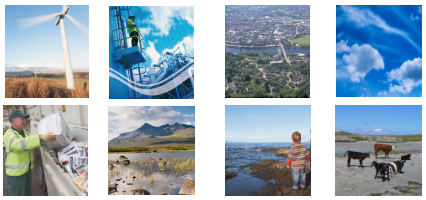

Climate Change in Strategic Environmental Assessment - A Scottish Perspective

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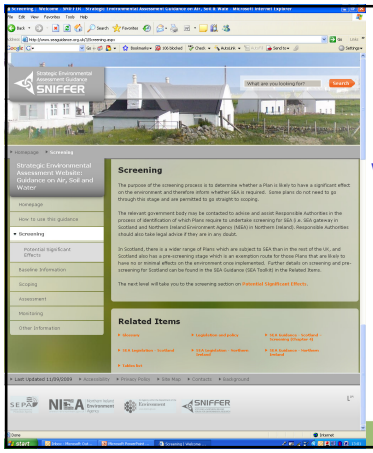
Presentation

- **A short summary of SEA and climate change policy in Scotland**
- **Brief details of draft SEPA / Scottish Government Climate Change and SEA Guidance**
- **Short summary of climate change "*resilience check*" of River Basin Management Plan measures**

SEA in Scotland

- Environmental Assessment (Scotland) Act 2005 extends the scope of SEA to apply to all public sector plans, programmes and strategies that may lead to significant environmental effects
- Other SEA topic guidance already exists



- A quick plug!
- Guidance on considering air, soil and water in SEA

www.seaguidance.org.uk

SEA in Scotland

- Environmental Assessment (Scotland) Act 2005 extends the scope of SEA to apply to all public sector plans, programmes and strategies that may lead to significant environmental effects
- Other SEA topic guidance already exists
- Scottish Government identified value of SEA in considering climate effects and wanted to support ambitious climate change legislation with clear guidance
- SEPA asked to lead this

Climate Change Policy in Scotland

Climate Change (Scotland) Act 2009

- **80%** target for reduction in ghg emissions by 2050
- **42%** target for reduction in ghg emissions by 2020

Climate Change Adaptation Framework

Focuses action in 3 areas:

- **Exposure**: understanding the consequences for Scotland of a changing climate
- **Adaptive Capacity** – equipping stakeholders with tools needed to adapt to a changing climate
- **Competing Pressures** - ensuring public policy works together and does not compete to address climate change

Joint Agency Statement

- Sets out the roles of, and approaches being taken by, four key agencies
- Commitment to work together to raise wider awareness on climate change

SEA and Climate Change Guidance

SEPA was asked to prepare guidance on behalf of Scottish Government to support its climate change initiatives

A project steering group was established to provide both SEA and climate change expert input to the guidance, including:

- SEPA
- Scottish Natural Heritage
- Historic Scotland
- Transport Scotland
- Scottish Government
- Local Authorities
- SEA Consultants

Climate Change in SEA Guidance: - Basic Principles

Analysis of SEA casework (20 ERs) showed climatic factors being considered inconsistently

Need for some simple guidance to develop greater consistency and clearer view of how climate is being considered in SEA

So, key principles were:

- Simple, easy to use and understand
- Links to relevant and up to date information sources
- Developing awareness of climate issues and the impacts different plan may have
- Helping Responsible Authorities to help themselves when considering climate issues

Climate Change in SEA Guidance*

1. Introduction –	Includes: Background to climate change, Scotland's greenhouse gas emissions, observed climate trends, summary of UKCP09 for Scotland
2. Screening	Summary of typical effects of certain plans on climate change adaptation and mitigation to help consider whether a plan will lead to significant environmental effects
3. Scoping	Includes: List of climate related plans, programmes and strategies, list of information sources to inform the baseline and advice on how to scope in and scope out climatic factors
4. Assessment	Includes: Examples of typical impacts of certain plans on climatic factors –examples of climate change objectives and advice on considering cumulative and other effects
5. Adoption and Monitoring	Provides advice on potential monitoring indicators

Appendices	Including: technical glossary, links to information sources and a full summary of potential impacts of climate change on Scotland.

*please note: draft submitted to Scottish Government may be subject to change

Scottish Climate Change Information Sources

- SCCIP - www.sccip.org.uk
- SNIFFER Handbook of Climate Trends
- UKCP09
- Scottish Government Climate Statistics
- SEA Consultation Authorities

Objective Setting (1)

Figure 9 - Example SEA Objective

Climate Change Mitigation	Generic example: To reduce greenhouse gas emissions
	Plan specific example (eg transport): To reduce greenhouse gas emissions resulting from [insert sector] Target based example: To reduce greenhouse gas emissions from [transport] by XX% by [date].
Climate Change Adaptation	Generic example: To reduce vulnerability to the effects of climate change
	Plan specific example (eg spatial plans): To reduce vulnerability of people and property in the plan area to flooding Target based example: to reduce the number of properties at risk of flooding by xX by [date]

Objective Setting (2)

Will the plan, programme or strategy…	
Climate Change Mitigation	reduce the need for energy
	improve energy efficiency in [insert] sector
	increase the percentage of energy generated from renewable sources
	switch to lower carbon fuels
	reduce the amount of waste going to landfill (to reduce methane emissions)
	improve land use practices to reduce emissions
	protect natural carbon sinks such as peat soils
	encourage transport choice and promote modal shift
	consider the carbon impact in the construction phase
	consider the carbon impact of adaptation measures
Climate Change Adaptation	reduce overall flood risk e.g. developing in flood plain, flood protection schemes
	consider present and future climate impacts in the design of buildings and urban areas e.g. green roofs, urban greenspace, sustainable urban drainage
	consider present and future climate impacts for infrastructure e.g. transport
	ensure that health/emergency services are accessible during flood events
	ensure adequate future water and drainage supply
	avoid actions that may close or limit future adaptation
	develop ecological resilient and varied landscapes e.g. ecological networks, drainage
	consider opportunities presented from climate change impacts

Figure 12 – Typical influences on climatic factors from land use Development Plans

Plan Type	Climate Change Mitigation					Climate Change Adaptation			
	Reduce all GHG emissions	Reducing impact of transport through a reduction in the need to travel and modal shift	Reducing energy use, increasing energy efficiency and enabling renewable energy generation	Reducing Resource Use – eg Reducing waste to landfill	Reduce carbon loss from soils	Resilience to increase in precipitation flood risk and flooding	Resilience to increase in high winds and storminess	Resilience to warmer climate, droughts and heat waves	Resilience to erosion and landslides
Spatial Development Plans	Promote high energy efficiency standards Use solar gain through layout and design Smaller housing at higher density Greater use of locally sourced sustainable construction materials Make most efficient use of existing infrastructure to reduce need for additional facilities with associated emissions from pumping / treatment	Locate settlements close to existing centres on public transport routes Reuse brownfield land with good transport links Promote development patterns that reduce need to travel Provide choices for modal shift Support car free developments Use proximity principle when identifying new sites to reduce need to travel	Encourage micro-renewables on buildings or in developments Encourage Combined Heat and Power Provide spatial framework for renewables development in appropriate locations	encourage use of sustainable/recycled materials in construction Enable pre-sorting of recyclable wastes in new developments Provide spatial framework for new waste facilities such as recycling, composting and thermal treatment	Protect peat soils from loss / sealing through new development Protect peat soils from loss / sealing from energy developments (eg windfarms) Restrict commercial peat extraction	Avoid building in flood risk areas – carry out flood risk assessments Retrofit/require new houses to fit flood resilient features in flood risk areas Ensure that essential infrastructure and service developments are not at flood risk Increase resilience to floods through use of Sustainable Urban Drainage Systems Permeable surfaces and greenspace in new developments	Consider whether existing buildings remain fit for purpose under future climatic conditions, particularly essential services Ensure, through building standards, that new buildings are fit for purpose under future climatic conditions, particularly essential services. Ensure drainage and sewerage can cope with increase in storm events Protect coastal habitats from loss to development, either directly, or through indirect poor management	Design for environmental performance – reduce need for cooling Greater use of green roofs Consider future water needs and availability when planning new development. Encourage use of rainwater and greywater Provide habitat corridors for the movement of species	Avoid new development in areas at risk from erosion, including coastal erosion. Protect and expand native woodland cover

Guidance - Next Steps

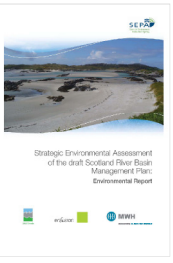
- SEPA has passed a final draft to Scottish Government for approval
- Hope to publish by end of the year – will be available through the Scottish Government website
- SEPA is currently investigating potential for a "phase 2" which aims to secure greater quantification of carbon impacts through use of tools – especially in the spatial planning sector

www.sepa.org.uk

Climate Resilience Check of River Basin Management Plan Measures

- RBMPs prepared by SEPA to meet requirements of the Water Framework Directive
- SEA conducted of the RBMP picked up impacts on climatic factors
  for details go to:

  www.sepa.org.uk/water/river_basin_planning/early_basin_planning_work.aspx
- A follow up piece of work was to test the resilience of the programme of measures



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Adaptation – Building resilience to the impacts of climate change

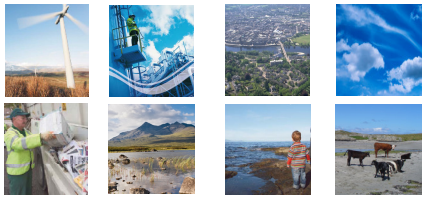
Will the measure be resilient to increase precipitation and increase in heavy rainfall events?	Will the measure be resilient to less precipitation and droughts (e.g. drier summers, low flows, less snow melt)?	Will the measure be resilient to increased temperatures?	Will the measure be resilient to the effects of climate change on biodiversity?	Will the measure be resilient to future sea level rise?
Reduce diffuse source inputs: provide first time sewerage				
Measure is likely to be resilient to increased precipitation and heavy rainfall events. However new treatment works will need to be have enough capacity and be able to cope with more extreme weather events. It is essential that new infrastructure is climate proofed".	Measure is likely to be resilient to less precipitation and droughts. However new treatment works discharges will need to take into account low flows leading to reduced dilution of effluent and increasing concentration of pollutants.	Good resilience and flexibility to predicted climate change	Good resilience and flexibility to predicted climate change	Good resilience and flexibility to predicted climate change
CAR 2005: levels of abstraction, management of dams and efficient use of water				
Measure is likely to be resilient to increased precipitation and heavy rainfall events. However, management of dams will need to consider increased likelihood of spills under future climate.	Measure is likely to be resilient to less precipitation and droughts. However, design and management of dams will need to consider drawdown under future climate and possible need for more freshets in warmer dryer summers.	Measure is likely to be resilient to less precipitation and droughts. However, need to consider possible need for more freshets in warmer dryer summers. Increased temperatures may also result in increased demand.	Measure is likely to be resilient to effects of climate change on biodiversity. However, introduction of new crops either as biofuels or food crops, change of range for arable production may result in increasing water demands.	Good resilience and flexibility to predicted climate change
CAR 2005 control abstraction: control pattern/timing of abstraction (hands off flow/utilisation of storage (new/existing)) **CAR 2005 control abstraction: provide appropriate baseline flow regime downstream of impoundment** **CAR 2005 control abstraction: provide higher flows as appropriate to enable fish migration downstream of impoundment** **CAR 2005 control abstraction: provide higher flows as appropriate to maintain/improve habitat downstream of impoundment**				
Measures are likely to be resilient to increased precipitation and heavy rainfall events. However, baseline flow conditions against which the flow regimes are set will need to be updated periodically to reflect climate change.	Measures are likely to be resilient to less precipitation and droughts. However, baseline flow conditions against which the flow regimes are set will need to be updated periodically to reflect potential reduction in river flows due to periods of drought and reduction in available water resource.	Measures are likely to be resilient to increased temperatures. However, higher compensation flows may be required to prevent water temperatures exceeding habitable conditions and to take into account increased demand and reduction in available water resource during periods of increased temperature.	Good resilience and flexibility to predicted climate change	Good resilience and flexibility to predicted climate change

www.sepa.org.uk

Summary – and where to find things…

- Scottish Govt Climate Change website:
  www.scotland.gov.uk/Topics/Environment/climatechange
- Climate Change Guidance (when published) – Scottish Government SEA website:
  www.scotland.gov.uk/Topics/Environment/SustainableDevelopment/14587
- SEPA Climate Change website:
  www.sepa.org.uk/climate_change.aspx
- Scottish Climate Change Impacts Programme –
  www.sccip.org.uk
- Scotland and Solway Tweed River Basin Plan SEA (SEA Statement and climate resilience check available in late December 2009):
  www.sepa.org.uk/water/river_basin_planning.aspx

www.sepa.org.uk



Thank You !

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