



PROPOSED PLAN 2018





SUPPLEMENTARY GUIDANCE ON ENERGY

1.0 I	NTR	ODU	CTIO	Ν
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- 2.0 POLICY AND GUIDANCE
- 3.0 WIND ENERGY IN INVERCLYDE
- 4.0 OTHER RENEWABLE ENERGY TECHNOLOGY
- 5.0 COMMUNITY BENEFITS
- 6.0 HEAT NETWORKS AND HEAT MAPPING
- 7.0 ELECTRIC VEHICLE CHARGING

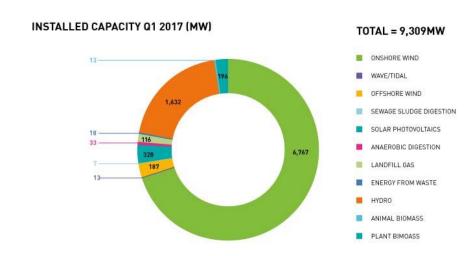
1.0 INTRODUCTION

This document provides guidance to supplement the Local Development Plan policies on energy. Specifically, it has been prepared to allow for the assessment of a variety of types of energy development proposals. The Guidance is aimed at:

- landowners and developers (and their advisors) considering renewable energy projects;
- communities/interest groups considering the impact of a proposed renewable development; and
- local authority Councillors and Officers considering planning applications.

Renewable energy is generated from natural resources such as the sun, wind, and water. It also includes energy from replenishable resources such as waste and biomass. Renewables are the single largest contributor to electricity generation in Scotland. Wind energy and hydro energy are currently the most productive of the renewable resources in Scotland but it is considered that the others will increase their share over time.

Diagram 1: Installed Renewable Energy Capacity in Scotland



Source: BEIS Energy Trends

It is the role of the planning system to reconcile the benefits of proposed renewable energy developments with any potential detrimental impact on the environment.

2.0 POLICY AND GUIDANCE

National Policy Context

National Planning Framework 3 (NPF3) considers the means of attaining a low carbon Scotland by reducing emissions and recognises the importance of the planning system in delivering targets. It recognises the importance of promoting greater use of renewable sources of heat energy and recovery of waste heat and supports the further deployment of onshore wind farms whilst addressing concerns about the impact of some developments and reflecting the objective of greater community ownership of renewable energy. Scottish Planning Policy (2014), offers support to renewable energy and addresses the main sources of renewable energy at present – wind and hydro – and those other technologies that may contribute in future such as biomass, solar/ photovoltaic, landfill gas, wave and tidal.

The 2020 Route-map for Renewable Energy in Scotland, 2013 identifies a target of 30% of overall energy demand to be met from renewables by 2020 which is broken down to 100% of electricity, 11% of heat and 10% of transport fuels.

The Climate Change Plan for Scotland 2018 sets targets for reduction in greenhouse gases which the increased use of renewable energy will contribute to.

Table 1: CO2 Reduction Targets

Target Reduction in CO2 (%)	Target Year
50	2020
66	2032
80	2050

Guidance

There is a series of online planning guidance from Scottish Government relating to a variety of renewable technologies including:

Table 2: Scottish Government Online Guidance

Onshore Wind Turbines	Wind Farm Developments on Peat Land
	·
Landfill gas	Hydro Schemes
	Try and demonited
A se a se de la collectione	M/a a al. da i a sa a sa a
Anaerobic digestion	Woody biomass
Large photovoltaic arrays	Energy from waste
Micro-generation	Deep geothermal
Local Authority Wind Assessment	Energy storage
Planning and Heat	

This guidance can be accessed at: http://www.gov.scot/Topics/Built-Environment/planning/Policy/Subject-Policies/Utilities/Delivering-heat-electricity/renewables-advice

A number of documents relevant to the development process for onshore wind farms can be found on Scottish Natural Heritage's website:

https://www.nature.scot/professional-advice/planning-and-development/renewable-energy-development/types-renewable-technologies/onshore-wind-energy

Within the Managing Change in the Historic Environment series, Historic Environment Scotland has prepared guidance on Micro-renewables (2016) and Wave and Tidal Energy (2013). These documents can be accessed via the following link:

https://www.historicenvironment.scot/advice-and-support/planning-and-guidance/legislation-and-guidance/managing-change-in-the-historic-environment-guidance-notes/

Local Policy Context

Local Development Plan

This Supplementary Guidance accompanies Policies 4 and 5 of the Proposed Inverciyde Local Development Plan Policy 4 offers in principle support to energy developments which contribute to a reduction in greenhouse gases. All energy applications will be assessed against this and other relevant Local Development Plan policies.

Policy 4 - Supplying Energy

Proposals for infrastructure for the generation, storage or distribution of heat and electricity will be supported in principle where they contribute to a reduction in greenhouse gas production. Proposals will be assessed with regard to impact on:

- a) The green network (including landscape) and historic buildings and places;
- b) The amenity and operations of existing and adjacent uses;
- c) Tourism and recreational resources;
- d) air quality;
- e) aviation and defence interests;
- f) telecommunication and broadcasting interests; and
- g) traffic and pedestrian safety

Relevant proposals are required to accord with the Council's Supplementary Guidance on Energy.

Climate Change Plan

Inverclyde is a signatory to the Scottish Climate Change Declaration. The Inverclyde Climate Change Plan sets targets for the reduction of greenhouse gas emissions. Planning supports decarbonisation and a move towards a low carbon future through supporting green energy, renewable energy technologies, heat networks and more sustainable forms of transport.

3.0 WIND ENERGY IN INVERCLYDE

Wind energy developments are currently the most popular type of renewable energy proposals and this type of development is Scotland's fastest growing renewable energy source – a trend which is expected to continue. By the end of 2016 there was 6.77GW of installed onshore wind capacity in Scotland with another 11GW of capacity either in planning or already consented. (Scottish Renewables)

Applications for wind energy developments are dealt with according to size:

Table 3: Determination of Wind Energy Applications

Scale	Determined By	Consultees
Up to 50MW	Inverclyde Council	Key Agencies
Over 50MW	Scottish Government	Inverclyde Council and Key
		Agencies

They can also be classified according to height to blade tip, as is the case in landscape capacity studies: The Landscape Capacity Study for Wind Turbine Development 2014 was carried out in Inverciyde and used the following categories:

15 - 30m **small**

31 – 50m small/medium

51 – 80m **medium**

81 – 120m **large**

over 120m up to around 150m **very large**

Spatial Framework

Scottish Planning Policy requires planning authorities to set out a spatial framework identifying those areas that are likely to be most appropriate for wind energy development, as a guide to developers and communities. Using the criteria provided in Scottish Planning Policy, a spatial framework for Invercive has been set out. Designations highlighted in blue in Table 4 apply to Invercive.

Table 4: Spatial Framework

Group 1: Areas where wind farms will not be acceptable:National Parks and National Scenic Areas.

Group 2: Areas of significant protection:Recognising the need for significant protection, in these areas wind farms may be appropriate in some circumstances. Further consideration will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation.

National and international designations:

- World Heritage Sites;
- Natura 2000 and Ramsar sites;
- Sites of Special Scientific Interest;
- National Nature Reserves;
- Sites identified in theInventory of Gardens and Designed Landscapes;
- Sites identified in theInventory of HistoricBattlefields.

Other nationally important mapped environmental interests:

- areas of wild land as shown on the 2014 SNH map of wild land areas;
- carbon rich soils, deep peat and priority peatland habitat.

Community separation for consideration of visual impact:

• an area not exceeding 2km around cities, towns and villages identified on the local development plan with an identified settlement envelope or edge. The extent of the area will be determined by the planning authority based on landform and other features which restrict views out from the settlement.

Group 3: Areas with potential for wind farm development:

Beyond groups 1 and 2, wind farms are likely to be acceptable, subject to detailed consideration against identified policy criteria.

Scottish Planning Policy requires development plans to indicate the minimum scale of onshore wind development that its Spatial Framework applies to. In Inverclyde the Spatial Framework is to be applied to wind energy developments of one or more turbines which is/are greater than 15 metres in height to blade tip.

The Spatial Framework criteria apply to Inverclyde as follows:

Group 1 - Areas where wind energy developments will not be acceptable.

Inverclyde has no National Parks and no National Scenic Areas therefore there are no Group 1 areas in Inverclyde.

Group 2 - Areas where there is a need for significant protection.

These include one on-shore internationally designated Special Protection Area (SPA) and another located along the bank of the Clyde, which is also a Ramsar site (1), along with 7 Sites of Special Scientific Interest (SSSI). Three Gardens and Designed Landscapes and areas of peatland to the south of the authority shown at http://www.snh.gov.uk/planning-and-development/advice-for-planners-and-developers/soils-and-development/cpp/ along with a community separation distance of up to 2km complete the designations falling within this category. Diagram 2 shows the Group 2 restricted areas in detail.

Group 3 areas where wind energy developments are likely to be acceptable subject to detailed consideration against policy criteria. This includes all other areas in Inverciyae not already included in Group 2.

Diagram 3 shows the combined Group 2 and Group 3 areas.

(1) Any development for wind energy generation will only be permitted where it can be demonstrated that it will not have any adverse effect on the integrity of the Inner Clyde SPA/Ramsar site, the Renfrewshire Heights SPA or any other Natura site outwith Inverclyde where there is ecological connectivity.

Diagram 2: Group 2 Areas of Significant Protection

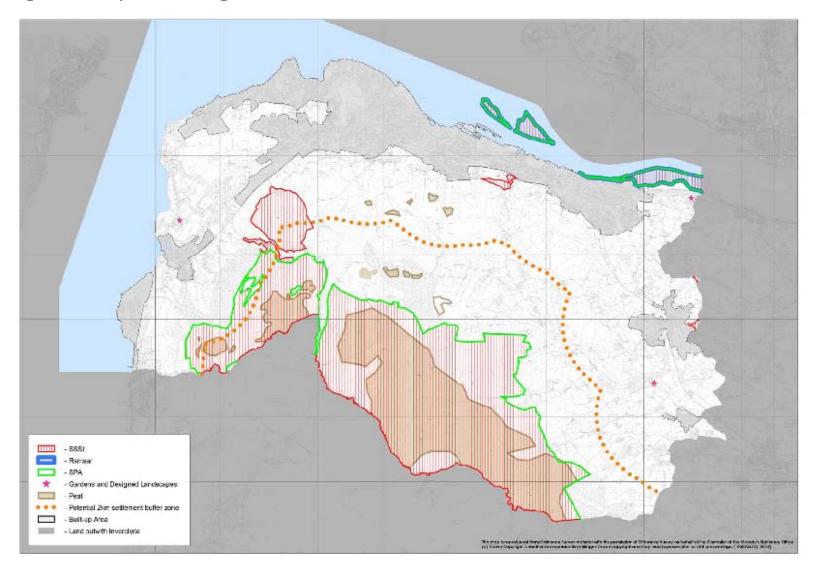
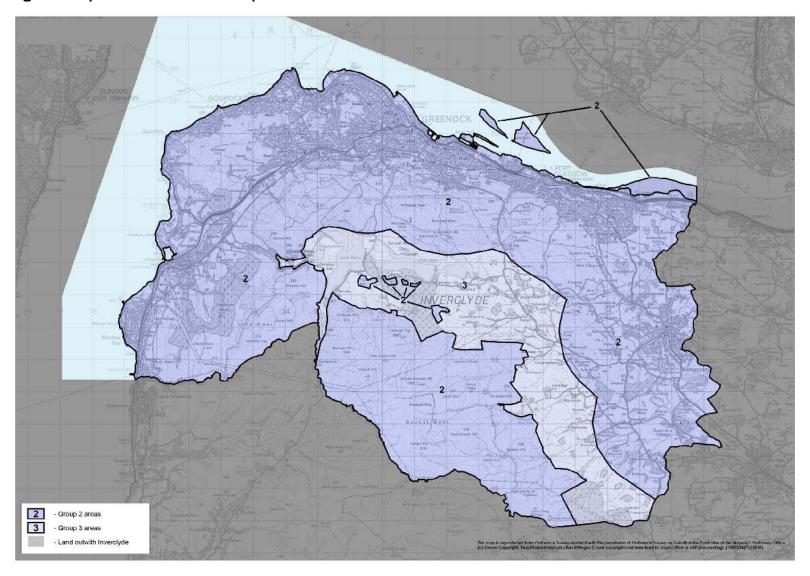


Diagram 3: Spatial Framework Groups



Landscape Capacity Study

In 2014, a Landscape Capacity Study for wind turbine development was carried out for Inverclyde in association with the local authorities in the Glasgow and the Clyde Valley Strategic Development Plan Authority to assess the capacity of the landscape to accommodate all sizes of wind energy developments. This document can be accessed on the Council's website at:

https://www.inverclyde.gov.uk/assets/attach/8315/GCV%20L%27scape%20Capacity%20Study%20-%20with%20maps.pdf

Sensitivity of the landscape to the various sizes of wind turbines has been assessed across the landscape character types within Inverclyde as identified in the Glasgow and the Clyde Valley Landscape Assessment 1999. Within Inverclyde, there are 4 landscape character types.

- Raised Beach
- Rugged Upland Farmland
- Upland River Valley
- Rugged Moorland Hills

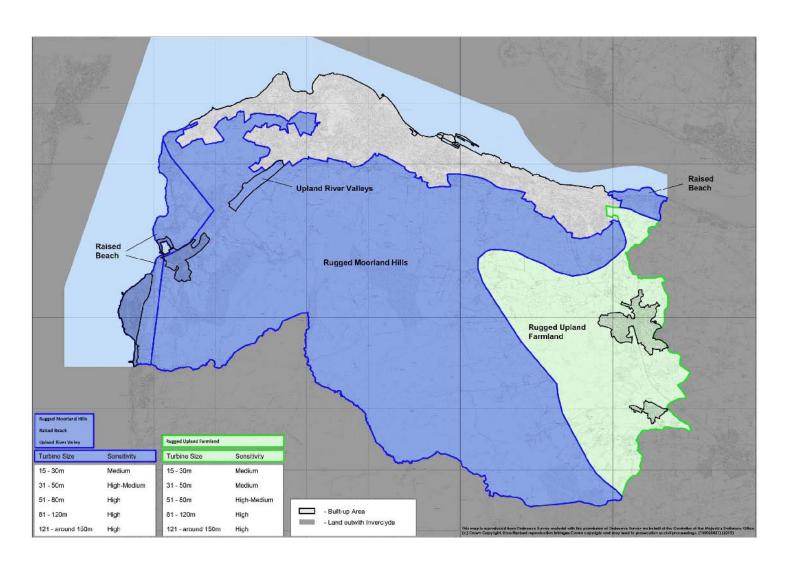
The sensitivity of the landscape to small, small-medium, medium, large and very large turbines within each landscape character typology is summarised in **Table 5**. **Diagram 4** shows the sensitivity of the landscape types to each size of turbine.

Table 5: Landscape Character Type, Turbine Size and Sensitivity

Landscape Character Type	Turbine Size (to blade tip)	Sensitivity
(1) Raised Beach	Small 15 – 30m	Medium
	Small – Medium 31 – 50m	High - Medium
	Medium 51 – 80m	High
	Large 81 - 120m	High
	Very Large over 120m ⇒150m	High
(6) Rugged Upland	Small 15 – 30m	Medium
Farmland	Small – Medium 31 – 50m	Medium
	Medium 51 – 80m	High - Medium
	Large 81 – 120m	High
	Very Large over 120m ⇒150m	High

Landscape Character Type	Turbine Size (to blade tip)	Sensitivity
	Small	Medium
(12) Upland River Valley	15 – 30m	MedioiTi
	Small – Medium 31 – 50m	High - Medium
	Medium 51 – 80m	High
	Large 81 – 120m	High
	Very Large over 120m ⇒150m	High
(20) Rugged Moorland	Small 15 – 30m	Medium
Hills	Small – Medium 31 – 50m	High - Medium
	Medium 51 – 80m	High
	Large 81 – 120m	High
	Very Large over 120m ⇔150m	High:

Diagram 4: Turbine Size and Landscape Sensitivity



The Landscape Capacity Study will be used to direct turbine proposals to the most appropriate landscapes for their size and number (in terms of cumulative impact). Where turbines are proposed in more sensitive locations, it will also be used to identify where mitigation will be required to ensure the proposed development does not impact negatively on the important elements of the area such as landscape, views, tourism, recreation and natural heritage designations.

The cumulative impact differs in each of the four landscape character typologies. Details can be found in paragraphs 5.10-5.11, 5.23 and 5.49-5.50 of the Landscape Capacity Study.

Other Considerations

Local Nature Conservation Sites

Inverclyde has an extensive network of Local Nature Conservation Sites (See **Diagram 6** below). These are locally valued for their flora, fauna or wildlife habitats. While wind energy development could not be ruled out on or adjacent to these locations, Policy 4 and Policy 33 require impact on these sites to be taken into consideration, and mitigation and compensatory measures implemented if required.

Birds

Onshore wind turbines can potentially have a detrimental impact on birds through collision with turbines, displacement from their normal migratory routes and breeding grounds, or loss of habitat through formation of infrastructure. As all wild birds are protected under the Wildlife and Countryside Act, 1981, developers are required to quantify any risks through surveys at different times of the year. Scottish Natural Heritage provides guidance on its website regarding bird survey methods and assessments.

Historic Buildings and Places

In Inverciyde, there are a number of other historic buildings and places in addition to the Gardens and Designed Landscapes that are referred to in the Spatial Framework. These include Listed Buildings, Scheduled Monuments and archaeology sites. Policy 4 requires the impact of wind energy development on historic building and places to be taken into account. Development will normally permitted only where there is no significant adverse effect on such buildings and places.

Water Environment

Watercourses, lochs, wetlands and riparian areas, as well as sensitive ecosystems, are potential constraints for wind developments. Scottish Environment Protection Agency's early input would therefore be required on the potential impact of the location, layout and design of the proposed development. Pollution risks during the construction would be a major concern. Adequate measures to protect the water environment and prevent or mitigate potential impacts on water resources would be imperative at this stage and again at the decommissioning phase. Further advice on the factors to be addressed when assessing a potential site can be obtained from

http://www.sepa.org.uk/regulations/water/
Particular designated sites such as Special Protection Areas and Sites of Special Scientific Interest may also be dependent on the status of the water environment.

Woodland

Where a proposal for wind turbines will result in woodland removal, the Scottish Government's Policy on the Control of Woodland Removal will be a material consideration, as will Policy 4 of the Local Development Plan which requires the impact on woodland to be considered as it is part of the green network. Depending on the quality of the woodland, compensatory planting may be acceptable mitigation in instances where woodland will be lost. However, this will not be sufficient mitigation if the woodland to be lost is ancient semi-natural woodland.

Shadow Flicker

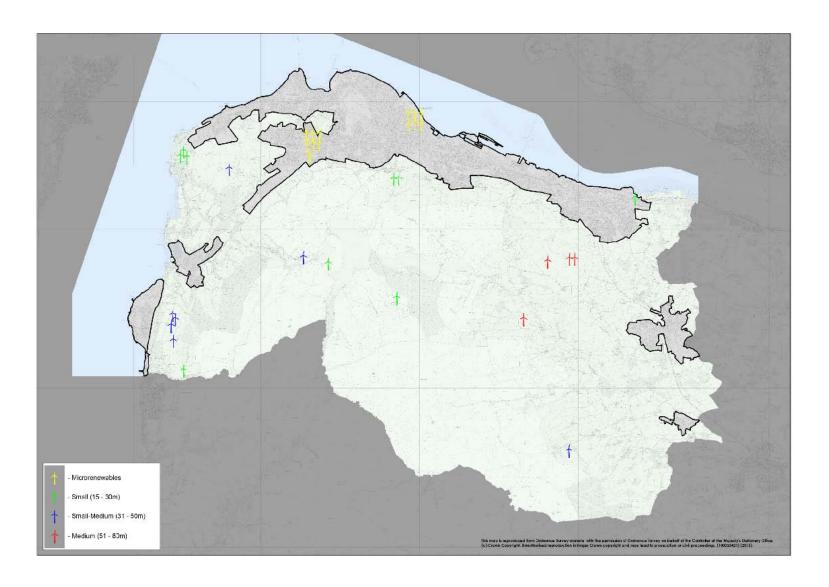
When the sun passes behind the blade of a turbine as it rotates, it can cast a flickering shadow which can cause problems for neighbouring properties. However, improved technology has made it possible to calculate very precisely whether flicker will occur and a system can be installed to shut turbines down at these times. Policy 4 requires an assessment of the impact of energy developments on the amenity and operations of existing and adjacent uses and shadow flicker will be a consideration in respect of this policy.

Cumulative Impact

Cumulative impacts arising from the combined effect of the proposal with other existing, approved or proposed wind energy developments need to be considered in terms of the criteria of Policy 4. **Diagram 5** illustrates the location of permitted wind turbines within Inverclyde. Cumulative impact should also take account of existing, permitted and proposed wind turbines within a 35 km zone of the proposed site. Further guidance on assessing cumulative impact has been issued by Scottish Natural Heritage and will be a material consideration in the assessment of proposals.

https://www.nature.scot/sites/default/files/2017-09/Guidance%20note%20%20-%20Assessing%20the%20cumulative%20impact%20of%20onshore%20wind%20energy%20developments.pdf

Diagram 5: Wind Energy Applications Granted in Inverclyde



Clyde Muirshiel Regional Park

Clyde Muirshiel Regional Park (CMRP) covers approximately 781 hectares of Invercive and extends into Renfrewshire and North Ayrhsire. The Park contains part of the Renfrewshire Heights Special Protection Area which supports a breeding hen harrier population. It also contains the majority of the West Renfrew Hills Local Landscape Area which covers an area of 77 hectares within the Park and is afforded protection on the basis of the quality of the landscape. The Park as a whole is valued for its scenic qualities and recreational opportunities, and impact on the Park is therefore a consideration under Policy 4 with regard to impact on green network and tourism and recreational resources.

The Park has its own Framework Guidance Document on wind farm development and proposals within the Park. It considers in particular the landscape value and sensitivity and can be accessed at

http://clydemuirshiel.co.uk/wp-content/uploads/2011/03/Framework-Guidance-for-Windfarms.pdf

Notifiable installations and exclusion zones

When locating wind turbines attention must be paid to their proximity to notifiable installations and exclusion zones where consultation is required with the Health and Safety Executive.

In Inverciyde there is a large gas transmission pipeline running from west to east and south east across a large part of the rural area with a consultation zone of 22m on either side. A military technical site also runs north to south at Burnhead Moor with a consultation zone of 25m either side (See **Diagram 6**).

Aviation and Defence Interests

In terms of wind turbine developments, where there is an airport nearby aviation and defence issues need to be considered. The proximity of Inverclyde to Glasgow International Airport raises the issue of safety where part of the airport safeguarding zone is identified on the eastern edge of the authority. (See **Diagram 7**). The impact of moving turbine blades on the effective operation of both civil and military radar installations at the airport must also be considered. Potential interference with radar at Glasgow International Airport has also been anticipated outwith the safeguarding zone. Without specific details of proposals, it is difficult to determine the exact effect a wind energy development would have. Potential developers are therefore advised to make use of the NATS preplanning service on its website http://www.nats.co.uk/windfarms where self-assessment maps can also be consulted, and to consult with the Civil Aviation Authority and Ministry of Defence as part of the scoping exercise.

Broadcasting Installations

Wind turbines can disrupt radio and television signals. Wind energy development would only be acceptable where the developer could either maintain the transmission or provide alternative arrangements at no cost to those whose service is likely be disrupted. Early consultation by the developer with the relevant network provider is required.

Decommissioning and Restoration

When the life span of the development is complete, or it is deemed no longer to be required, under the conditions of their planning permission, developers will be required to dismantle the equipment and remove it from the site prior to reinstating it fully to its former condition within six months of the end of the period for which planning permission has been granted.

Diagram 6: Other Considerations

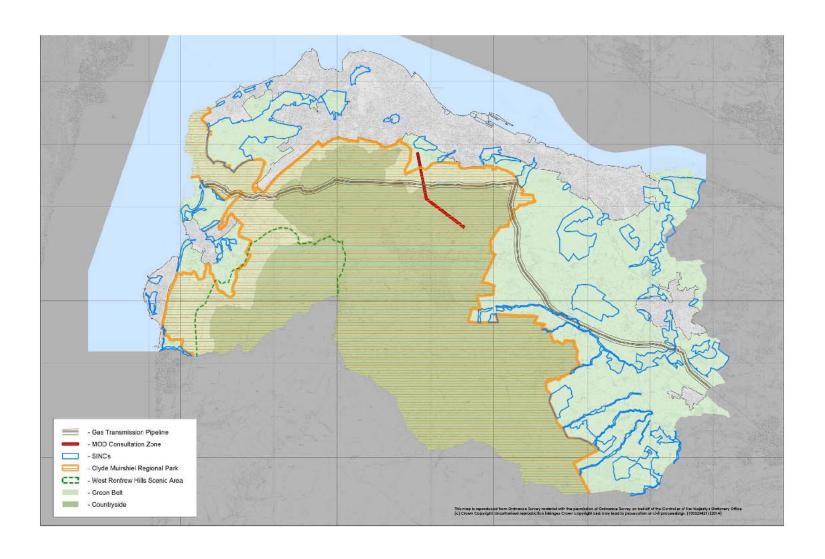
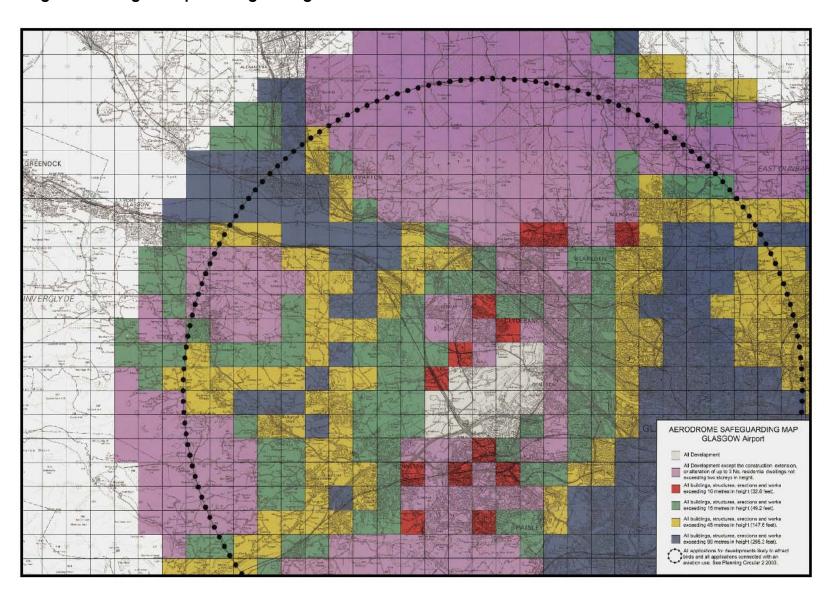


Diagram 7: Glasgow Airport Safeguarding Zone



4.0 OTHER RENEWABLE ENERGY TECHNOLOGY

Hydro

The majority of hydro schemes in Inverclyde are likely to be small 'run-of-the river' schemes where water is taken from a river from behind a low weir, with no facilities for water storage and returned to the same water course after passing through the turbine. These would be primarily for domestic/ individual landowner use with an output of under 100Kw. There could be an impact on the natural and cultural heritage, water environment, fisheries, aquatic habitats and amenity, and relevant environmental and transport issues which would have to be addressed by the developer. The Council is supportive of this type of scheme in the right location where there would be appropriate mitigation of any negative impact on access, visual amenity and landscape, natural and built heritage designations and tourism and recreational uses.

Micro wind

At a domestic or commercial level, small turbines can be free standing or mounted on buildings. Certain micro wind developments may be classed as Permitted Development. Where this is not the case, they will be determined through the submission of a planning application and assessed with regard to impact on historic buildings and places if relevant, and the amenity and operations of existing and adjacent uses, as set out in Policy 4.

Solar/Photovoltaics

There are three ways in which to exploit solar power; firstly, through the installation of solar panels on buildings to absorb sunlight as a source of energy for conversion into electricity or heat; secondly through photovoltaics which convert sunlight directly into electricity and heat, and finally passive solar gain through the orientation of buildings to make maximum use of the sun. These can be in a variety of locations provided there is ample solar irradiation and electricity connection. Inverclyde Council is supportive of the use of this technology in the correct location where proposals do not impact on the historic buildings and places nor on the amenity of adjacent uses as outlined in Policy 4.

Biomass

Biomass is biological material which can be used to generate electricity. It can be either used directly or converted in to fibres or chemicals such as biofuels. Scottish Planning Policy advises that planning authorities should identify, through the development plan, where there are areas capable of accommodating new biomass plants with the location of large scale biomass plants determined by a number of factors including the economic costs of transporting fuel materials from source, the availability of biomass feedstock during the year, the location of the end user and the scale of the plant.

Ground Source Heat

Ground source heat pumps use pipes which are buried in the earth to extract heat from the ground. This can be used to heat radiators, underfloor or warm air heating systems and hot water in the home. Unless in a location affecting a listed building or within a conservation area, ground source heat pumps are usually considered permitted development and do not require planning permission.

Energy from Waste

Energy from Waste systems use gases produced as a by-product of waste or the direct incineration of waste to produce heat and electricity. It is generally considered to be an industrial process and most likely to be suitably located in industrial locations, although the source of the fuel e.g. landfill gas, and connection to the user of the energy produced will also be a factor.

5.0 COMMUNITY BENEFITS

Scottish Planning Policy states that where a proposal is acceptable in land use terms, and consent is being granted, local authorities may wish to engage in negotiations to secure community benefit in line with the Scottish Government Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments.

The Council is supportive of the principle of seeking community benefit from renewable energy developments, and will engage with developers and communities to deliver community as appropriate with regard to the Scottish Government's Good Practice Principles.

6.0 HEAT NETWORKS

A district heat network is a system for distributing heat generated in a centralised location to meet residential and commercial heating requirements such as space and water heating. Inverclyde Council is supportive of proposals for district heating and combined heat and power systems.

District heating has a number of benefits including being more energy efficient, reducing carbon emissions, being cost effective for users and reusing heat that would be emitted into the environment. It does however require a long term investment and is best suited to high density areas where a large number of properties can be connected.

Planning has a key role to play in the development of communal heating systems through its involvement in the location, layout and design of developments. Policy 5 of the Local Development Plan supports the development of heat networks; maximising heat from existing and proposed unused and renewable heat resources.

National Planning Framework 3 (NPF3) sets out the planning priorities for heat where district heating schemes are supported as a means of achieving Scottish Government's goals for renewable heat. Scottish Planning Policy reflects the aims of NPF3 encouraging district heating in as many locations as possible. It directs Local Development Plans to:

- Use heat mapping to identify opportunities for co-location of developments with high demand with those with high heat output
- Identify where heat networks, heat storage and energy centres already exist or would be appropriate
- Support heat networks through the inclusion of policies

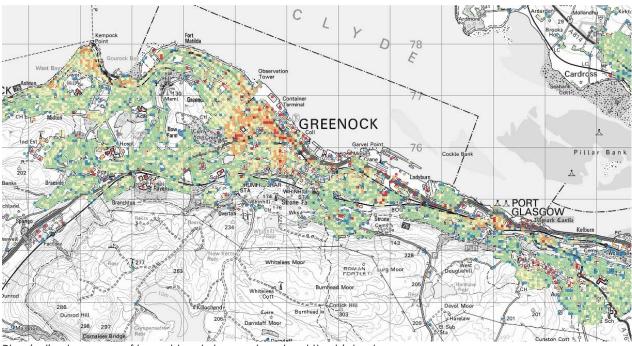
Renewable heat applications and applications for other installations producing significant amounts of excess heat will be encouraged to consider:

- creation of or connection to new and existing heat networks
- the location of installations in relation to existing or potential heat networks and significant heat users
- future proofing of new facilities to meet potential connection needs

Heat Mapping

Heat mapping will be utilised by the Council to establish where there are sources of heat (supply) and where there is need for heat (demand). The Scottish heat map http://heatmap.scotland.gov.uk can be used to identify where there are opportunities for heat networks to assess heat density and proximity to heat sources.

Diagram 8: Sample Heat Map of Greenock



Blue indicates areas of lowest heat demand and red the highest

The Council is a signatory of the Scottish Heat Map Framework Agreement and will continue to provide information on gas and electricity consumption from its corporate estate to transpose the heat map for Inverciple. Any opportunities that arise to identify co-location of heat supply and demand, arising from the heat map, will be given full consideration.

Useful link: http://www.gov.scot/Resource/0047/00478997.pdf

7.0 ELECTRIC VEHICLE CHARGING

The Climate Change (Scotland) Act 2009 commits Scotland to reducing greenhouse gas emissions by 80% by 2050. In line with this, the Scottish Government is committed to achieving almost complete decarbonisation of road transport by 2050 leaving Scottish towns, cities and communities free from damaging emissions from petrol and diesel fuelled vehicles with the resultant benefits for health and well-being.

To facilitate the transfer to electric vehicles, a network of accessible, efficient recharging infrastructure is required to encourage their take up.

Charge points will be a mixture of both slow chargers, where vehicles can be left plugged in to charge over several hours, and rapid chargers located at accessible points where drivers can stop for 30-40 minutes to charge up during a journey.

The Council supports and encourages the use of electric vehicles and plug-in hybrid vehicles and a number of charging points have been installed across the authority to facilitate their use. The network of chargers in Inverciple will be further expanded as more electric vehicles are introduced whilst ensuring that connection points are installed in line with emerging technological requirements.

As the drive towards increased electric vehicle use continues, there will be a need to provide charging points as part of the infrastructure of new residential, commercial and industrial developments to meet demand, in addition to providing them within the public realm. Table X details the provision that will be required based on type and size of development.

Table 5: Requirements for Electric Vehicle Charging Points

Type of development	Size of development	Charging points required
Commercial/Industrial development	Individual developments requiring a travel plan	5% of available spaces fitted with trickle charging point
	Large commercial/industrial /mixed use development requiring a travel plan	3% of available spaces fitted with trickle charging point, plus 2% of available spaces fitted with fast charging point
	Major commercial mixed use development	On individual merit
Residential	Single/multiple dwellings	One trickle charging point per dwelling
	Flats/apartments	20% of available spaces fitted with trickle charging point
Other	Individual developments requiring a Travel plan	3% of available spaces fitted with trickle charging point, plus 2% of available spaces fitted with fast charging point

LIST OF FIGURES, TABLES, DIAGRAMS AND APPENDICES

Table 1: CO2 Reduction Targets

Table 2: Scottish Government Online Guidance

Table 3: Determination of Wind Energy Applications

Table 4: Spatial Framework

Table 5: Landscape Character Type, Turbine Size and Sensitivity

Table 6: Requirements for Electric Vehicle Charging Points

Diagram 1: Installed Renewable Energy Capacity in Scotland

Diagram 2: Group 2 Areas of Significant Protection

Diagram 3: Spatial Framework Groups

Diagram 4: Turbine Size and Landscape Sensitivity

Diagram 5: Wind Energy Applications Granted in Inverclyde

Diagram 6: Other Considerations

Diagram 7: Glasgow Airport Safeguarding Zone

Diagram 8: Sample Heat Map of Greenock

GLOSSARY

Photovoltaic – a material or device in which electricity is generated as a result of exposure to light.

Ramsar – a site proposed or designated as being wetland of international importance, especially as a waterfowl habitat, under the 1971 Ramsar Convention and ratified by the UK government in 1976.

Solar irradiation – the power produced by the sun in the form of electromagnetic radiation which is perceived by humans as sunlight.



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