterilisation.

9.1.5 Parking

Parking policy is an important element in an authority's overall planning and transport policy. The level of car parking provided, its location, fee structure and enforcement levels can all have a considerable effect on car use and traffic flow patterns. The availability of convenient and affordable parking in an area can influence people's decision on their mode of travel and has the potential to be a powerful travel demand management tool. An off-street parking policy should recognise the role that the provision or otherwise of additional parking spaces can play in encouraging or discouraging travel by car. If demand management policies are being implemented then a reduction in the number of parking spaces may be desirable in congested urban areas with parking enforcement. Planning policy may seek to limit the number of parking spaces provided for new developments.

Parking Objectives

TR35 New / expanded developments shall be accompanied by appropriate car parking provision, with particular regard being taken of the potential to reduce private car use in locations where public transport and parking enforcement are available. At such locations, the car parking standards set out in Appendix 1 Table 7.1 shall be taken as **maximum standards**, and such a quantum of car parking will only be permitted where it can be justified.

In locations where public transport and parking enforcement are not available, the car parking standards set out in Appendix 1 Table 7.1 shall be taken as **minimum standards**. Deviations from this table may be considered in the following cases:

- In town centres where there is a parking enforcement system in place or a town car park in proximity to the site. In such cases, only the needs of long-term users (e.g. employees, residents) will have to be addressed by the developer;
- in multi-functional developments (e.g. hotels, district centres), where the developer provides a robust model of car parking usage to show that dual usage will occur and that peak car parking demand at any time of the day / week will always be met; and
- other situations will be considered on a case-by-case basis.

In situations where a developer cannot meet the necessary car parking requirement on or near the development site, the developer may request the Local Authority to accept a special payment in lieu, to be utilised by the Local Authority in providing car parking in the area.

TR36 Provision shall be made in all new / expanded developments for disabled parking (and associated facilities such as signage, dished kerbs etc), at a suitable and convenient location for users.

TR37 Provision shall be made for off street loading / unloading facilities in all new / expanded developments which are to receive regular deliveries.

9.1.6 Ports, Harbours, Marinas and Aviation

The future development of the County's ports places increased demands on the existing transport network, in particular the road network, with the potential for large freight transport. Wicklow Port is considered to have the highest potential for significant development / expansion in the short term given the high quality connections, both rail and road, that are available since the completion of the Wicklow Port Access Road. The potential for the development of a new port at Arklow Rock is also recognised, but additional investment in road infrastructure to link this possible port to the N11 / LOOR will be required. A road line will be reserved to facilitate the development of this proposed port.

The existing / future marinas at Bray, Greystones, Wicklow and Arklow also give rise to traffic demands on the County's roads, which is considered desirable to accommodate given the significant economic, tourism and recreational benefits accruing to the County from such developments.

Wicklow currently has a number of small aerodrome and air strips, whose function is principally recreation rather than transport. However, it is considered that there may be possibilities for the development of this sector, given the proximity of the County to the major population base of Dublin and the availability of coastal areas, which may be suitable for landing strips.

Ports, Harbours, Marinas and Aviation Objectives

- TR38** To promote and facilitate through appropriate transport planning and land-use zoning the expansion of port activities at Wicklow and Arklow. In particular, to provide for a Port Access Road at Arklow.
- TR39** To promote and facilitate through appropriate transport planning and land-use zoning the expansion or development of recreational facilities and marinas at Bray, Greystones, Wicklow and Arklow harbours.
- TR40** To facilitate the development of the aviation sector, in particular aerodromes and air strips within the County, subject to clear demonstration of the need and viability of such developments and due regard to environmental and residential impacts of such development, particularly on the coastal area.

9.1.7 Roadside Signage (for shopfront signage, see Volume 3 (1) of this plan)

Signage serves three functions as set out below. This section covers signage on and adjacent to the public road but does not cover road traffic and directional signs erected by the Road Authority.

Directional and information signage – these are signs that provide the public with directions to a particular location, where destinations may be difficult to find, which may be a town or village, a specified business / service, sports club, public or voluntary service, etc, particularly at the latter stage of a journey. What differentiates these from advertising signs is that they are for the purpose of directing people to a place, club or service that they already know about, or a facility aimed at tourists, that they would be expected to be seeking. These are intended to complement, but not replace, pre-planning of the journey and the use of verbal instructions, maps and road atlases.

Examples of such destinations would typically, but not exhaustively, include railway stations, football clubs, theatres, schools / colleges, national and regional attractions.

Advertising signage – These are signs whose objective is to market a business, product or service. These can take many forms, ranging from billboards and posters, to pole mounted signs (including fingerpost signs).

While the Council acknowledges the need for advertising and accepts that it is a necessary part of commercial life, it is also aware of its responsibility to protect the visual amenity in urban and rural areas and for the elimination of traffic hazards. A conglomeration of signs or a sign of inappropriate size can detract considerably from the character and visual amenity of a settlement, result in visual clutter and conflict with the interests of road safety.

Identification signage - These are signs to identify a business, service or premises, and are normally proximate to the premises/business/service.

There are two distinctive ways in which consent can be applied for advertising or signposting structures. Firstly, planning permission is required for the erection of signs located on private property (except those

exempted under Schedule 2 Part 2 of the Planning & Development Regulations 2001, as may be amended). Secondly, the erection of advertising signs on, over or along the public road is licensable under Section 254 of the Planning & Development Acts 2000-2007. Such licences are granted on a temporary basis.

The nature and extent of signage allowable will be determined by its location and in particular, the classification of the road will set the control parameters.

Objectives

AS1 Advertising signs will not be permitted except for public service advertising. This is to avoid visual clutter, to protect and preserve the amenity and/or special interest of the area, to ensure traffic safety and where applicable, to preserve the integrity of buildings, particularly those listed for preservation. Strictly temporary signs may be permitted to advertise permitted development, subject to an assessment of the cumulative impact of signage in the area and having regard to the particular environment of the site.

Information and Directional Signs

AS2 National Road N11/M11 Signage on this route will be strictly controlled and signs will generally only be permitted in accordance with National Roads Authority's "Policy on the provision of Tourist and Leisure signage on National Roads".

In particular 'white-on-brown' signs on the mainline will be considered for:

- Major tourist / leisure destinations (generally those with in excess of 50,000 visitors per annum)
- Tourist facilities panels for adjacent bypassed towns or alternative routes
- Eligible championship golf courses
- County boundary signs
- Principal rivers
- Scenic routes / heritage drives.

On exiting the mainline, continuity signage at the ends of ramps will be facilitated, subject to the visibility and clarity of directional or other road traffic signage not being compromised. Signage for Failte Ireland approved tourist accommodation will be facilitated at the ends of motorway / dual carriageway off slips only, where they meet the intersecting road.

AS3 National Road N81 Signage on this route, outside of locations where a 50km/h applies such as at Blessington and Baltinglass, will be controlled and signs will generally only be permitted in accordance with National Roads Authority's "Policy on the provision of Tourist and Leisure signage on National Roads".

In particular, 'white-on-brown' signs on national secondary roads will be considered for major tourist / leisure destinations (generally those with in excess of 7,000 visitors per annum); where recorded tourist numbers are not available, attractions may be considered for tourist signage subject to (a) agreement between the TII and the Local Authority and (b) the views of Failte Ireland. With respect to tourism accommodation, signage will be considered all types of tourist accommodation approved by Failte Ireland or other recognised body, subject to a maximum of 4 accommodation facilities signposted at any junction.

AS4 Regional and local roads Directional and information signage will be permitted on Regional and Local Routes. Such signage shall be in finger post form⁵ and shall include only the business / facility name and distance information. Subject to the following:

- These are intended to complement, but not replace, pre-planning of the journey and the use of verbal instructions, maps and road atlases;
- supplement rather than duplicate information already provided on other direction signs. In particular signs will only be considered from the town or village (that is already well signposted) nearest to the facility;
- tourism and leisure facilities shall be on signs of white writing on brown background. All other signs shall be black writing on a white background; and
- signs will be permitted from more than one direction only where it can be demonstrated that the different approaches are well trafficked, and add convenience to road users.

In addition signs will also be considered where there are clear benefits to the road user, e.g. for safety reasons, where locations may be hard to find or to encourage visitors to use particular routes.

AS5 Signage in towns and villages Directional and information signage will be permitted as per objective AS4 for Regional and Local Routes.

A combined sign at the main entrance(s) to a settlement, of a suitable size and design may be considered, particularly if a settlement is a tourist destination, where there are a number of accommodation, dining, or visitor facilities. Any such structures that would interfere with traffic signs, sight lines or distract driver attention will not be permitted.

AS6 Identification signage on sites / buildings Signage on sites or buildings shall comply with the following requirements:

- Signage on shopfronts or other non-retail service uses in town and village centres shall comply with Section 10.6 of Chapter 10 of this plan.
- Signage on other commercial buildings / sites (e.g. in business parks, hotels etc) shall be tastefully designed and positioned at or near the main entrance to the site / structure, with lettering size limited to that necessary to identify the site when in visual distance (which would not normally require lettering in excess of 300mm height).
- In rural areas, a wall mounted plaque type sign at the entrance gates will normally be considered sufficient for site identification purposes, with lettering not exceeding 200mm. A pole mounted traditional hanging type style, not exceeding 300mm x 500mm may also be permitted, subject to the proviso that no impacts on traffic safety arise.
- The size, scale and number of freestanding signs, flagpoles or other signage structures with logos or advertising thereon will be controlled in the interests of amenity and the preservation of the character of the area.
- Signs will not be permitted where they compete with road signs or otherwise endanger traffic safety.

⁵ Finger post signs shall not exceed 1.4sqm in size.

9.2 Water Infrastructure and Flooding

9.2.1 Introduction

The provision of an adequate supply of water and wastewater treatment facilities is critical to facilitate and sustain the growth of the County over the lifetime of the plan and beyond. As of January 2014 Wicklow County Council no longer has any direct control in relation to the provision of such services. The delivery, integration and implementation of water and wastewater projects and infrastructural improvements are now the responsibility of the newly established State body 'Irish Water'. Wicklow County Council will work closely with Irish Water to ensure that the County Development Plan and - in particular the Core Strategy - continue to align with both the National Spatial Strategy and the Regional Planning Guidelines and that the provision of water/ wastewater services will not be a limiting factor in terms of targeted growth.

Wicklow County Council retains responsibility for the following areas:

Private wastewater treatment systems and private water supplies: Through the planning process the Council will assess applications for the provision of private waste water treatment systems and water supplies in order to ensure proposals put forward are in accordance with the standards set out in EU/national legislation, EPA guidance and would not be prejudicial to public health.

Surface and groundwater protection: Surface waters within the County are made up of streams, rivers, lakes and wetlands and are managed under the provisions of the Water Framework Directive (2000). The Directive establishes an integrated approach to the protection, improvement and sustainable use of rivers, lakes, estuaries, coastal waters and groundwater / aquifers within Europe. It influences the management of water resources and affects conservation, fisheries, flood defence, planning and development. It requires us to control all impacts – physical modification, diffuse and point source pollution, abstraction or otherwise – on our water resource. The primary focus of the Directive is to achieve at least 'good' ecological status and prevent deterioration for all waters.

The Directive requires that water quality management be centred on river basins, which are natural geographical areas that occur in the landscape. This is in contrast to other water management systems which use administrative management units which have arbitrary boundaries. The management of each river basin has been carried out in accordance with the plans created for each River Basin District, with Wicklow falling within the Eastern and South Eastern Districts.

The existing River Basin Management Plans (RBMPs) are due to expire shortly with new updated management plans due to be made in 2017 by the EPA. In the absence of updated management plans the focus of the existing plans must be carried forward with the aim of achieving 'good' ecological status and preventing the deterioration for all waters.

The most recent RBMP updates on the status of water bodies within the County indicate that a number of these water bodies are failing to maintain and/or achieve good ecological status. Therefore continuous efforts to maintain and restore all water bodies within the County to good ecological status will be required throughout the lifetime of this Development Plan.

Alongside surface waters groundwater is an important natural resource, which supplies some 20-25% of drinking water in Ireland and is important in maintaining wetlands and river flows through dry periods. Groundwater and aquifers in Ireland are protected under EU and national legislation, and local authorities and the Environmental Protection Agency (EPA) are responsible for enforcing this legislation. A practical and effective means of protecting groundwater and preventing pollution is through the use of a Groundwater Protection Scheme.

A Groundwater Protection Scheme provides guidelines for the planning and licensing authorities in carrying out their functions, and a framework to assist in decision-making on the location, nature and control of developments and activities in order to protect groundwater. A Groundwater Protection Scheme aims to maintain the quantity and quality of groundwater and aquifers, and in some cases improve it, by applying a risk assessment-based approach to groundwater protection and sustainable development. In this way it helps public authorities to meet their responsibility to protect groundwater.

Groundwater protection within the County is carried out through the Wicklow Groundwater Protection Scheme which has been undertaken jointly between the GSI and Wicklow County Council. The purpose of the scheme is to preserve the quality of groundwater, particularly for drinking water purposes, for the benefit of present and future generations. The scheme identifies the vulnerability of areas within the County and Groundwater protection responses for existing and new potentially polluting activities.

Storm and surface water infrastructure: While the Office of Public Works have responsibility for flood risk management, Wicklow County council is responsible for the management of storm and surface water infrastructure. As the seriousness and threat of global environmental problems increases it is widely anticipated that changes in rainfall patterns and rises in sea levels resulting from climate change will increase the frequency and severity of flooding in the future placing increased demands on surface water infrastructure.

In light of these global climate changes, alongside the anticipated growth of the County, future development and the subsequent reduction in the permeability of lands, the management of storm and surface water infiltration will be of increasing importance. Over the lifetime of this plan the effective management of issue through Sustainable Urban Drainage Systems will be required.

The National Climate Change Adaptation Framework 'Building Resilience to Climate Change' provides the policy context for a strategic national adaptation response to climate change in Ireland and is designed to evolve over time as planning and implementation progresses and as further evidence becomes available. The adaptation framework recognises the importance of planning and development measures in the overall strategic approach to adaptation to climate change. In this regard a 'Climate Change Audit' whereby objectives that both mitigate against the source of the causes of climate change and adapt to reduce the impacts of climate change has been integrated into the County Development Plan.

Strategy

- To facilitate Irish Water in the protection, improvement and conservation of the County's water resources;
- to facilitate Irish Water in the provision of necessary water services infrastructure, in a sustainable manner;
- to facilitate the development of private water and wastewater facilities in accordance with EU and national legislation and guidance;
- to implement the provisions of the Water Framework Directive, the Eastern and Midland River Basin Management Plans and the Wicklow Ground Water Protection Scheme;
- to assist the Office of Public Works through the implementation of measures capable of managing and mitigating against the consequences of flooding in all areas; and
- to implement the findings of the Wicklow Climate Change Audit through appropriate policy provision.

9.2.2 Water Supply and Demand

Irish Water being the Water Services body for the State and County Wicklow is responsible for providing and maintaining adequate public water supply infrastructure throughout the County. Private water supplies provide an alternative for areas that are not served by public water supply infrastructure and comprise mainly of wells for single dwellings and group water schemes for rural clusters and small settlements. Farms and

commercial developments outside of settlements will usually also have their own private supplies. While the Local Authority has a limited role in the provision of such private supplies, for domestic supplies it does administer grants schemes where available and undertakes monitoring.

Water Objectives

- WI1** In order to fulfil the objectives of the Core Strategy, Wicklow County Council will work alongside and facilitate the delivery of Irish Water's **Water Services Investment Programme**, to ensure the provision of sufficient storage, supply and pressure of potable water to serve all lands zoned for development and in particular, to endeavour to secure the delivery of regional and strategic water supply schemes and any other smaller, localised water improvement schemes required during the lifetime of the plan.
- WI2** To protect existing and potential water resources of the County, in accordance with the EU Water Framework Directive, the River Basin Management Plans, the Groundwater Protection Scheme and source protection plans for public water supplies.
- WI3** To require new developments to connect to public water supplies where services are adequate or where they will be provided in the near future.
- WI4** Where connection to an existing public water supply is not possible, or the existing supply system does not have sufficient capacity, the provision of a private water supply will be permitted where it can be demonstrated that the proposed water supply meets the standards set out in EU and national legislation and guidance, would not be prejudicial to public health or would not impact on the source or yield of an existing supply, particularly a public supply.
- WI5** To support Irish Water's proposed investment in the Vartry Water Supply Scheme, which is required to secure the existing supply for customers. The proposed upgrade works, subject to a full planning process, will likely comprise:
- Construction of a new water treatment plant on the site at Vartry and decommissioning the existing water treatment plant;
 - Construction of a 4km pipeline to secure the transfer of treated water from Vartry to Callowhill pumping station;
 - Upgrading the dam of the Vartry Reservoir.

9.2.3 Waste Water

Irish Water provides public wastewater collection, treatment and disposal infrastructure. While significant resources have been invested in such facilities, there are still notable deficiencies throughout the County. These deficiencies undermine both the ability of the Council to support the increasing population and demand for development and the implementation of growth targets set by the DoECLG / RPGs and also result in risk of pollution and environmental damage. Deficiencies in wastewater services have also been identified as a barrier to the economic development of the County and addressing this issue is therefore critical to the success and well being of the County.

The ongoing deficiencies in the County's wastewater systems have led to increased demand for private treatment plants. While it is not the intention of the Development Plan to stymie development activity, the plan must in the first instance direct development to the right locations, and in terms of wastewater disposal, this means locations where wastewater collection and treatment facilities are in place. Where there are persuasive arguments for allowing private systems (such as a rural native needing to build on family landholding), the objectives below will apply.

Wastewater Objectives

WI6 In order to fulfil the objectives of the Core Strategy, Wicklow County Council will work alongside and facilitate the delivery of Irish Water's **Water Services Investment Programme**, to ensure that all lands zoned for development are serviced by an adequate wastewater collection and treatment system and in particular, to endeavour to secure the delivery of regional and strategic wastewater schemes. In particular, to support and facilitate the development of a WWTP in Arklow, at an optimal location following detailed technical and environmental assessment and public consultation.

WI7 Permission will be considered for private wastewater treatment plants for single rural houses where:

- the specific ground conditions have been shown to be suitable for the construction of a treatment plant and any associated percolation area;
- the system will not give rise to unacceptable adverse impacts on ground waters / aquifers and the type of treatment proposed has been drawn up in accordance with the appropriate groundwater protection response set out in the Wicklow Groundwater Protection Scheme (2003);
- the proposed method of treatment and disposal complies with Wicklow County Council's Policy for Wastewater Treatment & Disposal Systems for Single Houses (PE ≤ 10) and the Environmental Protection Agency "Waste Water Treatment Manuals"; and
- in all cases the protection of ground and surface water quality shall remain the overriding priority and proposals must definitively demonstrate that the proposed development will not have an adverse impact on water quality standards and requirements set out in EU and national legislation and guidance documents.

WI8 Private wastewater treatment plants for multi-house developments will not be permitted.

WI9 Private wastewater treatment plants for commercial / employment generating development will only be considered where:

- Irish Water has confirmed the site is due to be connected to a future public system in the area⁶ or Irish Water have confirmed there are no plans for a public system in the area;
- it can clearly demonstrated that the proposed system can meet all EPA / Local Authority environmental criteria; and
- an annually renewed contract for the management and maintenance of the system is contracted with a reputable company / person, details of which shall be provided to the Local Authority.

WI10 Where any application for a private treatment plant would require a discharge licence under the Water Pollution Acts, a simultaneous application for same shall be required to be made when submitting the planning application.

9.2.4 Storm and Surface Water Infrastructure

The efficiency and capacity of wastewater collection and treatment systems can be radically improved through the removal of uncontaminated storm and surface water from the system. Many drainage systems in our towns and villages have combined systems (foul and surface) and the extent of these older systems means that retrospective separation would not be feasible. However, all new development will be required to minimise surface water discharges through Sustainable Urban Drainage Systems, to separate foul and surface water and not to dispose of surface water to the foul drainage system.

⁶ The developers of the private temporary treatment plants will be required to submit details of how the proposed development will be decommissioned where a connection to the future public sewer is possible and the subject lands returned to their previous state

Storm and Surface Water Infrastructure Objectives

WI11 Ensure the separation of foul and surface water discharges in new developments through the provision of separate networks.

WI12 Ensure the implementation of Sustainable Urban Drainage Systems (SUDS) and in particular, to ensure that all surface water generated in a new development is disposed of on-site or is attenuated and treated prior to discharge to an approved surface water system.

9.2.5 Flooding

Flooding is a natural phenomenon of the hydrological cycle. It constitutes a temporary covering of land by water and presents a risk only when people and human assets are present in the area which floods. Flooding can happen at any time in a wide variety of locations. Different types of flooding include overland flows, river flooding, coastal flooding, groundwater flooding, estuarial flooding and flooding resulting from the failure of infrastructure. Rivers with a low gradient are more susceptible to flooding at any time of the year; however, the increasing tendency for heavy summer downpours can also cause significant flooding in steep, flashy catchments. Flooding can pollute water and cause significant damage to human life, the local economy, local biodiversity and local public health. Like any other natural process, flooding cannot be completely eliminated, but its impacts can be avoided or minimised with proactive and environmentally sustainable management and planning.

Flood Risk

The Office of Public Works (OPW) is the lead agency for flood risk management in Ireland. This gives the OPW a role in policy advice and coordination in addition to its operational roles. The OPW is responsible for implementing the Catchment Flood Risk and Management (CFRAM) programme which 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 a number of phases; the OPW published the Preliminary Flood Risk Assessment (PFRA) mapping in 2011 and published Areas for Further Assessment (AFA) in 2014. The PFRAs covered the County and identified areas at risk of significant flooding and includes maps showing areas deemed to be at risk. The areas deemed to be at significant risk, where the flood risk that is of particular concern nationally, are identified as AFAs and more detailed assessment on the extent and degree of flood risk has been undertaken in these areas, with CFRAM mapping being published. The next phase of the CFRAM programme is to produce Flood Hazard Mapping.

Local Authorities are responsible for implementing the provisions of *'The Planning System and Flood Risk Management'* Guidelines (2009) in the carrying out of their development management functions and they require a Strategic Flood Risk Assessment to be carried out during all plan making processes. A Stage 1 Strategic Flood Risk Assessment (SFRA) including flood maps for County Wicklow has been prepared as part of this County Development Plan process and is appended to this plan. The guidelines follow the principle that certain types of vulnerable development should not be permitted in flood risk areas, particularly flood plains, except where there are no alternative and appropriate sites available in lower risk areas that are consistent with the objectives of proper planning and sustainable development.

Strategic Flood Risk Assessment

The SFRA has identified flooding and/or surface water management issues related to the County that may warrant further investigation at the appropriate lower level plan or planning application levels, and also to suggest objectives to be integrated into the County Development Plan that will contribute towards both flood risk management in the County and compliance with the Flood Risk Guidelines.

The County Wicklow SFRA contained within the appendices of this Development Plan, provides information on various flood risk indicators that occur within the County. It also provides information on the three types of flood zones, the SFRAs for each settlement within the County, the sequential approach and justification test to be considered and implemented at the development management stage.

Flood Management Strategy

The Council shall adopt a comprehensive risk-based planning approach to flood management to prevent or minimize future flood risk. In accordance with the Flood Risk Guidelines, the avoidance of certain types of development in areas where flood risk has been identified shall be the primary response. Proposals for mitigation and management of flood risk will only be considered where avoidance is not possible and where development can be clearly justified with the guidelines' *Justification Test*. Flood management should have regard to surface water, groundwater, drinking water supply, flood plains and water and wastewater infrastructure.

Where flood risk may be an issue for any proposed development, a flood risk assessment should be carried out that is appropriate to the scale and nature of the development and the risks arising. This shall be undertaken in accordance with the Flood Risk Guidelines.

Flood Management Objectives

- FL1** To prepare new or update existing flood risk assessments and flood zone maps for all zoned lands within the County as part of the review process for Local Area Plans, zoning variations and Town Plans, where considered necessary.
- FL2** To implement the 'Guidelines on the Planning System and Flood Risk Management' (DoEHLG/OPW, 2009).
- FL3** The zoning of land that has been identified as being at a high or moderate flood risk (flood zone A or B) shall be in accordance with the requirements of the Flood Risk Guidelines and in particular the 'justification test for development plans' (as set out in Section 4.23 and Box 4.1 of the guidelines).
- FL4** Applications for new developments or significant alterations/extension to existing developments in a flood risk area shall comply with the following:
- Follow the 'sequential approach' as set out in the Flood Risk Guidelines.
 - Flood risk assessments will be required with all planning applications proposed in areas identified as having a flood risk, to ensure that the development itself is not at risk of flooding and the development does not increase the flood risk in the relevant catchment (both up and down stream of the application site).
 - Where a development is proposed in an area identified as being at low or no risk of flooding, where the planning authority is of the opinion that flood risk may arise or new information has come to light that may alter the flood designation of the land, an appropriate flood risk assessment may be required to be submitted by an applicant for planning permission.
 - Restrict the types of development permitted in Flood Zone A and Flood Zone B to that are 'appropriate' to each flood zone, as set out in Table 3.2 of the guidelines for Flood Risk Management (DoEHLG/OPW, 2009).
 - Developments that are an 'inappropriate' use for a flood zone area, as set out in Table 3.2 of the guidelines, will not be permitted, except where a proposal complies with the 'Justification Test for Development Management', as set out in Box 5.1 of the Guidelines.
 - Flood Risk Assessments shall be in accordance with the requirements set out in the Guidelines.

- Generally a Flood Impact Assessment will be required with all significant developments and a certificate (from a competent person stating that the development will not contribute to flooding within the relevant catchment) will be required with all small developments of areas of 1 hectare or less.

- FL5** To prohibit development in river flood plains or other areas known to provide natural attenuation for floodwaters except where the development can clearly be justified with the Flood Risk Guidelines 'Justification test'.
- FL6** To limit or break up large areas of hard surfacing in new developments and to require all surface car parks to integrate permeability measures such as permeable paving.
- FL7** Excessive hard surfacing shall not be permitted for new, or extensions to, residential or commercial developments and all applications will be required to show that sustainable drainage techniques have been employed in the design of the development.
- FL8** To require all new developments to include proposals to deal with rain and surface water collected on site and where deemed necessary, to integrate attenuation and SUDS measures.
- FL9** For developments adjacent to all watercourses of a significant conveyance capacity or where it is necessary to maintain the ecological or environmental quality of the watercourse, any structures (including hard landscaping) must be set back from the edge of the watercourse to allow access for channel clearing/ maintenance / vegetation. A minimum setback of up to 10m (or other width, as determined by the Council) will be required either side depending on the width of the watercourse.

9.3 Waste and Environmental Emissions

9.3.1 Introduction

The issue of waste management and damaging emissions to the environment is recognised by Wicklow County Council as one of the most problematic areas of environmental management. Waste and emission generation is directly linked to trends in consumption and output, reflecting population growth and household formation, the level of manufacturing, industrial and agricultural activity, and overall economic performance. The waste produced from the above activities can be quite diverse requiring consideration of a wide range of environmental, technical, economic and market related issues in order for it to be efficiently managed.

The Eastern–Midlands Region Waste Management Plan (WMP) 2015-2021 provides the framework for solid waste management in the region and sets out a range of policies and actions to meet specified mandatory and performance based targets. The WMP seeks to assist and support resource efficiency and waste prevention initiatives. A key WMP target is to achieve a 1% reduction per annum in the quantity of household waste generated per capita over the period of the WMP. In tandem, the WMP identifies measures to develop a circular economy whereby waste management initiatives are no longer confined to treating and disposing of waste, instead supporting initiatives that value waste as a resource or potential raw material.

As well as solid waste, human activity also can generate deleterious emissions to the environment such as emissions to the air in the form of Green House Gases, dust and particulates, as well as noise and light pollution. As the management of GHGs is of critical importance to reducing climate change, this is dealt with separately in Section 9.5 of this chapter and throughout the plan, and in the 'Climate Change Audit' appended to the plan. This chapter will however address the areas of dust / particulates, light and noise pollution.

Strategy

To promote and facilitate best practice in prevention, re-use, recovery, recycling and disposal of all waste and environmental emissions produced in the County

9.3.2 Solid Waste Management

It is the policy of the Council, as set out in the Regional Waste Management Plan, to:

- prevent or minimise the production of waste in the first instance;
- reduce, re-use and recycle to the maximum extent possible;
- endeavour to recover energy from waste where possible; and
- ensure the efficient and safe disposal of any residual waste.

The role of a land-use plan in the achievement of these objectives is somewhat limited, but it will play a role in guiding the location of new facilities and services that are necessary to implement the Waste Management Plan

Solid Waste Management Objectives

- WE1** To require all developments likely to give rise to significant quantities of waste, either by virtue of the scale of the development or the nature of the development (e.g. one that involves demolition) to submit a construction management plan, which will outline, amongst other things, the plan for the safe and efficient disposal of waste from the site.
- WE2** To require all new developments, whether residential, community, agricultural or commercial to make provision for storage and recycling facilities (in accordance with the standards set out in Development & Design Standards of this plan).
- WE3** To facilitate the development of existing and new waste recovery facilities and in particular, to facilitate the development of 'green waste' recovery sites.
- WE4** To facilitate the development of waste-to-energy facilities, particularly the use of landfill gas and biological waste.
- WE5** To have regard to the Council's duty under the 1996 Waste Management Act (as amended), to provide and operate, or arrange for the provision and operation of, such facilities as may be necessary for the recovery and disposal of household waste arising within its functional area.
- WE6** To facilitate the development of sites, services and facilities necessary to achieve implementation of the objectives of the Regional Waste Management Plan.

9.3.3 Hazardous Waste and Emissions

Hazardous wastes pose a greater risk to the environment and human health than non hazardous wastes and thus require a stricter control regime. Hazardous waste is generated by all sectors of Irish society, from large industry, to small businesses, households, schools and farms. It is for the most part managed by the professional hazardous waste industry and is treated appropriately and in accordance with legal requirements. While the Local Authority does not directly manage waste generated by private companies it does provide for civic amenity sites for the proper collection of small quantities of household hazardous waste.

Hazardous Waste and Emissions Objectives

WE7 To facilitate the development of sites, services and facilities for the disposal of hazardous household wastes in accordance with the objectives of the Regional Waste Management Plan.

WE8 To have regard to the "Major Accidents Directive" (Seveso-III (Directive 2012/18/EU). This Directive relates to the control of major accidents involving dangerous substances with an objective to prevent major accidents and limit the consequences of such accidents. This policy will be implemented through Development Management, through specific control on the siting of new establishments and whether such a siting is likely to increase the risk or consequence of a major accident.

9.3.4 Emissions to Air

The Environmental Protection Agency holds overall responsibility for the co-ordination and monitoring of air quality in accordance with EU air quality directives. Damaging emissions to air can take the form of pollutant gases (for example from car exhausts) and air borne particulates (such as dust).

Air Emissions Objectives

WE9 To regulate and control activities likely to give rise to emissions to air (other than those activities which are regulated by the EPA).

WE10 To require proposals for new developments with the potential for the accidental release of chemicals or dust generation, to submit and have approved by the Local Authority construction and/or operation management plans to control such emissions.

WE11 To require activities likely to give rise to air emissions to implement measures to control such emissions, to undertake air quality monitoring and to provide an annual air quality audit.

9.3.5 Noise Pollution

Noise pollution can be described as unwanted sound that disrupts the activity or balance of our daily lives. There are many sources of noise pollution, most of which are associated with urban development; road, rail and air transport; industrial, neighbourhood and recreational noise.

In Ireland, the principal laws relating to noise are set out in Sections 106, 107, and 108 of Part VI of the Environmental Protection Agency (EPA) Act 1992. Under this legislation local authorities or the EPA are empowered to serve a notice requiring measures to be taken to limit or prevent noise. Wicklow County Council also has a role in the issuing of noise conditions as appropriate in planning permissions and in the enforcement of any planning permissions granted.

Noise Pollution Objectives

WE12 To enforce, where applicable, the provisions of the Environmental Protection Agency (EPA) Acts 1992 and 2003, and EPA Noise Regulations 2006.

WE13 To regulate and control activities likely to give rise to excessive noise (other than those activities which are regulated by the EPA).

WE14 To require proposals for new developments with the potential to create excessive noise to prepare a construction and/or operation management plans to control such emissions.

WE15 To require activities likely to give rise to excessive noise to install noise mitigation measures to undertake noise monitoring and to provide an annual monitoring audit.

9.3.6 Light Pollution

While the use of artificial light has done much to safeguard and enhance our night-time environment, if it is not properly controlled, obtrusive light (commonly referred to as light pollution) can present physiological and ecological problems. Outdoor lighting, when misdirected towards public roads (light glare), can be a hazard to drivers. Light pollution, whether it keeps you awake through a bedroom window (light trespass) or impedes your view of the night sky (sky glow), is a form of pollution and could be substantially reduced without detriment to the lighting task.

Light Pollution Objectives

WE16 To require proposals for new developments with the potential to create light pollution or light impacts on adjacent residences to mitigate impacts, in accordance with the Development & Design Standards set out in this plan.

9.4 Telecommunications

9.4.1 Introduction

The provision of a high quality telecommunications network has never been more important in the context of national, regional and local development. The increased usage of new technologies and work practices have placed an increased reliance on the provision of such services in all areas for industrial, commercial, tourism and social development.

The expansion of these services is key to the future development of the County of Wicklow with the facilitation of higher capacity speed broadband key to meeting the needs of the County's ever growing population and a modern digital economy.

Strategy To promote and facilitate the development of telecommunications infrastructure throughout the County.

9.4.2 Context

The National Broadband Plan (2012)

The National Broadband Plan (NBP) is a Government policy initiative which aims to deliver high speed broadband to every citizen and business in Ireland. The NBP sets out the strategy to deliver high speed broadband throughout Ireland and is overseen by the Department of Communications, Energy and Natural Resources.

The NBP sets out:

- a clear statement of Government policy on the delivery of high speed broadband;
- specific targets for the delivery and rollout of high speed broadband and the speeds to be delivered;
- the strategy and interventions that will underpin the successful implementation of these targets; and
- a series of specific complementary measures to promote implementation of Government policy in this area.

The objectives of the NBP will be achieved through a combination of accelerated commercial investment by telecoms operators, and a proposed state intervention to provide high speed broadband to those parts of the

country where the commercial sector will not invest. The 'Intervention Strategy' is the Government's plan of action designed to fund the delivery of high speed broadband to areas where the commercial sector will not deliver services. The strategy explains how the intervention will be implemented and what service will be delivered once the infrastructure is built.

The Intervention Strategy sets out the key elements of the intervention - what services are proposed and how they will be delivered. The Intervention Strategy has been developed following intensive engagement with industry and wider stakeholders. In addition, the European Commission has set out detailed guidelines on what is required to obtain State Aid approval for Government interventions in the broadband sector. The Department has followed these guidelines when formulating the proposed intervention strategy. Given Wicklow's large rural population the proposed state intervention will be key in providing high speed broadband to all rural areas within the County.

Telecommunications Antennae and Support Structures Guidelines 1996

The Government sets out its policy on the development of telecommunications infrastructure in the document "Telecommunications Antennae and Support Structures" Guidelines for Planning Authorities 1996 (as updated, Circular PL 07/2012). It is an overarching aim of these guidelines to ensure a consistent approach by Planning Authorities in the preparation of development plans and in determining applications for planning permission. Since the publication of these guidelines in 1996 the planning system has facilitated significant development in telecommunications networks in a manner consistent with proper planning and sustainable development to such an extent that by the end of 2012 approximately 81% of households in Ireland had access to the internet (CSO 2012).

It is anticipated that the updates to the guidelines introduced will support the planning system in facilitating the objectives of the National Broadband Plan 2012 (NBP) as detailed above.

The widespread availability of a high quality telecommunications network throughout County Wicklow will be critical to the development of a knowledge based economy, and will help to contribute to:

- sustained macro-economic growth and competitiveness, by ensuring that the County is best placed to avail of the emerging opportunities provided by the information and knowledge society;
- promoting investment in state of the art infrastructure, by providing a supportive legislative and regulatory environment; and
- developing a leading edge research and development reputation in the information, communications and digital technologies.

9.4.3 Telecommunications Objectives

- T1** To facilitate the roll out of the National Broadband Plan and the development/expansion of communication, information and broadcasting networks, including mobile phone networks, broadband and other digital services, subject to environmental and visual amenity constraints.
- T2** The development of new masts and antennae shall be in accordance with the development standards set out in Appendix 1 of this plan.
- T3** To ensure that telecommunications structures are provided at appropriate locations that minimise and / or mitigate any adverse impacts on communities, and the built or natural environment.

9.5 Climate Change and Energy

9.5.1 Introduction

Climate change refers to any change in the climate over time due to change as a result of human activity. The United Nations framework Convention on Climate Change (UNFCCC) defines climate change as *'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.'* The planet is warming up with the greenhouse effect, this is as a result of the increase in Greenhouse Gas Emissions (GHG) causing an increase in global temperatures; this is the main source of the cause of climate change.

The County Development Plan has an important role to play in addressing any land use and planning aspects of GHG reduction and impact mitigation. Accompanying this plan is a 'Climate Change Audit' which sets out in detail the causes and effects of the climate change and the manner in which they are addressed in this plan. As climate change sources and impacts permeate a wide range of human activities, climate change is addressed throughout the plan, and the audit sets out where and how each source and impact is dealt with.

This chapter focuses primarily on the 'energy' sector (namely the electricity, heating and transport sectors), being the key sector related to climate change but it should not be read in isolation to a wider range of policies and objectives throughout the plan.

Energy, in particular the generation and use of energy resources, plays significant role in climate change. The word *energy* is used as a synonym of energy resources, and most often refers to substances like fuels, petroleum products and electricity in general. These are sources of *usable energy*, in that they can be easily transformed to other kinds of energy sources that can serve a particular useful purpose.

We burn fossil fuels, such as coal, oil, and natural gas to make energy. Fossil fuels are non-renewable, that is, they are not replaced as soon as we use them. We therefore face the potential depletion of these resources in the future and the associated risk to security of fuel supply. Furthermore, the combustion of such fuels results in emissions to the atmosphere. It is imperative that our use of and dependence on fossil fuels be reduced. Therefore the development of renewable energy shall be to the forefront in the Councils policy formulation.

9.5.2 Climate Change

Climate change is a global issue and is a matter for all levels of governance to address from an international level to a local level. A key overall goal is to restrict new emissions of GHG and to enhance carbon sinks with climate change mitigation and adaptation policy the key tool to facilitate the required action to address climate change. Mitigation requires human action to reduce the levels of GHG emissions being released into the air and adaptation involves taking steps to adjust human and natural systems in response to existing or anticipated climatic change. Scientific research into the impacts of climate change for Ireland has been underway for some time by the Environmental Protection Agency (EPA), DoECLG, DCENR and others. The information gathered provides a broad understanding of the likely temporal and spatial distribution of changes in temperature, precipitation, sea level and flood risk, all which is now beginning to coalesce and this provides the evidence base necessary to inform climate change strategies.

Climate Change Context

United Nations Framework Convention on Climate Change (UNFCCC)

A number of international climate change agreements, frameworks and programmes have been agreed that provide information on impacts, vulnerability, adaptation to climate change and assessment of these, helping

countries make informed decisions on practical adaptation actions and measures to respond to climate change on a sound scientific, technical and socio-economic basis, taking into account current and future climate change and variability. There are a number of bodies that work at a global level understanding climate change. The Kyoto Protocol was adopted in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005. It is an international agreement linked to the United Nations Framework Convention on Climate Change. It sets binding targets for 37 industrialised countries and the European Community for reducing emissions. 'The Paris Agreement' was made on 12 December 2015 and all 196 parties to the UNFCCC have agreed to hold the increase in global temperature to well below 2 degrees Celsius above pre-industrial levels and to keep the more stringent target of below 1.5 degrees in sight. The European Union and its member states provide funding and support to climate change adaptation in countries within the UNFCCC.

European Union Adaptation Strategy

Through our membership of the European Union, Ireland is pro-actively supporting ongoing efforts under the United Nations Framework Convention on Climate Change to reach agreement on a comprehensive, global response to the threat of climate change. The EU Adaptation Strategy was published in April 2013. The strategy aims to make Europe more climate-resilient. By taking a coherent approach and providing for improved coordination, it will enhance the preparedness and capacity of all governance levels to respond to the impacts of climate change. The Strategy focus on three key objectives:

- promoting action by Member States,
- 'climate-proofing' action at EU level, and
- better informed decision making.

EU adaptation actions include mainstreaming of climate change (mitigation and adaptation) into EU sector policies and funds, including marine and inland water issues, forestry, agriculture, biodiversity, infrastructure and buildings, but also migration and social issues. The EU policy framework on climate change adaptation has guided our national approach as we prepare for the anticipated changes in Ireland's climate.

National Climate Policy

The Climate Action and Low Carbon Development Act 2015, sets out that the manner in which the transition towards a low carbon economy will be achieved through a 'National Low Carbon Transition and Mitigation Plan' (National Mitigation Plan), to lower Ireland's level greenhouse emissions and a 'National Climate Change Adaptation Framework' (National Adaptation Framework), to provide for responses to changes caused by climate change. These two plans are due to be drafted and submitted to the Government for approval in 2017. These plans will be renewed every five years and are required to include tailored sectoral plans. The Act makes provision to ensure that public bodies consider fully, and integrate, the objectives set out in the National Low-Carbon Roadmap, national adaptation framework and sectoral adaptation plans in their strategic planning and day-to-day decision making and take the necessary steps in respect of mitigation and adaptation in their areas of responsibility.

National Climate Change Adaptation Framework 2012 (NCCAF)

This "National Climate Change Adaptation Framework" provides the policy context for a strategic national adaptation response to climate change in Ireland and is designed to evolve over time as planning and implementation progresses, and as further evidence becomes available. The critical importance of planning and development measures in the overall strategic approach to adaptation to climate change is recognised here and the role of the spatial planning process, with full engagement of key stakeholders, in providing an established means through which to implement and integrate climate change objectives, including adaptation, at local level.

The NCCAF provides an overview of challenges for sectors that are impacted from climate change, including water, coasts, marine, agriculture, forestry, biodiversity, energy, transport, communications, insurance, heritage and health, all of which are used in this audit assessment as a basis for ensuring this development plan has integrated adaptation to climate change into the land use policies and objectives of the plan.

Given the development plan's remit as a land use framework not all sources and impacts can be addressed through the plan objectives. It is envisaged that a future 'Wicklow County Adaptation Strategy' will have a broader remit in its approach to climate change mitigation and adaptation.

Climate Change Objectives

- CCE1** To have regard to the EU and national legislation and strategies on climate change in the decision making process, in order to contribute to a reduction and avoidance of human induced climate change.
- CCE2** To support the government programme for the development of national climate change legislation.
- CCE3** To implement the 'National Climate Change Adaptation Framework - Building Resilience to Climate Change' by supporting the preparation of a Climate Change Adaptation Plan.
- CCE4** To support the development of a Wicklow County Adaptation Strategy and to support the land use aspects of the strategy.
- CCE5** To have regard to climate change mitigation and adaptation in assessing all large scale development including all critical transport and energy infrastructural developments.

9.5.3 Energy

Ireland's energy requirements have increased significantly over the past two decades due to growth in energy consumption for transport, electricity and heating. In 2013 Ireland imported 89% of its energy needs, down from a peak of 90% in 2006; however this represents a rise of 4% from a low of 85% in 2012. Oil continues to be the dominant energy source, increasing from a share of 47% in 1990 to a peak of 60% in 1999, but falling to 47% in 2013. Over the period 2005 – 2013, natural gas use has increased by 11% (1.4% per annum).

Under the EU Renewable Energy Directive 2009 the National 2020 target for Ireland is to source 16% of all energy consumed from renewable sources. Ireland has 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 GHG emissions based on 1990 levels;
- 20% of final energy consumption to be produced by renewable energy resources; and
- 20% reduction in primary energy use compared with projected levels to be achieved by improving energy efficiency.

In addition to this Ireland must achieve a 10% share of renewable energy in transport consumption by 2020 (Known as RES-T). Ireland's National Renewable Energy Action Plan 2009 details a pathway for Ireland to meet these binding commitments by setting national targets. It is therefore imperative that within this plan a significant emphasis is placed on both the issues of supply and demand for energy.

Energy Context

Delivering a Sustainable Energy Future for Ireland – The Energy Policy Framework 2007-2020

This White Paper sets out the Government's Energy Policy Framework 2007-2020 to deliver a sustainable energy future for Ireland. It is set firmly in the global and European context which has put energy security and climate change among the most urgent international challenges.

The white paper places sustainability at the heart of the Government's energy policy objectives. The challenge of creating a sustainable energy future for Ireland is being met through a range of strategies, targets and actions to deliver environmentally sustainable energy supply and use. The underpinning Strategic Goals are:

- addressing climate change by reducing energy related greenhouse gas emissions;
- accelerating the growth of renewable energy sources;
- promoting the sustainable use of energy in transport;
- delivering an integrated approach to the sustainable development and use of bio energy resources;
- maximising energy efficiency and energy savings across the economy; and
- accelerating energy research development and innovation programmes in support of sustainable energy goals.

Ireland's National Renewable Energy Action Plan (NREAP 2009)

The National Renewable Energy Action Plan (NREAP) sets out the Government's strategic approach and concrete measures to deliver on Ireland's 16% target under Directive 2009/28/EC. The development of renewable energy is central to overall energy policy in Ireland. Renewable energy reduces dependence on fossil fuels, improves security of supply, and reduces greenhouse gas emissions creating environmental benefits while delivering green jobs to the economy, thus contributing to national competitiveness.

Ireland plans to achieve the binding EU 2020 targets under the NREAP by delivering approximately 40% of energy consumption from renewable sources in the electricity sector, 12% in the heat sector and 10% in the transport sector.

Government Policy Statement on the Strategic Importance of Transmission and Other Energy Infrastructure (DCENR 2012)

In July 2012 the Government released a policy statement on the 'Strategic Importance of Transmission and Other Energy Infrastructure' in response to the report of the International Expert Commission. The key elements of the Governments statement are:

- the identification of the imperative need for development and renewal of our energy networks, in order to meet both economic and social policy goals;
- an acknowledgement of the need for social acceptance and the appropriateness of exploring ways of building community gain considerations into project planning and budgeting;
- the mandating of state network companies to plan their developments in a safe efficient and economic manner;
- the requirement to address and mitigate human, environmental and landscape impacts, in delivering the best possible engineering solutions; and
- supporting, promoting the strategic programmes of the energy infrastructure providers.

The Strategy for Renewable Energy 2012 – 2020 (DoCENR)

The strategy for renewable energy is at the heart of the Government's energy policy recognising that renewable energy reduces dependence on fossil fuels, improves security of supply, and reduces greenhouse gas emissions. This in turn creates environmental benefits while delivering green jobs to the economy and thus contributes to the national competitiveness and the jobs and growth agenda.

The overarching strategic objective of the strategy is to make renewable energy an increasingly significant component of Ireland's energy supply by 2020, so that at a minimum we achieve our legally binding 2020 target in the most cost efficient manner for consumers. To achieve the overarching objective five Strategic Goals reflecting the key dimensions of the renewable energy challenge to 2020 are set out.

- Strategic Goal 1** Progressively produce more renewable electricity from onshore and offshore wind power for the domestic and export markets.
- Strategic Goal 2** A sustainable bio energy sector supporting renewable heat, transport and power generation.
- Strategic Goal 3** Green growth through research and development of renewable technologies including the preparation for market of ocean technologies.
- Strategic Goal 4** Increase sustainable energy use in the transport sector through biofuels and electrification.
- Strategic Goal 5** An intelligent, robust and cost efficient energy networks system.

National Energy Efficiency Action Plan 3 (NEEAP 2014)

Ireland's third National Energy Efficiency Action Plan (NEEAP 3) reaffirmed Ireland's commitment to delivering a 20% reduction in energy demand across the whole of the economy by 2020, along with a 33% reduction in public sector energy use. The NEEAP outlines the energy efficiency measures that will be implemented to reach the national energy saving targets as well as the progress towards this target. The NEEAPs also include information on the exemplary role of the public sector and on the provision of information and advice to final customers.

Article 24 of the Energy Efficiency Directive requires each Member States to submit a NEEAP every three years. Ireland's third NEEAP was published in 2014. It concluded that by end-2012 Ireland reached 39% of our 2020 target, representing primary energy savings of 12,337 GWh.

Electricity

Electricity is generated in Ireland from a number of sources such as gas, coal, oil and renewable sources. The share of electricity generated from renewable energy sources (RES-E) has increased fourfold between 1990 and 2012, from 4.9% to 19.6%. The National Renewable Energy Action Plan sets a target of 40% of electricity demand to be provided by renewable energy by 2020. It is therefore imperative that further progress is made in this area and that alternative renewable sources are further expanded and developed. As renewable energy sources can only be developed where they occur, it will also be necessary to put in place an electricity transmission and distribution network that can accommodate this change.

Electricity Generation

(1) Wind Energy

The generation of electricity from wind is the principle renewable alternative being developed in Ireland at present, primarily due to the good wind resources available. The entire Country is richly endowed with wind resources. Although Ireland only accounts for 2% of the total EU land mass, we have some 6% of EU wind

resources. Per capita, we are one of the richest countries in the world in terms of wind energy. In 2014 Wind Energy made up 18.3% of gross electricity consumption in Ireland.

Access to the electricity transmission grid is an issue for the supply of wind-generated electricity, which is controlled by EirGrid and in some instances the ESB. While a land-use plan cannot impact directly on the manner in which the grid is regulated or developed, through the development of a Wind Energy Strategy, other planning 'bottlenecks' can be somewhat addressed through:

- the identification of locations where wind energy projects will be favoured and supported;
- the setting out of a clear set of parameters to be considered in the locating of wind farms; and
- providing clear guidance about the design and layout of wind farm projects.

Wicklow County Council has produced the *County Wicklow Wind Energy Strategy* which forms part of this plan. The Strategy supports a plan led approach to wind energy development in County Wicklow and sets out 'Areas Most Favoured', 'Area Less Favoured' and 'Areas Not Favoured' for Wind Energy Development within the County. It is the policy of the Council to maximise wind energy development within the County in all three of these areas, on a case by case basis, subject to meeting specific requirements and guidance contained within the strategy. The County Wicklow Wind Energy Strategy is set out in Volume 3 of this plan.

Wind Energy Objectives

CCE6 To encourage the development of wind energy in accordance with the County Wicklow Wind Energy Strategy and in particular to allow wind energy exploitation in most locations in the County subject to:

- consideration of any designated nature conservation areas (SACs, NHAs, SPAs, SAAOs etc) and any associated buffers;
- impacts on Wicklow's landscape designations;
- particular cognisance and regard being taken of the impact on wind turbines on residential amenity particularly with respect to noise and shadow flicker;
- impacts on visual and recreational amenity;
- impacts on 'material assets' such as towns, infrastructure and heritage sites;
- consideration of land cover and land uses on or adjacent to the site; and
- best practice in the design and siting of wind turbines, and all ancillary works including access roads and overhead cables.

CCE7 To facilitate the development of off-shore wind energy projects insofar as onshore facilities such as substations/connections to the grid may be required.

CCE8 To support community-based wind energy projects.

(2) Solar Energy

The principal application of solar energy is use in heating. Therefore this aspect of solar power is addressed in Section 5 to follow. However, as technology advances, solar power is increasingly being used to generate electricity through the use of photovoltaic (PV) cells. Photovoltaic systems use semiconductor materials to convert light into electricity. This technology is widely used in consumer products such as solar calculators, watches or garden lights, and is increasingly used as a cost-effective solution in Ireland for stand-alone applications where a grid connection is too expensive (e.g. parking meters, caravans or remote holiday homes). Solar PV can also be used to provide free solar electricity to houses as well as for commercial and industrial applications. It is now possible to connect solar PV systems to the grid, opening up a new era for solar PV in Ireland. Applications are also being made for commercial scale ground mounted solar PV 'Solar Farms' and such developments are supported, subject to suitable locations being selected and environmental criteria being satisfied.

Solar Energy Objectives

- CCE9** To facilitate the development of solar generated electricity.
- CCE10** To positively consider all applications for the installation of building mounted PV cells at all locations, having due regard to architectural amenity and heritage.
- CCE11** To support the development of commercial scale ground mounted solar PV 'Solar Farms' subject to compliance with emerging best practice and available national and international guidance⁷.

(3) Hydro Energy

Hydro generated power contributes almost 11% of total renewable energy produced in Ireland, generated from hydropower stations on dammed river or reservoir and lake systems. In Wicklow, hydroelectric generating stations are located at Poulaphouca, Blessington and Turlough Hill, Wicklow Gap. While there are no current plans in County Wicklow to install new river dammed hydro plants, subject to ecological considerations, this still remains a viable form of renewable electricity generation. Hydroelectricity also plays an important role in electricity management in the grid as additional electricity can be brought in swiftly from hydro plants during demand spikes.

Wave and tidal power are also considered hydropower sources. Though often confused, wave power is distinct from the tidal power and the steady gyre of ocean currents. Wave power is the transport of energy by ocean surface waves and it is the energy encapsulated in the motion of the waves themselves that can be converted to electrical power. Tidal systems for the most part make use of the kinetic energy of moving water to power turbines, in a similar way to windmills that use moving air.

Hydro Energy Objectives

- CCE12** To facilitate the development of expanded or new river / lake based hydroelectricity plants, subject to due consideration of ecological impacts, in particular, the free flow of fish and maintenance of biodiversity corridors.
- CCE13** To facilitate the development of off shore hydroelectricity projects insofar as onshore facilities such as substations/connections to the grid may be required.

(4) Bio-Energy

Bio energy is energy derived from biomass. Biomass is all organic material and can be either the direct product of photosynthesis i.e. plant matter such as leaves or stems etc or the indirect product of photosynthesis e.g. animal mass resulting from the consumption of plant materials. Types of biomass that are used to provide bio energy include residues from forestry and related industries, recycled wood, agricultural residues, agri-food effluents, manure the organic fraction of municipal solid waste, separated household waste, sewage sludge and purpose grown energy crops.

⁷ It should be noted that there is currently (2016) no national guidance available on the appropriate location and design of solar farms. However there are a number of excellent examples of such guidance provided in other jurisdictions and these will be utilised in the assessment of any applications; for example 'Planning guidance for the development of large scale ground mounted solar PV systems' produced by BRE National Solar Centre and Cornwall Council in the UK.

Biomass can be burned to produce heat that is used to create steam to turn turbines and produce electricity. Therefore energy from biomass can produce electricity and or/heat. Liquid bio-fuels can also be derived from biomass crops such as oilseed rape.

There is large scale potential for biomass in Ireland. The industry is currently modest in scale, however, with Ireland's growth rate, technological advances and the deregulation of the electricity industry and in conjunction with stricter controls on waste management, an increase in the development of biomass installations is likely.

Bio-Energy Objectives

CCE14 To facilitate the development of projects that convert biomass to gas or electricity.

CCE15 Other than biomass installations that are location specific to the rural area, biomass conversion installations / facilities shall be located on suitable zoned industrial land in settlements.

(5) Small-Scale Renewable Electricity Generation

With the development of new technologies, the generation of electricity on a small scale from renewable or low carbon sources is becoming more viable. Small-scale installations are available in the form of PV cells (solar panels), single stand-alone or wall mounted wind turbines and biomass converters. The Planning & Development Regulations (2001 - 2013) set out exemptions for certain small scale renewable installations.

Small-Scale Renewable Objectives

CCE16 To facilitate the development of small-scale electricity generation installations

Electricity Transmission and Distribution

Electricity generation installations require grid connection (obviously other than small scale projects). Depending on the amount of electricity generated, grid connections can be either through direct connection to the transmission network (110KV/220kV), controlled by Eirgrid or to a local distribution system (normally 38kV), controlled by ESB networks. The Commission for Energy Regulation (CER) regulates grid connections. Physical proximity to the grid is a consideration in the siting of new installations, but will not on its own normally determine the viability of any project, as new transmission lines can be constructed to virtually any location.

In order to facilitate the expansion in electricity generation installation, particularly wind farms, the grid itself will require development and expansion. In Wicklow, the grid has three lines – from Fassaroe in the north to Arklow in the south (roughly along the N11 corridor), from Turlough Hill in the Wicklow Gap down to Hollywood and from Baltinglass to Hollywood. It is important for the future development of electricity in the County that these strategic pieces of infrastructure are protected from inappropriate development in their immediate environs and that their scope for development is maintained. The corridors along these routes can therefore be considered 'strategic infrastructure corridors'.

Transmission and Distribution Objectives

CCE17 To support the development and expansion of the electricity transmission and distribution grid, including the development of new lines, pylons and substations as required.

CCE18 To suitably manage development within 35m of existing 110KV/220kV transmission lines.

CCE19 To support and facilitate the development of landing locations for any cross channel power interconnectors.

Electricity Demand

Coupled with the provision of alternative, renewable sources of electricity, it is considered imperative to reduce the amount of electricity consumed. This will entail electricity saving measures to be built into existing and new structures and behavioural changes in the use of power.

Electricity Demand Objectives

CCE20 To require all new buildings during the design process to incorporate sustainable technologies capable of achieving a Building Energy Rating in accordance with the provisions S.I. No. 243 of 2012 European Communities (Energy Performance of Buildings) Regulations 2012 and the Building Control (Amendment) Regulations 2014.

CCE21 To facilitate retrofitting of existing buildings with electricity saving devices and installations, where permission is required for such works.

Transport

The energy utilised in transport comes from both the fuel burned in vehicles and the electricity used in electrically powered vehicles, such as electric cars or electrified tram / light rail systems. While electricity can be sourced from renewable and non-polluting sources, the use of petrol and diesel in trains, buses and cars is more difficult to address but a combination of actions will be required, such as:

- reducing the need to use vehicles, increased opportunities for walking and cycling;
- reductions in journey length and times, reduction in congestion;
- higher intensity of use of public transport; and
- development and increased usage of alternative vehicle fuel sources, such as electricity, hydrogen and biofuels. In this regard, the Government has indicated that it wants 250,000 cars and vans, or about 10% of the Irish fleet, to be electric by 2020.

Transport Energy Objectives

CCE22 Through coordinated land-use and transport planning, to reduce the demand for vehicular travel and journey lengths.

CCE23 Through sustainable planning and investment in transport infrastructure, including roads and public transport systems, to reduce journey; times, length, congestion and to increase the attractiveness of public transport.

CCE24 To facilitate the development of services and utilities for alternative vehicles types.

Heating

The energy used in the generation of building heating accounts for a third of all energy consumed in Ireland. Heat has traditionally been generated from fossil fuel sources such as oil, gas and coal and from electricity, which also has been dependent on fossil fuels for production. The technology is now available to make considerable savings in heat use.

Methods of reducing heat generation and use are currently focused on individual buildings, but it is also possible to construct district heating system that might serve a housing or commercial development.

Heat generation: There are a number of more efficient and renewable methods now available to heat spaces and water in buildings. In particular, solar panels, biomass burners and geothermal heat pumps are widely available, relatively easy to install and available for all types of buildings.

Heat demand: The key to reducing heat demand is to make buildings more efficient. This may mean only heating the minimum amount of water or space required at any time of the day or for a particular use or designing a structure so that it can maximise solar heat gain.

Heating Objectives

- CCE25** To require all new buildings during the design process to incorporate sustainable technologies capable of achieving a Building Energy Rating in accordance with the provisions S.I. No. 273 of 2012 European Communities (Energy Performance of Buildings) Regulations 2012 and the Building Control (Amendment) Regulations 2014.
- CCE26** To facilitate retrofitting of existing building with heat saving devices and installations, where permission is required for such works.
- CCE27** To support the development of district heating systems, particularly those generating heat from renewable sources.