Appendix 6 – Monitoring Framework

Environmental Report

Renewable & Low Carbon Energy Supplementary Guidance

July 2017

SEA Objective	Monitoring Proposals	Justification
SEA 1 Avoid adverse impacts on valuable soil resources e.g. prime agricultural land, carbon rich soils	Monitoring the impact of renewable and low carbon energy developments through EIA and other related Environmental Studies accompanying planning applications, as well as monitoring the following indicators specifically: • Area (ha) of prime agricultural land (Class 2 and 3.1) within Perth and Kinross • Area (ha) of Perth and Kinross containing Class 1 and 2 soils (nationally important carbon rich soils, deep peat and priority peatland habitat) • Area (ha) of peat reserves lost to renewable energy development • Area (km^2) of Perth and Kinross covered by organo-mineral and organic rich soils	Monitoring of value soil resources through EIA and other environmental studies and specific indicators will ensure that these resources are adequately protected.
SEA 2 Avoid adverse impacts on existing land use/cover	Monitoring the impact of renewable and low carbon energy developments on the following indicators: • % change in land cover (broad habitat types) within Perth and Kinross	Assessing % change of land cover will assist in identifying if there are any adverse impacts arising from the deployment of renewable and low carbon energy technologies on existing land use/cover.
SEA 3 Promote the sustainable management of the water environment	Monitoring the impact of renewable and low carbon energy developments through EIA and other related Environmental Studies accompanying planning applications, as well as monitoring the following indicators: • % of the total number of rivers within the Perth and Kinross area classified as being of good status or better (ecological quality) • % of the total number of groundwater bodies within the Perth and Kinross area classified as being of good status or better (ecological quality) • Number of applications where enforcement action has been taken due to potential water pollution • Mean annual winter daily river flows within the Perth and Kinross area • Mean annual summer daily river flows within the Perth and Kinross area • Proportion of non-residential properties at risk from flooding from rivers, the sea or heavy rainfall in urban areas • Proportion of residential properties at risk from flooding from rivers, the sea or heavy rainfall in urban areas • % of the total number of rivers within the Perth and Kinross area classified as being of good status or better (ecological quality) • % of the total number of groundwater bodies within the Perth and Kinross area classified as being of good status or better (ecological quality)	Monitoring the potential impact(s) from developments on the water environment will ensure that any impacts can be suitably addressed throughout the lifetime of the development, including during construction, operation and decommissioning phases. This will allow for the sustainable management of the water environment.
SEA 4 Promote the important role and potential of forests and woodlands and avoid adverse impacts on their natural heritage value.	Monitoring forest and woodland areas, and potential impacts on their natural heritage value, through the existing monitoring regime for Supplementary Guidance on the Council's Forest and Woodland Strategy, as well as monitoring the following indicators where adverse impacts may arise directly from renewable and low carbon energy developments: • % area of woodland cover in Perth and Kinross • Area (ha) of native woodland cover in Perth and Kinross • Installed capacity of forest renewable energy (wind and hydro) schemes in Perth and Kinross • Proportion of renewable energy development proposals which contain information regarding the reduction and management of forestry waste generated as a result of the proposal/ development	Monitoring the potential impact(s) from developments on forests and woodlands, and their natural heritage value, will ensure that any impacts can be suitably addressed throughout the lifetime of the development, particularly during the construction phase.
SEA 5 Conserve and enhance the diversity of habitats and species	Monitoring impacts on ecological interests (diversity of habitats and species), identified in EIA and other environmental studies accompanying planning applications, as well as monitoring the following indicators where adverse impacts may arise directly from renewable and low carbon energy developments: • Area (ha) of ancient and semi-natural woodland in Perth and Kinross • Area (ha) of ancient and long-established woodland inventory sites lost to renewable energy developments	Monitoring the impact from developments through the consenting process will ensure that the diversity of habitats and species will be conserved, including monitoring specific ecologically-related indicators.
SEA 6 Increase the potential of Perth and Kinross in contributing to Scotland's renewable energy resources	Monitoring potential energy generation levels associated with consented and constructed renewable and low carbon energy developments through planning application monitoring. Monitoring the following indicators will also assist in identifying the contribution from renewable and low carbon energy developments in the Council area to national renewables targets, as well as the wider energy consumption picture for the area: • % of Scotland's installed microgeneration capacity within Perth and Kinross • Increase in installed capacity for windfarms, hydro and solar schemes in Perth and Kinross and total capacity (MW) • Total domestic energy consumption for Perth and Kinross (kWh) per capita • Mean domestic consumption of natural gas in Perth and Kinross (kWh) • Mean domestic electricity consumption in Perth and Kinross (kWh)	Monitoring of consented/constructed developments using local and nationally produced data will enable the Council to identify what contributions are being made to national renewable energy targets and which technologies are being deployed to help achieve these targets.
SEA 7 Support adaptation to climate change and 'future proofing' of new development	Monitoring the following indicators to identify the measures renewable and low carbon energy developments are implementing to support adaptation to climate change: • Build in adaptation to climate change in the siting, design, construction and management of development proposals • Protection from and mitigation against the effects of climate change • Connect to district heat networks or establish new heat networks using renewable and low carbon energy technologies.	Monitoring of consented/constructed developments using specified indicators will allow the Council to identify climate change adaptation measures that are being implemented and the number of developments implementing each adaptation measure.
SEA 8 Conserve and enhance the character, local distinctiveness, scenic and cultural value of the area's landscape	Monitoring of the impact of renewable and low carbon energy developments on key landscape characteristics identified in EIA and other landscape & visual related studies accompanying planning applications, as well as monitoring using the following indicators: • % of Perth and Kinross landscapes most sensitive to windfarm development • % of Perth and Kinross covered by National Scenic Areas designation • % and area (ha) of Perth and Kinross covered by Special Landscape Areas designation	Monitoring the impact of developments, specifically wind turbines, on the landscape will ensure that important landscape characteristics are protected, and help to inform future policy/guidance protecting PKC landscape interests.

	• Area (ha) of Special Landscape Areas covered by renewable energy developments • Areas (ha) of Perth and Kinross covered by Gardens and Designed Landscapes designation • Areas (ha) of wild land (SNH wild land areas 2014) affected by renewable energy developments • % area of woodland cover in Perth and Kinross • Area (ha) of native woodland cover in Perth and Kinross • Installed capacity of forest renewable energy (wind and hydro) schemes in Perth and Kinross • Proportion of renewable energy development proposals which contain information regarding the reduction and management of forestry waste generated as a result of the proposal/ development	
SEA 9 Protect and enhance, where appropriate, the historic and cultural environment	Monitoring of the impact of renewable and low carbon energy developments on the historic and cultural environment identified in EIA and other environmental studies accompanying planning applications as well as monitoring developments using the following indicators: • % change in historic land use types in those areas where renewable energy developments have occurred • Number of renewable energy development proposals environmental statements identifying where there are potential conflicts between proposals and the protection of the historic environment • Proportion of renewable energy development proposals which provide for the protection and enhancement of the historic environment • Area (ha) of Ancient and Long-Established Woodland Inventory and semi-natural woodland sites lost to development	Monitoring the impact of energy developments on key historic and cultural environment features through planning application monitoring and specified indicators will ensure that these assets are suitably protected.
SEA 10 Protect and enhance green infrastructure networks	Monitoring of the impact of renewable and low carbon energy developments on green infrastructure networks using the following indicators: • % of existing green infrastructure resources (access and open space) within Perth and Kinross impacted upon by renewable energy developments • Proportion of renewable energy development proposals which provide for the improvement or enhancement of the area's green infrastructure resource	Monitoring the impact of renewable energy developments on green infrastructure networks will ensure that these assets, including connections and corridors between key assets, are protected and not unacceptably impacted upon.
SEA 11 Safeguard the integrity of designated sites	Monitoring of the impact of renewable and low carbon energy developments on the integrity of designated sites identified in EIA and other environmental studies accompanying planning applications as well as monitoring developments using the following indicators: • % of Perth and Kinross designated under national and international legislation to protect landscape, habitats and species considered to be in favourable condition • % of biological protected sites within Perth and Kinross in favourable condition • % of geological sites within Perth and Kinross in favourable condition • Area (ha) of IBAs contained within or adjoining Perth and Kinross	Monitoring the impact of renewable and low carbon energy developments on the integrity of designated sites is significantly important to ensure that any adverse impacts are avoided or mitigated to an acceptable level, to ensure legislative requirements are adhered to.
SEA 12 Protect and enhance air quality	Monitoring the impact of renewable and low carbon energy developments on air quality identified in EIA or other air quality assessment studies accompanying planning applications, as well as monitoring developments using the following indicators: • Number of tonnes of CO_2 emissions emitted (estimate) per capita in Perth and Kinross • Number and status of Air Quality Management Areas in Council area • Number of planning applications for proposals for biomass, AD, EfW, and landfill gas where Air Quality Impact Assessment has identified potentially significant air quality impacts which require avoidance or necessary mitigation measures.	Monitoring the impact of renewable and low carbon energy developments, particularly biomass developments, on air quality will ensure that any adverse impacts are avoided or suitable mitigation measures are implemented.

Monitoring Framework – Spatial Assessment Methodology

In addition to the above, the Council proposes to continue to utilise the spatial assessment methodology to help inform the monitoring process. Much of the data within this model is externally owned and/or updated so this will be undertaken on an ad-hoc basis where updates can be undertaken for specific SEA objective criteria. Whilst continuous monitoring of the environment using the spatial assessment methodology would be the most comprehensive way to assist in the overall monitoring framework, it is considered that the most practical solution is to do this on an ad-hoc basis when the relevant information is updated and available for use. The Council will aim to undertake monitoring on an on-going basis for the above framework with annual updates undertaken, where resources allow.