

## Appendix A:

# Consultation of Previous SEA Environment Report and Current SEA Scoping Report

### 1.1 Overview

The appendix provides a summary of the consultation undertaken on the previous SEA Environmental Report (dated July 2010) and of the consultation undertaken on the current SEA scoping report (dated August 2013).

### 1.2 Consultation of Previous SEA Environmental Report

The previous Environmental Report was subject to a 12 week public consultation period following publication (with extensive advertising in local and national newspapers of the start of consultation).

In keeping with the Government's move towards 'less paper' where feasible, consultation was conducted electronically using email and the DECC website. In addition, the onshore SEA documentation could be requested in hard copy or on CD.

Responses were received via the DECC website and as e-mailed or hard copy correspondence to DECC. Feedback relevant to the Environmental Report consultation was received from:

- Countryside Council for Wales (CCW);
- Environment Agency (EA);
- Natural England (NE);
- Historic Scotland (HS);
- Scottish Environment Protection Agency (SEPA);
- Scottish Natural Heritage (SNH); and
- Mr Philip Mitchell.

Note that responses from Historic Scotland and English Heritage were received though they were content with the content and level of assessment with regard to historic interests and therefore did not provide any further feedback. No response was received from Cadw.

**Table A.1** provides a summary of the responses received on the previous Environmental Report. For ease of reader access, consultee comments have been summarised and grouped by SEA Environment

Report section. Where consultee comments cover the same issue they have been combined to avoid duplication.

**Table A.1 Response Summary from Consultation on Previous Environmental Report**

#	Organisation	Issue
<b>General Comments</b>		
1	SNH	Due to the lack of detail on the scale and distribution of likely activities the report does not fully ascertain whether the release of licences will lead to particular development pressure in certain locations, and so its ability to guide mitigation measures over the scope of the whole programme, rather than individual projects, is not fully realised.
2	EA	The Conservation of Habitats and Species Regulations 2010 has replaced the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).
3		Encourage further consideration of exclusionary or locational criteria within alternative 2, especially with regard to avoiding areas of flood risk and Natura 2000 sites to strengthen licensing conditions and to ensure the best environmental outcome.
4		Much emphasis is placed on mitigating environmental impacts through the regulatory and consenting processes at the project level. The SEA should make clear that it may not be possible to mitigate all adverse impacts through the Environmental Impact Assessment and licensing processes, and reference should be made for the potential need of compensation measures at the project application stage. At this strategic level further explanation could be given as to how regulatory and consenting processes will ensure impacts are avoided, mitigated or managed so as to minimise significant effect.
5		Recommend further consideration of the potentially significant negative impact on groundwater from hydraulic fracturing. Major environmental concerns have been associated with hydraulic fracturing based on evidence from the USA, including the potential for contamination of groundwater with fracturing chemicals or waste fluids. Pollution of drinking water supplies through this process would be especially sensitive as supplies may be impossible to replace, particularly in the South East where the water resource balance is critical.
6		Recommend including clearer explanation of the potential impacts on water bodies from licensing activities which could hinder achieving the objectives of the Water Framework Directive (WFD). The licensing plan/programme should result in no deterioration of the water environment. It should also be clear in the SEA that at the project level any impacts to water bodies which could affect achievement of Good Ecological Status or Good Ecological Potential must be fully considered and avoided or mitigated.
7		One of the strengths of the SEA process is the requirement to consider cumulative effects. We recommend further consideration is given to potential interrelationships with other industrial activities and the potential impacts of the grouping of several licences in one block.
8		The use and inter-changing of headings covering topics and areas throughout Section 4 (Environmental information) and Section 5 (Summary of assessment), as well as the appendices does not allow for easy analysis of the significance of the effects. We would recommend the consistent use of one or the other or both topics and areas throughout the Environmental Report.
9		CCW/EA

#	Organisation	Issue
10	NE	The report should make it clear that all GCR sites are, or soon will be SSSIs and as such are afforded SSSI protection as delivered by environmental legislation and the planning system.
11		The document could acknowledge the existence of Local Geological Sites (sometimes referred to as Regional Geological Sites or Regional Geodiversity Sites).
12		We would advise that you check the numbers of designations listed as p (proposed) as a number of marine sites became SACs recently.
13	SEPA	It would have been helpful to clearly set out in the Environmental Report how the iterative SEA process has helped to inform the preparation of the draft plan and its licensing conditions; what changes were made as a result of the environmental assessment process; how the SEA has strengthened the environmental aspects and influenced the content of the plan.
14	Mr P Mitchell	<p>Evidence suggests that there is a wide range of risks to onshore shale gas production that would be unacceptable to the public, and that there is an unacceptable degree of uncertainty that the full impact on public health and safety of the processes involved is fully understood. The granting of licences for shale gas production using hydrofracing should be excluded from the 14<sup>th</sup> and subsequent licensing Rounds.</p> <p>A number of concerns were raised including:</p> <ul style="list-style-type: none"> <li>incidents in the USA including pollution from chemicals and the dissolution of gas in water supplies;</li> <li>extent of risks associated with hydrofracing are not well known;</li> <li>human health risks from the loss of containment of chemicals used in hydrofracing;</li> <li>the nature of produced water from shale gas activities;</li> <li>seismic risks associated with hydrofracing.</li> </ul> <p>A number of sources of information were provided in relation to environmental concerns/incidents reported in the US. A petition from Singleton residents opposing the inclusion of shale gas extraction in the 14<sup>th</sup> Round was also included.</p>
<b>Non-Technical Summary</b>		
1	CCW	CCW notes with concern, proposals to license for shale gas exploration/production, notably given the potential adverse effects of hydrofracing. Consideration needs to be given within this assessment to water resource considerations and constraints and to the derivation and constraints on sand and aggregates resources. It is noted that some proposed licensing blocks (including some within the West Midlands SEA area) are within the catchments of rivers designated under the Habitats Directive and where there may be major constraints relating to water resources.
2		<p>Figure 1: Given the large scale of this map, it is difficult to consider the exact location of licensing blocks, particularly in relation to the boundary between England and Wales.</p> <p>Prospectivity and Biodiversity, Habitats, Flora and Fauna: the size of surface facilities does not necessarily determine the nature and magnitude of environmental effects but its location, timing of activities and the sensitivity of the receiving environment.</p>
3		To defer responsibility for considering environmental effects to the project level negates consideration of mitigation and avoidance measures at the strategic level.
4		CCW notes the comment that facility siting would 'normally' be required to avoid geological features of interest, flood plains etc. It is disappointing that similar consideration i.e. the avoidance of facilities on areas of nature conservation/species interest was not considered in respect of biodiversity, habitats, flora and fauna.
6		Water Environment: CCW notes and, in principle, supports the acknowledgement of the importance of potable water however, it is suggested that the interrelationships of potential effects on water need to also be considered in respect of biodiversity and other environmental assets.

#	Organisation	Issue
		It is noted that some proposed licensing blocks (including some within the West Midlands SEA area) are within the catchments of rivers designated under the Habitats Directive and where there may be major constraints relating to water resources.
7		Air Quality: assessment suggests that existing controls are regarded as adequate. CCW has no objection to this statement in principle but has concerns regarding cumulative effects of emissions from transport, power generation and flaring both within the oil and gas sector itself and 'in combination' with emissions from other sectors and activities. Whilst the EIA process enables consideration of emissions for individual projects (at the application stage), the EIA process cannot consider cumulative and synergistic effects. The whole point of assessment at the strategic (plan) level is to enable consideration of cumulative and synergistic effects both within the plan under scrutiny itself and in respect of other plans, policies and projects.
8		'Watery Areas' of the Dee: CCW notes that nearshore 'watery areas' will be considered under the landward regulations. Clarification would be welcomed as to which boundary line is being used to determine exactly where the landward and marine regulations apply.
9		'Watery Areas' of the Dee: The Dee Estuary is subject to multiple designations under International Legislation (the Habitats and Bird Directive and the Ramsar Convention) while the Liverpool Bay area is subject to protection under European law. None of these major designations have been considered in this section [of the Non-technical summary] and CCW would suggest the statement that 'operators should be aware of environmental sensitivities' is insufficient for the Dee Estuary and Liverpool Bay areas, notably because it would appear that consideration of environmental issues, including European and Ramsar Site issues, has again been deferred to the 'project' stage. Whilst project development control processes enable consideration of effects for individual projects (at the application stage), they cannot consider cumulative and synergistic effects effectively. The whole point of assessment at the strategic (plan) level is to enable consideration of cumulative and synergistic effects both within the plan under scrutiny itself and in respect of other plans, policies and projects. No consideration appears to have been given to the Liverpool Bay SPA.
<b>Section 2: Overview of the Draft Plan</b>		
1	SEPA	Note that the early implementation of the plan could allow for potential synergies in terms of use of existing infrastructure (e.g. pipelines) across different exploration areas. However, the Environmental Report does not go into any detail or identifies which blocks may allow such synergies. Other options in the delivery of the licensing round may therefore include the prioritisation of areas for development that would allow such synergies. The SEA could have considered the potential for significant environmental effects of delivering such synergies. If these further options are considered as part of the development of the draft plan, then further assessment may be required in order to ensure that the final plan is fully informed by the SEA process.
2	CCW	Figure 2.1: the scale and detail of the map does not enable consideration of the exact locations of licensing blocks in the onshore context and/or reference to offshore areas where existing licences occur, and may have effects on the inshore environment and designated sites of nature conservation interest. In the past, CCW has raised concerns that DECC have not informed statutory authorities, including CCW and Local Planning Authorities, which prospect blocks have been awarded licences and therefore where applications for prospecting development may be forthcoming. CCW would welcome notice of block licensing awards (both onshore and offshore) in order that appropriate pre-application discussions can be initiated with developers in respect of environmental issues and sensitivities/controls.
3		CCW notes the comment that the major stages of onshore oil and gas operation are 'covered' by environmental regulations including the EIA process. CCW notes that this section only refers to major stages of oil and gas operation. The scale of project operation does not necessarily determine environmental effect. The magnitude of environmental effect is likely to be determined by the sensitivity of the receiving environment and minor operations, alone or cumulatively may have significant effects on the environment and these 'minor' developments may not necessarily be subject to environmental regulation.
4		2.4.1: CCW would suggest that physical damage should include alteration/damage to environmental processes and services as well as features, including sediment flows (offshore), hydrological processes etc.

#	Organisation	Issue
		It should also be noted that the magnitude and scale of effects (both positive and negative) are dependent on the sensitivity of the receiving environment and may be time dependent. Consideration also needs to be given to cumulative and synergistic effects both between activities induced by this licensing round and with other plans, programmes and projects.
<b>Section 3: SEA Approach</b>		
1	NE	SEA Scope: Appendix 4b, Geology and soil would better read; Geology, geomorphology and soil, and therefore reflect that many SSSIs are designated for their geomorphology which is subject to impacts from licensing the same as geology and soil is.
2	EA	Water environment objectives:  Add the following indicator: "no significant concentrations of hazardous substances or non-hazardous pollutants (in groundwater) at an appropriate compliance point (compliance point would be determined on a site specific, substance specific basis)".  Change objective so that "flood risk should not be increased elsewhere, and works should not adversely affect flood risk management infrastructure".  Change objective to "avoids, and where possible reduces, flood and coastal change risk".
3	CCW	Table 3.1: CCW notes the amendments made to SEA objectives further to scoping consultations. However, CCW still retains a number of concerns regarding the generic nature of objectives used and the continued reliance on indicators which merely reflect compliance with existing legislation. The aim of the SEA Directive and process is to ensure a 'high degree of protection for the environment and not to 'enforce' other legislation.  In our scoping response to the 13 <sup>th</sup> Onshore Licensing Round, CCW raised this issue and suggested a number of pro-active objectives (and indicators) that might be useful to this assessment process. CCW is disappointed that not all of these suggestions have been considered and that some objectives remain 'negative' in that the majority do not seek to maintain or enhance environmental features and facets but merely seek to 'avoid damage'.
4		Biodiversity, Habitats, Flora and Fauna: CCW would suggest that objectives should be made more positive and seek to maintain and enhance natural heritage features and processes and not merely seek to 'avoid significant damage'. CCW would suggest that indicators should aim to 'measure' impacts on all aspects of the natural heritage, not just those specifically considered within the Habitats Directive. It would therefore be expected that objectives and indicators should aim to consider all features of the natural heritage including aspects of ecological functions, goods and services, and ecological connectivity.
5		Geology and Soils: CCW welcomes the inclusion of an objective in respect of maintenance of the integrity and function of soils. CCW would further suggest that the second objective be strengthened to maintain and enhance geological features, not merely to avoid damage. In addition, this objective should also refer to geophysical processes and functions.
6		Water Environment: CCW would suggest that objectives should be made more positive and seek to maintain and enhance water resources and functions and not merely seek to 'avoid adverse impacts'. CCW notes the use of compliance with the Water Framework Directive and would suggest reference should also be made to the Floods Directive and Habitats Directive.
7		Climatic Factors: CCW notes that indicators relate only to gas flaring. Additional consideration should have been given to indirect and ancillary emissions including transport.
<b>Section 4: Environmental Baseline</b>		
1	NE	Recommend adding the important bird interest of the Bowland Fells SPA.

#	Organisation	Issue
2		Recommend adding North Norfolk coastal habitats, Humber mudflats and coastal saltmarsh (Humber Estuary) and saline lagoons (Holderness Coast). Details provided for the Humber Estuary SPA and Ramsar (flats, marshes and coast), and the Humberhead Peatlands.
3		Query the figures in the statement that 50% of England's resource of blanket and raised bogs is in the North West and Midlands. A significant proportion also exists in the North East and South West of England.
4		Recommend making reference to the clay lowlands of Lincolnshire and The Wash.
5		Water resource pressures, both now and in the future, of North Norfolk need to be highlighted in the report.
6		Report should highlight the 2000 floods in Yorkshire and Humber and the number of people living within areas of flood risk. Should also highlight the increase sea level rise and flood risk associated with climate change, with marked effects on the east coast and the Humber Estuary.
7		Table 4.2: The table could also include the opportunities for site restoration and the aim of this work i.e. maximising benefits for biodiversity, recreation etc. Table should also reflect that many SSSIs are geological / geomorphological and could equally be impacted upon by licensing and its implementation.
8		Table 4.4: section on geological features should also reflect that geological / geomorphological features are susceptible to damage from poorly sited infrastructure including pipelines etc. Further information can be found in Prosser, C, Murphy, M and Larwood, J, 2006. Geological Conservation: a guide to good practice, English Nature, 145pp.
9	CCW	Abstraction and Artificial Flow: Reference should be made to relevant Review of Consents findings for SAC rivers supporting abstraction, including the Wye SAC. Reference should also be made to areas of water deficit and abstraction limit identified in Water resource Management Plans.
10		Loss of Soil: Reference should be made to soil function impacts derived from airborne emissions.
11		4.2.4: Reference should be made to the Liverpool Bay SPA, Usk SAC and to multiple International designations for nature conservation within the Severn Estuary area. CCW also notes that no consideration has been given to anadromous species in respect of the Usk and Wye SACs and/or the Tywi SAC.
12		Reference should be made to water resource functions of the Elan Valley/Wye and Usk river systems and their relevance to population centres in the West Midlands and SE Wales.
13	EA	The Environmental Baseline section concentrates on the issue of flood risk from rivers and the sea. This section could make clear that flood risk comes from many sources, all of which need consideration.
14		Equal regard should be given to the risks from coastal change.
15		The evidence and supporting information can be obtained from the SMPs for England and Wales that are currently under review and nearing completion. Information on the risk from coastal erosion nationally is being collated and expected to become available during 2011. The PPS25 supplement on development and coastal change, and its accompanying practice guide are also relevant in England, and TAN14 on development and coastal change is relevant in Wales.
16		Table 4.4: Reference should also be made to the risks from flooding and coastal erosion, and the likelihood that these risks will increase in time due to climate change.
17		Reference to the Surface Water Management Plans (SWMP) should be given in this section and they should be used as a means to identify the highest risk areas.

#	Organisation	Issue
<b>Section 5: Summary of Assessment</b>		
1	SNH	Alternatives: The comparison of alternatives is simplistic and the conclusion not justified, as impacts of Alternatives 2 and 3 are not distinguished. It would have been preferable to explore the differences between realistic spatial and temporal restrictions on licensing, and/or between realistic conditions that could be applied to the licences, to determine which would have given the best result.
2		Cumulative effects: The qualities of geology and site that are most likely to be exploited by the respective methods of onshore oil and gas technologies might also support particular habitats or geological features, and therefore there could be a cumulative effect on these habitats and features as a result of the licensing. This possibility needs to be considered with respect to each of the technologies.
3		Shot holes: detonations are likely to cause disturbance to breeding birds and potentially other protected species in their places of rest (for example, bat roosts). This would give rise to cumulative effects if these impacts are repeated by many licensed operations. These impacts can be avoided by conditions which require survey and, if necessary, restrictions on detonations - say during the bird breeding season. However, if such restrictions are impractical (because it would curtail work over several months), then this potential impact needs to be fully considered in the SEA and consequent licensing provisions.
4		Hydrofracing: aware of wetlands in central Scotland where the surface is pock-marked because of sub-surface collapses. As hydrofracing / gasification encourages the fracturing of reserves under the surface, it could cause subsidence and hence damage to surface habitats. Indeed, it is possible that this could affect the local hydrology and hence affect any wetland habitats more widely. The 'Scottish Midlands', which the SEA covers, includes a significant number of sites for important BAP habitats such as lowland raised bogs (which are specifically mentioned in A5.2.1) and fens. Most of those sites are not designated but make an important contribution to the overall resource.
5	SEPA	The mitigation measures proposed in the Environmental Report rely mostly on assumed mitigation, planning controls and regulation at the site level. While assumed mitigation may be feasible for some of the effects, the SEA could investigate other ways to reduce effects, not just relying on regulation at the local level to mitigate them. Cumulative effects can be addressed most effectively at the strategic level, rather than at the individual site level. You may wish to consider what mitigation measures can be put in place to ensure the consideration of cumulative impacts across sites. This could include for example the consideration of cross site cumulative effects through lower tier assessments and effective mitigation measures that are supported by an implementation plan and/or licensing conditions.
6		The Environmental Report could have considered in more detail if potential synergies in terms of sharing existing infrastructure (e.g. pipelines) across different exploration areas could be used as a mitigation measure to minimise some of the potential effects from developing new infrastructure, as well as potential effects on climate change and resource use.
7		Would have welcomed further consideration of climate change adaptation and the need to establish resilience of facilities to potential future climate change as part of project planning. The Environmental Report should provide clear direction on this issue in order to ensure that facilities are planned and designed to be completely robust to long term future climate change. In addition, consideration could be given to how facilities can contribute to UK's wider resilience in terms of energy supply and not hinder UK's ability to adapt to future climate change.
8		It would have been helpful for the Environmental Report to consider effects of the proposed plan on greenhouse gas emissions more thoroughly given the very challenging targets set by the Climate Change legislation. This would have been particularly relevant in relation to potential cumulative effects of the draft plan in the long term, in association with the overall UK oil and gas energy sector.
10		It would have been helpful to describe how the plan is likely to support the delivery of the necessary strategic level mitigation (including assumed mitigation and the need for further assessment), i.e. how it will ensure their implementation at each site. The links between the SEA and subsequent EIAs and local assessments will be key to the consideration of significant environmental effects and their mitigation, as individual sites are progressed.



#	Organisation	Issue
11		What mitigation measures are necessary, who is responsible for leading them and when they should be undertaken? This could be included in the SEA Statement that is published post adoption of the plan. The SEA process plays a key role in identifying opportunities for improving the environment as part of the mitigation measures (enhancement) and we would have welcomed further consideration of enhancement measures.
13		Will the licensing conditions include provisions which control or restrict activity in, for example, sensitive areas within the blocks? Will the licensing conditions support the delivery of mitigation measures identified through the SEA process?
14	NE	Alternatives: Impacts relating to alternatives 2 and 3 are the same. The table should also reflect the potential for damage to geological/geomorphological features from poorly sited infrastructure including pipelines.
15		Table 5.7: table could also make a statement about avoiding damage to geological SSSIs and Local Geological Sites, as required in PPS9.
16		We note that the impacts of different licensing activities are scored on magnitude and duration, with only those considered to have major negative or major positive impacts considered as significant. We would ask for further consideration of this as an acceptable approach, as the cumulative impact of multiple minor negative impacts may also be significant but will not have been assessed.
17		Note that the report does not assess as to whether pipelines should be under or over ground, although it recognises that "pipelines can be buried to minimise long-term disturbance". The Draft NPS for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) implies that long-term impacts on landscape are negligible due to the main infrastructure being buried, although we would note that minor negative impacts on landscape can still result due to: <ul style="list-style-type: none"> <li>• limitations on the ability to replant landscape features such as hedgerows or deep-rooted trees over or adjacent to the pipeline; and</li> <li>• small structures and indication points necessary to identify the pipeline route and provide it with service access.</li> </ul> We would therefore recommend that the report clarifies whether impacts have been assessed on the basis of underground pipelines, particularly where landscape is concerned, but also with regard to biodiversity, geology and soils.
18		Given that the impact on biodiversity of each type of licensing activity is summarised as minor to major negative in Table 5.2 to 5.5 of the report, we are not clear why the impacts of option 2 on biodiversity are only identified as minor negative in Table 5.6 of the report. We would therefore recommend clarification of this point, as recognition of a major impact in option 2 would have differentiated significantly between option 2 and option 3.
19	EA	Table 5.2: In our opinion, exploration wellsite construction would result in a minor negative effect, due to construction and excavation waste associated with road and installation building.
20		Table 5.2, 5.3 & 5.4: In our opinion: <ul style="list-style-type: none"> <li>• hydrofracing and de-watering would result in a major negative effect on the water environment;</li> <li>• production activities would result in a major negative effect on the water environment;</li> <li>• decommissioning would result in a minor negative effect on the water environment;</li> <li>• decommissioning would have a medium to long term effect on the water environment.</li> </ul>
21		Table 5.6: Recommend considering indicators other than priority BAP habitat or species such as species and habitats protected under the Habitats and Birds Directives, albeit recognising that there is significant overlap.
22		Please confirm whether the species and habitats discussed here refer to those found on sites of special scientific interest only? This is implied by the terminology used but not specifically stated.
23		The references in this section relate only to water quality issues. We would recommend including a reference to flood and coastal erosion risk.



#	Organisation	Issue
24		<p>We recommend that the current status/trends column needs to include a row for groundwater quality. In addition the commentary column should include the following:</p> <p>Pollution can occur through:</p> <ul style="list-style-type: none"> <li>• Introduction of pollutants into the ground and potential impact on groundwaters, if any, within the gas bearing strata;</li> <li>• Pathways potentially created by the hydraulic fracturing process which might lead to the movement of pollutants (introduced as additives, or hydrocarbons mobilised into adjacent formations that would not otherwise have received them);</li> <li>• Cross contamination between the shale/coal and other aquifers by tracking behind the borehole casing or leakage from the borehole casing – either from the injected water/ fluids or return waters;</li> <li>• Works at the surface which might lead to inputs to groundwater (e.g. lagoons, well blowouts etc).</li> <li>• Disposal by re-injection of waters arising from the process (production waters)</li> </ul> <p>Above ground infrastructure best practice is well established in the UK, whilst underground activities are a new and emerging technology.</p>
25		<p>Table 5.7 and A5.27 (Appendix 5): The Conservation of Habitats and Species Regulations 2010 are clear that any plan or project must not adversely affect the integrity of a protected site. We would recommend removing the word significant from the sentence 'Avoids significant impact to...'</p>
26		<p>Many activities can adversely affect sites that would not be considered within or adjacent to those activities, as in the case of migratory fish species not being able to reach spawning grounds if barriers to migration are placed in channel or water being over-abstracted upstream of a protected site causing loss of habitat or species due to reduced flow or volume. Adverse effects can therefore be wider than is stated in this assessment.</p>
27		<p>We recommended changing 'aquifer water quality' to 'groundwater quality'.</p>
28		<p>Landfill tax is helping to encourage landfill diversion (not necessarily waste minimisation). When considering mitigation later at the EIA stage, we must not rely on fiscal measures alone to deliver the waste hierarchy. Resource efficiency must be considered as early as possible, to ensure opportunities for waste minimisation are realised. Site Waste Management Plans (SWMP) provide a useful framework for auditing and promoting sustainable waste procedures before and during construction and excavation work.</p>
29	CCW	<p>Conventional Oil and Gas: CCW notes with concern the large number of negative impacts (including major negative impacts) identified within this assessment process for biodiversity, geology and soils, landscape, the water environment and climate change and would welcome clarification as to how these adverse effects will be addressed, avoided and/or mitigated for within the licensing round itself e.g. through the implementation of conditions and/or controls. The adverse effects identified in relationship to exploration wellsite construction, exploration drilling, construction of production installation, development drilling and decommissioning are of particular concern. Clarification would also be welcomed regarding this assessment's finding that hydrofracing and dewatering activities are not considered to have a neutral effect on biodiversity.</p> <p>Given the nature of the likely activities, CCW would suggest that 'neutral' effects are unlikely, especially in the short and medium terms and clarification is needed as to how the magnitude of effect scores have been judged/appraised.</p>
30		<p>CCW notes that where Table 5.2 has indicated no relative impact magnitude, that no relative impact duration has been considered in Table 5.3. See comments. CCW would welcome further clarification as to how some of the relative impact assessment magnitude 'scores' have been reached since some would appear counterintuitive (also applicable to Table 5.4 and 5.5).</p>
31		<p>5.2.1: Reference should also be made to 'sensitivities' in respect of the Dee Estuary's status as a Ramsar Site. Reference should also be made to potential effects associated with the Liverpool Bay SPA.</p> <p>CCW would also question the statement regarding the 'lack of marine activities' in the Dee Estuary area. Consideration should be given to offshore wind energy development (and associated servicing from ports including Mostyn and Liverpool and to marine activities (including dredging) relating to the aircraft industry on the Dee estuary.</p>

#	Organisation	Issue
32		5.3 Alternatives: CCW welcomes the consideration of alternatives within this assessment process. However, clarification is required regarding the indicators used within this Table given that they do not all appear to immediately relate to the wider indicators provided in Table 3.2 of this Environmental Report. Objectives and indicators should be relevant to and reactive to the plan under scrutiny and the assessment process should enable consideration of causal links between the implementation of the plan and effects on environmental facets.
33		5.4: CCW notes with interest the statement regarding the potential for CCS in the Merseyside Area. Clarification would be welcomed as to whether this includes the Dee Estuary (as a terrestrial 'watery' area) and/or elements of the marine environment e.g. Liverpool Bay and areas adjacent to the North Wales coast. CCW notes the statement that 'no potentially cumulative or transboundary effects were identified that would not be expected to be adequately controlled by existing regulatory or other mechanisms'.
34		5.5: CCW notes and, in principle, welcomes this assessment's recommendation that the licensing programme only be progressed with an explicit expectation on applicants to demonstrate an understanding of environmental sensitivities and constraints on blocks at the application stage and operational stage. CCW would welcome the opportunity to discuss with DECC, the nature of this 'expectation'.
<b>Section 6: Monitoring</b>		
1	EA	The Environment Agency is happy to share our public register of groundwater monitoring data with DECC or the operators. However, the environmental monitoring specifically associated with proposed licensing operations (including interrogation of the data the EA provide) would rest with DECC or the responsible licensees.
<b>Section 7: Next Steps</b>		
1	SEPA	We welcome the early consideration of monitoring requirements and are generally content with the proposed environmental monitoring measures.
<b>Glossary</b>		
1	NE	Suggest definition for biodiversity is changed to a more formal definition might be "the variability among living organisms from all sources; this includes diversity within species, between species and of ecosystems" or that defined under the Convention on Biological Diversity.
<b>Appendix 2 - Onshore Oil and Gas Activities, Controls And Mitigation</b>		
1	EA	Coal Mine Methane and Abandoned Methane Mining (AMM) are not included in the SEA as they are covered by a separate regulatory regime. Please confirm if these activities form part of the licensing plan/programme. If so, please confirm how the impacts of the activities will be assessed.
2		We recommend further consideration/explanation of the problems associated with virgin coal bed methane extraction methods. By drilling into coal measures and extracting the methane released through natural processes, this gas may find alternative routes away from the area of extraction. Small, localised natural faulting and those induced in the extraction process may displace significant volumes of methane and other volatiles into the surrounding strata, which could dissolve in groundwater or migrate to other localities or escape to the surface. The process of fracturing in seam coal to improve its natural permeability may require significant drilling which may cause fracturing in the surrounding strata, this could also be the case for extraction of methane from shales.
3		We recommend referencing the potential environmental and hazardous issue resulting from methane's solubility under pressure in groundwater which could be explosive if free methane from the extractive process is not captured and exported to the surface. The HSE website references the Abbeystead Pumping Station explosion, 1984.

#	Organisation	Issue
		This led to recognition of enhanced solubility of methane in water under pressure and the migration of groundwater into enclosed spaces as causes of the explosion and hazards to be managed in future (Bottrell, Bartlett, ICE Water Management, 2009).
<b>Appendix 4e – Air Quality</b>		
1	NE	We note that the report concludes that air quality impacts will not be an issue because “the existing regulatory controls on transport, power generation and gas flaring are regarded as adequate”. Although we would accept that these controls are adequate, we would also note that this does not necessarily mean that any new operation will automatically get planning permission or an Environment Permit. There is also a risk that permission could be refused especially in areas where air pollution levels are already high and critical loads/levels for ecosystem protection exceeded. We would therefore suggest that DECC check whether legally this assumption can be relied upon.
2		The report states that “EIA and other consents would be expected to give due consideration of local and regional air quality plans”. If this refers to the Air Quality Management Areas and Air Quality Management Plans that are mentioned elsewhere in the report, then we would point out that these are only based on human health protection. Ecosystem receptors may be more sensitive than humans to air pollution (e.g. from NOx), plus the UK Air Quality Strategy (that drives these plans) currently includes large exclusion zones where objectives for the protection of ecosystems do not have to be applied. Natural England consider this to be in conflict with nature conservation legislation and, together with the Environment Agency, advise that the objectives should be applied to all sensitive nature conservation sites.
3		The report also mentions high air pollution levels in urban areas and areas with high rainfall. We would also note that air pollution can also be an issue in more rural areas where there are emissions from agriculture (e.g. atmospheric ammonia and N deposition from livestock, fertiliser application etc).
4		We would add that the report’s conclusions focus heavily on the fact that pollutant emissions are generally decreasing and that critical load exceedance is lower than in the past. However we would recommend adding the caveat that there is still a large area of sensitive semi-natural habitat predicted to experience critical load exceedance, now and into the future.
<b>Appendix 3 – Other Relevant Initiatives</b>		
1	SEPA	We would advise of the following with regard to the review of other relevant plans and programmes and baseline data: <ul style="list-style-type: none"> <li>• The Scotland’s Zero Waste Plan (ZWP) 2010;</li> <li>• There are still a few references to individual Scottish Planning Policies (e.g. SPP7 and SPP4);</li> <li>• Structure Plans and Local Plans in Scotland are currently being replaced by Strategic Development Plans (SDPs) for the city regions and Local Development Plans;</li> <li>• Would have welcomed a reference in the baseline data on flood risk to the Indicative River and Coastal Flood Map (Scotland).</li> </ul>
2	EA	The requirements of the Mining Waste Directive (MWD) should be considered as a potentially relevant initiative to the plan/programme. This affects all UK on-shore sectors of the mining and quarrying industry. Regulations implementing the MWD in England and Wales came into force on the 7th July 2009.
3		Dewatering does not currently require an abstraction licence but it may do in the next few years. Defra are currently considering changes to the legislation.
4		Flood defence consents under the Land Drainage Act 1991 and the Water Resources Act 1991 (and associated byelaws) will be required if any of the following apply: <ul style="list-style-type: none"> <li>• works in, over, under, or within the byelaw margin of main rivers, or likely to affect the integrity of tidal defences;</li> <li>• raising ground levels in the floodplain beside a main river;</li> </ul>

#	Organisation	Issue
		<ul style="list-style-type: none"> <li>constructing or altering a culvert or structure to control the flow of the river (such as a weir) on any ordinary watercourse.</li> </ul>
<b>Appendix 5 – Consideration of Activities</b>		
1	EA	<p>With regards to the various stages listed in appendix 5, it would be appropriate for controlling conditions (mitigations) to be included covering the following aspects:</p> <ul style="list-style-type: none"> <li>the disposal of mud and cuttings should not take place in flood risk areas because of potential increased flood risk elsewhere;</li> <li>disposal of water from development drilling must not increase flood risk elsewhere;</li> <li>particular care needs to be taken where pipelines cross flood risk infrastructure such as defences;</li> <li>storage facilities must be positioned in accordance with PPS25 guidance e.g. applying a sequential approach and avoiding risk wherever possible.</li> </ul>
2		<p>Groundwater Regulations have been superseded by Environmental Permitting Regulations 2010, the wording should be changed accordingly. In addition we recommend including the following information within this section:</p> <p>Pollution can occur through:</p> <ul style="list-style-type: none"> <li>Introduction of pollutants into the ground and potential impact on groundwaters, if any, within the gas bearing strata;</li> <li>Pathways potentially created by the hydraulic fracturing process which might lead to the movement of pollutants (introduced as additives, or hydrocarbons mobilised into adjacent formations that would not otherwise have received them);</li> <li>Cross contamination between the shale/coal and other aquifers by tracking behind or leakage from the borehole casing– either from the injected water/ fluids or return waters;</li> <li>Works at the surface which might lead to inputs to groundwater (e.g. lagoons, well blowouts etc)'</li> <li>Disposal by re-injection of production waters.</li> </ul>
3		<p>Locating structures in areas of flood risk may also have a consequence for the local community or services, by impeding surface water flows or diverting groundwater flows</p>
4		<p>Reference should be made to the Flood and Coastal Erosion Risk Management Strategy in England (due Spring 2011), Surface Water Management Plans (SWMP) and if appropriate Shoreline Management Plans (SMP).</p>
5		<p>We recommend climate change mitigation (resistance) is considered as well as adaptation (resilience).</p>
6		<p>Preference should be given to proposals outside Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). Avoiding these sites could significantly reduce the level, and cost, of mitigation.</p>
7		<p>Much of the waste associated with disposal of mud and cuttings, is likely to be hazardous; we recommend further consideration of the potential local shortfall in capacity and transport implications of moving it across the country.</p>
8		<p>Any abstraction or discharge of water has the potential to affect biodiversity. The paragraphs used in other sections should cover this.</p> <p>Mitigation will be facilitated by effective consultation with statutory conservation agencies and planning authorities in advance of planning application. However applicants must be aware of statutory designations and sensitivities and are recommended to operate an EMS, with particular regard to the seasonal timing of operations.</p>
9		<p>Restoration of some habitat types, such as peatland, may not be possible in an acceptable time-scale. We recommend that the presumption should be against development in such locations.</p>
10		<p>Biodiversity, habitats, flora and fauna comments in section A5.3.1 (conventional oil and gas) are also applicable to sections A5.3.2 (virgin coal bed methane) and A5.3.3 (gas storage).</p>
11		<p>Biodiversity indicators are not restricted to priority BAP habitat or species. We recommend considering other indicators as well such as species and habitats protected under the Habitats and Birds Directives, albeit recognising that there is significant overlap.</p>

### 1.3 Consultation of the Current SEA Scoping Report

DECC published a Strategic Environmental Assessment (SEA) Scoping Report the 14<sup>th</sup> and subsequent hydrocarbon licensing rounds for a consultation period of six weeks ending 12 August 2013.

Eleven responses were received to the consultation from the following organisations:

- Environment Agency;
- English Heritage;
- Friends of the Earth;
- Greenpeace;
- Historic Scotland;
- Natural England;
- Natural Resources Wales;
- RSPB;
- SEPA;
- Scottish Natural Heritage; and
- WWF.

The comments received from these organisations are shown in Tables A.2-1.12 below, with responses and actions taken.

Where amendments are made to the assessment objectives or guide questions, these are shown in italics with those to be deleted shown as ~~strike through~~ and the revised text in *red*.

Table A.2 Environment Agency

Questions	Consultee Response	Response/Action
<p>Question 1: Do you think that this report sets out sufficient information to establish the context for the assessment? If not, which areas do you think have been missed and where is information on these topics available from?</p>	<p>We believe the report sets out sufficient information to establish the context for the assessment. However, there are a few areas where additional information could be considered.</p> <p><b>Water</b></p> <p>We believe the SEA should include;</p> <ul style="list-style-type: none"> <li>- More specific information on Water Framework Directive Requirements and extent of risks to water bodies;</li> <li>- Groundwater Source Protection Zones (GSPZ) and aquifer designation maps</li> </ul> <p><b>Flood Risk</b></p> <p>We suggest the flood risk baseline information in Appendix B includes reference to Local Flood Risk Strategies which Lead Local Flood Risk Authorities prepare as a requirement of the Flood and Water Management Act 2010.</p> <p><b>Land Use, Geology and Soils</b></p> <p>We believe the baseline should identify and assess potential impacts for sites vulnerable to secondary impacts associated with seismic events (such as sewage treatment works, water treatment works, waste sites, COMAH and PPC facilities) and that impacts on these sites are assessed. We can provide public information on hazardous facilities we current permit.</p>	<p>Comment noted.</p> <p>Our response to the request for additional information is outlined against the specific points made.</p> <p>Comment noted.</p> <p>Appendix B, section 5 'Water' presents a summary of the Water Framework Directive requirements (section 5.2.1.). Figures 5.1 and 5.3 provide overall WFD classifications for waters. Tables 5.2 to 5.6 provide a detailed summary of the risks posed to water resources in each of the 5 SEA areas. Risks to water resources identified include nutrient loading, physical modification, abstraction and artificial flow and chemical pollutants. This information is considered sufficient for the level of detailed required by the SEA.</p> <p>Information on Groundwater Source Protection Zones (GSPZ) will be included in Appendix B, section 5 'water'. A link to the GSPZs will be included.</p> <p>Comment noted.</p> <p>Appendix B, section 7.2.2 includes reference to local flood risk strategies as part of a commentary on the Flood and Water Management Act 2010. However, additional information will be provided outlining the generic contents of local flood risk strategies (to a level of detail similar to that presented for Catchment Abstraction Management Strategies (CAMs) and Shoreline Management Plans (SMPs).</p> <p>Disagree.</p> <p>The baseline presents information on the environmental features, characteristics and existing problems that could be affected by exploration and production activities associated with the Licensing Plan. Information that relates to the identification and assessment of effects arising from induced seismic events, will be presented in the Environmental Report. Depending on the findings of the report, this may need to include commentary on vulnerable infrastructure. If so, the EA's offer of additional information may be actioned.</p>
<p>Question 2: Do you agree with the main economic, social and environmental issues identified? If not, which issues need to be included?</p>	<p>We have focused our review on the main environmental issues within our remit and agree with the issues identified, however, we believe there are additional issues which need to be included.</p>	<p>Comment noted.</p> <p>Our response to the request for additional information is outlined against the specific points made.</p>

Questions	Consultee Response	Response/Action
	<p><b>Air</b></p> <p>The Scoping Report considers air pollution by type (PM10 and NOx/NO2). We suggest a wider range of impacts should be considered, including;</p> <ul style="list-style-type: none"> <li>- combustion and non-combustion source impacts</li> <li>- dust raised by vehicle traction and wind ablation of stockpiles</li> <li>- other amenity impacts (noise, odour, visual etc)</li> </ul> <p>The mitigation section identifies proposals to limit wider airborne impacts, but we believe the potential significance of these issues needs to be assessed within the SEA so there is a clear and strategic understanding of the potential implication of these impacts.</p> <p>We believe issues around photochemical episodes that can harm human health and crop productivity resulting from secondary pollutants such as ozone, nitrogen dioxide and fine particulates should be considered.</p> <p>We suggest that the SEA assessment considers if the UK's attainment of Gothenburg Protocol and National Emissions Ceiling Directives would be affected by additional emissions from shale gas exploration and production sites.</p> <p><b>Water</b></p> <p>Further consideration should be given to compliance with Article 7.3 of the Water Framework Directive (which states member States should ensure the necessary protection of water bodies with the aim of avoiding deterioration in their quality in order to reduce the level of drinking water treatment). There is a potential that licensed activities could impact on meeting this objective. This needs to be fully considered in the assessment stage and measures to avoid any deterioration in the quality of drinking water should be put into place.</p>	<p>Agreed.</p> <p>Appendix B, section 6 'Air' provides the baseline information for air quality. Pollutants identified include SO<sub>2</sub>, NO<sub>2</sub> and particulate matter (PM<sub>10</sub>). Emissions from vehicles and diesel generators (combustion) and dust arising from the excavation, transfer and storage of topsoil (non-combustion) will be considered in the assessment to be presented in the Environmental Report in responses to the assessment question, <i>Will the licensing plan proposals create a nuisance for people or wildlife (e.g. – from dust or odours)</i>.</p> <p>The potential impact of noise for both workers and local communities will be considered in the health topic section.</p> <p>Comment noted.</p> <p>The assessment will consider combustion and non-combustion sources of air pollutants arising from the activities that following from the Licensing Plan. It is the purpose of the SEA to identify, characterise and assess likely significant effects. Such effects on air quality will be identified and their importance considered, where such effects are deemed significant.</p> <p>Comment noted.</p> <p>The assessment will consider combustion source pollutants. If such effects are directly significant or lead to the creation of significant quantities of secondary air pollutants (such as low level ozone), these will also be included within the assessment.</p> <p>Comment noted.</p> <p>Section 6.2 of Appendix B summarises the National Emission Ceilings Directive (NECD) which sets ceilings for each member state for emissions of ammonia, sulphur dioxide, oxides of nitrogen (NOx) and volatile organic compounds (VOCs). These four pollutants are primarily responsible for acidification, eutrophication and ground-level ozone.</p> <p>In assessing the effects of the activities following licensing against the air quality objective, where relevant, and if quantitative information is available, we will include a commentary on the effects of emissions against the requirements of the NECD.</p> <p>Comment noted.</p> <p>Appendix B, section 5 'Water' presents a summary of the Water Framework Directive requirements (section 5.2.1.). Article 7.3 of the Water Framework Directive will be added to the summary. As noted above, information on Groundwater Source Protection Zones (GSPZ) will be included in Appendix B, section 5 'water'. Where there are any significant effects on the quality of water that could then affect drinking water arising from activities that follow on from licensing, the assessment will ensure that these are identified, characterised and assessed.</p>



Questions	Consultee Response	Response/Action
	<p>We suggest greater consideration is given to potential pressures on water resources, including deterioration in ecological status from increased water demand (either through direct abstraction or indirectly through increased demands on public water supply).</p> <p>We believe the consideration of potential impacts of seismic tremors associated with hydraulic fracturing should be expanded to include consideration of potential impacts to water quality through associated secondary impacts.</p>	<p>Comment noted.</p> <p>The impact of the activities that follow licensing on demand for water resources will be considered by considering the effects against the SEA Objective: <i>To maximise water efficiency, protect and enhance water quality and help achieve the objectives of the Water Framework Directive</i> and the following guide question 'Will the activities that follow the licensing round affect demand for water resources?'</p> <p>Comment noted.</p> <p>Information that relates to the identification and assessment of effects arising from induced seismic events, will be presented in the Environmental Report.</p>
<p>Question 3: Do you agree that the draft objectives for the SEA cover a sufficient range of environmental, social and economic topics to allow an assessment of the Strategic Projections? If not, which objectives should be amended and which other objectives do you believe should be included?</p>	<p><b>Climate Change and Flood Risk</b></p> <p>We suggest that the proposed objective for Climate Change and Flood Risk topic should be split into separate objectives. We suggest a Climate Change topic area with two separate sub-objectives covering mitigation and adaptation.</p> <p>We also suggest current flood risks would be better represented within the Water topic area or as a separate objective under a Flood Risk topic area. A Flood Risk objective should consider the following;</p> <ul style="list-style-type: none"> <li>- The impact of flooding and coastal erosion on the licensed activity.</li> <li>- Whether the licensed activity will increase flood risk to third parties</li> <li>- Whether the licensed activity is resilient to existing flood risk</li> </ul>	<p>Agreed.</p> <p>The Climate Change and Flood Risk topic will be split with the flood risk information transferred to the water topic. The climate change objective and guide questions (Table NTS3 and Table 4.3 of the Scoping Report and Table 7.7, Appendix B) will be amended to reflect the change as follows:</p> <p><i>To minimise greenhouse gas emissions as a contribution to climate change and ensure resilience to any consequences of climate change and establish measures which limit flood risk.</i></p> <p><i>Will the activities that follow the licensing round proposals affect climate change and flood risk in broad terms?</i></p> <p><i>Will the activities that follow the licensing round proposals be able to minimise the generation of greenhouse gases?</i></p> <p><i>Will the Licensing Plan proposals avoid, and where possible reduce, flood and coastal change risk?</i></p> <p><i>Will the activities that follow the licensing round proposals be significantly affected by climate change (for example rising temperatures and more extreme weather events)?</i></p> <p>A flood risk objective will be added to the water section along with guide questions as follows:</p> <p><i>To minimise the risks of coastal change and flooding to people, property and communities</i></p> <p><i>Will the activities that follow the licensing round be at risk of flooding or be affected by flooding, if it occurred?</i></p> <p><i>Will the activities that follow the licensing round have the potential to cause or exacerbate flooding?</i></p> <p><i>Will the activities that follow the licensing round have the potential to help alleviate flooding?</i></p> <p><i>Will the activities that follow the licensing round have the potential to affect coastal processes and/or erosion rates?</i></p> <p>These changes have been reflected in the Environmental Report.</p>

Questions	Consultee Response	Response/Action
	<p><b>Water</b></p> <p>We suggest that the existing objective for the Water topic area should be split into two sub-objectives to separate issues related to water quality and water quantity.</p> <p>We suggest that waste water is considered within the Waste and Resource Use objective.</p> <p>We would recommend including an additional guide question to ensure that any issues associated with the geological/hydrological connection between prospective shale gas sequences and the main UK geothermal and mineral springs and their geographical association are fully accounted for.</p> <p>We suggest that the Proposed Guide Questions are reviewed and reworded to ensure the issues are clearly defined and can be effectively measured against the proposed assessment framework.</p>	<p>Disagree.</p> <p>The current assessment objective includes reference to water quantity, water quality and the Water Framework Directive and the guide questions then expand on these points. We do not accept that the assessment will be improved by sub-dividing this assessment objective. The objective, as currently worded, ensures that a comprehensive description of the effects on the water topic is provided. For similar reasons we will not be moving waste water to the waste and resource use objective.</p> <p>However, to ensure that the assessment is further refined to focus on those matters of key significance, the guide questions have been revised from:</p> <p><del>Will the Licensing Plan proposals affect demand for water resources?</del></p> <p><del>Will the Licensing Plan proposals affect the amount of waste water and surface runoff produced?</del></p> <p><del>Will the Licensing Plan proposals protect and enhance the quality of surface, groundwater, estuarine and coastal water quality?</del></p> <p>to the following:</p> <p><i>Will the activities that follow the licensing round affect demand for water resources (availability)?</i></p> <p><i>Will the activities that follow the licensing round affect the amount of pollution arising from waste water and surface runoff produced?</i></p> <p><i>Will the activities that follow the licensing round protect and enhance the ecological status/ ecological potential* quality of surface, groundwater, estuarine and coastal waters quality?</i></p> <p><i>Will the activities that follow the licensing round protect the geological/hydrological connection between prospective shale gas sequences and UK geothermal and mineral springs?</i></p> <p>These changes have been reflected in the Environmental Report.</p>
<p>Other comments – Cumulative Effects</p>	<p>We welcome the proposed consideration of cumulative impacts with regard to the proposed assessment of the draft Licensing Plan in-combination with other plans and programmes.</p> <p>We would recommend that the activity scenarios for conventional and unconventional oil and gas at low and high activity are used in the consideration of cumulative effects.</p>	<p>Comment noted.</p> <p>For the avoidance of doubt, the assessment of the cumulative effects will include consideration of the effects of the low and high activity scenarios.</p>
<p>Other comments – Locational Criteria</p>	<p>The current approach does not consider the spatial aspects of licensing areas. We reiterate our recommendation to consider the use of location criteria within the Licensing Plan to identify and avoid/reduce significant impacts on sensitive environments.</p>	<p>Disagree.</p> <p>The Scoping Report sets out 5 broad geographic areas where the effects of the activities that follow licensing could take place. These are:</p> <ul style="list-style-type: none"> <li>SEA Area 1: Scottish Midlands (including the Inner Forth);</li> </ul>

Questions	Consultee Response	Response/Action
		<ul style="list-style-type: none"> <li>• SEA Area 2: West Midlands, North West England and Southern Scotland;</li> <li>• SEA Area 3: East Midlands and Eastern England;</li> <li>• SEA Area 4: North and South Wales (including the Dee/Afon Dyfrdwy);</li> <li>• SEA Area 5: Southern and South West England.</li> </ul> <p>Baseline information is provided under each of the SEA topics considered for each of the 5 SEA areas. The Environmental Report contains an assessment of the effects against each of these 5 areas.</p> <p>The use of locational criteria are considered within the context of mitigating measures proposed as a consequence of the completion of the assessment and we have given due consideration to such measures in the assessment.</p>

Table A.3 English Heritage

Questions	Consultee Response	Response/Action
<p>Question 1: Do you think that this report sets out sufficient information to establish the context for the assessment? If not, which areas do you think have been missed and where is information on these topics available from?</p>	<p>There is sufficient information to establish the context for the assessment with the exception of the following of relevance to this SEA. It is clear that, given the nature of the resource and the need to prospect its potential that it is not yet possible to be clear about the most likely spatial impacts of any future development.</p> <p><b>Cultural Heritage</b></p> <p>Add the following bullet point to Cultural Heritage; <i>To protect heritage assets and their wider settings</i>, so that this statement is in line with the National Heritage Protection Framework. .</p> <p><b>Landscape</b></p> <p>Amendments below suggested to bullet points landscape sections ensuring that definition of landscape is more closely aligned to the definition from the European Landscape Convention.</p> <ul style="list-style-type: none"> <li>- Second bullet under International should read: To protect, manage and plan for landscape change throughout Europe.</li> <li>- 2<sup>nd</sup> and 3<sup>rd</sup> bullets under the UK heading contain a narrowly-defined definition of landscapes, rather than 'To work within the framework of landscape to help shape future places and manage change everywhere'.</li> </ul> <p>1.4 – 2.5 sets out the context for each region in terms of biodiversity and the natural environment. Revised profiles to the National Character Areas led by Natural England provide information on landscape and drivers/analysis of change.</p> <p>Reference should be made to the NCA programme in this section.</p>	<p>Comment noted</p> <p>Comment noted.</p> <p>We assume that this is a reference to the summary objectives and policy messages (Table 3.2 of the Scoping Report) which will be amended as requested. These changes have been reflected in the Environmental Report.</p> <p>Comment noted.</p> <p>We assume that this is a reference to the summary objectives and policy messages (Table 3.2 of the Scoping Report) which will be amended as requested. These changes have been reflected in the Environmental Report.</p> <p>Comment noted.</p> <p>Section 10, Appendix B makes mention of the NCAs and highlights that Natural England are currently re-designing all of the NCAs. Reference to the NCA programme will be made as appropriate, and where information is publicly available within the topic chapters.</p>

Questions	Consultee Response	Response/Action
	<p>9.4.2-5- The sections on cultural heritage in the areas affected provide an indication of the density – and thus I take the potential risks for applicants in view of the impact (albeit temporary) of well pads and their associated upon the settings - of listed buildings and ancient monuments against the Output Areas derived from the 2004 Rural Urban Definitions Mapping which used the 2001 census.</p>	<p>Comment noted.</p>
<p>Question 2: Do you agree with the main economic, social and environmental issues identified? If not, which issues need to be included?</p>	<p>The main economic, social and environmental issues have been identified. In addition, the following issues should be considered in the context of this a subsequent SEAs.</p> <p><b>Cultural Heritage</b></p> <p>Cultural Heritage links in particular to (and should be highlighted in table 3.2);</p> <ul style="list-style-type: none"> <li>- Biodiversity;</li> <li>- Population;</li> <li>- Land Use, Geology and Soils;</li> <li>- Water; and</li> <li>- Waste.</li> </ul> <p>(Reasons for these links provided for)</p> <p>Cropmarks and other indications of land use and settlement are being constantly revealed by aerial and LIDAR photography and should be included as well as Scheduled Ancient Monuments.</p> <p>The recovery of information through extensive survey and sometimes excavation and the investigation of standing buildings is a critical way of mitigating the impact of development upon historic assets.</p> <p><b>Landscape</b></p> <p>I suggest rewording the 4<sup>th</sup> line of the second bullet to 'inconsistent with those key characteristics which contribute to the character and local distinctiveness of an area'.</p>	<p>Comment noted.</p> <p>Agreed.</p> <p>Table 3.2 of the Scoping Report will be amended to include the additional links to the SEA objectives. These changes have been reflected in the Environmental Report.</p> <p>Agreed.</p> <p>Table 3.3 will be amended to include the revised wording proposed. These changes have been reflected in the Environmental Report.</p>

Questions	Consultee Response	Response/Action
<p>Question 3: Do you agree that the draft objectives for the SEA cover a sufficient range of environmental, social and economic topics to allow an assessment of the Strategic Projections? If not, which objectives should be amended and which other objectives do you believe should be included?</p>	<p>I have minor amendments to make to the proposed SEA Objectives and Guide Questions.</p> <p><b>Cultural Heritage</b></p> <p>Second bullet point: suggest that it concludes simply as 'local distinctiveness and historic landscape character'.</p> <p>Suggest an addition guide question: How will the Licensing Plan proposals affect historic landscape character in all areas? (But not necessary if amend made as suggested to Landscape below).</p> <p><b>Landscape</b></p> <p>I suggest the wording of the third bullet is changed to: How will the Licensing Plan proposals affect landscape character in rural, peri-urban and urban areas?</p>	<p>Agreed.</p> <p>The second guide question will be amended as proposed:</p> <p><i>Will the activities that follow the licensing round affect the fabric and setting of historic buildings, places or spaces that contribute to local distinctiveness, <del>character and appearances</del> and historic landscape character?</i></p> <p>An additional guide question will be provided:</p> <p><i>How will the activities that following the licensing round affect historic landscape character in all areas?</i></p> <p>These changes have been reflected in the Environmental Report.</p> <p>Comment noted.</p> <p>Following the amendments made in response to the comments on Cultural Heritage, it is not proposed to amend the Landscape guide question.</p>

Table A.4 Friends of the Earth

Questions	Consultee Response	Response/Action
<p>Question 1: Do you think that this report sets out sufficient information to establish the context for the assessment? If not, which areas do you think have been missed and where is information on these topics available from?</p>	<p><b>Climate Change</b></p> <p>Although tables 2.6 and 2.7 helpfully estimate the fugitive emissions of methane per well during exploration drilling and production there is no indication of the expected greenhouse gas emissions during the use of extracted hydrocarbons. We recommend that these be considered.</p> <p>The climate change data of Table 3.3 is obviously not consistent with that in Appendix B. In particular it does not refer to the roughly 4% increase in CO2 emissions between 2011 and 2012. We recommend that this should be better analysed.</p> <p><b>Water</b></p> <p>The figures given in table 2.7 of 10,000m3 of water used per well possibly underestimates water use. We suggest that a range of values be given, on the order of 8,000-25,000m3.</p>	<p>Comment noted.</p> <p>It would be unusual to record the expected greenhouse gas emissions from the activities to be assessed in the Scoping Report, as this is a matter for the assessment itself, rather than the scoping on the assessment.</p> <p>For the avoidance of doubt and consistent with the SEA Directive and regulation requirements to consider 'secondary, cumulative and synergistic effects', the greenhouse gases arising from the use of extracted hydrocarbons will be estimated as part of the assessment. For the purposes of the assessment, it is assumed that this will be as a substitution for other currently imported hydrocarbons and that there would be no net change to the energy mix within the UK, other than those already anticipated by DECC in the 2050 pathways report.</p> <p>The first bullet point of Table 3.3 (p46 of the Scoping Report) states, '<i>The UK's carbon dioxide (CO<sub>2</sub>) footprint reached its peak in 2004 at 852 mt CO<sub>2</sub> and since then has fallen 15 per cent to 722 mt CO<sub>2</sub>, with a notably large dip occurring in 2009. Although UK CO<sub>2</sub> emissions have declined to ~8% below 1990 levels they are still the largest at 85% of all greenhouse gas emissions</i>' and this is repeated in section 7.6.2 under Figure 7.3.</p> <p>Section 7.3.1 also states: '<i>In 2011, UK emissions of the basket of six greenhouse gases covered by the Kyoto Protocol were estimated to be 552.6 million tonnes carbon dioxide equivalent (MtCO<sub>2</sub>e). This was 7.0% lower than the 2010 figure of 594.0 million tonnes.</i>' These figures are emissions from within the UK and its Crown Dependencies (Jersey, Guernsey, and the Isle of Man) and are not the same as the emissions reported under the UK carbon footprint. The carbon footprint refers to emissions that are associated with the spending of UK residents on goods and services, wherever in the world these emissions arise along the supply chain, and those which are directly generated by UK households through private motoring etc. In consequence, both sets of figures are correct and consistent.</p> <p>Comment noted.</p> <p>Table 2.7 includes a range of assumptions to inform the assessment of which water volumes for fracking is one.</p> <p>The AEA 2012 report for the EC '<i>Support to the identification of potential risks for the environment and human health arising from hydrocarbons operations involving hydraulic fracturing</i>' noted that horizontal shale gas wells typically use 10,000 to 25,000 m3 water per well, based largely on US analysis. The AEA report also summarised the limited evidence from activity in Europe, which gave a range:</p> <ul style="list-style-type: none"> <li>• 9000 – 29,000 m3/well (from Cuadrilla in Holland);</li> </ul>



Questions	Consultee Response	Response/Action
	<p>We believe the SEA must consider existing government policy concerning gas generation, namely the Gas Strategy of December 2012.</p>	<ul style="list-style-type: none"> <li>• 1,600m<sup>3</sup> (Halliburton at Lubocino-1 well in Poland);</li> <li>• 7,000m<sup>3</sup> – 8,000m (the Danish Energy Agency).</li> </ul> <p>Industry estimates suggest ranges of 10,000m<sup>3</sup> to 20,000m<sup>3</sup> (<a href="http://www.total.com/en/special-reports/shale-gas/environmental-challenges-201958.html">http://www.total.com/en/special-reports/shale-gas/environmental-challenges-201958.html</a>).</p> <p>Given that water demand per well in the UK for fracking remains uncertain, and that evidence of practice to date suggests a range of water demand per well, the estimate of water use per well in Table 2.7 will be revised to reflect the range (from 10,000m<sup>3</sup> to 25,000m<sup>3</sup>) rather than focus on a single estimate.</p> <p>These changes have been reflected in the Environmental Report.</p> <p>Comment noted.</p> <p>The UK Government Gas Generation Strategy is referenced on page 17 of the scoping report. The Gas Generation Strategy will also be referenced in the Climate Change section of Appendix B.</p>
<p>Question 2: Do you agree with the main economic, social and environmental issues identified? If not, which issues need to be included?</p>	<p><b>Climate Change</b></p> <p>We would expect the environmental report to consider emissions during the use of extracted hydrocarbons as part of the climate change assessment.</p>	<p>Comment noted.</p> <p>For the avoidance of doubt and consistent with the SEA Directive and regulation requirements to consider 'secondary, cumulative and synergistic effects', the greenhouse gases arising from the use of extracted hydrocarbons will be estimated as part of the assessment. For the purposes of the assessment, it is assumed that this will be as a substitution for other currently imported hydrocarbons and that there would be no net change to the energy mix within the UK, other than those already anticipated by DECC in the 2050 pathways report.</p>
<p>Question 3: Do you agree that the draft objectives for the SEA cover a sufficient range of environmental, social and economic topics to allow an assessment of the Strategic Projections? If not, which objectives should be amended and which other objectives do you believe should be included?</p>	<p>Given the requirement of paragraph 115 of the National Planning Policy Framework we believe SEA objectives should add the following;</p> <ul style="list-style-type: none"> <li>- <b>Biodiversity</b> – 'to give great weight to the conservation of wildlife in National Parks and the Broads'</li> <li>- <b>Cultural Heritage</b> – 'to give great weight to the conservation of cultural heritage in the National Parks and the Broads.'</li> <li>- <b>Landscape</b> – 'to give great weight to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty.</li> </ul>	<p>Disagree.</p> <p>The objectives for biodiversity, cultural heritage and landscape following a similar pattern of wording:</p> <p><i>To protect and enhance biodiversity...</i></p> <p><i>To protect and where appropriate enhance cultural heritage...</i></p> <p><i>To protect and enhance landscape...</i></p> <p>In each case guide questions expand on each objective. For example, for biodiversity, 'Will the Licensing Plan proposals protect and/or enhance internationally designated nature conservation sites? e.g. SACs, SPAs and Ramsars? By amending the objective to focus on the aspects of each topic in the National Parks as proposed, there is potential for effects of national or international designated sites or species to be understated or not to be given due weight in the assessment. The proposed amendment will not therefore be included in the revised objective.</p>

Questions	Consultee Response	Response/Action
<p><b>Other comments – Assessment of subsequent licensing rounds</b></p>	<p>We are very concerned about this SEA being for the 14<sup>th</sup> and subsequent licensing rounds, as this suggests that no SEA will be conducted for future licensing rounds. We strongly recommend that the SEA be only for the 14<sup>th</sup> licensing round, with separate SEAs for subsequent licensing rounds.</p> <p>We suggest that no hydrocarbon licensing should be allowed in an area unless it has been shown that Water Framework Directive requirements would be met post development</p>	<p>Comment noted.</p> <p>For the avoidance of doubt, this SEA does not preclude subsequent SEAs of future licensing round. This is consistent with DECC's approach both onshore and offshore licensing.</p>
<p><b>Other comments – Habitat Regulations Assessment (HRA)</b></p>	<p>FoE strongly disagrees with the statement at para 1.4 that '<i>there is...insufficient information...to conduct a meaningful [Habitats Regulation Assessment] screening assessment.</i>' We believe that, in combination, the licensing plan may well have significant effects on SPAs or SACs.</p> <p>FoE is not suggesting that a full appropriate assessment should be carried out at this stage, or even a separate analysis of every SPA/SAC that could be affected 'in combination'.</p> <p>Instead, we recommend that the HRA should;</p> <ol style="list-style-type: none"> <li>1. identify any areas where existing environmental conditions already affect the integrity of SPAs/SACs and draw up rules for preventing 'in combination' impacts of activities resulting from hydrocarbon licensing in these areas; and</li> <li>2. consider whether the 14th and subsequent licensing rounds should include any generic SPA/SAC related requirements so as to avoid the need to re-negotiate these separately for each license.</li> </ol>	<p>Comment noted.</p> <p>To the extent that the draft Licensing Plan is a "plan" within the scope of the Habitats Directive, DECC has carried out screening of it and reached the conclusion that merely issuing licences is not likely to have significant effects on sites.</p> <p>Any effects on sites will be caused by activities, such as drilling, which are not authorised by the licences but instead are authorised separately under the planning system, and planning decisions will be subject to appropriate assessments wherever required by law and in the full environmental context of each proposal.</p> <p>Nevertheless, DECC has decided to carry out appropriate assessments before any licence is issued. Once applications for licences have been received and their geographical proximity to any protected site can be established, the appropriate statutory bodies will be consulted on the form and scope of the assessments which should be performed before any decision is made on the award of a licence.</p>
<p><b>Other comments – consultation responses</b></p>	<p>FoE suggests that the environmental report should explain how the consultation responses of Appendix A of the scoping report have been dealt with.</p>	<p>Agreed.</p> <p>Appendix A provides a summary of responses provided to the 2010 Environmental Report containing the initial assessment of the effects of the 14<sup>th</sup> Licensing Round. This has been summarised in section 1.3.1 of the Environmental Report demonstrating how these comments have been addressed (if still appropriate).</p>

Questions	Consultee Response	Response/Action
<b>Other comments – mitigation measures</b>	FoE recommends that the assessment, and particularly the proposed mitigation measures, in the next environmental report should reflect the detailed nature of the baseline collected in this scoping report.	Comment noted.
<b>Other comments - Scales of assessment and strategic nature of mitigation</b>	<p>FoE recommend that;</p> <ul style="list-style-type: none"> <li>- the assessment team should be clear about what information (and so what input to the decision-making process) they expect to get at each scale (a table was provided with suggestions)</li> <li>- a generic site scale assessment should be carried out, to allow site-level mitigation measures to be established at the strategic level. These measures could include generic Habitats Regulations Assessment related measures.</li> <li>- these assessment should lead to strategic-level mitigation measures such as avoidance of sensitive areas, caps on some activities, and requirements for all licensees, not just reference to mitigation measures at the project level</li> </ul>	<p>Comment noted.</p> <p>The Scoping Report sets out the proposed approach to the assessment providing information on the proposed scope and level of detail to be contained in the subsequent Environmental Report.</p> <p>An assessment will be made of the effects of the activities likely to follow the draft Licensing Plan covering conventional and unconventional oil and gas as well as natural gas storage for each of the topics identified. For conventional and unconventional gas and oil this includes consideration of the effects of low and high activity scenarios. The effects of all activities will be considered on the 5 SEA areas identified, reflecting the differing environmental characteristics of these areas.</p> <p>The assessment will also include the effects of the reasonable alternatives to the plan. The assessment is strategic in nature, proportionate to the level of detail in the draft Licensing Plan, the objectives of the Plan and its geographic scope. Mitigation measures will be appropriate to the likely significant effects identified.</p>
<b>Other comments – ‘Bad Case’ assessments of significance</b>	Given the uncertain nature of many of the impacts associated with fracking, we would wish the assessment to consider possible 'bad scenarios'. The aim would be to help identify strategic level mitigation measures that could help to avoid these kinds of situations and to deal with them if they do occur.	<p>Comment noted.</p> <p>The scope of the SEA is to consider the normal operating conditions rather than the effects of any catastrophic failure arising from exceptional circumstances consistent with the SEA Directive requirement to consider 'likely significant effects on the environment'. However, we will consider the potential for a wide range of effects on the SEA topics (including the three areas of interest cited, for water contamination, methane venting and induced seismicity). A high activity scenario has been used to define a level of activity proportionate to that of step change in the onshore oil and gas industry, anticipated by the current level of interest.</p>
<b>Other comments – Alternative scenarios</b>	<p>Our greatest concern is the very limited range of alternatives that are expected to be considered in the environmental report.</p> <p>FoE strongly recommend that the environmental report should consider an appropriate range of reasonable alternatives, considering at least the following:</p> <ul style="list-style-type: none"> <li>- Restricting the number of licenses or area licensed, to reflect government's climate change commitments;</li> <li>- Unlimited fracking licenses;</li> </ul>	<p>Comment noted.</p> <p>Three alternatives have been proposed:</p> <ul style="list-style-type: none"> <li>• Not to offer any blocks for licensing;</li> <li>• To proceed with the licensing programme as proposed; and</li> <li>• To restrict the area licensed temporally or spatially.</li> </ul> <p>The first alternative '<i>not to offer any blocks for licensing</i>' appears to be the same as the proposed 'no fracking licenses' and 'limited licenses to areas previously available'.</p>

Questions	Consultee Response	Response/Action
	<p>- No fracking licenses;</p> <p>- Licensing only a limited no. of pilot fracking sites;</p> <p>- Excluding areas from licensing that meet certain criteria;</p> <p>- Limiting licenses to areas previously available;</p> <p>. We believe that not including reasonable alternatives would make the environmental report legally non-compliant in the wake of legal judgements of 2011 and 2012.</p>	<p>In the case of the latter it is assumed that this refers to existing licences granted under the 13<sup>th</sup> licensing round rather than any further areas that could be licensed under the draft Licensing Plan. Under either alternative proposed, the draft Licensing Plan would not then offer any areas for licensing.</p> <p>The following proposed alternatives that seek to restrict licensing have been considered in the Environmental Report (section 2.6):</p> <ul style="list-style-type: none"> <li>• Restricting licences temporally could include a phased approach to licensing including a pilot phase;</li> <li>• Restricting licences spatially could include considering excluding areas that are internationally designated conservation sites or include specific identified sensitive receptors.</li> </ul> <p>Consistent with the SEA Directive (article 5(1)) and the EC guidance and recent court judgements, reasons for the selection of the reasonable alternatives have been given along with the preferred alternative in the Environmental Report.</p>

Table A.5 Greenpeace

Questions	Consultee Response	Response/Action
<p>Question 1: Do you think that this report sets out sufficient information to establish the context for the assessment? If not, which areas do you think have been missed and where is information on these topics available from?</p>	<p>The SEA fails to give adequate consideration to the cumulative climate effects of unconventional oil and gas exploration. This relates to the full lifecycle climate impacts of exploration and extraction.</p> <p>This omission runs contrary to inclusion in the SEA of cumulative (or macro) socio-economic assessment criteria (as per measures under table 4.3). To include one but not the other is inconsistent. The omission of cumulative environmental impact assessment – through the full lifecycle climate impacts of exploration and extraction, principally through downstream combustion of the resources extracted – also falls short of the stated criteria on which the SEA seeks to base its assessment.</p> <p>Given the emphasis placed on climate change (as referenced above), considerations throughout the SEA, it is therefore inconsistent to limit the scope and analysis solely to GHG's resulting from the operational extraction of unconventional gas and oil.</p> <p>Relevant sources of information that could provide information for baseline measures for climate change factors include:</p> <ul style="list-style-type: none"> <li>- The Climate Change Act and related carbon budgets;</li> <li>- UK targets for reductions in GHG emissions set under the Kyoto Protocol;</li> <li>- The United Nations Framework Convention on Climate Change;</li> <li>- IEA key world energy statistics;</li> </ul> <p>There is a lack of a robust UK evidence base outlined in the SEA (given that the sector is in its infancy in the UK and elsewhere in Europe).</p>	<p>Disagree.</p> <p>The effects on climate change are captured under the Climate Change assessment objective '<i>To minimise greenhouse gas emissions as a contribution to climate change and ensure resilience to any consequences of climate change</i>' (amended following the response from the EA and NRW). Contextual information (as per the requirements of Annex I (f) of the SEA Directive) is set out in section 7 of Appendix B (pp199 – 230).</p> <p>For the avoidance of doubt and consistent with the SEA Directive and regulation requirements to consider 'secondary, cumulative and synergistic effects', the greenhouse gases arising from the use of extracted hydrocarbons have been estimated as part of the assessment. For the purposes of the assessment, it is assumed that this will be as a substitution for other currently imported hydrocarbons and that there would be no net change to the energy mix within the UK, other than those already anticipated by DECC in the 2050 pathways report.</p> <p>The SEA has also included an assessment of effects under the population topic reflecting the assessment objective '<i>To promote a strong, diverse and stable economy with opportunities for all; minimise disturbance to local communities and maximise positive social impacts</i>' and also consistent with the requirements of the SEA Directive (Annex I (f)).</p> <p>Comment noted.</p> <p>Section 7 of Appendix B (pp199-230 of the Scoping Report) provides contextual information for the climate change topic (as per the requirements of the SEA Directive (Annex I (f))). This includes:</p> <ul style="list-style-type: none"> <li>• Climate Change Act (pp 201), Kyoto Protocol (pp 199) and UNFCCC (pp 199) are summarised in the review of plans and programmes (section 7.2); and</li> <li>• Carbon budgets (pp 219) out to 2030 are summarised in the discussion of the evolution of the baseline (section 7.6).</li> </ul> <p>Section 7 has been reviewed in light of all scoping consultee submissions to determine whether additional information from the IEA publication would support the assessment of effects within the UK and the 5 identified SEA areas.</p> <p>Disagree.</p> <p>The purpose of the Scoping Report is to provide sufficient information to consultees to enable them to comment on the proposed scope of the SEA. Appendix B, C, D and E provide 419 pages of contextual information for all of the SEA topics identified in Annex I (f) of the SEA Directive. This includes</p>

Questions	Consultee Response	Response/Action
	<p>On other topics, benchmark data simply has not been provided. This includes consideration of issues such as:</p> <ul style="list-style-type: none"> <li>a. Production of fugitive methane emissions</li> <li>b. Potential for, impacts and prevention of, rig blow-outs</li> <li>c. Sufficient general consideration of the differences in production of shale oil and gas</li> </ul> <p>(suggested sources of information to include were listed)</p> <p>The use of these information sources should have particular regard to uncertainties introduced by differences between UK geological conditions and regulatory frameworks compared to the locations and jurisdictions addressed by these reports.</p> <p>The SEA scoping report does not explain what the regulatory framework for fracking currently is. The SEA Scoping Report should clearly state that recommendations for mitigating potential significant environmental effects may require changes and improvements to the regulatory framework.</p>	<ul style="list-style-type: none"> <li>• an overview of the policy context in which the Licensing Plan sits and identifies the relevant environmental protection objectives established at international, European community and national level as well as for the devolved administrations;</li> <li>• an overview of the relevant aspects of the current state of the environment and the key topic specific baseline factors which will need to be considered as part of the assessment;</li> <li>• an overview of how the baseline is likely to change in the absence of the Licensing Plan, an understanding of this is key to understanding the effects of the Plan on the topic area;</li> <li>• a summary of the environmental characteristics of those areas (the SEA Areas) likely to be most affected by the Licensing Plan;</li> <li>• a summary of existing problems relevant to the Licensing Plan including (in the biodiversity sub-section) in respect of sites designated under the Wild Birds and Habitats Directives.</li> </ul> <p>We consider this to be robust evidence base for the assessment, further enhanced by the minor additions proposed by the scoping consultees.</p> <p>The information highlighted concerning fugitive emissions and potential impacts has been addressed when undertaking the assessment of likely significant effects of the activities that will follow the Licensing Plan contained in the Environmental Report.</p> <p>Disagree.</p> <p>Section 2.3 of the Scoping Report describes the onshore licensing regulatory context and background which applies to all onshore oil and gas exploration activity. For example, the report states:</p> <p><i>‘The award of a Petroleum and Development Licence (PEDL) does not waive the requirement for the licensee to obtain access rights from landowners (e.g. a wayleave) and PEDLs do not confer any exemption from other legal/regulatory requirements. Oil and gas exploration and development activities are subject to statutory planning, environmental and other permitting regimes. Persons wishing to enter coal measures or coal mines to conduct exploration for oil and gas also need agreement from the Coal Authority. Under the terms of a PEDL, licensees may not conduct activities such as the drilling of wells, installation of facilities or production of hydrocarbons without the authorisation of the Secretary of State for Energy and Climate’.</i></p> <p>This information is also included in the Environmental Report concerning the regulatory requirements to provide context for the assessment.</p> <p>In compliance with SEA Directive Article I (g), the Environmental Report includes measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme. These include (but are not be limited to) those illustrative measures contained in Box 4.1 (pp59 of the Scoping Report).</p>

Questions	Consultee Response	Response/Action
	<p>With respect to SEA information requirements, the scoping report Table 1.2, states: "it is not appropriate to consider this requirement [provision of information on the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme] at this stage in the environmental assessment process". A similar statement is made in respect of provision of information on environmental monitoring. This is most unsatisfactory and no reasoning why is outlined alongside this assertion.</p> <p>It would be possible and appropriate for this SEA to provide information on appropriate mitigation measures and appropriate monitoring regimes, at a similar level of detail to the discussion of likely significant effects. This information would inform decision-makers about appropriate mitigation and monitoring measures which should be considered and implemented, in the event that the licensing programme proceeds. This information should be provided in the SEA.</p> <p>There is a lack of distinction regarding the specifics of unconventional shale oil gas exploration.</p> <p>As well as the fracking operation itself, more attention should be paid to the additional stresses on well shafts introduced by the hydraulic fracturing process; the differences in well yields between conventional and unconventional gas wells; additional water and chemical transportation and spillage risks introduced by the hydraulic fracturing process.</p>	<p>Disagree.</p> <p>Table 1.2 sets out the information requirements from Schedule 2 of the SEA regulations (which repeats that from the SEA Directive Annex I) concerning the information required for the Environmental Report. The table shows how each of the requirements has been met (as far as is reasonable practical) by the Scoping Report. A number of requirements concern the presentation of the findings of the assessment, namely:</p> <ul style="list-style-type: none"> <li>• The likely significant effects on the environment of implementing the plan or programme;</li> <li>• The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme; and</li> <li>• A description of the measures envisaged concerning monitoring of environmental conditions.</li> </ul> <p>Only once the assessment has been completed, can the effects be identified, appropriate mitigating measures be proposed and relevant monitoring measures be devised. As indicated in commentary against each of these requirements in Table 1.3 of the Environmental Report, all three requirements have been addressed in the Environmental Report, presenting the findings of the assessment of effects of the draft Licensing Plan.</p> <p>The approach taken is consistent with government guidance and current best practice.</p> <p>Disagree.</p> <p>Table 2.6 and 2.7 of the Scoping Report set out the assumptions and major differences between conventional and unconventional oil and gas. These include well depth, length, methane flaring, quantities of drill cuttings generated, quantities of water used and flow back. The effects of the activities outlined in Tables 2.6 and 2.7 have been assessed and presented in the Environmental Report. This includes consideration of resources used, wastes generated and traffic movements.</p>
<p>Question 2: Do you agree with the main economic, social and environmental issues identified? If not, which issues need to be included?</p>	<p>There is a lack of consideration and provision of information on a host of key issues of relevance.</p> <p>Climate Change</p> <p>Full lifecycle climate impacts of exploration and extraction should be included as a factor for assessment, including downstream combustion of the resources extracted.</p> <p>This is inconsistent with standard SEA practice.</p>	<p>Disagree.</p> <p>The effects on climate change are captured under the Climate Change assessment objective 'To minimise greenhouse gas emissions as a contribution to climate change and ensure resilience to any consequences of climate change' (amended following the response from the EA and NRW). Contextual information (as per the requirements of Annex I (f) of the SEA Directive) is set out in section 7 of Appendix B (pp199 – 230 of the Scoping Report).</p> <p>For the avoidance of doubt and consistent with the SEA Directive and regulation requirements to consider 'secondary, cumulative and synergistic effects', the greenhouse gases arising from the use of extracted hydrocarbons will be estimated as part of the assessment. For the purposes of the assessment, it is assumed that this will be as a substitution for other currently imported hydrocarbons and that there would be no net change to the energy mix within the UK, other than those already anticipated by DECC in the 2050 pathways report.</p>



Questions	Consultee Response	Response/Action
	<p>The SEA Scoping Report should set out clearly how cumulative impacts will be included in the assessment as these are a particularly significant concern in relation to unconventional hydrocarbon developments.</p> <p>As well as considering likely significant effects associated with the development of wells and well pads, the SEA should consider the potential impacts associated with necessary supporting infrastructure, including pipelines, compressor stations etc.</p> <p>Timescales</p> <p>The current timescales do not give sufficient focus to potential impacts associated with managing decommissioned and abandoned wells. It is recommended that the 'long' timescale should be divided into 'long (&gt;12 to 32 years) and very long (&gt;32 to several hundred years).</p>	<p>Comment noted.</p> <p>The SEA Directive, and its implementing regulations in the UK, requires that secondary, cumulative and synergistic effects are considered as part of the assessment.</p> <p>Section 4.5 of the Scoping Report sets out the proposed approach to assessing the secondary, cumulative and synergistic effects arising from activities following on from the draft Licensing Plan covering:</p> <ul style="list-style-type: none"> <li>• conventional oil and gas;</li> <li>• shale gas;</li> <li>• virgin coalbed methane; and</li> <li>• natural gas storage in hydrocarbon reservoirs.</li> </ul> <p>Section 4.5 of the Scoping Report states:</p> <p><i>'... different activity scenarios will be considered during the assessment which will help identify the potential effects associated with the collective implementation of oils and gas exploration and production licensed under draft Licensing Plan.</i></p> <p><i>Additionally, the effects of the draft Licensing Plan in-combination with other plans and programmes will also be considered'.</i></p> <p>These have been assessed and reported in the Environmental Report (Table NTS3 and Table 5.8, as well as specific commentary regarding effects of plans in each SEA area, contained in the Appendix B, e.g. water).</p> <p>Comment noted.</p> <p>The SEA includes consideration of the effects of the activities following on from the draft Licensing Plan, including consideration of the necessary supporting infrastructure (such as roads, pipelines and waste water treatment works).</p> <p>Comment noted.</p> <p>When considering the timing of potential effects of the draft Licensing Plan, potential effects are classified as 'short,' 'medium' or 'long term.' This reflects an intention to capture the differences that could arise at different timescales, consistent with the requirements of the Annex II (2) of the SEA Directive where the assessment of the effects should have regard to 'the probability, duration, frequency and reversibility of the effects'. For the purposes of this assessment, 'short,' 'medium' or 'long term' will be defined by the length of the for the PEDLs (32 years). 'Short term' covers the period up to 3 years, 'medium term' up to 10 and, 'long term' covers the period &gt;10 years to 32 years (and beyond to include decommissioning of the wells).</p>

Questions	Consultee Response	Response/Action
<p>Question 3: Do you agree that the draft objectives for the SEA cover a sufficient range of environmental, social and economic topics to allow an assessment of the Strategic Projections? If not, which objectives should be amended and which other objectives do you believe should be included?</p>	<p>Greenpeace has decided not to provide a response to this question, as Greenpeace advocate the removal of oil and gas fracking from the 14th licensing round.</p> <p>Land Use The Land-use Guide Questions should refer to the risk of loss of potentially valuable land for agriculture, development, green belt etc.</p> <p>Climate Change and Flood Risk Climate Change and Flood Risk guide questions should not be limited to 'broad terms' of climate impacts (as is currently the case). Instead climate impact guide questions should be more explicit, e.g. – what change in GHG emissions will result from licensing plan?</p> <p>Traffic Currently there is no specific reference given to traffic related impacts. Specific and detailed consideration of these impacts should be included as they are likely to be key community concerns. A potential way to do include these impacts could be to include traffic as a key topic (as in AEA assessments) although other approaches could be used to achieve this.</p>	<p>Comment noted.</p> <p>Disagree. The land use, geology and soils objective is '<i>To conserve and enhance soil and geology and contribute to the sustainable use of land</i>' with guide questions concerning the effect on soil quality/function variety and extent and patterns of land use. The scope of the objective and guide questions is considered adequate to capture the potential effects identified in the response.</p> <p>Comment noted. The Climate Change and Flood Risk topic will be split with the flood risk information transferred to the water topic. The climate change objective and guide questions (Table NTS3 and Table 4.3 of the Scoping Report and Table 7.7, Appendix B) will be amended to reflect the change as follows: <i>To minimise greenhouse gas emissions as a contribution to climate change and ensure resilience to any consequences of climate change and establish measures which limit flood risk.</i> <i>Will the activities that follow the licensing round proposals affect climate change and flood risk in broad terms?</i> <i>Will the activities that follow the licensing round proposals be able to minimise the generation of greenhouse gases?</i> <i>Will the Licensing Plan proposals avoid, and where possible reduce, flood and coastal change risk?</i> <i>Will the activities that follow the licensing round proposals be significantly affected by climate change (for example rising temperatures and more extreme weather events)?</i> These changes have been reflected in the Environmental Report.</p> <p>Comment noted. The effects of traffic related to the activities following on from the Licensing Plan on the environmental topics identified in the Scoping Report will be considered in the assessment. This could be in terms of:</p> <ul style="list-style-type: none"> <li>• Direct land take for service roads to pads (assessed as effects against biodiversity);</li> <li>• Disturbance arising from vehicle movements during the construction and operation of well pads and ancillary infrastructure (on biodiversity); and</li> <li>• Disturbance from dust, noise and vibration from vehicle movements on communities living adjacent to routes.</li> </ul>

Questions	Consultee Response	Response/Action
	<p>Water</p> <p>The Water Guide Questions should include reference to the potential opportunities for water recycling, and the likely significant effects of water recycling and treatment/disposal of residual waste water.</p>	<p>Such effects have been captured against the assessment of effects against the objectives for biodiversity, population, health and land use, geology and soils.</p> <p>Comment noted.</p> <p>The guide questions for water have been refined to focus on those matters of key significance following scoping consultee comments. They are revised as follows:</p> <p><i>Will the activities that follow the licensing round affect demand for water resources (availability)?</i></p> <p><i>Will the activities that follow the licensing round affect the amount of pollution arising from waste water and surface runoff produced?</i></p> <p><i>Will the activities that follow the licensing round protect and enhance the ecological status/ ecological potential* quality of surface, groundwater, estuarine and coastal waters quality?</i></p> <p><i>Will the activities that follow the licensing round protect the geological/hydrological connection between prospective shale gas sequences and UK geothermal and mineral springs?</i></p> <p>These changes have been reflected in the Environmental Report.</p>
<p>Additional Comments</p>	<p>The 14th licensing rounds should not proceed based on Government's responsibility to meet various commitments including (but not limited to) those under:</p> <ul style="list-style-type: none"> <li>- The United Nations Framework Convention on Climate Change (UNFCCC)</li> <li>- Domestic legally binding carbon reduction targets under the Climate Change Act (CCA)</li> <li>- The Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention)</li> </ul> <p>There is no need for additional supply of oil or gas supplies from the UK, if we are to avoid catastrophic climate change, as proven reserves are already excessive. Additional investments in shale gas and oil extraction will therefore not only damage the climate, but are also likely become stranded assets.</p> <p>Greenpeace disagree with the perspective of DECC that the cumulative climate impact of UK shale gas extraction will be negligible. As the assumption that UK shale gas production will substitute the extraction of gas elsewhere.</p> <p>The production of excess gas at exactly the time when demand for gas will be rapidly declining in the UK would be incompatible with both domestic and international climate change commitments. Sources of UK gas do not justify exploration on climate grounds.</p>	<p>Comments noted.</p> <p>The comments refer to the adoption of one of the reasonable alternatives identified in section 2.6 of the Scoping Report which is 'not to offer any blocks for licensing'. The government will use the findings of the Environmental Report and the responses to the subsequent consultation on it to inform its decision on which alternative to take forward.</p>

Questions	Consultee Response	Response/Action
	<p>There should be an assessment pursuant to the Habitats Directive. Failure to have such an assessment would be a breach of the Directive and the Regulations.</p>	<p>Comment noted.</p> <p>To the extent that the draft Licensing Plan is a “plan” within the scope of the Habitats Directive, DECC has carried out screening of it and reached the conclusion that merely issuing licences is not likely to have significant effects on sites.</p> <p>Any effects on sites will be caused by activities, such as drilling, which are not authorised by the licences but instead are authorised separately under the planning system, and planning decisions will be subject to appropriate assessments wherever required by law and in the full environmental context of each proposal.</p> <p>Nevertheless, DECC has decided to carry out appropriate assessments before any licence is issued. Once applications for licences have been received and their geographical proximity to any protected site can be established, the appropriate statutory bodies will be consulted on the form and scope of the assessments which should be performed before any decision is made on the award of a licence.</p>

Table A.6 Historic Scotland

Questions	Consultee Response	Response/Action
<p>Question 1: Do you think that this report sets out sufficient information to establish the context for the assessment? If not, which areas do you think have been missed and where is information on these topics available from?</p>	<p>Yes. The information included within the report is comprehensive and I am content with the historic environment baseline outlined in appendix B for SEA Area 1.</p> <p><b>Cultural Heritage</b></p> <p>For information I note some updates to policies;</p> <ul style="list-style-type: none"> <li>- PAN42 updated and replaced with PAN2/2011.</li> <li>- Scottish Historic Environment Policy was updated in 2011 to reflect amendments brought in the Historic Environment (Amendment) (Scotland) Act 2011/</li> </ul>	<p>Comment noted.</p> <p>Our response to the request for additional information is outlined against the specific points made.</p> <p>Comment noted.</p> <p>Section 9 'Cultural Heritage' of Appendix B to the Scoping Report will be updated to reflect this information. These changes have been reflected in the Environmental Report.</p>
<p>Question 2: Do you agree with the main economic, social and environmental issues identified? If not, which issues need to be included?</p>	<p>Yes. I welcome the recognition of key environmental issues relating to the need to consider the potential effects on the licensing plan and its associated activities on the historic environment resource.</p> <p>However, given you are undertaking a SEA as opposed to an appraisal of sustainability, I would request that findings relating to the environment are reported separately from those relating to social and economic issues.</p>	<p>Comment noted.</p> <p>The topics identified in the assessment reflect those from Annex I (f) of the SEA Directive (and Schedule 2 (6) of the SEA regulations), namely: biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; and landscape. In the absence of guidance defining what the topics mean, we have interpreted 'population' as including information on demographics and generic socio-economic issues. The assessment of the effects against the population topic have been included in the Environmental Report. For the avoidance of doubt we will not be producing an assessment of effects reflecting the distinction made by the respondent as this would be inconsistent with the SEA requirements.</p>
<p>Question 3: Do you agree that the draft objectives for the SEA cover a sufficient range of environmental, social and economic topics to allow an assessment of the Strategic Projections? If not, which objectives should be amended and which other objectives do you believe should be included?</p>	<p>I am content with the SEA objectives identified for the historic environment against which the licensing plan will be tested.</p>	<p>Comment noted.</p>

Table A.7 Natural England

Questions	Consultee Response	Response/Action
<p>Question 1: Do you think that this report sets out sufficient information to establish the context for the assessment? If not, which areas do you think have been missed and where is information on these topics available from?</p>	<p>The scoping report sets out a wide range of baseline and context information for the environmental objectives, however Natural England believes that a few of these sources could be improved or updated.</p> <p>Within each National Character Areas there is an assessment of risk, environmental opportunity and ecosystem services provision that will help to inform the impact on the environmental topics (Biodiversity, Landscape, Water, Air, Land Use, Climate Change &amp; Flood Risk).</p> <p><b>Biodiversity and Nature Conservation</b></p> <p>The identification of habitats, nationally designated landscapes and Sites of Special Scientific Interest, within Appendix B is welcomed, however we would request that the data sources are reviewed and updated as some of the sites listed as 'proposed' or 'candidate' have been formally adopted</p>	<p>Comment noted.</p> <p>Our response to the request for additional information is outlined against the specific points made.</p> <p>Agreed.</p> <p>The information contained in Appendix B concerning the status of proposed or candidate sites will be reviewed and, where appropriate, revised. These changes have been reflected in the Environmental Report.</p>
<p>Question 2: Do you agree with the main economic, social and environmental issues identified? If not, which issues need to be included?</p>	<p>The identification of the issues is comprehensive and linked to the evidence and base line information gathered, however we are concerned about the wording used in the assessment table (NTS 2). We would recommend a change in the wording for each of the questions that identifies that it is the effects of the activities following the licensing round (set out is NTS1) that are being assessed.</p> <p>Given the pressure on water resources and the impacts on biodiversity we consider that a guide question that identifies the impact on future water demand and development projects should be included within the SEA assessment.</p>	<p>Agreed.</p> <p>The wording of the guide questions will be changed from: <i>Will the Licensing Plan proposals....</i> to <i>Will the activities that follow the licensing round ....</i></p> <p>This is in order to ensure that the assessment focuses on the key effects arising from the activities that follow licensing and are summarised in tables 2.6 and 2.7 of the Scoping Report. These changes have been reflected in the Environmental Report.</p> <p>Comment noted.</p> <p>The current assessment objective includes reference to water quantity, water quality and the Water Framework Directive and the guide questions then expand on these points. The assessment includes a guide question on demand for water resources; <i>Will the activities that follow the licensing round affect demand for water resources (availability)?</i></p> <p>This is considered appropriate to capture the assessment of effects of licensed activities on future water demand.</p>

Questions	Consultee Response	Response/Action
<p>Question 3: Do you agree that the draft objectives for the SEA cover a sufficient range of environmental, social and economic topics to allow an assessment of the Strategic Projections? If not, which objectives should be amended and which other objectives do you believe should be included?</p>	<p><b>Landscape</b></p> <p>We believe the UK's responsibilities for the protection of Landscapes under the European Landscape Convention and an objective for the protection of nationally designated landscapes (National Parks, the Broads and Areas of Outstanding Natural Beauty), and the protection of Heritage Coasts should be included to reflect the importance of these designations as set out in the National Planning Policy Framework and National Policy Statements for Energy.</p> <p><b>Climate Change and Flood Risk</b></p> <p>Natural England supports the Environment Agency's recommendation that the current objective for 'Climate Change and Flood Risk' is separated into two objectives, and that the Climate Change objective refers specifically to climate change adaptation in relation to the pressures on biodiversity caused by climate change and that a guide question on this topic is added to table 4.3. A further question on the impact of flood management on the natural environment (habitat, landscape and access) should also be posed.</p>	<p>Comment noted.</p> <p>Section 10.2.1 (Review of Plans and Programmes) includes a summary of the European Landscape Convention. The effects on designated landscapes will be assessed against the following (amended) guide question:</p> <p><i>Will the activities that follow the licensing round affect protected/designated landscapes or townscapes, such as National Parks, the Broads, Areas of Outstanding Natural Beauty, Heritage Coasts and Conservation Areas?</i></p> <p>These changes have been reflected in the Environmental Report.</p> <p>Agreed.</p> <p>The Climate Change and Flood Risk topic will be split with the flood risk information transferred to the water topic. The climate change objective and guide questions (Table NTS3 and Table 4.3 of the Scoping Report and Table 7.7, Appendix B) will be amended to reflect the change as follows:</p> <p><i>To minimise greenhouse gas emissions as a contribution to climate change and ensure resilience to any consequences of climate change and establish measures which limit flood risk.</i></p> <p><i>Will the activities that follow the licensing round proposals affect climate change and flood risk in broad terms?</i></p> <p><i>Will the activities that follow the licensing round proposals be able to minimise the generation of greenhouse gases?</i></p> <p><i>Will the Licensing Plan proposals avoid, and where possible reduce, flood and coastal change risk?</i></p> <p><i>Will the activities that follow the licensing round proposals be significantly affected by climate change (for example rising temperatures and more extreme weather events)?</i></p> <p>A flood risk objective will be added to the water section along with guide questions as follows:</p> <p><i>To minimise the risks of coastal change and flooding to people, property and communities</i></p> <p><i>Will the activities that follow the licensing round be at risk of flooding or be affected by flooding, if it occurred?</i></p> <p><i>Will the activities that follow the licensing round have the potential to cause or exacerbate flooding?</i></p> <p><i>Will the activities that follow the licensing round have the potential to help alleviate flooding?</i></p> <p><i>Will the activities that follow the licensing round have the potential to affect coastal processes and/or erosion rates?</i></p> <p>These changes have been reflected in the Environmental Report.</p>



Questions	Consultee Response	Response/Action
	<p><b>Waste and Resource Use</b></p> <p>We recommend that the guide question in table 4.3 related to “...increasing the burden on natural resources” is rephrased to address the availability of “mineral” resources.</p>	<p>Agreed.</p> <p>The guide question Will the Licensing Plan proposals increase the burden on limited natural resources? will be amended to <b>Will the activities that follow the licensing round minimise the demand for mineral resources and other unsustainable construction materials?</b></p> <p>This change reflects the request and provides clarity on the intended focus of this assessment question.</p> <p>These changes have been reflected in the Environmental Report.</p>
<p><b>Other comments – Habitat Regulations Assessment</b></p>	<p>We would advise that the plan would constitute a plan for which a Habitats Regulations Assessment should be undertaken, We understand that DECC have taken legal advice on this issue, but Natural England considers that the approach taken and the reasoning provided (in section 1.4) are an exception to normal practice for nationally adopted plans or programmes.</p> <p>It is advised that the oil and gas licensing plan is subject to a HRA that is appropriate for the level of detail available at this stage. We recommend that, at this strategic stage, DECC as competent authority considers the potential for significant effects on European sites, and we recommend undertaking a screening exercise as far as is possible and practical for the plan in question. (Details also provided on measures suggested including within the adopted licensing plan).</p>	<p>Comment noted.</p> <p>To the extent that the draft Licensing Plan is a “plan” within the scope of the Habitats Directive, DECC has carried out screening of it and reached the conclusion that merely issuing licences is not likely to have significant effects on sites.</p> <p>Any effects on sites will be caused by activities, such as drilling, which are not authorised by the licences but instead are authorised separately under the planning system, and planning decisions will be subject to appropriate assessments wherever required by law and in the full environmental context of each proposal.</p> <p>Nevertheless, DECC has decided to carry out appropriate assessments before any licence is issued. Once applications for licences have been received and their geographical proximity to any protected site can be established, the appropriate statutory bodies will be consulted on the form and scope of the assessments which should be performed before any decision is made on the award of a licence.</p>

Table A.8 Natural Resources Wales

Questions	Consultee Response	Response/Action
<p>Question 1: Do you think that this report sets out sufficient information to establish the context for the assessment? If not, which areas do you think have been missed and where is information on these topics available from?</p>	<p>We advise that maintaining hydrological functionality is an issue against which proposals should be assessed.</p> <p><b>Land use, Geology and Soils</b></p> <p>We advise that the baseline data/ Plans and Programmes review includes the following sources;</p> <ul style="list-style-type: none"> <li>- Welsh Government's Woodlands for Wales and its associated Action Plan</li> <li>- National Forest Inventory; and</li> <li>- Ancient Woodland Inventory</li> </ul> <p><b>Water</b></p> <p>We advise the following additions/updates to the water section;</p> <ul style="list-style-type: none"> <li>- a reference to the fact that Natural Resources Wales is now the Competent Authority for the implementation of the Water Framework Directive in Wales.</li> <li>- replace data on general Quality Assessment data with more up to date data on Water Framework Directive classification.</li> <li>- replace information from the first River Basin Management Plans on issues and challenges with data from the Natural Resource Wales's <i>Challenges and Choices</i> consultation</li> </ul> <p><b>Air</b></p> <p>We advise the following related to the text related to Air Quality Management Areas (AQMAs) in Wales;</p> <ul style="list-style-type: none"> <li>- give details on why the 34 Air Quality Management Areas in Wales have been designated should be given.</li> <li>- acknowledgement that areas are designated for pollutants other than NO2 should be included, as with the text for other SEA areas.</li> </ul>	<p>Agreed.</p> <p>Table 3.2 (Key Environmental Protection Objectives) of the Scoping Report will be revised to reflect the advice that hydrological functionality, not just drainage, should be taken into account. Table 3.3 (Summary of Key Issues) of the Scoping Report will also be amended to make reference to the potential impact of a loss of hydrological functionality and connectivity.</p> <p>These changes have been reflected in the Environmental Report.</p> <p>Agreed.</p> <p>Section 4 (Land Use, Geology and Soil) of Appendix B of the Scoping Report will be amended to reflect the additional plan and information proposed.</p> <p>These changes have been reflected in the Environmental Report.</p> <p>Agreed.</p> <p>Section 5 (Water) of Appendix B of the Scoping Report will be amended to reflect the additional plans and information proposed by NRW.</p> <p>These changes have been reflected in the Environmental Report.</p> <p>Agreed.</p> <p>Section 6.3.3 (Wales) of Appendix B of the Scoping Report will be amended to provide the reasons for designation of the 34 AQMAs (which includes the high concentrations of NO2 and PM10). Section 6.4.4 which provides commentary on air quality in the SEA area that includes Wales will be revised to be consistent with the other 4 SEA area descriptions.</p> <p>These changes have been reflected in the Environmental Report.</p>

Questions	Consultee Response	Response/Action
	<p><b>Flood Risk and Climate Change</b></p> <p>We welcome the reference to the Water Framework Directive (WFD). It may be worth cross-referencing with the reference to the WFD that you make under Section 5 Water.</p> <p>Please amend text to state that Natural Resources Wales has now taken over the work of the Environment Agency in Wales.</p> <p>We advise this section makes reference to the following Welsh Government strategies/policies:</p> <ul style="list-style-type: none"> <li>- Strategic Policy Position Statement on Water;</li> <li>- emerging Water Strategy;</li> <li>- Flood and Coastal Erosion Risk Management Strategy.</li> </ul> <p>Page 216, paragraph 7.4.4: We note that the central estimate for the medium emissions scenario from the UKCP09 projections is used as baseline data. We believe it would be more appropriate to assess the activities falling out of the proposed Plan against low, medium and high emissions.</p>	<p>Comments noted.</p> <p>Appendix B, pp 203, 3rd paragraph will be amended to state that Natural Resources Wales has now taken over the work of the Environment Agency in Wales. These changes have been reflected in the Environmental Report.</p> <p>The Flood Risk section will be moved to the Water section. It will be revised to include the additional Welsh plans identified. These changes have been reflected in the Environmental Report.</p> <p>Disagree.</p> <p>We do not propose to consider the effects from climate change on the licensed activities outside the central estimate in detail; however, where relevant to the assessment we will reflect on any points of significance.</p>
<p>Question 2: Do you agree with the main economic, social and environmental issues identified? If not, which issues need to be included?</p>	<p><b>Land Use, Geology and Soils</b></p> <p>We advise that the first bullet point under “Land use, Geology and Soils” clarifies that the “legacy of hazards” only applies to “parts of the UK”.</p> <p>We advise that the following key issue should be added to Table 3.3: “Degradation of soils can result in the release of carbon to the atmosphere”.</p> <p>We advise that the summary of key issues in Table 3.3 should be updated to reflect the messages contained in the Welsh Government’s Woodlands for Wales Strategy and its associated Action Plan.</p>	<p>Agree.</p> <p>Table 3.3 (Summary of Key issues) will be amended to reflect the point that ‘Degradation of soils can result in the release of carbon to the atmosphere’. These changes have been reflected in the Environmental Report.</p>
<p>Question 3: Do you agree that the draft objectives for the SEA cover a sufficient range of environmental, social and economic topics to allow an assessment of the Strategic Projections? If not, which objectives should be amended and which other objectives do you believe should be included?</p>	<p><b>Biodiversity and Nature Conservation</b></p> <p>We advise that an assessment of the impact of habitat connectivity is used to assess the impact of the proposals on biodiversity. We advise that this is achieved by adding the words “and habitat connectivity” after each reference to “ecosystem structure and function illustrative guidance”</p>	<p>Agree.</p> <p>The illustrative guidance for the assessment of significance for biodiversity and nature conservation (Table 1.8 of Appendix B) will be amended to include the reference to habitat connectivity. These changes have been reflected in the Environmental Report.</p>

Questions	Consultee Response	Response/Action
	<p>We advise that impacts on ancient woodlands should be assessed in the SEA. We recommend the proposed guide questions in Table 4.3 include a question that states, "Will the Licensing Plan affect Ancient Woodlands?" This question could alternatively sit under the Landscape or Biodiversity and Nature Conservation Topic Area headings.</p> <p><b>Land Use, Geology and Soils</b></p> <p>We note that the proposed guide question in Table 4.3 covers soil "extent". We assume that this is intended to test the impact of the removal of peat that could contain carbon. However, if we have not understood this correctly, then we advise that the wording is amended accordingly.</p> <p>We advise a guide question should be added to state, "Will the Licensing Plan maintain woodland cover?"</p> <p>We advise that Table 4.8 in Appendix B contain "Illustrative Guidance" to reflect that removal of carbon-rich peat would have a negative impact and restoration of peaty soils would result in a positive impact. These guide questions could equally sit under the Climate Change topic heading.</p> <p><b>Water</b></p> <p>We suggest the following revised wording to the Proposed Guide Questions for "Water" in Table 4.3:</p> <ul style="list-style-type: none"> <li>- Will the Licensing Plan proposals affect demand for water resources (availability)?</li> <li>- Will the Licensing Plan proposals affect the amount of pollution arising from waste water and surface runoff produced?</li> <li>- Will the Licensing Plan proposals protect and enhance the ecological status/ ecological potential* quality of surface, groundwater, estuarine and coastal waters quality?</li> <li>- Will the Licensing Plan protect the geological/hydrological connection between prospective shale gas sequences and UK geothermal and mineral springs?</li> </ul>	<p>The loss of ancient woodlands is noted in Table 3.3 (pp 44) of the Scoping Report. It is noted that Planning Policy Wales recognises that Planning Authorities should seek advice from the former Countryside Council for Wales (now Natural Resources Wales), before authorising "potentially damaging operations" (paragraph 5.5.15 of Planning Policy Wales). In consequence, we will include an additional guide question against the biodiversity objective as follows:</p> <p><i>Will the activities that follow the licensing round affect Ancient Woodlands?"</i></p> <p>These changes have been reflected in the Environmental Report.</p> <p>Comment noted.</p> <p>The reference to soil extent in the guide question, 'Will the Licensing Plan proposals have an effect on soil quality/function, variety, extent and/or compaction levels?' is not just intended to focus the assessment on the effects of peat loss alone, but to encourage the consideration of the loss of soils more broadly. It is not intended to amend the guide question.</p> <p>We do not propose to add a guide question concerning woodland cover. The effects on habitats, and natural systems function and structure are already included within guide questions against the biodiversity objective.</p> <p>We note the proposed amendment to the illustrative guidance; however, do not intend to amend the guidance to avoid unduly narrowing the guidance.</p> <p>Comments noted.</p> <p>The guide questions against the water objective have been revised to the following:</p> <p><i>Will the activities that follow the licensing round affect demand for water resources (availability)?</i></p> <p><i>Will the activities that follow the licensing round affect the amount of pollution arising from waste water and surface runoff produced?</i></p> <p><i>Will the activities that follow the licensing round protect and enhance the ecological status/ ecological potential* quality of surface, groundwater, estuarine and coastal waters quality?</i></p> <p><i>Will the activities that follow the licensing round protect the geological/hydrological connection between prospective shale gas sequences and UK geothermal and mineral springs?</i></p> <p>In addition, following the Climate Change and Flood Risk topic will be split with the flood risk information transferred to the water topic. A flood risk objective will be added to the water section along with guide questions as follows:</p>

Questions	Consultee Response	Response/Action
	<p>- Will the Licensing Plan avoid, and where possible, reduce coastal erosion and flood risk to third parties brought about by the alteration of floodplains or natural drainage patterns and/ or increasing surface water runoff?</p> <p>-Will the Licensing Plan avoid the impact of flood risk and coastal erosion on oil and gas exploration and extraction sites?</p> <p>-Will the Licensing Plan proposals be resilient to existing flood risk?</p> <p>We advise amendments to the water illustrative guidance across each of the assessment levels; including;</p> <ul style="list-style-type: none"> <li>- Replacing the reference to 'ecological condition' with 'ecological status/potential'</li> <li>- Removing the reference to an 'exceedence of abstraction license limit' from the significant negative level</li> <li>- Additional points to be added to each of the assessment levels (i.e. – significantly positive, positive, neutral, negative, significantly negative).</li> </ul> <p><b>Climate Change and Flood Risk</b></p> <p>We suggest that the flood risk objectives would be more appropriately located in the Water section.</p> <p>We advise that the wording of the Proposed Guide Questions for Climate Change be amended as follows</p> <ul style="list-style-type: none"> <li>- Will the Licensing Plan proposals be able to minimise the generation of greenhouse gases, including fugitive methane emissions?</li> <li>- Will the Licensing Plan proposals be significantly affected by climate change (for example rising temperatures and more extreme weather events) and will the proposals be resilient to climate change?</li> <li>- Will the licensing proposals affect the environment's ability to mitigate the effects of climate change?</li> </ul> <p>We note that guide questions are included on whether an option would increase carbon and other greenhouse gas emissions. We advise that this includes the release of carbon from peaty soils and trees.</p>	<p><i>To minimise the risks of coastal change and flooding to people, property and communities</i></p> <p><i>Will the activities that follow the licensing round be at risk of flooding or be affected by flooding, if it occurred?</i></p> <p><i>Will the activities that follow the licensing round have the potential to cause or exacerbate flooding?</i></p> <p><i>Will the activities that follow the licensing round have the potential to help alleviate flooding?</i></p> <p><i>Will the activities that follow the licensing round have the potential to affect coastal processes and/or erosion rates?</i></p> <p>These changes have been reflected in the Environmental Report.</p> <p>Comments noted.</p> <p>The Climate Change and Flood Risk topic will be split with the flood risk information transferred to the water topic. The Climate Change assessment objective and guide questions will be amended as follows:</p> <p><i>To minimise greenhouse gas emissions as a contribution to climate change and ensure resilience to any consequences of climate change and establish measures which limit flood risk.</i></p> <p><i>Will the activities that follow the licensing round proposals affect climate change and flood risk in broad terms?</i></p> <p><i>Will the activities that follow the licensing round proposals be able to minimise the generation of greenhouse gases?</i></p> <p><i>Will the Licensing Plan proposals avoid, and where possible reduce, flood and coastal change risk?</i></p> <p><i>Will the activities that follow the licensing round proposals be significantly affected by climate change (for example rising temperatures and more extreme weather events)?</i></p> <p>Table 7.8, pp 229 of Appendix B of the Scoping Report (illustrative guidance for the assessment of significance for climate change) will be revised to reflect the points made.</p>

Questions	Consultee Response	Response/Action
	<p>The Illustrative Guidance should also make clear that effects on greenhouse gas emissions could arise from the following:</p> <ul style="list-style-type: none"> <li>- Transportation of plant and equipment to the site;</li> <li>- Fugitive emissions of methane during drilling and production;</li> <li>- Emissions of carbon dioxide and methane arising from disturbance of the soil and land;</li> <li>- The removal of carbon sinks;</li> <li>- Any proposed mitigation measures.</li> </ul> <p><b>Waste and Resource Use</b></p> <p>We advise that you clarify what you mean by “increase the burden on limited natural resources” and “make the best use of existing natural resources”. If you are referring to, for example, natural resources used for construction, then this should be clarified.</p> <p>We assume that the potential to generate waste from naturally occurring radioactive material (NORM) is covered under the references to hazardous waste in Table 8.9. However, if this is not the case, we advise Table 8.9 is amended accordingly.</p> <p><b>Landscape</b></p> <p>We advise that additional text is added to table 10.2 for Landscape to cover impacts on sites registered as Historic Landscapes. Our recommendation is that the relevant bullet points making reference to statutorily protected landscapes are expanded to also include consideration of impacts on historic landscapes identified in the Register of Landscapes of Historic Interest in Wales.</p> <p>We advise an additional guide question is added to assess the effects of activities on Ancient Woodlands.</p>	<p>These changes have been reflected in the Environmental Report.</p> <p>Comments noted.</p> <p>The guide question <del>Will the Licensing Plan proposals increase the burden on limited natural resources?</del> will be amended to <i>Will the activities that follow the licensing round minimise the demand for mineral resources and unsustainable construction materials?</i></p> <p>This change reflects the request and provides clarity on the intended focus of this assessment question.</p> <p>These changes have been reflected in the Environmental Report.</p> <p>NORM has been included in the consideration of waste water (against the water objective) and hazardous waste (under the resource use and waste objective).</p> <p>Agreed.</p> <p>Table 10.2 (Illustrative Guidance for the Assessment of Significance for Landscape), pp 310 of Appendix B of the Scoping Report will be amended to cover impacts on sites registered as Historic Landscapes.</p> <p>An additional guide question against the biodiversity objective as follows: <i>Will the activities that follow the licensing round affect Ancient Woodlands?</i></p> <p>These changes have been reflected in the Environmental Report.</p>
<p>Additional comments – water abstraction</p>	<p>Potential operators in Wales should be aware that they will need to be clear whether they are obtaining any water required from water companies or from Natural Resources Wales. If the latter, they will need to consider our Licensing Strategy.</p>	<p>Comment noted.</p>

Table A.9 RSPB

Questions	Consultee Response	Response/Action
<p>Question 1: Do you think that this report sets out sufficient information to establish the context for the assessment? If not, which areas do you think have been missed and where is information on these topics available from?</p>	<p><b>Biodiversity and Nature Conservation</b></p> <p>Section 1.2.1 should include reference to the Water Framework Directive to ensure consistency with reference to the Marine Strategy Framework Directive. Reference should be made in Section 1.2.2 to the recently published State of Nature Report.</p> <p>Section 1.2.3 should include more explicit reference to the biodiversity duties under the NERC Act 2006.</p> <p>Regarding the baseline we have the following specific comments:</p> <ul style="list-style-type: none"> <li>- The RSPB disagrees with the description on p10 that the UK inshore waters include 81 SPAs with marine habitats for birds. At present the European Commission only recognises 37 SPAs in the UK with a marine component;</li> <li>- The data should be updated to reflect the fact that the Outer Thames Estuary SPA and Liverpool Bay SPA were both designated in 2010 and are no longer pSPAs. We recommend that JNCC is asked to provide fully up to date information on designated European sites and Ramsar sites and that each country agency provides equivalent information for their A/SSSI networks;</li> <li>- In respect to section 1.3.6 (condition of species and habitat features of protected areas), we would urge caution in reliance on the JNCC report from 2006. We recommend that the most up-to-date site condition data is used for each country and the strengths and limitations of each highlighted;</li> <li>- In respect to section 1.3.7, mention should also be made of Nature Improvement Areas (NIAs).</li> </ul> <p>Section 1.6 Likely Evolution of the Baseline. The SEA should assume that all protected areas will either be maintained in favourable condition or placed on a trajectory to achieve favourable condition.</p>	<p>Agreed.</p> <p>Section 1 (Biodiversity and Nature Conservation) of Appendix B of the Scoping Report will be revised to reflect the additional information highlighted and the request for more clarity for responsibilities under NERC. These changes have been reflected in the Environmental Report.</p> <p>Comment noted.</p> <p>Section 1 (Biodiversity and Nature Conservation) of Appendix B of the Scoping Report will be reviewed to reflect the points made. These changes have been reflected in the Environmental Report.</p> <p>SPAs with marine components are defined as those sites with qualifying Birds Directive Annex I species or regularly occurring migratory species that are dependent on the marine environment for all or part of their lifecycle, where these species are found in association with intertidal or subtidal habitats*. The Marine Management Organisation states that 'the SPA site selection process has so far been used to designate 107 SPAs with marine components in the UK'. We will review this information further to determine up to date data and where available, include it in the relevant part of section 1 of Appendix B.</p> <p>We have reviewed this information to determine up to date data and where available, include it in the relevant part of section 1 of Appendix B.</p> <p>The 2006 JNCC report was used as a starting point for the information in section 1.3.6 of Appendix B as it provides a comprehensive statement of protected areas and their conditions. However, this has then been supplemented with individual countries condition information (e.g. England para 1.3.7; and Wales 1.3.9). We have however reviewed the information again to ensure their currency.</p> <p>Reference has been made where appropriate to the NIAs.</p> <p>Agreed.</p> <p>Section 1.6 (Likely Evolution of the Baseline) will be amended to include the assumption that all protected areas will either be maintained in favourable condition or placed on a trajectory to achieve favourable condition. These changes have been reflected in the Environmental Report.</p>



Questions	Consultee Response	Response/Action
	<p>New ATLAS bird data is complete and will be available shortly. It would be useful if AMEC could get access to this data from the BTO within the timeframe of completing the Environmental Report.</p> <p>Water</p> <p>The reference to the Groundwater Directive on is out of date – 80/68/EEC has been replaced with 2006/118/EC</p> <p>Climate Change and Flood Risk</p> <p>Reference should be made to the legally binding emissions reduction target in the Climate Change Act, UK carbon budgets, and UK support for a European target on emissions reductions for 2030.</p> <p>Reference should be made to available estimates and evidence on the levels of planned and ‘fugitive emissions’ of methane, especially given that Box 2.1 mentions that cumulative impacts of venting and flaring could be significant.</p> <p>Population</p> <p>Reference should be made to the Stern Report on the Economics of Climate Change</p> <p>On page 19 Reference should be made to CLG’s recently published ‘Planning practice guidance for onshore oil and gas’.</p>	<p>Comment noted.</p> <p>Agreed.</p> <p>The reference in section 4 (Water) of Appendix B of the Scoping Report will be revised. These changes have been reflected in the Environmental Report.</p> <p>Comment noted.</p> <p>Section 7 of Appendix B (pp199-230) provides contextual information for the climate change topic (as per the requirements of the SEA Directive (Annex I (f))). This includes:</p> <ul style="list-style-type: none"> <li>Climate Change Act (pp 201), Kyoto Protocol (pp 199) and UNFCCC (pp 199) are summarised in the review of plans and programmes (section 7.2);</li> <li>Carbon budgets (pp 219) out to 2030 are summarised in the discussion of the evolution of the baseline (section 7.6).</li> </ul> <p>Box 2.1 of the Scoping Report outlines potential effects from activities following the licensing round including venting and flaring. Table 2.6 and Table 2.7 of the Scoping Report details the assumptions concerning the emissions of methane per well to be used in the assessment of methane emissions. The Environmental Report includes an assessment of the effects. Any supporting evidence and/or research has been referenced as appropriate.</p> <p>Comment noted.</p> <p>The 2006 Stern Report will be reviewed to determine whether Section 2 (Population) could be strengthened within the context of the assessment with reference to the findings of the report. These changes have been reflected in the Environmental Report.</p> <p>Agreed.</p> <p>DCLG published the guidance ‘<i>Planning practice guidance for onshore oil and gas</i>’ after the Scoping Report was issued for consultation. Appendix B will be amended to include reference to it in the relevant plans and programmes sections. These changes have been reflected in the Environmental Report.</p>
<p>Question 2: Do you agree with the main economic, social and environmental issues identified? If not, which issues need to be included?</p>	<p>Table 3.3 makes no mention of direct or indirect impacts on features of protected sites. Such impacts include: disturbance, displacement, direct mortality (e.g. collision, poisoning, burning in flares), indirect impacts (for example through reduced numbers of prey species).</p>	<p>Agreed.</p> <p>Table 3.3 of the Scoping Report will be amended to reflect the inclusion of direct and indirect impacts on features of protected sites. These changes have been reflected in the Environmental Report.</p>



Questions	Consultee Response	Response/Action
	<p>The economic benefits described are short term and simplistic. They should make reference to the wider and longer term economic costs of not tackling climate change (See Stern Report)</p> <p>Energy security is not a climate change issue</p>	<p>Disagree.</p> <p>The long term effects of climate change are summarised in the bullet points against the climate change topic. The economic issues summarised against the population topic in Table 3.3 of the Scoping Report are not focused on short term benefits. They reflect current uncertainties over future economic forecasts, the consequences of growing populations and the need to ensure licensing activities provide employment opportunities for local communities. That the activities could extend over the next 30 years (or more) is indicative of effects beyond the short term.</p> <p>Comment noted.</p> <p>Energy security was included in the summary of the key issues in Table 3.3 of the Scoping Report for this topic, reflecting the scope of information contained in the baseline (patterns of energy generation are summarised in section 7.6.4 of the climate change topic).</p>
<p>Question 3: Do you agree that the draft objectives for the SEA cover a sufficient range of environmental, social and economic topics to allow an assessment of the Strategic Projections? If not, which objectives should be amended and which other objectives do you believe should be included?</p>	<p>Population</p> <p>We do not agree with the inclusion of some of the proposed objectives under 'population', in particular "to remove barriers to growth" and "to address constraints on production and processing". These are purely economic grounds that are focused on increasing growth and production. The scope seems more like a Sustainability Appraisal i.e. seeking to strike a balance between economic, social and environmental impacts, rather than a Strategic Environmental Assessment.</p> <p>Climate Change and Flood Risk</p> <p>We think climate change and flood risk should be separated out into two separate topics as the current arrangement emphasises adaptation to climate change rather than mitigation of it.</p>	<p>Disagree.</p> <p>The topics identified in the assessment reflect those from Annex I (f) of the SEA Directive (and Schedule 2 (6) of the SEA regulations), namely: biodiversity; <i>population</i>; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; and landscape. In the absence of guidance defining what the topics mean, we have interpreted 'population' as including information on demographics and generic socio-economic issues. The inclusion of policy objectives that reflect government economic policy within Table 3.2 concern the intention of the table, which is to identify objectives to which the licensing plan could contribute or be affected by. Whilst important for providing the context for the assessment however, the assessment focuses on specific elements, namely 'To promote a strong, diverse and stable economy with opportunities for all; minimise disturbance to local communities and maximise positive social impacts'.</p> <p>Agreed.</p> <p>The Climate Change and Flood Risk topic will be split with the flood risk information transferred to the water topic. The climate change objective and guide questions (Table NTS3 and Table 4.3 of the Scoping Report and Table 7.7, Appendix B) will be amended to reflect the change as follows:</p> <p><i>To minimise greenhouse gas emissions as a contribution to climate change and ensure resilience to any consequences of climate change and establish measures which limit flood risk.</i></p> <p><i>Will the activities that follow the licensing round proposals affect climate change and flood risk in broad terms?</i></p> <p><i>Will the activities that follow the licensing round proposals be able to minimise the generation of greenhouse gases?</i></p> <p><i>Will the Licensing Plan proposals avoid, and where possible reduce, flood and coastal change risk?</i></p>

Questions	Consultee Response	Response/Action
	<p>We recommend including a guide question in the climate change topic on 'Will the Licensing Plan affect investment in, and deployment of, renewables?'</p> <p>Suggest inclusion of additional guide question 'Will the Licensing Plan affect the UK's ability to meet legally binding emissions reduction targets?' and 'how will the licensing plan affect greenhouse gas emissions outside of the UK?'</p>	<p><i>Will the activities that follow the licensing round proposals be significantly affected by climate change (for example rising temperatures and more extreme weather events)?</i></p> <p>A flood risk objective will be added to the water section along with guide questions as follows:</p> <p><i>To minimise the risks of coastal change and flooding to people, property and communities</i></p> <p><i>Will the activities that follow the licensing round be at risk of flooding or be affected by flooding, if it occurred?</i></p> <p><i>Will the activities that follow the licensing round have the potential to cause or exacerbate flooding?</i></p> <p><i>Will the activities that follow the licensing round have the potential to help alleviate flooding?</i></p> <p><i>Will the activities that follow the licensing round have the potential to affect coastal processes and/or erosion rates?</i></p> <p>These changes have been reflected in the Environmental Report.</p> <p>Disagree.</p> <p>We note the underlying point raised regarding a risk that investment in gas extraction and generation will result in less investment in renewables; however, given the business certainties provided by current legal obligations to meet renewable targets and carbon reduction targets and the different industry sectors and leading players involved, it is unclear how licensing alone would affect current and future investment decisions in renewables.</p> <p>Disagree.</p> <p>The effects on climate change are captured under the Climate Change assessment objective 'To minimise greenhouse gas emissions as a contribution to climate change and ensure resilience to any consequences of climate change' (amended following the response from the EA and NRW). Contextual information (as per the requirements of Annex I (f) of the SEA Directive) is set out in section 7 of Appendix B (pp199 – 230).</p> <p>For the avoidance of doubt and consistent with the SEA Directive and regulation requirements to consider 'secondary, cumulative and synergistic effects', the greenhouse gases arising from the use of extracted hydrocarbons will be estimated as part of the assessment. For the purposes of the assessment, it is assumed that this will be as a substitution for other currently imported hydrocarbons and that there would be no net change to the energy mix within the UK, other than those already anticipated by DECC in the 2050 pathways report.</p> <p>To address these questions require consideration of different scenarios for different energy mixes and future global greenhouse gas emission trajectories that require assumptions and forecasts that are speculative, subjective and highly uncertain. The concerns that underpin these questions, 'that significant new investment in oil and gas extraction, combined with a large programme of new gas fired power stations (with their emissions 'grandfathered' under the proposed Emission Performance Standard for decades to come), will lock the UK into a high carbon economy, diverting much needed investment away from renewable energy and</p>

Questions	Consultee Response	Response/Action
	<p><b>Biodiversity and Nature Conservation</b></p> <p>We suggest that the guide question relating to internationally designated sites should be recast to better reflect the legal and policy obligations applying to such sites: <i>Will the Licensing Plan proposals avoid damage/deterioration and/or enhance internationally designated nature conservation sites?</i></p> <p>The guide question for nationally designated sites should be similarly recast to emphasise the legal and policy requirement to conserve and enhance. In this context, it should explicitly include reference to the need to avoid damage.</p> <p>The SEA guide questions should cover impacts on all sensitive ecological areas, not just those that are designated.</p>	<p>endangering our ability to meet legally binding climate targets', discount any effects from Carbon Capture and Storage, make assumptions over the carbon intensity of other energy sources and relate to UK energy policy overall. Whilst legitimate policy questions to be raised by consultees, they are outside the scope of the assessment which is focused on the effects of licensed activities.</p> <p>Disagree.</p> <p>The relevant guide questions have been amended to read '<i>Will the activities that follow the licensing round protect and/or enhance internationally designated nature conservation sites? e.g. SACs, SPAs and Ramsars?</i>' and '<i>Will the activities that follow the licensing round protect and/or enhance nationally designated nature conservation sites? e.g. SSSIs?</i>'. The use of 'protect' relates to ensuring integrity of the site as a whole, and is consistent with many other SEAs on this point. We have considered the point made in reference to the other statutory conservation bodies submissions (SNH, NRW and NE), none of whom propose similar wording changes. Taking views overall, no changes above those already outlined will be made.</p> <p>The guide questions also include reference to effects on animals or plants as well as the structure and function of ecosystems. This provides the opportunity to consider the effects on areas wider than those that are designated. However, the reference to designated sites is to ensure the assessment is focused on those areas of greatest biodiversity and conservation value.</p>
<p>Other comments - Summary of Potential Activities, Resulting Effects and Controls</p>	<p>The risks associated with oil and gas extraction need to be highlighted more consistently throughout the document and it is critical that they are included alongside each of the activities in each of the scenarios that are being assessed for their potential environmental impacts.</p> <p>The Environment Agency also recommended further consideration of groundwater contamination issues in their response to the previous consultation.</p> <p>Box 2.1 should also include climate change.</p> <p>The risk of methane leakage is thought to increase over time, so consideration of long-term maintenance needs is crucial.</p>	<p>Comment noted.</p> <p>The purpose of the Scoping Report is to provide sufficient information to consultees to enable them to comment on the proposed scope of the SEA. The effects of activities following licensing will be identified, characterised and assessed in the Environmental Report. This will include consideration of the likelihood and significance of such effects in determining their significance.</p> <p>Box 2.1 of the Scoping Report outlines potential effects from activities following the licensing round including venting and flaring to provide the reader with an indication of the type of effects to be considered in the subsequent assessment. It has not been included in the Environmental Report.</p> <p>Comment noted.</p>
<p>Activity scenarios</p>	<p>The use of 12-24 wells per well pad in the high scenario seems unrealistic based on the literature available. It is more likely that there would be more well pads with a smaller number of wells radiating out from each.</p>	<p>Comment noted.</p> <p>The AEA 2012 report for the EC '<i>Support to the identification of potential risks for the environment and human health arising from hydrocarbons operations involving hydraulic fracturing</i>' noted up to 20 wells per pad (based on a 2011 US Department of Energy report), whilst the 2013 IoD report '<i>Getting Shale Gas Working</i>' assumed 40 lateral wells per pad.</p>

Questions	Consultee Response	Response/Action
	<p>We think the estimate of the amount of water required per well is too low. It may be more appropriate to give a range than a single figure, and similarly for the rate of flowback recovery.</p>	<p>The 2011 Regeneris report '<i>Economic Impact of Shale Gas Exploration and Production in Lancashire and the UK</i>' assumed an average of 10 wells per pad. These figures suggest that the assumption for the number of wells per pad is not inconsistent with literature available.</p> <p>Comment noted.</p> <p>Table 2.7 includes a range of assumptions to inform the assessment of which water volumes for fracking is one.</p> <p>The AEA 2012 report for the EC '<i>Support to the identification of potential risks for the environment and human health arising from hydrocarbons operations involving hydraulic fracturing</i>' noted that horizontal shale gas wells typically use 10,000 to 25,000 m<sup>3</sup> water per well, based largely on US analysis. The AEA report also summarised the limited evidence from activity in Europe, which gave a range:</p> <ul style="list-style-type: none"> <li>• 9000 – 29,000 m<sup>3</sup>/well (from Cuadrilla in Holland);</li> <li>• 1,600m<sup>3</sup> (Halliburton at Lubocino-1 well in Poland);</li> <li>• 7,000m<sup>3</sup> – 8,000m (the Danish Energy Agency).</li> </ul> <p>Industry estimates suggest ranges of 10,000m<sup>3</sup> to 20,000m<sup>3</sup> (<a href="http://www.total.com/en/special-reports/shale-gas/environmental-challenges-201958.html">http://www.total.com/en/special-reports/shale-gas/environmental-challenges-201958.html</a>).</p> <p>Given that water demand per well in the UK for fracking remains uncertain, and that evidence of practice to date suggests a range of water demand per well, the estimate of water use per well in Table 2.7 will be revised to reflect the range (from 10,000m<sup>3</sup> to 25,000m<sup>3</sup>) rather than focus on a single estimate. These changes have been reflected in the Environmental Report.</p>
<p>Previous consultation responses</p>	<p>We would like DECC to confirm whether any of the recommendations from responses to the previous consultation in 2010 have been implemented or if they have been rolled forward to be considered as part of this consultation?</p>	<p>Comment noted.</p> <p>Appendix A provides a summary of responses provided to the 2010 Environmental Report containing the initial assessment of the effects of the 14<sup>th</sup> Licensing Round. This has been summarised in section 1.3.1 of the Environmental Report demonstrating how these comments have been addressed (if still appropriate) within the assessment.</p>
<p>Context and Draft Licensing Plan Objectives</p>	<p>The report justifies the new round of oil and gas licensing by saying that in 2020 and 2030, 70% of UK primary energy demand will come from oil and gas. This is inconsistent with p.17 of the report.</p> <p>2.2.1 – this section is incongruous – the plan aims to maximise economic recovery of hydrocarbon resources while “minimising the impact on the environment, consistent with the Government’s long term commitment to transition to a low carbon economy”. Unless and until carbon capture and storage is available at a commercial scale, these two objectives are mutually exclusive.</p>	<p>Comment noted.</p> <p>Fossil Fuels will remain part of the UK Energy Mix as a bridge in our transition to a green future, especially in our move away from coal. North Sea gas production is falling and the UK is become increasingly reliant on gas imports. UK oil and gas could increase the UK’s energy security by cutting imports. Home-grown gas, just like home-grown renewables and new nuclear, also provides jobs and tax revenues. The Government is pursuing vigorously the development and deployment of technologies that will reduce emissions including the effort to develop low-carbon technologies such as Carbon Capture and Storage, (CCS).</p> <p>Climate Change is an issue and assessment objective and so is taken into account in the assessment.</p>

Questions	Consultee Response	Response/Action
	2.2.2. – needs to add climate change to the list of considerations that the plan must take into account.	
Other comments - timescales	We are not persuaded that a strict linkage of short, medium and long term in relation to the duration of effects to the different Terms and Phases of PEDL is appropriate or logical in SEA terms. The definition of short, medium and long-term should be independent of the phase, given that each phase may give rise to short, medium and long-term effects.	<p>Comment noted.</p> <p>When considering the timing of potential effects of the draft Licensing Plan, potential effects are classified as 'short,' 'medium' or 'long term.' This reflects an intention to capture the differences that could arise at different timescales, consistent with the requirements of the Annex II (2) of the SEA Directive where the assessment of the effects should have regard to 'the probability, duration, frequency and reversibility of the effects'. For the purposes of this assessment, 'short,' 'medium' or 'long term' will be defined by the length of the for the PEDLs (32 years). 'Short term' covers the period up to 3 years, 'medium term' up to 10 and, 'long term' covers the period &gt;10 years to 32 years (and beyond to include decommissioning of the wells).</p>
Illustrative Guidance for the Assessment of Significance	<p>For consistency, the description for "Positive" and "Negative" should have the word "Minor" inserted before them.</p> <p>Biodiversity and Nature Conservation</p> <p><i>Significant and Minor positive:</i> the reference to "fully supports all conservation objectives on site" or "supports one of the conservation objectives on the site" should be deleted as an example as it could not be considered additional.</p> <p>Water</p> <p>In relation to assessing significance (Appendix B p. 183-84), the content of the guidance table is rather simplistic and it is unclear how these impacts on water resources and quality (on a scale of significant positive to significant negative) will be evaluated (based on the current criteria).</p>	<p>Agreed.</p> <p>Text in each of the tables of illustrative guidance for the assessment of significance will be amended in line with the suggestion. These changes have been reflected in the Environmental Report.</p> <p>Agreed.</p> <p>The illustrative guidance for a minor positive effect in Table 1.8 of section 1 (Biodiversity and Nature Conservation) of Appendix B will be amended to remove the example 'supports one of the conservation objectives on the site'. These changes have been reflected in the Environmental Report.</p> <p>Disagree.</p> <p>The illustrative guidance for a significance positive effect in Table 5.9 of Appendix B of the Scoping Report includes the following. 'Proposal would lead to major increases in water use compared to prior to development such that the risk of water shortages in the area is significantly increased and abstraction is significantly beyond sustainable levels'. To assess such an effect would include reference to the relevant water companies Water Resource Management Plan (WRMP), and the indication in the plan of the number and location of Water Resource Zones in deficit and the amount of headroom (un)available in each zone. The additional demand from water from the activity would then be considered against this background to determine whether there would be a short fall (and any concerns around this) such as forecast periods of low flow and drought.</p>
Assessment of Secondary, Cumulative and Synergistic Effects	The cumulative impacts section is surprisingly brief given that there is considerable risk of cumulative risks from these oil and gas extraction activities. It states that	<p>Comment noted.</p> <p>The SEA Directive, and its implementing regulations in the UK, requires that secondary, cumulative and synergistic effects are considered as part of the assessment. Section 4.5 of the Scoping Report states:</p>

Questions	Consultee Response	Response/Action
	<p><i>"Cumulative effects will include the potential effects (if any) of a proposed activity and any other proposed and consented developments"</i>.</p> <p>It is not clear whether DECC are including all types of development which might have impacts on a site and or population. It should be noted that all regulated activities which might have an impact on a site and or population should be included not just <i>"developments"</i>. Cumulative impacts are a serious concern because of the potential for multiple activities to impact on the same species and sites, potentially leading to unacceptable levels of change.</p> <p>We recommend that a precautionary approach is taken to onshore oil and gas licensing to ensure that the impacts of multiple developments within some areas can be properly assessed, understood and mitigated for.</p> <p>We are also concerned that there are not sufficient regulatory controls regarding the monitoring of effects (for example the lack of requirements for monitoring and reporting of methane emissions at exploration phase) and cumulative impacts may not be adequately picked up via individual EIAs.</p>	<p><i>'... different activity scenarios will be considered during the assessment which will help identify the potential effects associated with the collective implementation of oils and gas exploration and production licensed under draft Licensing Plan.</i></p> <p><i>Additionally, the effects of the draft Licensing Plan in-combination with other plans and programmes will also be considered'</i>.</p> <p>The statement referenced by the response is taken from Table 4.7 of the Scoping Report which provides definitions of secondary, cumulative and synergistic effects.</p> <p>Comment noted.</p> <p>Comment noted.</p>
Mitigation	<p>We welcome the fact that the mitigation hierarchy is mentioned. We note that the cited example measures include site selection to minimise environmental risk (as well as to optimise gas extraction), and in relation to this point we state the potential for this to be addressed at the strategic level through the avoidance of sites of European and international importance in the SEA.</p>	<p>Comment noted.</p>
Other comments - general	<p>The RSPB is concerned that continuing to extract oil and gas is incompatible with the UK's commitments on climate change, unless used in conjunction with CCS which is currently unproven.</p> <p>Our major concern is that significant new investment in oil and gas extraction will lock the UK into a high carbon economy, diverting much needed investment away from renewable energy and endangering our ability to meet legally binding carbon targets.</p>	<p>Comment noted.</p> <p>The effects on climate change are captured under the Climate Change assessment objective 'To minimise greenhouse gas emissions as a contribution to climate change and ensure resilience to any consequences of climate change' (amended following the response from the EA and NRW). Contextual information (as per the requirements of Annex I (f) of the SEA Directive) is set out in section 7 of Appendix B (pp199 – 230).</p> <p>For the avoidance of doubt and consistent with the SEA Directive and regulation requirements to consider 'secondary, cumulative and synergistic effects', the greenhouse gases arising from the</p>

Questions	Consultee Response	Response/Action
	<p>The proposal to only quantify and assess the impacts of any additional carbon emissions associated with extracting these indigenous fossil fuels and not the emissions associated with their combustion is incongruous.</p> <p>We note that this report reflects a lack of consistency in the Government's current approach and commitment to climate change mitigation and meeting the UK's emissions reduction target. This can be seen in the way climate change has been grouped with flood risk as a single SEA topic, suggesting a focus on adaptation rather than mitigation. Furthermore, we do not consider the high level objective "to reduce emissions of carbon dioxide and combat the serious threat of climate change" (e.g. Table 3.2, p.40) to be reconcilable with the overall ambition of permitting the extraction of large quantities of fossil fuels which are largely responsible for causing climate change.</p> <p>We strongly recommend that the potential greenhouse gas emissions associated with the combustion of fossil fuels potentially extracted under this licensing round are fully quantified and considered as part of the SEA process.</p>	<p>use of extracted hydrocarbons will be estimated as part of the assessment.</p> <p>For the purposes of the assessment, it is assumed that this will be as a substitution for other currently imported hydrocarbons and that there would be no net change to the energy mix within the UK, other than those already anticipated by DECC in the 2050 pathways report.</p> <p>The Climate Change and Flood Risk topic will be split with the flood risk information transferred to the water topic. The climate change objective and guide questions (Table NTS3 and Table 4.3 of the Scoping Report and Table 7.7, Appendix B) will be amended to reflect the change. A separate flood risk objective and guide questions will be added to the water section. These changes have been reflected in the Environmental Report.</p>
Ecological Impacts	<p>We are concerned that not enough is known about ecological impacts to commit to the speed and scale of licensing that is under consideration, particularly in relation to the extraction of unconventional gas resources. We strongly recommend that a phased approach is taken to the licensing of unconventional gas resources to ensure that appropriate monitoring and analysis can be carried out and learnt from between rounds.</p>	<p>Comment noted.</p>
Habitat Regulations Assessment	<p>We are very concerned about DECC's decision not to subject this process to a Habitats Regulations Assessment (HRA).</p> <p>Without carrying out an appropriate assessment, DECC will be unable to demonstrate that this licensing round will not lead to such adverse effects. We have serious concerns that there are a number of highly sensitive and internationally designated wildlife sites both within and in close proximity to several proposed exploration blocks.</p>	<p>Comment noted.</p> <p>To the extent that the draft Licensing Plan is a "plan" within the scope of the Habitats Directive, DECC has carried out screening of it and reached the conclusion that merely issuing licences is not likely to have significant effects on sites.</p> <p>Any effects on sites will be caused by activities, such as drilling, which are not authorised by the licences but instead are authorised separately under the planning system, and planning decisions will be subject to appropriate assessments wherever required by law and in the full environmental context of each proposal.</p>



Questions	Consultee Response	Response/Action
	<p>We consider it is feasible for DECC to make certain high level assumptions on likely significant effects that can be assessed at this strategic level.</p> <p>We strongly recommend that an HRA is carried out for this licensing round and the results used to inform both the alternatives considered in the SEA process, and potential conditions that could be placed on the licences themselves.</p>	<p>Nevertheless, DECC has decided to carry out appropriate assessments before any licence is issued. Once applications for licences have been received and their geographical proximity to any protected site can be established, the appropriate statutory bodies will be consulted on the form and scope of the assessments which should be performed before any decision is made on the award of a licence.</p>
<p>Alternatives</p>	<p>The alternatives discussed in the Scoping Report are unclear at this stage, but as specified they appear potentially unhelpful in achieving the purpose of using the SEA to identify how the environmental acceptability of the plan can be improved. It would be preferable, and in our view it is possible to compare the different potential impacts of a number of realistic spatial and temporal restrictions on licensing, and/or between realistic conditions that could be applied to the licenses, to determine which would give the best result in terms of environmental impacts.</p> <p>We strongly recommend that the SEA Environmental Report should include a suitable range of reasonable alternatives to offering the full range of blocks for licensing.</p> <p>We recommend that as a minimum, DECC should hold a pilot Round under which a certain number of unconventional gas sites are trialled so as to enable monitoring and assessment of the impacts before committing to a large scale roll-out.</p>	<p>Comment noted.</p> <p>Three alternatives have been proposed:</p> <ul style="list-style-type: none"> <li>• Not to offer any blocks for licensing;</li> <li>• To proceed with the licensing programme as proposed; and</li> <li>• To restrict the area licensed temporally or spatially.</li> </ul> <p>The first alternative '<i>not to offer any blocks for licensing</i>' appears to be the same as the proposed 'no fracking licenses' and 'limited licenses to areas previously available'. In the case of the latter it is assumed that this refers to existing licences granted under the 13<sup>th</sup> licensing round rather than any further areas that could be licensed under the draft Licensing Plan. Under either alternative proposed, the draft Licensing Plan would not then offer any areas for licensing.</p> <p>The following proposed alternatives that seek to restrict licensing have been considered in the Environmental Report (section 2.6):</p> <ul style="list-style-type: none"> <li>• Restricting licences temporally could include a phased approach to licensing including a pilot phase; and</li> <li>• Restricting licences spatially could include considering excluding areas that are internationally designated conservation sites or include specific identified sensitive receptors.</li> </ul> <p>Consistent with the SEA Directive (article 5(1)) and the EC guidance and recent court judgements, reasons for the selection of the reasonable alternatives have been given along with the preferred alternative in the Environmental Report.</p>
<p>Requirement for future SEAs</p>	<p>Given the very high level nature of this SEA, and the lack of an HRA, we are concerned both about its use for the current licensing round and also for any subsequent rounds. We recommend that any subsequent rounds should be subject to their own SEA.</p>	<p>Comment noted.</p> <p>For the avoidance of doubt, this SEA does not preclude subsequent SEAs of future licensing round. This is consistent with DECC's approach both onshore and offshore licensing.</p>

Table A.10 Scottish Environment Protection Agency (SEPA)

Questions	Consultee Response	Response/Action
<p>Question 1: Do you think that this report sets out sufficient information to establish the context for the assessment? If not, which areas do you think have been missed and where is information on these topics available from?</p>	<p>We are generally satisfied that this report sets out sufficient information to establish the context for the assessment. We note that the SEA will assess those potential activities associated with the exploration and production stages that could follow on from the licensing round. We are generally content with the scope, level of detail, and structure proposed for the environmental assessment.</p> <p>We would welcome clarification on the information presented in Table NTS 1. This Table sets out what will be assessed in terms of the six exploration and production stages. Coalbed methane is excluded from Stage 1; it would be helpful if the Responsible Authority were to provide detail as to why this activity has been excluded from Stage 1.</p>	<p>Comment noted.</p> <p>Comment noted.</p> <p>Table NTS1 summarises the key activities associated with the oil and gas exploration and production life cycle. Stage 1 concerns the non-intrusive exploration, including site identification, selection, characterisation and seismic surveys. In the review of activities, it was considered that this was one stage where knowledge of the resource would be substantial due prior workings and geological surveys. It was also consistent with the evaluation of relevant activities in the initial 2010 Environmental Report (Table A5.1, Appendix 5).</p>
<p>Question 2: Do you agree with the main economic, social and environmental issues identified? If not, which issues need to be included?</p>	<p>We are generally satisfied that the main issues falling within the SEA legislation have been identified. There are some additional issues ... which Table 3.3 could also usefully include:</p> <p><b>Population</b></p> <p>A key issues which should be considered under this topic is environmental justice i.e. consideration of the impact of industrial activity potentially being concentrated in areas that have already been affected by previous industrial / mining activities</p> <p><b>Health</b></p> <p>The concentration of industrial activity in particular areas has implications for perpetuating health inequalities. Impacts on specific communities may arise from industrial activities which result in fugitive emissions and air pollution, possible drinking water contamination and risks to health and safety arising from seismic activities.</p>	<p>Comment noted.</p> <p>Our response to the request for additional information is outlined against the specific points made.</p> <p>Comment noted.</p> <p>In considering the effects on the population the assessment has noted, where appropriate, where there could be effects on communities that have already been affected by previous industrial/mining activities.</p> <p>Comment noted.</p> <p>In considering the effects on the health against the assessment objective, 'To protect and enhance health, safety and wellbeing of workers and communities and minimise any health risks associated with onshore oil and gas operations' and the guide question 'Will the activities that following the licensing round protect and/or enhance the health, safety and well-being of local communities?', where relevant, the issues of health inequality has been considered.</p>

Questions	Consultee Response	Response/Action
	<p><b>Air pollution</b></p> <p>Industrial activity (including drilling, fracturing and extraction) may impact on local air quality including through fugitive emissions as well as intended flaring / venting. The likelihood of increased concentration of these types of activity in areas where there is already poor air quality should be an important consideration.</p>	<p>Comment noted.</p> <p>Section 6 of Appendix B of the Scoping Report sets out the baseline issues for air quality. This includes the identification of the Air Quality Management Areas (AQMAs) across the UK and in the 5 SEA areas covered by the assessment. When assessing the effects on air quality, consideration has been given to effects on the AQMAs in these areas, as indicators of areas requiring improvement in their air quality.</p>
<p>Question 3: Do you agree that the draft objectives for the SEA cover a sufficient range of environmental, social and economic topics to allow an assessment of the Strategic Projections? If not, which objectives should be amended and which other objectives do you believe should be included?</p>	<p>We are generally content with the proposed SEA objectives and guide questions which will form the basis of the assessment. However, in view of our observations above in relation to Table 3.3 some additions / amendments to the proposed guide questions will be required. Some suggested text for additional questions to cover these issues is set out below:</p> <p><b>Population</b></p> <p>Will the Licensing Plan proposals result in an increase in industry being located in the vicinity of communities which are / have already been impacted on by existing / previous mining related activities?</p> <p><b>Health</b></p> <p>Will the Licensing Plan increase health inequities, i.e. by locating industry in areas which are currently considered to be deprived?</p> <p><b>Air Pollution</b></p> <p>Will the Licensing Plan impact on areas which currently suffer from poor air quality, or which are designated AQMAs?</p> <p><b>Climate Change and Flooding</b></p> <p>Will the Licensing Plan proposals be resilient to climate change, including through appropriate location of infrastructure outwith the floodplain?</p>	<p>Comment noted.</p> <p>Disagree.</p> <p>In considering the effects on the population that assessment will also note, where appropriate, where there could be effects on communities that have already been affected by previous industrial/mining activities. A question is not needed to ensure consideration of this issue.</p> <p>Disagree.</p> <p>In considering the effects on the health against the assessment objective, 'To protect and enhance health, safety and wellbeing of workers and communities and minimise any health risks associated with onshore oil and gas operations' and the guide question 'Will the activities that following the licensing round protect and/or enhance the health, safety and well-being of local communities?', where relevant, the issues of health inequality will be considered. A question is not needed to ensure consideration of this issue.</p> <p>Disagree.</p> <p>When assessing the effects on air quality, consideration will be given to effects on the AQMAs in these areas, as indicators of areas requiring improvement in their air quality. A question is not needed to ensure consideration of this issue.</p> <p>Disagree.</p> <p>The Climate Change and Flood Risk topic will be split with the flood risk information transferred to the water topic. A flood risk objective will be added to the water section along with guide questions as follows:</p> <p><i>To minimise the risks of coastal change and flooding to people, property and communities</i></p>



Questions	Consultee Response	Response/Action
	<p>which flow from the draft plan to other plans and strategies in the hierarchy (e.g. through influencing project level EIA). How the achievement of such mitigation measures will be achieved should be clearly set out in the Environmental Report.</p> <ul style="list-style-type: none"> <li>- Proposed mitigation should clearly identify the measures required, where responsibility for implementation of the measure lies, and the timescale within which the measures will be implemented.</li> <li>- Mitigation measures should include areas for potential enhancement and improvement as well as mitigation of negative effects.</li> </ul>	
	<p>It would be useful if the environmental report included separate chapters dealing with each of the five SEA Areas identified in Figure 3.1 to ensure that the detail of potential impacts in specific areas is not lost within a generic summary of effects.</p>	<p>Disagree.</p> <p>The relevant effects of the activities following licensing for each of the 5 SEA area will be recorded in each of the 10 topic chapters. All likely significant effects will then be summarised by each area within the chapter dealing with the findings of the assessment in the Environmental Report. There will be a further high level summary in the NTS.</p>

Table A.11 Scottish Natural Heritage

Questions	Consultee Response	Response/Action
<p>Question 1: Do you think that this report sets out sufficient information to establish the context for the assessment? If not, which areas do you think have been missed and where is information on these topics available from?</p>	<p>The coverage of issues which have been included seems appropriate. However, we suggest that information is also gathered on the following issues:</p> <ul style="list-style-type: none"> <li>- Green infrastructure: Information on this will be available in Local Development Plans as well as in open-space audits</li> <li>- Active travel routes and local networks: Information on this will be in Core Path Plans and Local Development Plans</li> <li>- Geodiversity: Information on this is available from our website (<a href="http://www.snh.gov.uk/planning-and-development/advice-for-planners-and-developers/soils-rocks-and-minerals/">http://www.snh.gov.uk/planning-and-development/advice-for-planners-and-developers/soils-rocks-and-minerals/</a>)</li> </ul>	<p>Comment noted.</p> <p>Our response to the request for additional information is outlined against the specific points made.</p> <p>Comments noted.</p> <p>The information identified on green infrastructure and active travel routes will be noted in a generic sense. It is not considered proportionate to the nature and scale of the strategic assessment to review all local authority local development plans across England, Scotland and Wales (estimated at 413) for locationally specific information on green infrastructure given the uncertainties over the location of the licensing activities in the 5 SEA areas.</p> <p>Section 4 (Land Use, Geology and Soils) of Appendix B of the Scoping Report includes reference to topography and a diversity of landforms. This will be reviewed to determine whether the baseline could be improved through reference to the geodiversity information identified. However, to be useful, information would need to be available of an equivalent standard and status across England and Wales as well as Scotland. Geodiversity information will not be added on the grounds of completeness alone but only where it is considered relevant to the assessment. Where undertaken, these changes have been reflected in the Environmental Report.</p>
<p>Question 2: Do you agree with the main economic, social and environmental issues identified? If not, which issues need to be included?</p>	<p>We do not agree with inclusion of social and economic issues in the Strategic Environmental Assessment Environmental Report. This report should focus on the environmental impacts of the proposals. Social and economic issues should be taken into account in the broader planning process. We provide further detail on this in Annex 1 (see below)</p>	<p>Disagree.</p> <p>The topics identified in the assessment reflect those from Annex I (f) of the SEA Directive (and Schedule 2 (6) of the SEA regulations), namely: biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; and landscape. In the absence of guidance defining what the topics mean, we have interpreted 'population' as including information on demographics and generic socio-economic issues. The inclusion of policy objectives that reflect government economic policy within Table 3.2 concern the intention of the table, which is to identify objectives to which the licensing plan could contribute or be affected by. Whilst important for providing the context for the assessment however, the assessment focuses on specific elements, namely 'To promote a strong, diverse and stable economy with opportunities for all; minimise disturbance to local communities and maximise positive social impacts'.</p>

Questions	Consultee Response	Response/Action
(from Annex 1)	<p><b>Biodiversity</b></p> <p><i>Green Infrastructure as well as Biodiversity:</i></p> <p>As well as the impact on biodiversity in protected areas and protected species outwith these places, it is important to consider the potential effects on green infrastructure which provides direct benefits to people. The EC has recently issued a Communication on green infrastructure which emphasises the importance of this as a key aspect for spatial planning. The EC is planning to issues guidance to show how green infrastructure can be integrated into the implementation of a wide range of policies, including energy policy.</p> <p><i>Biodiversity outside protected areas:</i></p> <p>It is important to bear in mind that our biodiversity resources are not restricted to sites designated for nature conservation. ... its protection in the wider countryside is fundamental to long-term sustainability. This is recognised by both the UK BAP process and EU Nature Directives ...</p> <p><i>Geodiversity alongside biodiversity:</i></p> <p>The section on biodiversity should include the protection and enhancement of geodiversity. ... it is important to take into account the natural heritage value of both geological resources and the natural processes that occur in dynamic systems such as alluvial rivers – these should be dealt with under an expanded biodiversity section which would then include geodiversity alongside other aspects of biodiversity.</p>	<p>Comments noted.</p> <p>Where relevant in the generic assessment, proportionate to the level of detail available, the assessment of effects on biodiversity has encompassed the effects on green infrastructure.</p> <p>The guide questions also include reference to effects on animals or plants as well as the structure and function of ecosystems. This provides the opportunity to consider the effects on areas wider than those that are designated. However, the reference to designated sites is to ensure the assessment is focused on those areas of greatest biodiversity and conservation value.</p> <p>Section 4 (Land Use, Geology and Soils) of Appendix B of the Scoping Report includes reference to topography and a diversity of landforms. This will be reviewed to determine whether the baseline could be improved through reference to the geodiversity information identified. However, to be useful, information would need to be available of an equivalent standard and status across England and Wales as well as Scotland. Geodiversity information will not be added on the grounds of completeness alone but only where it is considered relevant to the assessment. These changes have been reflected in the Environmental Report.</p>
(from Annex 1)	<p><b>Population (in Table NTS2 and Appendix B: Section 2)</b></p> <p>We recognise that consideration of economic effects is a key issue to be considered in planning decisions. However, including it as part of the SEA process moves it much more towards an Appraisal of Sustainability.</p> <p>..., we have some concerns that this can lead to the masking of some environmental impacts. If sustainability and economic criteria are looked at alongside environmental criteria without adequate differentiation,</p>	<p>Disagree.</p> <p>The topics identified in the assessment reflect those from Annex I (f) of the SEA Directive (and Schedule 2 (6) of the SEA regulations), namely: biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; and landscape. In the absence of guidance defining what the topics mean, we have interpreted 'population' as including information on demographics and generic socio-economic issues. The inclusion of policy objectives that reflect government economic policy within Table 3.2 concern the intention of the table, which is to identify objectives to which the licensing plan could contribute or be affected by.</p>

Questions	Consultee Response	Response/Action
	<p>then the process fails to clarify what the environmental effects of the proposals will be. There is, accordingly, a risk that it will disguise the fact that a trade-off is being made ... We recommend that the Environmental Report includes a clear conclusion on the subset of issues which comprise the environmental assessment.</p>	<p>Whilst important for providing the context for the assessment however, the assessment focuses on specific elements, namely 'To promote a strong, diverse and stable economy with opportunities for all; minimise disturbance to local communities and maximise positive social impacts'.</p>
(from Annex 1)	<p><b>Landscape</b> <i>Active travel</i> ... active travel (walking and cycling) should be considered more widely in the SEA process... It is important that existing travel routes and infrastructure are taken into account both when selecting the site for oil and gas exploration and during the construction and operation phases. ... (they suggest mitigation measures)</p>	<p>Comment noted. The effects of activities that follow licensing has been assessed on access to areas of wildlife interest, as well as on health and wellbeing. If there are any generic effects on walking and cycling routes, their use and wider public amenity of open space, the assessment has recorded such effects.</p>
<p>Question 3: Do you agree that the draft objectives for the SEA cover a sufficient range of environmental, social and economic topics to allow an assessment of the Strategic Projections? If not, which objectives should be amended and which other objectives do you believe should be included?</p>	<p><b>Population</b> We do not agree that social and economic objectives should be included. In particular we advise that the first part of the objective for Population is not appropriate for inclusion in the SEA process – the following wording of the objective should be removed '<i>To promote a strong, diverse and stable economy with opportunities for all</i>' We feel that the fourth, fifth and sixth questions under Population should not be included (from Annex 1).</p>	<p>Disagree. The topics identified in the assessment reflect those from Annex I (f) of the SEA Directive (and Schedule 2 (6) of the SEA regulations), namely: biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; and landscape. In the absence of guidance defining what the topics mean, we have interpreted 'population' as including information on demographics and generic socio-economic issues. The inclusion of policy objectives that reflect government economic policy within Table 3.2 concern the intention of the table, which is to identify objectives to which the licensing plan could contribute or be affected by. Whilst important for providing the context for the assessment however, the assessment focuses on specific elements, namely 'To promote a strong, diverse and stable economy with opportunities for all; minimise disturbance to local communities and maximise positive social impacts'.</p>
(from Annex 1)	<p><b>Biodiversity</b> We suggest additional question in the table: - Will the Licensing Plan proposals affect geodiversity interests? - Will the Licensing Plan proposals affect green infrastructure, especially in and around where people live?</p>	<p>Disagree. The scope of the assessment already includes these issues at a generic level. No additional questions are needed to ensure these issues are considered.</p>



Questions	Consultee Response	Response/Action
(from Annex 1)	<p><b>Landscape</b></p> <p>We suggest additional question in the table:</p> <p>- Will the Licensing Plan proposals affect active travel routes, either in and around where people live or in the countryside?</p>	<p>Disagree.</p> <p>The scope of the assessment already includes this issue at a generic level. No additional questions are needed to ensure these issues are considered.</p>
Additional comments	<p>The Scottish Biodiversity Strategy is referred to on page 51 of Appendix B – including mention that a consultation is due in 2013. This consultation has been completed and a revised strategy was published in June 2013. This document is <i>2020 Challenge for Scotland's Biodiversity – A strategy for the conservation and enhancement of biodiversity in Scotland</i>. The document is available on the Scottish Government's website (<a href="http://www.scotland.gov.uk/Publications/2013/06/5538">http://www.scotland.gov.uk/Publications/2013/06/5538</a>)</p> <p>The scoping report is fairly long as it runs to 537 pages. We suggest that much of the background material included in the scoping report does not need to be reproduced in the Environmental Report.</p>	<p>Agree.</p> <p>Section 1.2.4 of Appendix B of the Scoping Report includes a summary of the Scottish Biodiversity Strategy, however, the text refers to a draft subject to consultation. This will be revised to reflect the adoption of the Strategy. The text at pp51 of Appendix B will also be amended. These changes have been reflected in the Environmental Report.</p> <p>Comment noted.</p> <p>We note the suggestion for exclusion of the background information; however, we have some difficulty reconciling it with earlier comments from the consultee suggesting more baseline information.</p> <p>Annex I of the SEA Directive and Schedule 2 of the SEA regulations set out the requirements for the Environmental Report. This includes:</p> <ul style="list-style-type: none"> <li>• The relevant aspects of the current state of the environment and the likely evolution thereof.</li> <li>• The environmental characteristics of areas likely to be significantly affected;</li> <li>• Any existing environmental problems which are relevant to the plan or programme;</li> <li>• The environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme.</li> </ul> <p>To ensure that all information requirements for the Environmental Report of the SEA directive and regulations are met, the information that is contained in the Scoping Report Appendices has been included in the Environmental Report.</p>

Table A.12 WWF

Questions	Consultee Response	Response/Action
<p>Question 1: Do you think that this report sets out sufficient information to establish the context for the assessment? If not, which areas do you think have been missed and where is information on these topics available from?</p>	<p><b>Fossil Fuel Demand</b></p> <p><i>'in 2020 and 2030 gas and oil will continue to provide 70% of the U.K.'s energy needs'</i> (p. 16 Scoping Report)</p> <p>It is not appropriate to reference this figure because it is made clear in the UEP that:</p> <ul style="list-style-type: none"> <li>- The modelling represents a 'no additional policy baseline'</li> <li>- The UEP projections beyond 2023 are not consistent with the fourth carbon budget recommendations</li> </ul> <p>It is therefore not appropriate to reference this 70% figure ... actual reliance on fossil fuels by 2030, ..., will be significantly lower than 70%</p> <p><b>Climate Change</b></p> <p>-Section 2.2.2 (p. 17): Does not include climate in the list of things which should not be comprised</p> <p>Box 2.1 (p. 26): No reference to climate change as potential environmental effect. Climate change is clearly a very important environmental effect and therefore should be added.</p> <p>Section 3.2 (p. 40): Climate Change and Flood Risk should be split into separate categories as it appears that focus is on adaption to climate change and not mitigation</p> <p>Objectives should be more specific in line with positions which the UK has previously adopted on climate change:</p> <ul style="list-style-type: none"> <li>- 2°C of warming as appropriate level of reference</li> <li>- A number of objectives at EU level which the UK has signed up for should be spelt out (support for a target of 50% greenhouse gas emission reductions by 2030 EU level (subject to a global deal is not then 40%)).</li> </ul> <p>Section 3.3.1 (p. 46): Energy security is not relevant to climate change and flood risk</p>	<p>Comment noted.</p> <p>It is correct that the UEP projections for the 4th carbon budget represent a scenario in which no additional policy action was taken beyond current policy plans. However the government has set out its plans for meeting the 4th carbon budget in the Carbon Plan. The scenarios in the plan suggest that electricity demand could be higher or lower than the UEP projection and the government therefore needs to plan for a range of possible future electricity demand scenarios. Although energy efficiency policies for the 4th carbon budget period are not yet fully developed, policies to decarbonise electricity generation (Electricity Market Reform) are already sufficiently well developed for inclusion in the modelling and are taken into account in the UEP projections.</p> <p>Comments noted.</p> <p>Climate Change is an issue and assessment objective and so is taken into account in the assessment.</p> <p>Box 2.1 of the Scoping Report outlines potential effects from activities following the licensing round including venting and flaring to provide the reader with an indication of the type of effects to be considered in the subsequent assessment. It has not been included in the Environmental Report.</p> <p>The Climate Change and Flood Risk topic will be split with the flood risk information transferred to the water topic. These changes have been reflected in the Environmental Report.</p> <p>Table 3.2 (Summary Objectives and Policy Messages) will be amended to reflect the objectives of the Climate Change Act 2008. These changes have been reflected in the Environmental Report.</p> <p>Energy security was included in the summary of the key issues in Table 3.3 of the Scoping Report for this topic, reflecting the scope of information contained in the baseline (patterns of energy generation are summarised in section 7.6.4 of the climate change topic). These changes have been reflected in the Environmental Report.</p>

Questions	Consultee Response	Response/Action
	<p><b>Cumulative Impacts</b></p> <p>Box 4.1 (p. 60): Refers to cumulative impacts of hydrocarbon extraction being assessed through EIA. However it appears that EIA will not be required at the exploratory stage of drilling and may even not be required at the production stage</p> <p>In general more clarity is needed on how cumulative impacts will be addressed</p> <p><b>Water Use</b></p> <p>A range for water use and flow back would be more appropriate as figure are extremely variable</p> <p>It may also be more appropriate to quote water use per frack as multiple laterals may come off each well bore significantly increasing the amount of water required for each</p>	<p>Comment noted.</p> <p>Box 4.1 (Mitigation Hierarchy and Example Measures), of the Scoping Report provides illustrative mitigation measures. It should not be inferred that these are the measures that will be included in the assessment. The reference to EIA recognises that there is a relationship between the SEA, the identification of effects and high level mitigation and those that could then be identified at the project/site specific level through EIA as part of the planning application process to the Mineral Planning Authority.</p> <p>The SEA Directive, and its implementing regulations in the UK, requires that secondary, cumulative and synergistic effects are considered as part of the assessment.</p> <p>Section 4.5 of the Scoping Report states:</p> <p><i>'... different activity scenarios will be considered during the assessment which will help identify the potential effects associated with the collective implementation of oils and gas exploration and production licensed under draft Licensing Plan.</i></p> <p><i>Additionally, the effects of the draft Licensing Plan in-combination with other plans and programmes will also be considered'</i></p> <p>Table 4.7, of the Scoping Report provides definitions of secondary, cumulative and synergistic effects and Table 4.8 (of the Scoping Report) provides an example of the cumulative assessment matrix.</p> <p>These have been assessed and reported in the Environmental Report (Table NTS3 and Table 5.8, as well as specific commentary regarding effects of plans in each SEA area, contained in the Appendix B, e.g. water).</p> <p>Comments noted.</p> <p>Table 2.7 includes an assumption on flow back (at 40%). The AEA 2012 report for the EC <i>'Support to the identification of potential risks for the environment and human health arising from hydrocarbons operations involving hydraulic fracturing'</i> notes that typically, between 30% and 75% of the injected fluid is recovered as flowback (pp153). The assumption will be amended to reflect a similar range (30% to 75%) given the uncertainties. These changes have been reflected in the Environmental Report.</p> <p>Table 2.7 includes a range of assumptions to inform the assessment of which water volumes for fracking is one.</p> <p>The AEA 2012 report for the EC <i>'Support to the identification of potential risks for the environment and human health arising from hydrocarbons operations involving hydraulic fracturing'</i> noted that horizontal shale gas wells typically use 10,000 to 25,000 m3 water per well, based largely on US analysis. The AEA report also summarised the limited evidence from activity in Europe, which gave a range:</p> <ul style="list-style-type: none"> <li>• 9000 – 29,000 m3/well (from Cuadrilla in Holland);</li> </ul>

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	<p><b>Well per pad</b></p> <p>In reality 12 wells per pad in the US context would be seen as a very high number</p>	<ul style="list-style-type: none"> <li>• 1,600m<sup>3</sup> (Halliburton at Lubocino-1 well in Poland);</li> <li>• 7,000m<sup>3</sup> – 8,000m (the Danish Energy Agency).</li> </ul> <p>Industry estimates suggest ranges of 10,000m<sup>3</sup> to 20,000m<sup>3</sup> (<a href="http://www.total.com/en/special-reports/shale-gas/environmental-challenges-201958.html">http://www.total.com/en/special-reports/shale-gas/environmental-challenges-201958.html</a>).</p> <p>Given that water demand per well in the UK for fracking remains uncertain, and that evidence of practice to date suggests a range of water demand per well, the estimate of water use per well in Table 2.7 will be revised to reflect the range (from 10,000m<sup>3</sup> to 25,000m<sup>3</sup>) rather than focus on a single estimate. These changes have been reflected in the Environmental Report.</p> <p>Comment noted.</p> <p>The AEA 2012 report for the EC ‘<i>Support to the identification of potential risks for the environment and human health arising from hydrocarbons operations involving hydraulic fracturing</i>’ noted up to 20 wells per pad (based on a 2011 US Department of Energy report), whilst the 2013 IoD report ‘<i>Getting Shale Gas Working</i>’ assumed 40 lateral wells per pad. The 2011 Regeneris report ‘<i>Economic Impact of Shale Gas Exploration and Production in Lancashire and the UK</i>’ assumed an average of 10 wells per pad. These figures suggest that the assumption for the number of wells per pad (12 – 24) is not inconsistent with literature available.</p>
<p>Question 2: Do you agree with the main economic, social and environmental issues identified? If not, which issues need to be included?</p>	<p>We do not feel that climate change mitigation has been adequately covered by the scoping report. In addition, we have concerns that the report does not give sufficient weight to the topics highlighted below. ... We therefore feel that more information should be included on the following:</p> <ul style="list-style-type: none"> <li>- Well failure and legacy issues: More attention should be paid to the potential for, impacts of and availability of funds to deal with well failure resulting of leakage of methane or other substances. This is a risk not just during the operational life of the well but in the long term post well abandonment ...</li> <li>- Fugitive emissions: It would be helpful to provide more information on the risks and climate impacts of leakage of methane at various stages of the extraction of unconventional gas and oil process</li> </ul> <p>(figures and citation are given in the response letter).</p>	<p>Comment noted.</p>

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<p>Question 3: Do you agree that the draft objectives for the SEA cover a sufficient range of environmental, social and economic topics to allow an assessment of the Strategic Projections? If not, which objectives should be amended and which other objectives do you believe should be included?</p>	<p><b>Climate change</b></p> <p>In our view the objective relating to climate change should be amended to include reference to the UK's legally binding commitment to reduce greenhouse gas emissions by 80% by 2050. It would therefore read: <i>'to minimise greenhouse gas emissions as a contribution to climate change in line with the UK's legally binding greenhouse gas emission reduction commitments and ensure resilience to any consequences of climate change.'</i></p> <p>The proposed questions in the climate change category are currently ambiguous and could be improved. We suggest that questions on flooding be moved to a separate section and questions relating to mitigation of climate change be amended along the lines of the following:</p> <ul style="list-style-type: none"> <li>- Will the licensing proposals affect the UK's legally binding Climate Change Act commitment to reducing its greenhouse gas emissions by 80% by 2050?</li> <li>- Will the licensing proposals be consistent with the goal of limiting global temperature rise to 2°C?</li> </ul>	<p>Comment noted.</p> <p>The Climate Change and Flood Risk topic will be split with the flood risk information transferred to the water topic. The climate change objective and guide questions (Table NTS3 and Table 4.3 of the Scoping Report and Table 7.7, Appendix B) will be amended to reflect the change as follows:</p> <p><i>To minimise greenhouse gas emissions as a contribution to climate change and ensure resilience to any consequences of climate change and establish measures which limit flood risk.</i></p> <p><i>Will the activities that follow the licensing round proposals affect climate change and flood risk in broad terms?</i></p> <p><i>Will the activities that follow the licensing round proposals be able to minimise the generation of greenhouse gases?</i></p> <p><i>Will the Licensing Plan proposals avoid, and where possible reduce, flood and coastal change risk?</i></p> <p><i>Will the activities that follow the licensing round proposals be significantly affected by climate change (for example rising temperatures and more extreme weather events)?</i></p> <p>These changes have been reflected in the Environmental Report.</p>
<p><b>Additional comments</b></p>	<p>There is no convincing evidence to support the argument put to us at the meeting with DECC on the 30th of July that there is no net climate change impact because gas or oil extracted from the UK simply substitutes imports.</p> <p>We are concerned that the climate sections of the SEA focus overwhelmingly on adaptation to climate change rather than mitigation.</p> <p>Additional emissions arising from extraction of additional fossil fuels must be dealt with separately from venting flaring</p>	<p>Comment noted.</p> <p>It is assumed that this refers to the scoping consultation meeting on the 25<sup>th</sup> July. For the avoidance of doubt and consistent with the SEA Directive and regulation requirements to consider 'secondary, cumulative and synergistic effects', the greenhouse gases arising from the use of extracted hydrocarbons will be estimated as part of the assessment.</p> <p>For the purposes of the assessment, it is assumed that this will be as a substitution for other currently imported hydrocarbons and that there would be no net change to the energy mix within the UK, other than those already anticipated by DECC in the 2050 pathways report.</p>