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NDA Strategy

Integrated Impact Assessment Report

Volume 3: Baseline Report and Policy and Legislative Context Review

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Contents

Baseline Report

1.0 Introduction

1.1 Introduction

This report presents the baseline environmental, health and socio-economic conditions at each of the 17 sites that make up the Nuclear Decommissioning Authority (NDA) estate. The information contained within this report will be used to inform the Integrated Impact Assessment (IIA) of the NDA Strategy, which sets out the NDA's strategic approach to undertaking decommissioning activities across its sites.

Environmental baseline conditions have been established through desk-based research using Geographic Information System applications such as DEFRA's MAGIC application, and from consulting Site Specific Baseline Reports that are produced annually by the Site Licence Companies (SLCs) which manage the NDA sites. These reports cover a broad range of environmental aspects and indicators, including topics such as air quality, noise, biodiversity, flora and fauna and the water environment. As these reports have been produced according to the scope of the Strategic Environmental Assessment (SEA) of the previous NDA Strategy (2011), much of the information is relevant for the IIA of the NDA Strategy (2016).

In line with the SEA Directive requirement to consider the likely evolution of the baseline, future environmental baseline conditions have been established, where possible, using the Site Specific Baseline Reports and local authority development plans and strategies. Information on site end states has also been obtained from the Site Specific Baselines. Future baseline information covering topics such as air quality and climate change has been obtained from a variety of sources and is presented in Chapter 4.

In addition to environmental baseline conditions, an overview of the demographic, health and socio-economic characteristics of the local communities neighbouring the sites is provided in the form of Community Profiles. These profiles cover issues of importance to Health Impact Assessment (HIA) and Socio-economic Impact Assessment (SeIA) identified through desk-top collection of data at national, regional and local spatial scales. The data sources used to develop these profiles are listed in Section 1.2.

1.2 Sources

1.2.1 Office for National Statistics (ONS)

The ONS is the UK's largest independent producer of official statistics and is the recognised national statistical institute for the UK. Its duties are the collection, compilation, analysis and dissemination of a range of economic, health, social and demographic statistics derived from the 2011 Census.

The geographical scope of the data is predominantly England and Wales, with Scotland's Census Data Explorer providing access to aggregated and anonymised results from the Scottish regional census. As none of the NDA sites considered in this report are located in Northern Ireland, data collection has focused on England, Scotland and Wales.

1.2.2 Department for Communities and Local Government, Index of Multiple Deprivation (IMD) 2010

The English Indices of Multiple Deprivation (IMD) indicate the relative deprivation of each LSOA (Lower Super Output Area) in which sites are situated (Department of Communities and Local Government 2010a). The IMD provides a relative measure of deprivation at small area levels in England. Areas are ranked from least deprived (100%) to most deprived (<10%). The English Indices of Deprivation 2010 are based on the following seven indicators or 'domains':

- Income;
- Employment;

- Health and disability;
- Education, skills and training;
- Barriers to housing and Services;
- Living environment; and
- Crime.

Each domain is assessed using a range of socio-economic and demographic criteria, and represents a specific form of deprivation experienced by people within an individual LSOA.

1.2.3 Scottish Indices of Multiple Deprivation (IMD)

Scotland has its own Indices of Multiple Deprivation Index which is broadly similar to the English IMD and follows the same ranking process. The main difference between the Scottish and English Indices of Deprivation is the choice of domains considered, which for Scotland includes geographic access but does not include disability, barriers to services or living environment.

1.2.4 NOMIS Office Labour Market Statistics

NOMIS is a service provided by the ONS to give access to detailed UK labour market statistics from the 2011 Census. The main advantage of this data source is the uniform coverage of England, Scotland and Wales, allowing for consistent data collection and comparison.

1.2.5 Cancer Research UK

The Cancer Research UK Local Cancer Statistics provides an online platform that supports local authority profiles, indicating incidence of cancer. The database comprises three separate national sources to provide combined data for England, Scotland and Wales. These sources are:

- NCIN Cancer E-Atlas (2010);
- ISD Scotland (2013); and
- The Welsh Cancer Intelligence and Surveillance Unit (2012).

1.2.6 British Heart Foundation

In 2012, the British Heart Foundation published a compendium of health statistics comprising extensive statistics on disease rates and risk factor levels by age, gender, socio-economic group and ethnic origin, as well as regional, national and international variations over time.

2.0 The Nuclear Decommissioning Authority estate

The Nuclear Decommissioning Authority (NDA) estate comprises 17 sites across England, Wales and Scotland (Figure 2-A). Ten sites have Magnox nuclear power stations that are either planned for or undergoing decommissioning. The other seven sites have performed a variety of operations involved in the nuclear fuel cycle. This includes research, uranium enrichment, fuel fabrication, fuel reprocessing and waste storage. The current status of these sites is outlined below.

2.1 Sellafield (SLC – Sellafield Ltd)

The Sellafield site, located 15 km south of Whitehaven, Cumbria covers an area of approximately 276 hectares. Ongoing operations centre upon a range of nuclear fuel cycle activities undertaken in various facilities across the site. The site also incorporates Calder Hall, a four reactor Magnox nuclear power station (formerly grid-supplying), Windscale Advanced Gas Reactor and the Windscale Piles reactors.

Works at Sellafield commenced in 1947, with Calder Hall becoming operational in 1956 and shutting down in 2003. Commercial reprocessing at Sellafield is expected to run until 2020, at which time the Magnox reprocessing plant, which reprocesses spent Magnox fuel, will be shut down.

Sellafield is the UK's largest and most complex nuclear site. Its history dates back to the earliest days of the UK's defence and civil nuclear programmes and as such many of the decisions taken in the early days of the industry did not focus on the future consequences for clean-up. A prime example of this is the cooling ponds used to store waste cladding and fuel in the 1970s which remain a top management priority for the NDA today.

2.2 Magnox nuclear power stations (SLC – Magnox Ltd)

Nine former (and one current) grid-supplying nuclear power stations are currently undergoing or preparing for decommissioning. The sites are managed by Magnox Ltd which manages them on behalf of the NDA. The current status of these sites and future indicative timescales for decommissioning activities are detailed in Table 2-A.

2.3 Nuclear research facilities (SLC – Magnox Ltd)

The NDA has two sites in its estate that previously operated experimental reactors during the early stages of nuclear energy research. These are Harwell and Winfrith, both managed by Magnox Ltd.

2.3.1 Harwell

Harwell is an Atomic Energy Research Establishment situated approximately 20 km south of Oxford, Oxfordshire. Operations began in 1946, with a total of five research reactors and other nuclear facilities operational at the site at various times. The last reactor was shut down in 1990 and care & maintenance preparation of the reactors will continue until 2025. The interim end state (see Box 1) will be achieved in 2027. The site end state (after final site clearance) is expected to be reached around 2050.

2.3.2 Winfrith

Winfrith is a nuclear facility that has hosted nine research and development reactors, two of which are still present on site. The site is located approximately 13 km south-east of Dorchester, Dorset. Construction of the site began in 1957 and the SGHWR reactor supplied electricity to the grid from 1968 to 1990. Decommissioning is currently underway, and the interim end state is expected to be reached after demolition of the remaining reactors (SGHWR and Dragon).

Box 1: Site Interim and End States

Site End State

The NDA is required to describe the condition to which designated land and its associated structures and infrastructure need to be restored at each of its sites. This is known as the site end state. A site end state defines objectives for ongoing management of structures, infrastructure and land quality as well as having implications for the management of waste, spent fuels and nuclear materials arising from operations and site decommissioning activities.

Site Interim State

To maintain clarity in its approach to decommissioning, the NDA defines site interim states as natural milestones and decision points in the site decommissioning programmes. These are typically marked by a stepped reduction in risk or hazard. Each interim state definition will include a position on the work still required to achieve the end state.

2.4 Dounreay (SLC – Dounreay Site Restoration Limited)

Dounreay is a nuclear site situated in the Scottish Highlands, 14 km west of Thurso. The facility has operated three experimental test reactors, the first of which, the Materials Test Reactor was constructed in 1955 and operated until 1969. The Dounreay Fast Reactor was operated from 1962 to 1977, until it was eventually replaced by the Prototype Fast Reactor (PFR) in 1975. This was operated until 1994. Defuelling is not yet complete but it is ongoing, with the target for delivering the interim state between 2022 and 2025.

2.5 Capenhurst uranium enrichment facility (SLC – Capenhurst Nuclear Services)

Capenhurst is a nuclear site located 4 km to the south west of Ellesmere Port in Cheshire. The site contains a gas diffusion plant used for uranium enrichment built in the early 1950s. Commercial enrichment of uranium first began in 1961 and ceased in 1982. Enrichment at the Capenhurst site continues today under the ownership of Urenco UK Ltd. Capenhurst has also been identified as the site for the UK's long-term uranics storage.

2.6 Springfields nuclear fuel manufacturing facility (SLC – Springfields Fuels Limited)

Springfields, situated 7 km west of Preston, is leased to Westinghouse Toshiba. The site manufactures fuel for all major designs of nuclear reactor and provides most of the UK's nuclear fuel. Springfields decommissioning and clean-up operations started in 1990 with the Post Operational Clean Out of the old UKAEA Springfields Nuclear Fuels Laboratories.

2.7 Low Level Waste Repository (SLC – LLWR Repository Ltd)

The Low Level Waste Repository is a Low Level Radioactive Waste (LLW) disposal facility located adjacent to Drigg in Cumbria. Construction began in 1959 and initial LLW storage comprised seven lined trenches that are now monitored and have been covered with an interim cap to prevent water ingress. Modern LLW storage comprises two vaults where grouted containers of LLW are stored. This storage facility is part of the NDA's long-term LLW disposal plan.

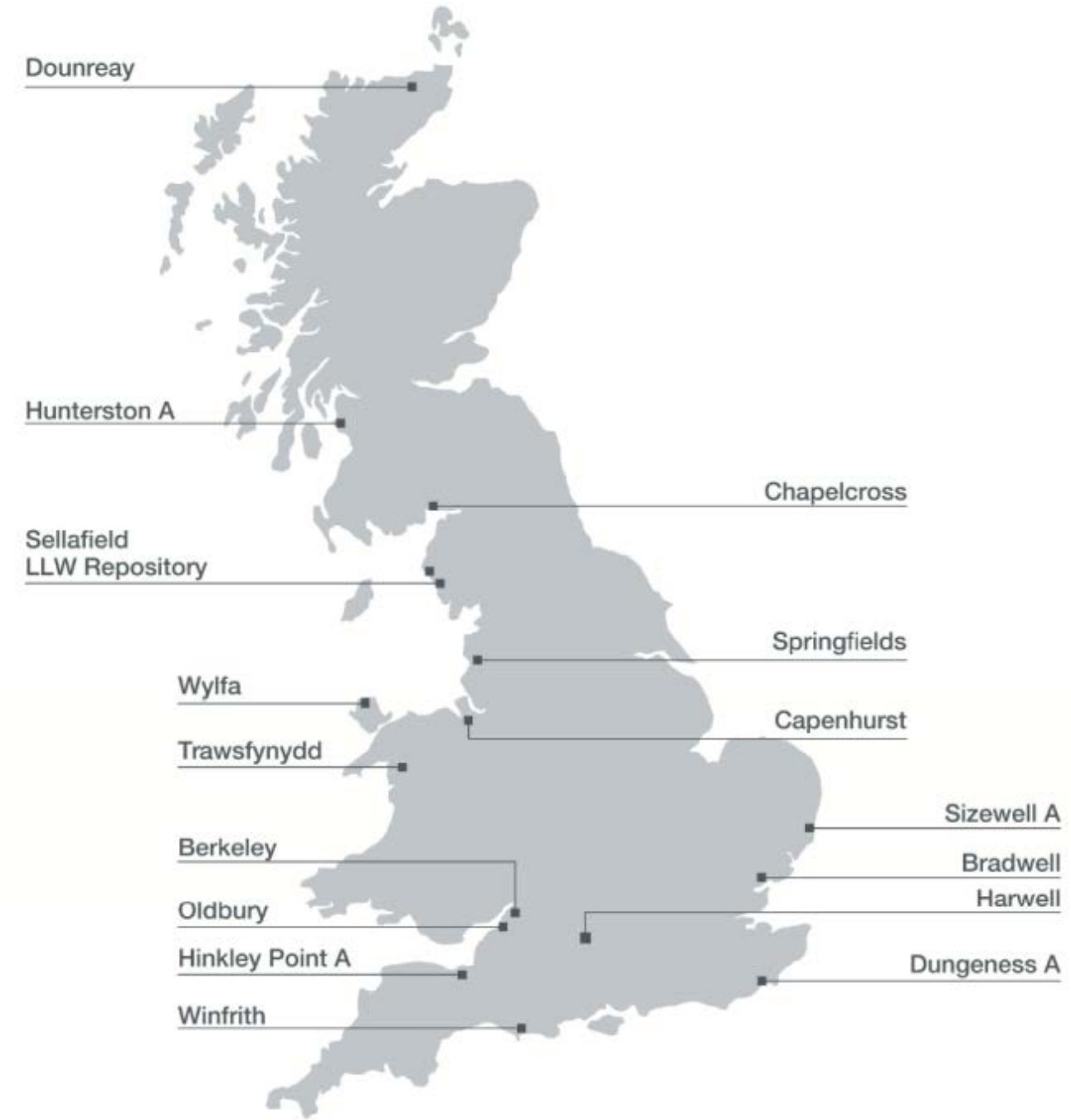

Figure 2-A: The NDA Estate[1]

[1] Source: Nuclear Decommissioning Authority Business Plan April 2014 – March 2017. http://www.nda.gov.uk/publication/nda-business-plan-financial-year-beginning-april-2014-to-financial-year-ending-march-2017/

Table 2-A: Magnox Power Stations in the NDA Estate[2]

Site	Location	Construction & Operation		Defueled	Decommissioning Timescales		
		Built	Operated		Decommissioning (care & maintenance prep.)	Interim State (care & maintenance)	Site End State (After final site clearance)
Berkeley	20 km south west of Stroud, South West England	1957	1962 to 1989	1992	Ongoing to 2021	2021 to 2079	Circa 2079
Bradwell	17 km south of Colchester, East of England	1957	1962 to 2002	2002	Accelerated decommissioning until 2015	2015 to 2092.	Circa 2092
Chapelcross	3.5 km north east of Annan, Scotland West	1955	1959 to 2004	2013	Accelerated decommissioning until 2017	2017 to 2095	Circa 2095
Dungeness A	22.5 km south west of Folkestone, South East England	1960	1965 to 2006	2012	Ongoing to 2027	2027 to 2097	Circa 2097
Hinkley Point A	12.5 km north west of Bridgewater, South West England	1957	1965 to 2000	2004	Ongoing to 2025	2025 to 2090.	Circa 2090
Oldbury	5.5 km north west of Thornbury, Gloucestershire, South West England	1961	1967 to 2012	2012-2016	Ongoing to 2027	2027 to 2101	Circa 2101
Hunterston A	7.5 km south of Largs, Scotland West	1957	1964 to 1990	1995	Ongoing to 2022	2022 to 2080	Circa 2080
Sizewell A	30 km south of Lowestoft, East of England	1960	1966 to 2006	2014	Ongoing to 2034	2034 to 2098	Circa 2098
Trawsfynydd	8 km south of Blaenau Ffestiniog, Wales	1960	1965 to 1991	1995	Ongoing to 2016	2016 to 2083	Circa 2083
Wylfa	16 km north east of Holyhead, Wales	1963	1971 to 2015	2016 (expected)	2016 to 2025	2025 to 2101	Circa 2101

[2] Following the commencement of a new contract for the Magnox sites (which now includes Winfrith and Harwell), the sites’ lifetime plans are currently under review. As a result of this, the indicative decommissioning timescales provided in Table 2-A are subject to change as the plans are further developed.

3.0 Site Specific Baseline / Community Profiles

This chapter outlines baseline conditions at the 17 NDA sites. Further data on a range of health and socio-economic indicators is given in Appendix A.

3.1 Berkeley

Site Overview

The Berkeley Site is a twin reactor Magnox station located close to the town of Berkeley in Gloucestershire, South West England. It is situated on the eastern bank of the River Severn, from which it drew cooling water supplies during its operational phase. The site covers an area of 11 hectares, 27 including Berkeley Centre (under NDA liability), which is planned for development.

The land surrounding the site is predominantly rural and used primarily for agriculture and recreation. The major settlements within 10 km of the site are Berkeley town to the east, Thornbury to the south, and Lydney to the west on the opposite bank of the Severn.

The site access road connects to the A38 trunk road via Berkeley village. This road links to the national motorway network at Junctions 13 and 14 of the M5. The nearest railhead to the site is located on the Sharpness Branch Line (which is operational but infrequently used). The nearest passenger rail station is Cam and Dursley station approximately 13 km to the north east.

The site currently employs 213 full-time equivalents. This is the ratio of the total number of paid hours (full-time, part-time and contracted) by the number of working hours in that period. It provides a measure of employees working full time (Magnox, 2014).

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of Stroud (the local authority in which Berkeley is sited) was 112,779, with a working population of approximately 47,000.

33% of the Stroud population achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in 2011; higher than the England and Wales average of 27%.

The most dominant occupations in 2011 were professional (20%) and administrative and secretarial (12%). Process, plant and machine operatives made up 8% of the workforce in 2011.

In 2013, the most dominant industry was manufacturing (35% of jobs) followed by public admin, education and health (23%). 2.5% of jobs were in energy and water.

Health

In the 2011 Census, 48% of residents in Stroud reported that they were of very good health. This was similar to the UK average (47%). A similar proportion of residents also reported that they were of good health (35% in Stroud compared to 34% UK-wide), and fewer reported having bad or very bad health (3.4% and 0.9% respectively in Stroud compared to 4.2% and 1.3% for the UK).

The Life Expectancy for Stroud Local Authority in 2011 was 79.1 for males and 83.2 for females (UK average: 78.85 for males and 82.72 for females). Between April 2010 and March 2011, 2,996 adults accessed NHS specialist mental health services, approximately 2.7% of the total Stroud population.

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 155.8 per 100,000 and the National Cancer Intelligence Network found 381.6 incidence of all types of cancer per 100,000 (2010).

Environmental Baseline

Landscape and Visual

The landscape immediately surrounding the site is on the floodplain of the River Severn. The land is flat and open, and consists of arable fields and wet alluvial pastures. The opposite bank of the Severn is characterised by steeply rising ground. Due to the industrial nature of this site, including the reactor and ancillary buildings, it is a prominent feature of the landscape and is highly visible from many locations in the surrounding area.

Geology and Soils

The site has limited amounts of radioactive and chemical land contamination, associated mainly with leaks from the Original Ebb Tide Line, Gravity Active Drain and Cooling Ponds Recirculation Pipe Trench. Chemical land contamination is associated with underground storage tanks, transformers and oil-filled cables.

Climate Change / Flood Risk

An ongoing issue for Berkeley during the care & maintenance phase is the vulnerability of the site to flooding due to raised sea level and more frequent storm surges brought about by the anticipated effects of climate change.

Biodiversity, Flora and Fauna

There are four statutory nature designations in close proximity to the site, all of which apply to the River Severn Estuary, which is adjacent to the site to the west. These designations recognise the fact that the Severn is an internationally-important habitat for migratory fish and wintering birds, with the inter-tidal mudflats being of key importance to the migration of several internationally-protected bird species.

Cultural Heritage

There is a Scheduled Ancient Monument near to the site at Lydney Harbour on the western bank of the River Severn. In addition, there are two Grade II* and two Grade II Listed Buildings located within 5 km.

Water Resources and Quality

The site experiences some limited discharges of radioactivity and groundwater contamination within statutory limits. Aqueous effluent discharges (and cooling discharges during the operational phase) have always been made to the River Severn, the nearest water body to the site.

Air Quality

Discharges of radioactivity to the atmosphere have decreased significantly since power generation ceased. Remaining discharges are below the reporting threshold.

Materials and Waste

A combination of radioactive and conventional waste is produced at the site. The Low Level Waste (LLW) is packaged and sent to the Low Level Waste Repository (LLWR) near Drigg in Cumbria for disposal. Intermediate Level Waste (ILW) is and has been generated from both operational and decommissioning activities and has accumulated over time at several locations on the site. Volume reduction of non-radioactive and VLLW can be achieved through incineration at licensed commercial incinerators. Disposal of this waste is also possible at licensed commercial landfill sites.

3.2 Bradwell

Site Overview

The Bradwell Site is a twin reactor Magnox station located close to the village of Bradwell-on-Sea on the Dengie Peninsula in Essex, South East England. It is situated on the southern bank of the Blackwater Estuary, from which it drew cooling water during its operational phase. The site covers an area of 30 hectares.

The land surrounding the site is predominantly rural and of agricultural use. There are no major settlements within 10 km of the site. The villages of Southminster, Steeple, St Lawrence, Tillingham and Bradwell-on-Sea all lie to the south and south east. The town of West Mersea lies 4.5 km north of the site on the north bank of the Blackwater Estuary.

The site access road connects to the B1021 via Bradwell-on-Sea. This road provides links to the unclassified C111 and B1018. The A414 and A12 provide the nearest trunk road links. The nearest railhead to the site is on the Crouch Valley Line that runs to Southminster, the nearest passenger rail station.

The site currently employs 372 full-time equivalent staff (Magnox, 2014).

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of the Maldon (the local authority in which Bradwell is sited) was 61,629, with a working population of approximately 24,000.

24% of the Maldon population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in the same year, slightly below the England and Wales average of 27%.

The most dominant occupations in 2011 were professional (16%) and administrative and secretarial (15%). Process, plant and machine operatives made up 7% of the workforce.

In 2013, the most dominant industry was public administration, education and health (27% of jobs), followed by wholesale and retail. 13% of jobs were in manufacturing and 2% were in energy and water.

Health

In the 2011 Census, 46.2% of residents in Maldon reported that they were of very good health. This was slightly below the UK average of (47.2%). A slightly greater proportion of residents also reported that they were of good health (35.6% in Maldon compared to 34.2% UK-wide), and fewer reported having bad or very bad health (3.7% and 1.1% respectively in Maldon compared to 4.2% and 1.3% UK-wide).

The Life Expectancy for Maldon in 2011 was 78.9 for males and 83.4 for females (UK average: 78.85 for males and 82.72 for females). Between April 2010 and March 2011, 1,361 adults accessed NHS specialist mental health services equating to 2.2% of the total Maldon population.

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 105.2 per 100,000 and the National Cancer Intelligence Network found 381.7 incidence of all types of cancer per 100,000 (2010).

Environmental Baseline

Landscape and Visual

The immediate surrounding landscape is the Dengie Peninsula, characterised by openness and expansive views. A large proportion of the land adjoining the estuary lies 5 m below sea level. The opposite bank of the estuary is similar topographically. Due to the industrial nature of this site, including the reactor and ancillary buildings, it is a prominent feature of the landscape and is highly visible from many surrounding locations.

Geology and Soils

The soil in the area surrounding the site is classified as free draining acid soils and peats, and is classified primarily as grade 3 agricultural quality soil, with localised areas of grade 1 and 2 (defined as the best and most versatile) soils. There is some radioactive and non-radioactive land contamination at the site, resulting primarily from historic events.

Climate Change / Flood Risk

An ongoing issue for Bradwell during the care & maintenance phase is the vulnerability of the site to flooding due to raised sea level and more frequent storm surges brought about by the anticipated effects of climate change.

Biodiversity, Flora and Fauna

There are nine statutorily designated nature sites in close proximity to the site, including three SSSIs (Sites of Special Scientific Interest), three NNRs (National Nature Reserves), a Ramsar, SPA (Special Protection Area) and SAC (Special Area of Conservation). This emphasises the importance of the area for its estuarine habitats in general, whilst the SPA and Ramsar designations relate to the various wintering and breeding birds found locally.

Cultural Heritage

There are nine Scheduled Ancient Monuments within 5 km of the site, the nearest being Pewet Island Saxon Fish Traps and the Othona Roman Fort. There are two Grade I, seven Grade II* and 149 Grade II Listed Buildings within 5 km.

Water Resources and Quality

The site experiences some radioactive and non-radioactive contamination, resulting mainly from historic events. Aqueous discharges have always been made to the Blackwater Estuary, the nearest water body to the site.

Air Quality

Since the cessation of power generation, radioactive discharges to air have reduced, with only minor but regular aerial emissions associated with waste retrieval that are within statutory limits.

Materials and Waste

A combination of radioactive and conventional waste is produced at the site. The LLW is packaged and sent to the LLWR for disposal. Some waste may be sent to other treatment and disposal sites for melt and incineration. ILW is and has been generated from both operational and decommissioning activities and is stored in numerous locations across the site.

3.3 Chapelcross

Site Overview

Chapelcross is a four reactor Magnox station located close to the town of Annan in South West Scotland. It is situated in open inland countryside on the site of a former RAF airfield, approximately 6 km from the northern coast of the Solway Firth. The site is close to the River Annan, from which it drew cooling water supplies during its operational phase. The site incorporates the Chapelcross Processing Plant (a tritium production facility) which ceased operations soon after the station shut down, and is now being decommissioned. The licensed site covers an area of 92 hectares and the land holding incorporates the extensive former airfield.

The major settlements within 10 km of the site are Annan to the south west, Gretna to the south east, Ecclefechan to the north west, as well as a number of smaller settlements including Eaglesfield, and the hamlet of Creca (to the immediate north east of the site).

The site connects to the A75 trunk road via the B722 (or other unnamed roads). The A75 links to the national motorway network at Junction 22 of the A74 motorway. Although an active railway line runs approximately 4 km to the south of the site through Annan, there is currently no railhead near Chapelcross. The nearest passenger rail stations are located at Annan or Lockerbie.

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of Dumfries and Galloway (the local authority in which Chapelcross is sited) was 151,324, with a working population of around 67,000.

22% of the Dumfries and Galloway population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in the same year (lower than the Scottish average of 26%).

The most dominant occupations in Dumfries and Galloway in 2011 were skilled trade and elementary occupations (each equating to 15% of the total working population), whilst the least dominant occupation was process, plant and machine operatives (8%).

In 2013, the most dominant industry sector was public admin, education and health (35% of jobs) followed by wholesale and retail, including motor trades (18%). 11% of jobs were in manufacturing and 2% of jobs were in energy and water.

Health

In the 2011 Census, 49.1% of residents in Dumfries and Galloway reported that they had very good health. This was almost 2% above the UK average (47.2%). The proportion of residents in Dumfries and Galloway reporting good health was almost 3% less than the UK average (31.4% compared to 34.2%). For residents reporting bad and very bad health, the percentages were marginally higher than the UK average (4.3% and 1.3% respectively compared to 4.2% and 1.2% UK-wide).

The Life Expectancy for Dumfries and Galloway in 2011 was 77.5 for males and 81.9 for females (UK average of 78.85 for males and 82.72 for females). In the same year, 3.7% of the adult population in Dumfries & Galloway were living with a mental illness.

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 210.6 per 100,000 and in 2013 the Information Services Division found 599.3 incidences of all types of cancer per 100,000.

Environmental Baseline

Landscape and Visual

The area surrounding the site is rural in nature and used primarily for agriculture and recreation. The landscape is a broad, gently undulating lowland plain surrounding the Solway Firth and containing several copses and small areas of woodland that are of visual importance locally. The nearest water courses to the site are Gullielands Burn (which flows directly through the site and is culverted), Kirtle Water, the River Annan and the Solway Firth to the south. Due to the industrial nature of the site it is a prominent feature of the landscape and is highly visible from many surrounding locations.

Geology and Soils

The soil surrounding the site is classified as lowland brown earth soils of high agricultural value. There is some radioactive and non-radioactive land contamination at the site, resulting primarily from historical events during generation, and from land use prior to construction of the power station.

Climate Change / Flood Risk

The inland nature of the site means that it is not vulnerable to increased risk from sea flooding due to climate change-induced sea level rise and more frequent storm surges. It is possible that changing patterns of rainfall during the care & maintenance phase could affect the site through changes to the local hydrology, however, the potential for flooding at the site due to changes in flow rate and course of the River Annan is limited as the site is 2 km away and at an elevation higher by 40 m.

Biodiversity, Flora and Fauna

The site has seven statutorily nature designations in close proximity. These are the Upper Solway Flats and Marshes (SSSI, SPA and Ramsar), the Solway Firth SAC, Raeburn Flow (SSSI and SAC) and the Royal Ordnance Powfoot SSSI.

Cultural Heritage

The western extremity of the Frontiers of the Roman Empire (Hadrian's Wall) World Heritage Site is situated approximately 8 km to the south of the site, across the Solway Firth. There are no Scheduled Ancient Monuments or Listed Buildings within 5 km.

Water Resources and Quality

A key issue at Chapelcross is surface water management. Concrete rubble from demolition of the cooling towers was used to infill the subsurface basins of the towers. Water ingress into these basins has resulted in the production of alkaline water (due to contact with the concrete infill material), which has overtopped the basins. Treatment of water abstracted from the basins prior to discharge is undertaken to protect Gullielands Burn. Radioactive liquid effluents are discharged to the Solway Firth at levels within statutory limits. These will decrease now that defuelling is complete.

Air Quality

The site has a history of aerial discharges of radioactivity, however these have reduced since power generation ceased. Certain decommissioning activities such as the retrieval, treatment and passivation of wastes and draining of the ponds may result in short-term spikes in aerial discharges of radioactivity but these are anticipated to be well within statutory limits.

Materials and Waste

LLW is generated at the site from a range of routine operational and decommissioning activities. The baseline for LLW is to package the waste and send it to the LLWR for disposal. ILW has accumulated at several locations at the site, the majority of which will be retrieved when an ILW store becomes available.

3.4 Dungeness A

Site Overview

Dungeness A is a twin reactor Magnox station located close to the town of Lydd in Kent, South East England. The site itself is on the Dungeness Peninsula, a large expanse of shingle and dunes on the English Channel, from which it drew cooling water during operation. The site covers an area of 20 hectares.

The rural land immediately surrounding the site lies on a bed of shingle and is therefore not used for agriculture, although it is an important ecological site. The major settlements within 10 km of the site are the towns of Lydd to the north west and New Romney to the north. The villages of Lydd-on-Sea and Greatstone also lie to the immediate north.

The site access road, Dungeness Road connects to the A259 via the B2075. The A259 links to A2070 and joins the national motorway network at Junction 10 of the M20. The nearest railhead to the site is the Denge railhead, which is at the head of a dedicated stretch of track to the north of the site. The nearest passenger rail station is at Rye.

The site currently employs 269 full-time equivalents (Magnox, 2014).

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of Shepway (the local authority in which Dungeness A is sited) was 107,969, with a working population of approximately 40,000.

22% of the population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in the same year (lower than the England and Wales average of 27%).

The most dominant occupations in 2011 were professional (14%) and jointly associate professional and technical occupations and caring, leisure and service occupations (13%). Process, plant and machine operatives made up 7% of the workforce.

In 2011 the most dominant industry sector was public admin, education and health (31% of jobs), followed by financial and other business services (21%). 4% of jobs were in manufacturing and 3% in energy and water.

Health

In the 2011 Census, 42.2% of residents in Shepway reported that they were of very good health. This was 5% below the UK average (47.2%). A greater proportion of residents reported that they were of good health and fair health (36.1% and 15.2% respectively for Shepway compared to 34.2% and 13.1% UK-wide). A slightly greater proportion also reported that they were of bad or very bad health (4.9% and 1.5% respectively in Shepway compared to 4.2% and 1.2% UK-wide).

Life Expectancy in 2011 was 78.6 for males and 83.2 for females (UK average of 78.85 for males and 82.72 for females). Between April 2010 and March 2011, 2,571 adults accessed NHS specialist mental health services, equating to 2.4% of the population.

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 165.3 per 100,000 and in 2010 the National Cancer Intelligence Network found 388 incidences of all types of cancer per 100,000.

Environmental Baseline

Landscape and Visual

The landscape immediately surrounding the site is low-lying shingle foreland, part of the Dungeness Peninsula that extends 10 km into the English Channel. Romney Marsh is situated to the north. Due to the industrial nature of this site, including the reactor and ancillary buildings, it is a prominent feature of the landscape and is highly visible from many nearby locations. The site is also adjacent to Dungeness 'B' nuclear power station which creates a greater combined impact on the local landscape.

Geology and Soils

Given the unique coastal nature of the local geology, no fertile topsoil is present on the shingle beach adjacent to the site, so this land has no agricultural value. The reclaimed marshland to the north contains some agricultural soils of marginal value. The site is considered to have the potential for land that is radioactively contaminated, and incorporates some land that is chemically contaminated.

Climate Change / Flood Risk

An ongoing issue for Dungeness A during the care & maintenance phase is the vulnerability of the site to flooding due to raised sea level and higher wave heights brought about by the anticipated effects of climate change. Safety concerns that have arisen in the wake of the 2011 Japanese earthquake and tsunami have led to reinforced coastal defences at the location, a situation that will continue to be monitored over time.

Biodiversity, Flora and Fauna

There are four statutory nature designations in close proximity to the site. These include the Dungeness, Romney Marsh and Rye Bay SSSI, Dungeness SAC, Dungeness NNR and Dungeness to Pett Level SPA.

Cultural Heritage

There is a Scheduled Monument, a WWII listening device, to the north of the site, one Grade I, one Grade II* and one Grade II Listed Buildings within 5 km .

Water Resources and Quality

The site experiences some limited discharges of radioactivity and chemical contamination, particularly associated with the turbine hall, Reactor 1 pond and the Active Effluent Treatment Plant. Aqueous discharges have always been made to the English Channel, the nearest water body to the site and are well within statutory limits.

Air Quality

Discharges to the atmosphere have decreased significantly since power generation ceased. Remaining discharges are within statutory limits.

Materials and Waste

A combination of radioactive and conventional waste is produced at the site. The LLW is packaged and sent to the LLWR for disposal. Some waste may be sent to other treatment and disposal sites for melt and incineration. ILW is and has been generated from both operational and decommissioning activities and is stored on-site in numerous locations.

3.5 Trawsfynydd

Site Overview

Trawsfynydd is a twin reactor Magnox station located close to the village of Trawsfynydd, in the Gwynedd Local Authority area, Wales. It is situated on the northern shoreline of Llyn Trawsfynydd, an artificial lake/ reservoir, from which it drew cooling water supplies during operation. The site covers an area of 13 hectares.

The land surrounding the site is rural, and is used primarily for agriculture and recreation. The major settlements within 10 km of the site are the town of Blaenau Ffestiniog to the north and Trawsfynydd to the south east. There are also numerous villages close to the site including Penrhyndeudraeth and Llanfrothen to the west and Llan Ffestiniog and Tanygrisiau to the north.

The site access road connects to the A470, the main north-south trunk road through Wales. It connects directly to the national motorway network at Junction 12 of the M53 and Junction 7 of the M54. The nearest railhead to the site is located on the Trawsfynydd and Blaenau Ffestiniog Branch Line. The nearest passenger rail station is Blaenau Ffestiniog.

The site currently employs 365 full-time equivalents (Magnox, 2014).

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of Gwynedd (the local authority in which Trawsfynydd is sited) was 121,874, with a working population of approximately 43,000.

26% of the population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in the same year, (slightly lower than the England and Wales average of 27%).

The most dominant occupations in 2011 were professional (18%), elementary (14%) and caring, leisure and other service occupations (13%). Process, plant and machine operatives made up 7% of the workforce.

In the same year, the most dominant industry sector was public admin, education and health (39% of jobs) followed by wholesale and retail, including motor vehicle trades (16%). 6% of jobs were in manufacturing and 2% were in energy and water.

Health

In the 2011 Census, 50.4% of residents in Gwynedd reported that they were of very good health. This was above the UK average (47.2%). A lower proportion of residents in Gwynedd reported that they were of bad health and very bad health (4.1% and 0% respectively for Gwynedd compared to 4.2% and 1.3% UK-wide).

The Life Expectancy for Gwynedd in 2011 was 77.3 for males and 82 for females (UK average of 78.85 for males and 82.72 for females). In 2008, 7% of the adult population (aged 16+) of Gwynedd were identified as having a mental illness (any).

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 178.4 per 100,000, and in the same year the Welsh Cancer Intelligence and Surveillance Unit found 425.2 incidences of all types of cancer per 100,000.

Environmental Baseline

Landscape and Visual

The landscape immediately surrounding the site is within the Snowdonia National Park boundary and is largely rural and mountainous. It is described as a 'High Sensitivity Landscape'. Due to the landscape sensitivity, the height of the reactor buildings is set to be reduced prior to the care & maintenance phase. Due to the industrial nature of the site, it is a prominent feature of the landscape and is highly visible from many surrounding locations.

Geology and Soils

The soils in the area surrounding the site are classified as acidic loams and clays. The site contains known areas of radioactive and non-radioactive land and groundwater contamination, resulting primarily from historical events such as leakage from the ponds during the 1970s and 80s due to a joint weakness in the pond structure.

Climate Change / Flood Risk

Trawsfynydd was the first inland civil Magnox nuclear power station. Located next to Llyn Trawsfynydd Lake, the site is located in Flood Zone 2 according to the Environment Agency's flood map, meaning there is up to a 0.1 per cent (1 in 1000) chance of flooding occurring each year.

Biodiversity, Flora and Fauna

There are five statutory nature designations in close proximity to the site, including Snowdonia National Park, Coed y Rhygen SSSI and NNR (part of a wider network of sites making up a SAC), the Rhinog SAC, Afon Eden and Cors Goch SAC and Migneint-Arenig-Dduallt SAC.

Cultural Heritage

There are three Scheduled Ancient Monuments near to the site, with the Tomen y Mur located within 1 km. There are also eight Listed Buildings in the vicinity of the site and one entry in the Register of Landscapes, Parks and Gardens of Special Historic Interest.

Water Resources and Quality

The site experiences some limited discharges of radioactivity and chemical contamination, including historic leakage from the cooling ponds during the 1970s and 80s. Aqueous discharges have always been made to the Llyn Trawsfynydd Lake and are well within statutory limits. Active effluent originating from the site is extensively treated and diluted to remove radioactivity more thoroughly than at other Magnox Sites. This requirement arises from the closed-system nature of the lake, which restricts effective dispersal.

Air Quality

Discharges of radioactivity to the atmosphere have decreased significantly since power generation ceased. Remaining discharges are well within statutory limits.

Materials and Waste

A combination of radioactive and conventional waste is produced at the site. The LLW is packaged and sent to the LLWR. Some waste may be sent to other treatment and disposal sites for melt and incineration. ILW is and has been generated from both operational and decommissioning activities and is stored in numerous locations on the site.

3.6 Sizewell A

Site Overview

Sizewell A is a twin reactor Magnox station located close to the town of Leiston in Suffolk, East Anglia. It lies on the North Sea coast, from which it drew cooling water supplies during its operational phase, and is immediately adjacent to EDF's Sizewell B Power Station. The site covers an area of 10 hectares and consists of one combined reactor building, turbine hall, various ancillary buildings, access roads, shingle areas, a small amount of grassed ground, and areas of hardstanding.

The area surrounding the site is rural in nature and primarily used for agriculture and recreation. The major settlements within 10 km of the site are Leiston and Saxmundham to the west and Aldeburgh to the south.

The site access road connects to the B1122 via Lover's Land and the C228. This road links to the A12, which gives access to the national motorway network at Junction 28 of the M25 to the south, and at Junction 17 of the A1 via the A47 and A1139 to the north. The nearest railhead to the site is located on the Aldeburgh Branch Line (which is used almost exclusively by nuclear flask trains servicing the power station). The nearest passenger rail station is located at Saxmundham.

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of Suffolk Coastal (the local authority in which Sizewell A is sited) was 124,298 during 2011, with a working population of approximately 48,000.

29% of the population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in that year, (greater than the England and Wales average of 27%).

The most dominant occupations registered in the 2011 census were professional (18%) and administrative and secretarial (14%). Process, plant and machine operatives made up the smallest proportion of the workforce (7%).

In the same year, the most dominant industry sector was public admin, education and health (25% of jobs), followed by wholesale and retail, including motor trades (16%). 6% of jobs were in manufacturing and 2% were in energy and water.

Health

In the 2011 Census, 46.3% of residents in Suffolk Coastal Local Authority area reported having very good health. This was slightly below the UK average (47.2%). Those reporting good health in Suffolk Coastal was slightly above the UK average (35.5% compared to 34.2%), whilst those reportedly with bad and very bad health made up a smaller percentage (3.6% and 0.8% respectively for Suffolk Coastal compared to 4.2% and 1.2% UK-wide).

The Life Expectancy in 2011 was 80.6 for males and 83.8 for females (UK average of 78.85 for males and 82.72 for females). Between April 2010 and March 2011, 1,266 adults in Suffolk Coastal accessed NHS specialist mental health services, equating to 1% of the total population.

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 161.6 per 100,000 and in 2010 the National Cancer Intelligence Network found 391.1 incidences of all types of cancer per 100,000.

Environmental Baseline

Landscape and Visual

The site is located on the coastal plain of the Suffolk North Sea coast, on a low plateau several metres above sea level. The surrounding landscape is open and very gently undulating, with several small estuaries interspersed along with coastal plain. The Heritage Coast designation in the vicinity of Sizewell (part of the AONB) is a landscape designation of national importance. The nearest water course to the site is Leiston Brook, a tributary of the Minsmere River. Due to the industrial nature of this site, it is a prominent feature of the landscape and is highly visible from many nearby locations. The site is also adjacent to Sizewell 'B' nuclear power station which adds to the impact of the site on the landscape.

Geology and Soils

The site does not contain any contaminated land as defined by Part IIA of the Environmental Protection Act 1990. There are however several minor areas of potential concern that have arisen from historic events, as well as very limited areas of known contamination (radioactive and chemical).

Climate Change / Flood Risk

An ongoing issue for Sizewell A is the vulnerability of the site to flooding due to raised sea level, higher waves, and more frequent storm surges brought about by the anticipated effects of climate change.

Biodiversity, Flora and Fauna

There are eight statutory nature designations in close proximity to the site, including four at Minsmere-Walberswick and Marshes (SSSI, SAC, SPA and Ramsar), Sizewell Marshes SSSI, Leiston-Aldeburgh SSSI, Sandlings SPA and Alde-Ore Estuary SPA. Off-site structures, the cooling water intake and outflow rigs are designated a County Wildlife Site as they support a breeding Kittiwake colony.

Cultural Heritage

There are three Scheduled Ancient Monuments within 5 km of the site; St Mary's Abbey, and Moat and Bowl Barrows at Aldringham Green and at Aldringham Common. There are 30 Listed Buildings within 5 km.

Water Resources and Quality

Aqueous effluent discharges (and cooling water discharges during the operational phase) have always been made to the North Sea. Active aqueous effluent is discharged from the site via a dedicated pipeline combined with a spray bar dispersion head that was installed following the shutdown of the cooling water system, which had been the route for all liquid effluents previously. Total liquid discharges are within statutory limits.

Air Quality

Discharges of radioactivity to the atmosphere have decreased significantly since cessation of power generation. Certain decommissioning activities such as the as the retrieval, treatment and passivation of wastes and draining of the pond may result in short-term spikes in aerial discharges of radioactivity, but these are anticipated to be well within statutory limits.

Materials and Waste

A combination of radioactive and conventional waste is produced at the site. The LLW is packaged and sent to the LLWR. ILW is and has been generated from both operational and decommissioning activities and has accumulated over time at several locations on the site.

3.7 Dounreay

Site Overview

The Dounreay site is located close to the town of Thurso, Caithness, in the Highlands of Scotland. It is situated on the coast and has historically drawn cooling water from the North Sea. The site covers an area of 54 hectares and has housed three reactors during its operational period, the Dounreay Materials Test Reactor (DMTR), Dounreay Fast Reactor (DFR) and the Prototype Fast Reactor (PFR). A Fuel Cycling Area and experimental laboratories were also previously operational on the site.

The land surrounding the site is rural and is in an area of 'Open, Intensive Farmland'. The town of Thurso is 11 km east of the site. The only other settlement in close proximity to the site is Reay, a small hamlet immediately south east. There are numerous farms and hamlets in the wider area.

The site access road connects to the A836, which is the main trunk road across the north coast of Caithness. The A836 joins the A9 at Thurso, which is the main north-south trunk road through Scotland, joining the national motorway network at Junction 12 of the M90 at Perth, more than 220 miles away. The nearest railway serves Thurso.

In September 2014, the number of employees at Dounreay was 944 full time equivalent staff.

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of Highland (the local authority in which Dounreay is sited) was 232,131, with 26,486 in the Caithness area. The approximate working population of Highland Local Authority area was 111,000 in 2013.

26% of the population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in 2011 (equal to the average for Scotland).

The most dominant occupations in 2011 were professional (17%) and skilled trades (16%). Process, plant and machine operatives made up 6% of the workforce.

In 2013, the most dominant industry sector was public admin, health and education (32% of jobs) followed by wholesale and retail, including motor trades (15%). 6% of jobs were in manufacturing and 1% were in energy and water.

Health

In the 2011 Census, 54.1% of residents in Highland reported that they were of very good health. This was above the UK average (47.2%). A lower proportion of residents reported that they were of good health, bad health and very bad health (29.9%, 3.4% and 1% respectively for Highland compared to 34.2%, 4.2% and 1.2% UK-wide).

The Life Expectancy for Highland in 2011 was 77.2 for males and 81.9 for females (UK average of 78.85 for males and 82.72 for females). In the same year 3.6% of the adult population were living with a mental illness.

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 198.2 per 100,000 and in 2013 the Information Services Division found 609.1 incidences of all types of cancer per 100,000.

Environmental Baseline

Landscape and Visual

The Dounreay site divides a strip of 'Open, Intensive Farmland.' The landscape surrounding the site is largely flat and open, with rolling hills to the south and west. Due to the industrial nature of this site, including the reactor and ancillary buildings, it is a prominent feature of the landscape and is highly visible from many nearby locations.

Geology and Soils

The Scottish Soil Framework indicates that there are a number of soil types in the area, notably mineral gleys. Historic hydrocarbon contamination of the ground associated with diesel generator operation as part of the Dounreay Fast Reactor has since been recovered, treated and disposed of.

Climate Change / Flood Risk

The site itself is situated approximately 20 m above sea level and is therefore at little risk from sea-level rise. The local coastline has estimated recession rates of 1-2 m every 200-300 years.

Biodiversity, Flora and Fauna

The Sandside Bay SSSI is located within NDA-owned land. There are also SACs, SPAs and Ramsar and Ancient Woodland Inventory sites in the surrounding area.

Cultural Heritage

There are thirty five Listed Buildings and nineteen Scheduled Monuments within 5 km of the site. Of particular note is the ruin of Dounreay Castle that lies within the site boundary.

Water Resources and Quality

The site experiences some discharges of radioactivity and chemical land contamination, particularly of groundwater. Aqueous effluent discharges have always been made to the sea to the north of the site and are within statutory limits.

Air Quality

Discharges of radioactivity to the atmosphere are ongoing but remain well within statutory discharge limits.

Materials and Waste

A combination of radioactive and conventional waste has and continues to be produced at the site. The LLW is currently stored on-site, however this is planned to be retrieved and moved to a new off-site facility. ILW is also stored on-site and will continue indefinitely until other facilities become available.

3.8 Sellafield

Site Overview

The Sellafield Site is located in the Copeland Local Authority of Cumbria, North West England. The site has and continues to operate a range of nuclear facilities. The Calder Hall power station and Windscale Piles are currently undergoing decommissioning and the Windscale Advanced Gas Cooled Reactor is used as a decommissioning demonstration project (the reactor was decommissioned in 2011). Operations are expected to continue at many facilities in the short to medium-term. The site covers an area of 276 hectares.

The land surrounding the site is predominantly rural and agricultural, however the site dominates the landscape. The major settlements within 10 km of the site are the town of Egremont to the north, the village of Gosforth to the east and the villages of Seascale, Holmrook and Drigg to the south. The larger town of Whitehaven lies 11 km to the north.

The site access roads join the A595 trunk road, which links to the A5092 and A590 before joining the national motorway network at Junction 36 of the M6.

In 2011, the Sellafield site employed approximately 10,500 people and from 2005 to 2010 it is estimated to have contributed £1,150 million to the local economy.

Image sourced from: Nuclear Management Partners (2015)

http://nuclearmanagementpartners.com/sellafield/

Community Profile

Employment, Education and Skills

In 2011, the population of Copeland (the local authority in which Sellafield is sited) was 70,603, with a working population of approximately 29,000.

21% of the population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in the same year (lower than the England and Wales average of 27%.

The most dominant occupations in 2011 were professional (15%) and jointly Skilled trades and elementary occupations (13%). Process, plant and machine operatives made up 12% of the workforce.

In 2013, the most dominant industry sector was manufacturing (35% of jobs) followed by public admin, education and health (24%). 1% of jobs were in energy and water.

Health

In the 2011 Census, 44.4% of residents in Copeland reported that they were of very good health. This was below the UK average (47.2%). A lower proportion in Copeland reported good health, 33.9% compared to 34.2%. A higher proportion reported bad and very bad health (5.3% and 1.4% respectively in Copeland compared to 4.2% and 1.2% UK-wide).

The Life Expectancy in the Copeland Local Authority area in 2011 was 77.6 for males and 80.4 for females (UK average: 78.85 for males, 82.72 for females). In the same year, 1,422 or 2% of the adult population accessed NHS Specialist Mental Health Services.

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 180.3 per 100,000 and in 2010 the National Cancer Intelligence Network found 387.8 incidences of all types of cancer per 100,000.

Environmental Baseline

Landscape and Visual

The landscape surrounding the site is the West Cumbria Coastal Plain and is identified as an area of varied open coastline with mudflats, shingle and pebble beaches with localised sections of dunes, sandy beaches and sandstone cliffs. Due to the industrial nature of this site, its footprint and the range of facilities on-site it is a prominent feature of the landscape and is highly visible from many surrounding locations. The demolition of the Calder Hall cooling towers has had a minor improvement on the visual impact of the site.

Geology and Soils

The site experiences frequent discharges of radioactivity and chemical land contamination, particularly contamination to an aquifer in the underlying sandstone geology. Such discharges are within statutory limits. There is both LLW and ILW-contaminated soil on site.

Climate Change / Flood Risk

An ongoing issue for Sellafield is the vulnerability of the site to flooding due to raised sea level, higher waves, and more frequent storm surges brought about by the anticipated effects of climate change.

Biodiversity, Flora and Fauna

There is one statutory nature designation within 2 km of the site. This is Low Church Moss, a SSSI approximately 1.4 km to the north west. The upper reaches of the River Ehen, which flows through the site, is a SAC supporting freshwater pearl mussels. To the south and west of the site lies the Cumbria Coast, designated as a Marine Conservation Zone.

Cultural Heritage

There is one Scheduled Monument to the south east and three Grade II Listed Buildings to the east and north within 500 m of the site. Within a 2 km radius there is a second Scheduled Monument to the north west, in addition to several other Listed Buildings to the north.

Water Resources and Quality

The groundwater at the site is considered to be good chemical status and good quantitative status in accordance with the Water Framework Directive. Aqueous discharges have been made to a number of watercourses that pass through or close to the site, including the River Calder and are within statutory limits.

Air Quality

Discharges of radioactivity to the atmosphere are ongoing and were estimated to be around 1% of the public dose limit in 2011. There is a relatively high level of background radiation in some parts of the site.

Materials and Waste

In 2013, approximately 1,700 m^3 of HLW, 69,000 m^3 of ILW and 4500 m^3 of LLW and VLLW were reported to be present on site. Much of this inventory will be retrieved and temporarily stored until an off-site repository is established or until LLW is disposed of at the LLWR.

3.9 Oldbury

Site Overview

The Oldbury site is a twin reactor Magnox station located close to the town of Thornbury in Gloucestershire, South West England. It is situated on the eastern bank of the River Severn, from which it drew cooling water supplies during its operational phase. The site covers an area of 39 hectares.

The land surrounding the site is predominantly rural and is used primarily for agriculture and recreation. The major settlements within 10 km of the site are Berkeley town to the north east, Thornbury to the south east, and on the opposite bank of the Severn, Lydney to the north and Bulwark to the west. There are numerous small villages and settlements in the area in addition to these larger towns.

The site access road connects to the national motorway network via a network of B class and C class rural roads. The nearest motorway access points are junction 1 of the M48 and junctions 14 and 15 of the M5. There is no railway station within 10 km of the site that is on the same bank of the Severn.

The site currently employs 403 full-time equivalents (Magnox, 2014).

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of South Gloucestershire (the local authority in which Oldbury is sited) was 262,767, with a working population of 120,000.

27% of the population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in the same year (equal to the England and Wales average).

The most dominant occupations in 2011 were professional (18%) and administrative and secretarial (15%). Process, plant and machine operatives made up 6% of the workforce.

In 2013, the most dominant industry sector was public admin, health and education (27% of jobs) followed by financial and other business services (21%). 12% of jobs were in manufacturing and 1% were in energy and water.

Health

In the 2011 Census, 49.1% of residents in South Gloucestershire reported that they were of very good health. This was above the UK average (47.2%). A greater proportion of residents also reported that they were of good health (34.9% compared to 34.2%, the UK average), and thus fewer reported bad or very bad health (3.3% and 0.9% respectively compared to 4.2% and 1.2% for the UK).

The Life Expectancy at birth for South Gloucestershire in 2011 was 80.4 for males and 83.5 for females (UK average of 78.85 for males and 82.72 for females). Between April 2010 and March 2011, 3,574 adults accessed NHS specialist mental health services, equating to 1.4% of the total population, which falls below the average for England of 2.4%.

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 136 per 100,000 and in 2010 the National Cancer Intelligence Network found 393.6 incidences of all types of cancer per 100,000.

Environmental Baseline

Landscape and Visual

The landscape immediately surrounding the site lies on the floodplain of the River Severn and is characterised as a semi-open and flat estuarine flood plain environment. Higher ground is found to the east (Severn Ridges Character Area) and to the west on the opposite bank of the River Severn. The site is a prominent feature in the local landscape, and is highly visible from many locations including nearby villages and from the Severn Bridge.

Geology and Soils

The site is considered to have some limited radioactive and non-radioactive land contamination. The soils in the area surrounding the site are classified as loamy / clay, characteristic of coastal flats. Much of the soil is classified as grade 3 agricultural quality (grade 1 is regarded as the highest quality).

Climate Change / Flood Risk

There is a relatively low risk of coastal flooding up to 2020. The defences (a 10.2 m sea wall) should offer protection against anticipated changes in sea level linked to climate change, but may be less effective beyond this period.

Biodiversity, Flora and Fauna

The site has five designated nature sites in close proximity, all relating to the Severn Estuary (SSSI, SAC, SPA, SINC and Ramsar). These designations recognise the fact that the Severn is an important habitat for migratory fish and birds, with the inter-tidal mudflats being of key importance to the migration of several internationally-protected bird species.

Cultural Heritage

There are three Scheduled Ancient Monuments near to the site, at Rockhampton, Oldbury-on-Severn and at Stroat, in addition to a large number of Listed Buildings, including the Severn Bridge.

Water Resources and Quality

The nearest major water body to the site is the River Severn. Oldbury Pill discharges to the Severn approximately 1.5 km to the south of the site at levels well within statutory limits. Aqueous effluent and cooling water discharges are made to the River Severn via a culvert that runs underneath the tidal reservoir to the central part of the river channel (to attain maximum dispersion of radioactivity). These are also within statutory limits.

Air Quality

Discharges of radioactivity to the atmosphere have decreased significantly since power generation ceased. Remaining discharges are well within statutory limits.

Materials and Waste

A combination of radioactive and conventional waste is produced at the site. The LLW is packaged and sent to the LLWR for disposal. ILW is and has been generated from both operational and decommissioning activities and has accumulated at several locations on the site.

3.10 Hinkley Point A

Site Overview

Hinkley Point A is a twin reactor Magnox station located in Somerset, South West England. It is situated on the southern shore of the Bristol Channel, from which it drew cooling water supplies during its operational phase. EDF's Hinkley Point B power station lies adjacent to the site to the east. The Hinkley Point A site covers an area of approximately 20 hectares.

The land surrounding the site is predominantly rural and used primarily for agriculture and recreation. The nearest major settlement is Bridgewater 12.5 km south east of the site. There are a number of small villages and settlements within a 10 km radius of the site.

The site access road connects to the national motorway network via a network of B class and C class rural roads. The nearest motorway access points are junctions 23 and 24 of the M5. The nearest railway station is in Bridgewater.

The site currently employs 264 full-time equivalents (Magnox, 2014).

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of West Somerset (the local authority in which Hinkley Point A is sited) was 34,675, with a working population of 11,000.

25% of the population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in that year (lower than the England and Wales average of 27%.

The most dominant occupations in 2011 were elementary occupations (17%) and caring, leisure and other services (15%). Process, plant and machine operatives made up 7% of the workforce.

In 2013, the most dominant industry sector was public admin, health and education (26% of jobs) followed by accommodation and food services (23%). 6% of jobs were in manufacturing and 8% were in energy and Water.

Health

In the 2011 Census, 40.6% of residents in West Somerset reported that they were of very good health. This falls below the UK average of 47.2%. 36.4% of residents reported that they were of good health compared to the UK average (34.2%), and more reported bad or very bad health (5.1% and 1.4% respectively in West Somerset, compared to 4.2% and 1.2% for the UK).

The Life Expectancy at birth for West Somerset in 2011 was 79.8 for males and 84 for females (UK average of 78.85 for males and 82.72 for females). Between April 2010 and March 2011, 905 adults accessed NHS specialist mental health services, equating to 2.6% of the total population, which is above the average for England at 2.4%.

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 80.2 per 100,000 and in 2010 the National Cancer Intelligence Network found 398.5 incidences of all types of cancer per 100,000.

Environmental Baseline

Landscape and Visual

The site is located on the north Somerset Coast, facing Bridgwater Bay in the Bristol Channel. The main features in the immediately surrounding area are marshlands to the south and east, a double ridge and valley structure running along the coast to a shallow sea cliff, and the extensive mudflats and rocky outcrops of Bridgwater Bay. The Quantock Hills Area of Outstanding Natural Beauty (AONB) is situated within 7 km to the south west of the site. Combined with the Hinkley Point 'B' Site, the site is a prominent feature in the local landscape.

Geology and Soils

Some limited radioactive contamination is present at the site, and is primarily associated with soil surrounding the Active Effluent. Non-radioactive contamination is also present at a number of locations on site.

Climate Change / Flood Risk

An ongoing issue for Hinkley during the care & maintenance phase is the vulnerability of the site to flooding due to raised sea level and more frequent storm surges brought about by the anticipated effects of climate change.

Biodiversity, Flora and Fauna

There are five statutory nature designations in close proximity to the site, which all apply to the River Severn Estuary and Bridgewater Bay. In addition, the Hinkley Point Western Local Wildlife Site is situated immediately adjacent to the site, and the Lilstock SSSI is situated approximately 3 km to the west. The site is also classified as part of the Severn Estuary European Marine Site.

Cultural Heritage

There is one Scheduled Ancient Monument, the Pixies Mound, a Bronze Age tumulus to the south of the site substation. There are two Grade I and three Grade II* Listed Buildings within 7 km of the site.

Water Resources and Quality

Some tritium (a low level radioactive isotope of hydrogen) has been detected in groundwater. The groundwater that is chemically contaminated is associated with the site's diesel generator building, the turbine hall and the blower houses in both reactor buildings. An ongoing groundwater monitoring programme continues to closely monitor the distribution of existing contamination to ensure it is not migrating beyond the site boundary.

Air Quality

Discharges of radioactivity to the atmosphere have decreased significantly since power generation ceased. Remaining discharges are well within statutory limits.

Materials and Waste

A combination of radioactive and conventional waste is produced at the site. The LLW is packaged and sent to the LLWR for disposal. ILW is and has been generated from both operational and decommissioning activities and has accumulated at several locations on the site.

3.11 Hunterston A

Site Overview

The Hunterston site is a twin reactor Magnox station located close to the town of Largs and approximately 40 km south west of the City of Glasgow, Scotland. It is situated on the west coast of the Firth of Clyde, from which it drew cooling water supplies during its operational phase. The site covers an area of 65 hectares.

The land surrounding the site is predominantly rural, and is used primarily for agriculture and forestry. The major settlements within 10 km of the site are the town of Largs and village of Fairlie to the north, and the villages of West Kilbride, Seamill and Ardrossan to the south. The town of Millport is situated 4 km north west of the site on the island of Great Cumbrae.

The site access road connects to the national motorway network at junction 29 of the M8 via the A78, A760 and A737 to the north, or to junction 8 of the M77 via the A78, A71 and A77 to the south. The nearest railhead to the site is located approximately 2.5 km north east of the site adjacent to the Hunterston Ore Terminal. The line is operated for both freight and passenger services and the nearest passenger rail stations are located at either West Kilbride or Fairlie.

The site currently employs 238 full-time equivalents (Magnox, 2014).

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of North Ayrshire (the local authority in which Hunterston A is sited) was 138,146, with a working population of approximately 57,000.

20% of the population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in the same year (below the Scottish average of 26%).

The most dominant occupations in 2011 were elementary (15%) and jointly associate professional and technical and skilled trades occupations (13%). Process, plant and machine operatives made up 7% of the workforce.

In 2013, the most dominant industry sector was public admin, health and education (30% of jobs) followed by wholesale and retail, including motor trades (17%). 11% of jobs were in manufacturing and 3% in energy and water.

Health

In the 2011 Census, 48.9% of residents in North Ayrshire reported that they were of very good health. This was above the UK average (47.2%). A fewer proportion of residents reported that they were of good health (30.2% compared to 34.2%, the UK average), and a greater proportion reported bad and very bad health (5.2% and 1.6% respectively, compared to 4.2% and 1.2% for the UK).

The Life Expectancy at birth for North Ayrshire in 2011 was 76 for males and 83.5 for females (UK average of 78.85 for males and 82.72 for females). In 2011, 6631 (or 4.8% of the population of North Ayrshire) were reported to have a mental health condition.

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 199.1 per 100,000 and in 2013 the Information Services Division found 638.4 incidences of all types of cancer per 100,000.

Environmental Baseline

Landscape and Visual

The landscape surrounding the site is part of the Ayrshire coast. This is characterised by raised beaches and long cliffs set back from the present-day coastline. The islands of Great Cumbrae and Little Cumbrae to the east are visible from the shoreline, and the site is visible from multiple locations in the area to the north and south, and also further west from the Isle of Bute. The site is adjacent to the Hunterston 'B' nuclear power station which adds to the visual impact of the site on the landscape.

Geology and Soils

The site has some limited radioactive and non-radioactive land contamination. This is primarily associated with the CP7 Compound and associated drainage, however minor contamination has also been detected at several other locations. The soils in the area surrounding the site are classified as Peaty Podzols and Brown Forest Soils.

Climate Change / Flood Risk

An ongoing issue for Hunterston A during the care & maintenance phase is the vulnerability of the site to flooding due to raised sea level and more frequent storm surges brought about by the anticipated effects of climate change.

Biodiversity, Flora and Fauna

The site has one designated nature area in close proximity, the Portencross Woods SSSI. The Kames Bay and Ballochmartin SSSIs on Great Cumbrae are separated from the site by the Fairlie Roads (a deep water channel in the Firth of Clyde).

Cultural Heritage

There are two Scheduled Ancient Monuments (both of which are also Listed Buildings) in close proximity to the site; Hunterston House and Portencross Castle.

Water Resources and Quality

The nearest water body to the site is the Firth of Clyde. Water quality in the Clyde adjacent to the site is classified as 'excellent' (Class A) under the Scottish Environment Protection Agency (SEPA) Coastal Scheme. Aqueous effluent is discharged via the Hunterston B station cooling water outfall to the Firth of Clyde, where the effluent is diluted by the B station cooling discharge waters. Radioactive discharges are well within statutory limits.

Air Quality

Discharges of radioactivity to the atmosphere have decreased significantly since power generation ceased. Remaining discharges are well within statutory limits.

Materials and Waste

A combination of radioactive and conventional waste is produced at the site. The LLW is packaged and sent to the LLWR for disposal. ILW is and has been generated from both operational and decommissioning activities, and this will be retrieved during care & maintenance (with the exception of some Miscellaneous Activated Components that will be retrieved during final site clearance). There are also several waste streams that are unique to the site, including graphite Fuel Element Debris (FED) currently stored in the Solid Active Waste Building.

3.12 Wylfa

Site Overview

The Wylfa Site is a twin reactor Magnox station that ceased power generation in December 2015, with decommissioning due to commence in 2016. Wylfa is located close to the village of Cemaes in Anglesey, Wales and is on the Irish Sea coast, from which it draws cooling water supplies. The site covers an area of 21 hectares.

The land surrounding the site is predominantly rural and used for agriculture and recreation. The major settlements within 10 km are the town of Amlwch and the village of Cemaes, both to the east of the site. There are also numerous hamlets closer to the site.

The site access road connects to the national motorway at junction 12 of the M53 via the A5025 and A55 (North Wales Expressway) trunk roads. The nearest railhead is located on the North Wales Coast Line, near to Valley Railway Station. This is an operational line with freight and passenger services and the nearest passenger rail stations are Holyhead and Valley.

The site currently employs 602 full-time equivalents (Magnox, 2014).

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of Anglesey (the local authority in which Wylfa is sited) was 69,751 with a working population of approximately 25,000.

26% of the population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above (lower than the England and Wales average of 27%).

The most dominant occupations in 2011 were professional (17%) and caring, leisure and other service occupations (13%). Process, plant and machine operatives made up 8% of the total workforce.

In 2013, the most dominant industry sector was public administration, health and education (26% of jobs) followed by wholesale and retail, including motor trades (18%). 10% of jobs were in manufacturing and 3% were in energy and water.

Health

In the 2011 Census, 48% of residents in Anglesey reported that they were of very good health. This was above the UK average (47.2%). A lesser proportion of residents reported that they were of good health (30.6% compared to 34.2%, the UK average), and a greater number reported bad or very bad health (4.9% and 1.4% respectively compared to the UK averages of 4.2% and 1.2%).

The Life Expectancy at birth in Anglesey in 2011 was 76.7 for males and 81.9 for females (UK average of 78.85 for males and 82.72 for females). In 2008, 7% of the adult (16+) population of Anglesey were reported to be living with a mental health illness

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 115.6 per 100,000, and in the same year the Welsh Cancer Intelligence and Surveillance Unit found 437.2 incidences of all types of cancer per 100,000.

Environmental Baseline

Landscape and Visual

The landscape surrounding the site forms the north coastline of the Isle of Anglesey, and is characterised as generally undulating or flat and semi-open with areas of woodland and small flat agricultural fields. The shoreline to the east and west of the site is comprised of rocky outcrops forming small cliffs up to 15 m above sea level. Much of the coastline is included in the Isle of Anglesey Area of Outstanding Natural Beauty (AONB) designation. The Wylfa site is highly visible throughout the surrounding countryside and along the coastline at short distances.

Geology and Soils

The site is considered to have some limited radioactive and non-radioactive land contamination. Sampling has confirmed that contamination is not widespread. Some areas exhibit organic and inorganic contamination which is below guideline levels. Some hydrocarbon pollution exists in soils to the rear of the gas turbine fuel tanks.

Climate Change / Flood Risk

An ongoing issue for Wylfa is the vulnerability of the site to flooding due to raised sea level, higher waves, and more frequent storm surges brought about by the anticipated effects of climate change.

Biodiversity, Flora and Fauna

The site is situated in a predominately rural setting and has nine nature designations in close proximity, including the Tre'r Gof SSSI, Cemlyn Bay SSSI & SAC, Cae Gwyn SSSI, Llyn Llygeirian SSSI, Henborth Geological SSSI, Ynys Feurig, Cemlyn Bay and The Skerries SSSI & SPA. The adjacent coastline is also a European Marine Site.

Cultural Heritage

There is one Scheduled Ancient Monument near to the site at Llanfechell. There are also three Grade II Listed Buildings in close proximity.

Water Resources and Quality

The nearest water body to the site is the Irish Sea, to the immediate north. Discharges of active effluent and high flow rate Cooling Water during operation are within statutory limits. Alternative arrangements have been put in place for effluent dispersal when the generation phase ceases and the flow of Cooling Water is shut off. This will consist of a new, dedicated active effluent discharge line to provide improve dispersion of radioactivity.

Air Quality

Discharges of radioactivity to the atmosphere are well within statutory limits.

Materials and Waste

A combination of radioactive and conventional waste is produced at the site. The LLW is packaged and sent to the LLWR for disposal. ILW is and has been generated from operational activities and has accumulated over time at several locations on the site. The ILW is planned to be stored in Ductile Cast Iron Containers for interim storage before disposal to a geological disposal facility (GDF) when one becomes available.

3.13 Capenhurst

Site Overview

The Capenhurst Site is located close to Ellesmere Port in Cheshire, England and is currently owned and operated by Capenhurst Nuclear Services, a URENCO Group company. The site was home to a uranium enrichment plant and associated facilities that ceased operation in 1982. It currently stores the UK's inventory of depleted uranium and uranium hexafluoride. The site is currently under agreement with NDA for the processing of Government-owned by-product and legacy material. The site covers some 40 hectares of land.

The land surrounding the site is mixed-use, with the town of Ellesmere Port 4 km to north east and agricultural land to the south west. The major settlements within 10 km are Chester to the south east, Deeside to the south and Bebington to the north west. There are numerous smaller towns and villages in the vicinity and the City of Liverpool is within 15 km to the north across the River Mersey.

The site access road connects via a series of minor roads, which in turn connect to either the A540 (west), A550 (north) and A41 (east), all of which connect to the M56 motorway. Capenhurst Railway station, on the Liverpool to Chester Line, is immediately adjacent to the site.

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of Cheshire West and Chester (the local authority in which Capenhurst is sited) was 329,608, with a working population of approximately 139,000.

29% of the population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in the same year (above the England and Wales average of 27%).

The most dominant occupations in 2011 were professional (18%) followed by associate professional and technical occupations, administrative and secretarial occupations and elementary occupations. Process, plant and machine operatives accounted for 7% of the workforce.

In 2013, the most dominant industry sector was public admin, health and education (25% of jobs) followed by financial and other business services (24%). 9% were in manufacturing and 1% were in energy and water.

Health

In the 2011 Census, 48.5% of residents in Cheshire West and Chester reported that they were of very good health. This was above the UK average (47.2%). A lower proportion reported good health (33% compared to 34.2% UK-wide) and a slightly greater proportion of residents described themselves as having bad or very bad health compared to the UK average (4.3% and 1.3% compared to 4.2% and 1.2% UK-wide).

The Life Expectancy at birth in 2011 in Cheshire West and Chester was 78.8 for males and 82 for females (UK average of 78.85 for males and 82.72 for females). Between April 2010 and March 2011, 1.5% of the total population accessed NHS specialist mental health services, lower than the average for England of 2.4%.

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 155.1 per 100,000 and in 2010 the National Cancer Intelligence Network found 427.2 incidences of all types of cancer per 100,000.

Environmental Baseline

Landscape and Visual

To the south and west of the site is predominantly mixed agricultural land, with areas of improved pasture, arable farming and market gardens interspersed with residential development. Due to the low heights of facilities at this site, it is not as visually obtrusive as other sites in the NDA estate.

Geology and Soils

Following de-conversion of part of the uranium inventory at the site, there is anticipated to be around 1,000 m^3 of soil contaminated with radioactive material which will require treatment as LLW.

Climate Change / Flood Risk

The site is located approximately 40 m above sea level and is situated sufficiently away from water bodies that changes in flood risk and landscape induced by climate change are likely to be minimal.

Biodiversity, Flora and Fauna

The site is located approximately 5 km from the bank of the River Mersey which is designated as a SSSI, Ramsar and SAC.

Cultural Heritage

There are no archaeological or historical features identified within 2 km of the site.

Water Resources and Quality

The nearest water body monitored by the Environmental Agency is Rivacre Brook between Capenhurst and the A41. Between 2004 and 2006 the water quality was compliant with set quality targets.

Air Quality

Non-radioactive pollutant emissions are generated through vehicle and plant machinery activity, but these have not significantly affected air quality at the site. Discharges of radioactivity to the atmosphere are well within statutory limits.

Materials and Waste

A combination of radioactive and conventional waste is produced at the site. Capenhurst also receives and safely stores Magnox Depleted Uranium from Sellafield. It is the UK's primary safe and secure storage facility for depleted uranium and uranium hexafluoride (uranics).

3.14 Low Level Waste Repository (LLWR)

Site Overview

The LLWR is a nuclear disposal facility located in Cumbria, North West England. Operational activities, including receipt, treatment and disposal of LLW, are due to end in 2050 with final site closure expected to be in 2059.The site covers some 100 hectares.

The land surrounding the site is predominantly rural and agricultural. The nearest settlement is Drigg, which lies immediately adjacent to the site boundary across the railway line. Larger settlements within 10 km of the site include Gosford to the north and Seascale to the north-west.

The site access roads join the A595 trunk road, which links to the A5092 and A590 before joining the national motorway network at Junction 36 of the M6. The site itself has direct access to the national railway network on the southern extent of the site. The nearest passenger rail station is Drigg.

In 2006, the LLWR site supported approximately 132 staff and in 2004, the site contributed around £5.4 million to the local economy.

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of Copeland (the local authority in which the LLWR is sited) was 70,603, with a working population of approximately 29,000.

21% of the population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in that year (lower than the England and Wales average of 27%).

The most dominant occupations in 2011 were professional (15%). Skilled trades and elementary occupations were jointly the second most dominant occupation at 13%. Process, plant and machine operatives made up 12% of the workforce.

In 2013, the most dominant industry sector was manufacturing (35% of jobs) followed by public admin, education and health (24%). 1% of jobs were in energy and water.

Health

According to the 2011 Census, 44.4% of residents in Copeland reported that they were of very good health. This was below the UK average of 47.2%. A slightly lower proportion in Copeland reported good health, 33.9% compared to 34.2% and a higher proportion reported bad and very bad health (5.3% and 1.4% respectively in Copeland compared to 4.2% and 1.2% UK-wide).

The Life Expectancy in the Copeland Local Authority area in 2011 was 77.6 for males and 80.4 for females (UK average of 78.85 for males and 82.72 for females). In the same year, 2% of the adult population accessed NHS Specialist Mental Health Services.

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 180.3 per 100,000 and in 2010 the National Cancer Intelligence Network found 387.8 incidences of all types of cancer per 100,000.

Environmental Baseline

Landscape and Visual

The landscape to the south and west of the site is part of the West Cumbria Coastal Plain, identified as an area of varied open coastline with mudflats, shingle and pebble beaches with localised sections of dunes and sandy beaches. To the north and east of the site is predominantly mixed agricultural land, with areas of improved pasture, arable farming and market gardens interspersed with residential development. Due to the low heights of all facilities at the LLWR, the visual impact of the site on the landscape is minimal.

Geology and Soils

Two areas, each approximately 200 m^2 in size, located within the site boundary (referred to as “slabs”) are known to have some contamination. The agricultural land surrounding the site is classified as grade 3 (of moderate quality).

Climate Change / Flood Risk

The location of the site along the coast means that the site could potentially be vulnerable to coastal erosion in the future. The site is currently protected by natural coastal defences, but there is the potential for climate change to alter wave strength and result in sea level rises which could make the site more vulnerable to erosion and flood risk.

Biodiversity, Flora and Fauna

The LLWR site is situated adjacent to the Drigg Coast SAC. Around 1,400 hectares of the Drigg Coast SAC is also designated as a SSSI. Other designated nature conservation sites in the wider surrounding area include Hallsennia Moor SSSI (also designated an NNR), over 1.5 km north east of the site, and Driggholme SSSI, over 1 km to the east.

Cultural Heritage

There are no designated Conservation Areas, Listed Buildings or Scheduled Ancient Monuments within 1 km of the site. Cultural heritage features in the wider surrounding area include Muncaster Castle Grade I Listed Building and Scheduled Monument (2 km south east), and its Grade II Listed Registered Historic Parks and Gardens, and Ravenglass Conservation Area.

Water Resources and Quality

No baseline information on water quality at the site could be obtained at this time. This will be addressed during the course of the assessment if required.

Air Quality

The 2006 air quality review undertaken by Copeland Borough Council confirmed that all of the measured air pollutants at the site were well below national air quality objectives. The exposure to the public from discharges to the atmosphere is well within statutory limits.

Materials and Waste

There is currently a substantial amount of LLW storage onsite (approximately 1 million cubic metres). The 2008 LLW inventory predicted raw arisings to be around 3 million cubic metres over the period 2008 to 2129 (the end of LLW generation). This covers a broad spectrum of activity levels and materials including concrete, rubble, soils, plastics, ferrous and nonferrous metals, and cellulosic materials.

3.15 Springfields

Site Overview

Springfields is an NDA nuclear fuel manufacturing facility situated west of Preston in Lancashire. The land surrounding the site is rural, and is used primarily for agriculture and recreation. The major settlements within 10 km of the site are the town of Clifton to the south, Newton with Scales to the south west, Kirkam to the west and Preston to the east. There are also numerous small settlements within the surrounding area.

The site access road connects to the A583, which links directly to the national motorway network at Junction 3 of the M3. The site itself has direct access to the national railway network on the northern extent of the site. The nearest passenger rail station is Salwick.

In 2008/09, 1,491 full-time equivalent staff (excluding contractors) were directly employed by the companies operating the Springfield site.

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of Fylde (the local authority in which Springfields is sited) was 75,757, with a working population of 29,000.

30% of the population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in that year (above the England and Wales average of 27%).

The most dominant occupations in 2011 were professional (22%) and administrative and secretarial (14%). Process, plant and machine operatives made up 5% of the workforce.

In 2013, the most dominant industry sector was financial and other business services (26% of jobs) followed by manufacturing (23%). 1% of jobs were in energy and water.

Health

In the 2011 Census, 44.6% of residents in Fylde reported that they were of very good health and 33.8% reported they were of good health. This was below the UK averages of 47.2% and 34.2% respectively. A greater proportion of residents reported that they were of bad health and very bad health (4.9% and 1.4% compared to 4.2% and 1.3% UK-wide).

The Life Expectancy at birth for Fylde in 2011 was 78.9 for males and 82.5 for females (UK average of 78.85 for males and 82.72 for females). In 2011, 3% of the adult population (aged 18+) of Fylde were identified as having accessed NHS specialist mental health services.

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 141.5 per 100,000 and in 2010 the National Cancer Intelligence Network found 425.7 incidences of all types of cancer per 100,000.

Environmental Baseline

Landscape and Visual

The area surrounding the site is predominantly mixed agricultural land, with areas of improved pasture, arable farming and market gardens interspersed with residential development. Due to the low heights of buildings across the site, impacts on view of the landscape from the surrounding area are minimal.

Geology and Soils

In 2004, there was an estimated 82,000 m^2 of radiologically contaminated soil on the site, most of which is classed as LLW. Hydrocarbons and solvents also exist at detectable levels in some areas. The agricultural land surrounding the site is classified as grade 1 (excellent quality) and grade 2 (very good quality).

Climate Change / Flood Risk

A small part of the site is designated as floodplain (along the channel of Deepdale Brook), in addition to a large area to the south of the site. As the site is around 20 m above sea level, changes brought about by the anticipated effects of climate change are unlikely to alter flood risk.

Biodiversity, Flora and Fauna

Deepdale Wood, running through the central part of the site, is designated a Biological Heritage Site (important non-statutory wildlife sites in Lancashire). In addition, the ponds within the north east corner of the site (known as Springfields Ponds) are also a Biological Heritage Site, as is the Lancaster Canal to the north. Other designated nature conservation sites in the wider area include Newton Marsh SSSI, located 2.3 km to the south west and the Ribble and Alt Estuaries SPA, Ramsar and Important Bird Area, the Ribble Marshes NNR and the Ribble Estuary SSSI, all of which are located around 2.5 km to the south west of the site.

Cultural Heritage

Within 1 km of the site there are seven Grade II Listed Buildings, two of which are located on Lea Lane to the north-east, and five of which are in Newton with Clifton to the south-west.

Water Resources and Quality

The site discharges to the sea via the Ribble Estuary at levels well within statutory limits.

Air Quality

The Springfields site is one of the most substantial sources of non-radioactive discharges to the atmosphere across the NDA estate as a result of the operation of the Combined Heat and Power (CHP) plant on site.

Materials and Waste

In 2013, there was reported to be 133 m^3 of LLW on site, with a predicted lifetime total of 288,000 m^3 of radioactive waste. The bulk of UK uranic materials (produced as a result of fuel cycle operations) is stored between the Springfields and Capenhurst sites as a nil value asset.

3.16 Winfrith

Site Overview

The Winfrith nuclear facility is located close to the village of Winfrith Newburgh in Dorset, South West England. The site contains two reactors (the SGHWR and the High Temperature Gas Cooled Reactor – the Dragon reactor) and associated ancillary facilities, which cover an area of 84 hectares.

Winfrith is near the south coast of Dorset in a flat lying, mainly rural area at around 25 m above sea level. The area surrounding the site is predominantly heathland and agricultural land, with the settlements of Blacknoll (1.1 km to the south west), East Knighton (1.5 km to the south), East Burton and Braytown (1.3 km to the east), Wool (2.7 km to the east) and Winfrith Newburgh (2.3 km to the south) situated nearby.

The site is located to the north west of the A352. Access to the site is via the A352 Burton Road Gatemore Road off the A352 to the south. Gatemore Road runs along the western side of the site through Winfrith Heath SSSI. The main rail service between Weymouth and London runs immediately to the north of the site.

In 2013, Winfrith supported 408 jobs, of which 197 jobs were filled by site employees and 211 jobs were contractors employed by RSRL, the site operator. The eastern part of the site has already been decommissioned and now comprises Winfrith Technology Centre. The centre is a well-established location for business, employing over 1,000 people.

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of Purbeck (the local authority in which Winfrith is sited) was 44, 973, with a working population of 18,000.

26% of the population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in that year (lower than the England and Wales average of 27%).

The most dominant occupations in 2011 were professional (14%) and jointly associate professional and technical and administrative and secretarial (each making up 13% of the workforce).

In 2013, the most dominant industry sector was public admin, health and education (25% of jobs) followed by accommodation and food services (15%). 14% of jobs were in manufacturing and 2% were in energy and water.

Health

In the 2011 Census, 45% of residents in Purbeck reported that they were of very good health. This was below the UK average of 47.2%. A greater proportion of residents reported that they were of good health (35.9% compared to 34.2% UK-wide), and slightly fewer reported having bad or very bad health (4% and 1% compared to 4.2% and 1.3% UK-wide).

The Life Expectancy for Purbeck Local Authority in 2011 was 80.8 for males and 84.3 for females (UK average of 78.85 for males and 82.72 for females). Between April 2010 and March 2011, 785 adults accessed NHS specialist mental health services, equating to 1.7% of the total population. This was below the UK average of 2.4%.

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 95.3 per 100,000 and in 2010 the National Cancer Intelligence Network found 411.5 incidences of all types of cancer per 100,000.

Environmental Baseline

Landscape and Visual

The Winfrith site falls within the Dorset Heaths landscape character area, described as a generally exposed, open, broad scale landscape comprising undulating lowland heath with tracts of heather, stunted pines and gorse scrub. The chalk ridges and downs south of the site are designated as an Area of Outstanding Natural Beauty (AONB) (Dorset AONB). The low height of many of the facilities at the site and the presence of vegetation that screens some of the taller buildings makes the visual impact of the site on the landscape minimal.

Geology and Soils

Some areas of the site have been subject to radioactive contamination in the past, but the radioactivity (principally tritium) has now undergone natural attenuation and the levels are well below the World Health Organisation (WHO) Guideline Value.

Climate Change / Flood Risk

After a flood risk assessment of the site in late 2009, it was concluded that there is limited risk of flooding at Winfrith regardless of changes brought about by climate change. In 2011, the assessment was revised to include an assessment of extreme weather conditions and its potential to cause flooding. The conclusion from this exercise was that the site drainage systems, both man-made and natural, are capable of coping with such events.

Biodiversity, Flora and Fauna

Nearly two thirds of the site falls within the Winfrith Heath SSSI, which is one of the major lowland heathland areas in Britain. In addition, part of the site is designated a SAC (Dorset Heaths), a SPA and a Ramsar (Dorset Heathlands). The Winfrith pipeline in the English Channel is designated as a Marine Area of Conservation. Other designated sites in the area include the Dorset Heaths (Purbeck and Wareham) and Studland Dunes SAC and Poole Harbour SPA, both of which are situated to the east of Winfrith. Winfrith Heath NNR and Tadnoll NNR are located to the west of the site.

Cultural Heritage

There is one Scheduled Monument adjacent to site, comprising six bowl barrows upon a ridge known as Blacknoll Hill. Several other Scheduled Ancient Monuments are present in the surrounding area, although with the exception of two, all of them are over 1 km from the site. The town of Winfrith Newburgh, about 1.6 km south of the site, is designated a Conservation Area within which there are eleven Grade II Listed Buildings.

Water Resources and Quality

Elevated radiation levels close to the WHO guideline value for drinking water have been persistent in the borehole adjacent to the External Active Sludge Tanks (EAST) for several years. These elevated levels could be due to natural processes such as high natural background uranium decay or due to anthropogenic activities. All other groundwater samples remain below WHO guideline values and discharges are within statutory limits.

Air Quality

It is anticipated that radioactive discharges to the atmosphere will fluctuate during decommissioning but remain within statutory discharge limits.

Materials and Waste

A combination of LLW and inert waste is generated at the site. Of the waste produced, the crushed concrete from decommissioning is temporarily stored on site and used to fill voids, whilst soil from site remediation is used for landscaping. Decommissioning activities on the site will generate large volumes of waste, including radioactive wastes, as a result of historic reactor operations and experiments.

3.17 Harwell

Site Overview

Harwell is located in Oxfordshire and covers approximately 96 hectares, of which 90 hectares comprise the licensed site. The site has begun decommissioning and waste management operations that will run through to 2032 and involve the retrieval and repackaging of legacy ILW from a number of facilities. Additional decommissioning work is anticipated to last until 2050.

The closest settlements are Chilton (0.5 km to the south east), Harwell (1.5 km to the north east) and East Hendred (1.5 km to the north west). The land surrounding the site is predominantly arable farmland.

The site is located adjacent to the A34 which provides links to the national motorway network via the M4.

Harwell supports around 584 jobs (300 SLC Staff and 284 Contractors). Harwell employs a broad range of skilled workers and a large proportion of staff are employed in managerial and professional occupations.

Image sourced from: Office for Nuclear Regulation (ONR) 2015

http://www.onr.org.uk/sites/

Community Profile

Employment, Education and Skills

In 2011, the population of the Vale of White Horse (the local authority in which Harwell is sited) was 120,988, with a working population of 54,000.

37% of the population had achieved qualifications of NVQ4 level (degree e.g. BA or BSc) or above in that year (far greater than the England and Wales average of 27%).

The most dominant occupations in 2011 were professional (24%) and associate professional (14%). Process, plant and machine operatives made up 5% of the workforce.

In 2013, the most dominant industry sector was financial and other business services (28% of jobs) followed by public admin, health and education (22%). 6% of jobs were in manufacturing and 1% in energy and water.

Health

In the 2011 Census, 51.9% of residents in the Vale of White Horse reported that they were of very good health. This was considerably above the UK average of 47.2%. A marginally smaller proportion of residents reported that they were of good health (34% compared to 34.2%), and considerably fewer reported having bad or very bad health (2.6% and 0.7% in Vale of White Horse compared to 4.2% and 1.3% UK-wide).

The Life Expectancy for the Vale of White Horse Local Authority in 2011 was 81 for males and 85.2 for females (UK average of 78.85 for males and 82.72 for females). Between April 2010 and March 2011, 1,835 adults accessed NHS specialist mental health services, equating to 1.5% of the total population. This was below the UK average of 2.4%.

In 2012, the British Heart Foundation recorded an age standardised death rate for heart-related conditions of 140.3 per 100,000 and in 2010 the National Cancer Intelligence Network found 425.2 incidences of all types of cancer per 100,000.

Environmental Baseline

Landscape and Visual

The Harwell site occupies 96 hectares of rural Chalk down land in Oxfordshire and borders the North Wessex Area of Outstanding Natural Beauty (AONB). The site is surrounded by agricultural land and the nearest watercourse to the site is the Lydebank Brook, located to the north. As many of the buildings on the site are low in height visual impacts of the site upon the surrounding landscape are minimal.

Geology and Soils

Baseline information on geology and soils at the site could not be obtained at this time. This will be addressed during the course of the assessment if required.

Climate Change / Flood Risk

After a flood risk assessment in late 2009, it was concluded that there is limited risk of flooding at Harwell, taking into account future anticipated effects of climate change. In 2011, the assessment was revised to include an assessment of extreme weather conditions and its potential to cause flooding. The conclusion from this exercise was that the site drainage systems, both man-made and natural, are capable of coping with such events.

Biodiversity, Flora and Fauna

The site is within a Nitrate Vulnerable zone and borders the North Wessex Downs AONB, which includes downland habitat and ancient woodland. There are no specific designated areas close to the site. The nearest nature designation is a SSSI located approximately 7 km to the south east.

Cultural Heritage

There are 17 Scheduled Ancient Monuments within a 5 km radius of the site, none of which are within 1 km. The area has been settled since 3,000 BC and has a wealth of archaeological features ranging from prehistoric barrows to Roman roads and chalk hill carvings.

Water Resources and Quality

After many years Harwell ceased routine operational discharges to the River Thames in June 2012. Occasional permitted discharges are well within statutory limits. The ecological quality of the River is considered to be poor, whilst the chemical water quality is considered to be good in accordance with the Water Framework Directive.

Air Quality

Non-radioactive discharges to air are predominantly heating-related and include carbon dioxide at levels below those requiring permits. Some emissions of NOx (Oxides of Nitrogen) and Particulate Matter are also generated by vehicle and plant machinery.

Materials and Waste

The site produces LLW and inert waste, both of which are likely to increase during decommissioning. ILW may be interim stored on-site until such a time that a national repository is available for permanent off-site disposal, although transfer of waste to suitable off site locations may occur before then. Large volumes of LLW will be disposed of to a licensed landfill.

4.0 Future baseline

4.1 Introduction

In line with the SEA Regulations requirement to consider the likely evolution of the baseline, future environmental, health and socio-economic baseline conditions have been established, where possible, using the annual Site Specific Baseline Reports and local authority development plans and strategies.

Information on site end states has also been obtained from the Site Specific Baseline Reports. These site end states represent potential future opportunities presented by decommissioning.

Where possible, the baseline information obtained covers the timescale over which the NDA Strategy applies- i.e. from today until the final site in the NDA estate achieves its end state. This is anticipated to be Sellafield around the year 2120.

4.2 Future health and socio-economic baseline

4.2.1 Population

National

A key factor which determines the future health and socio-economic characteristics of communities is population. The general anticipated trend up until 2036 is for an increase in population across England, Scotland and Wales of 14%, 8%, and 8% respectively, and for a total UK population of 73.2 million by 2035 (this represents an increase of approximately 13% on 2014 figures).

Regional

Population projections are not uniform at a local authority level. Table 4-A indicates population projections up to 2026 (the point at which most sites will enter the interim end state/ care & maintenance) and 2036 (all sites projected to be in the interim end state/ care & maintenance phase with the exception of Capenhurst, Springfields, LLWR and Sellafield).

Table 4-A: Population Projections by local authority up to 2036

Site	Country / Local Authority	Population 2011	Projected Population 2026[3,4,5]	Percentage Change (since 2011)	Projected Population 2036[345]	Percentage Change (since 2011)
-	England	53,012,456	58,781,000	+10.9%	61,886,000	+16.7%
-	Scotland	5,295,000	5,605,814	+5.9%	5,768,217	+8.9%
-	Wales	3,063,436	3,237,869	+5.7%	3,315,908	+8.2%
Berkeley	Stroud	112,779	123,000	+9.1%	129,000	+14.4%
Bradwell	Maldon	61,629	67,000	+8.7%	70,000	+13.6%
Capenhurst	Cheshire West & Chester	329,608	341,000	+3.5%	346,000	+5.0%
Chapelcross	Dumfries &	151,324	147,204	-2.7%	142,289	-6.0%

[3] England: 2012-based Subnational Population Projections for Regions in England - http://www.ons.gov.uk/ons/rel/snpp/sub-national-population-projections/2012-based-projections/rft-population-regions.xls

[4] Scotland: Population Projections for Scottish Areas (2012-based) - http://www.gro-scotland.gov.uk/files2/stats/population-projections/2012-based-subnational/pop-proj-scot-areas-2012.pdf

[5] Wales: Local authority population projections for Wales (2011-based) - http://wales.gov.uk/docs/statistics/2013/131220-local-authority-population-projections-wales-2011-based-further-results-revised-ency.xls

Site	Country / Local Authority	Population 2011	Projected Population 2026[3,4,5]	Percentage Change (since 2011)	Projected Population 2036[345]	Percentage Change (since 2011)
	Galloway					
Dounreay	Highland	232,131	241,664	+4.1%	243,580	+4.9%
Dungeness A	Shepway	107,969	118,000	+9.3%	125,000	+15.8%
Harwell	Vale of White Horse	120,988	133,000	+9.9%	138,000	+14.1%
Hinkley Point A	West Somerset	34,675	36,000	+3.8%	37,000	+6.7%
Hunterston A	North Ayrshire	138,146	132,586	-4.0%	126,239	-8.6%
Oldbury	South Gloucestershire	262,767	298,000	+13.4%	317,000	+20.6%
Sellafield / LLWR	Copeland	70,603	69,000	-2.3%	67,000	-5.1%
Sizewell A	Suffolk Coastal	124,298	131,000	+5.4%	137,000	+10.2%
Springfields	Fylde	75,757	80,000	+5.6%	83,000	+9.6%
Trawsfynydd	Gwynedd	121,874	127,557	+4.7%	131,847	+8.2%
Winfrith	Purbeck	44,973	48,000	+6.7%	49,000	+9.0%
Wylfa	Isle of Anglesey	69,751	69,877	+0.2%	68,053	-2.4%

4.2.2 Development and Economic Growth

National

There are inherent complexities involved in projecting future changes in development and economic growth at a national scale, as they are dependent on a wide range of factors. However, large-scale investment in nationally significant infrastructure projects such as Crossrail, HS2, and new nuclear build will continue throughout the short to medium-term.

Regional and Local

At a local scale, future investment can be better projected, as strategic local development plans are produced for every local and unitary authority in the UK. Table 4-B summarises some of the planned future developments in the local authorities within which sites are located.

In terms of future development at the sites themselves, the NDA has considered some potential land use opportunities following site closure and possible delicensing. These include:

- Business parks;
- New nuclear power stations;
- Science and Technology centres; and
- Other business related developments.

Table 4-B: Planned future developments at a regional and local level

Site (Local / Unitary Authority)	Other relevant future development in Local Authority
Berkeley (Stroud)	Stroud Valleys Project improvement of natural environment. Sharpness Docks regeneration. 500-750 houses Hunts Grove Urban Extension project. Millfields near Dursley, plan for 700 houses.[6]
Bradwell (Maldon)	South Maldon Garden Suburb 1,375 houses. North Heybridge Garden Suburb 1,235 houses.[7]
Dungeness A (Shepway)	Various potential investment projects including regeneration in Folkestone, Creative Quarter and University Centre Folkestone. [8]
Hinkley Point A (West Somerset	Various proposals for energy generating tidal barrages/tidal lagoons on the River Severn estuary. Watchet East Wharf Development.[9]
Oldbury (South Gloucestershire)	Severnside, Emersons Green and Filton Enterprise Areas.[10]
Sellafield & LLWR (Copeland)	Areas of development proposed in Whitehaven, including the Westlakes Science and Technology Park and various areas of regeneration.[11]
Harwell (Vale of White Horse)	Botley. Broader 'Science Vale UK' project incorporating Harwell, Milton Park, Culham Science Centre, Didcot and Wantage & Grove.[12]
Winfrith (Purbeck)	Strategic housing sites in Bere Regis, Lychett Matravers, Upton, Wareham and Swanage. Economic development opportunities are also possible at Holton Heath.[13]
Capenhurst (Cheshire West &	Other projects in the area include Invest in Cheshire and Invest in Ellesmere Port.[14]

[6] Stroud District Planning Strategy http://www.stroud.gov.uk/docs/planning/planning_strategy.asp
[7] Maldon District Local Development Plan http://www.maldon.gov.uk/info/856/local_development_plan/83/maldon_district_local_development_plan_ldp/9
[8] Shepway District Council – Folkestone Economic Development and Regeneration http://www.shepway.gov.uk/content/category/1/200079/17/
[9] West Somerset District Council - http://www.westsomersetonline.gov.uk/Business/Regeneration-and-Development-Projects/Watchet-East-Wharf-Development
[10] Invest in South Gloucestershire - http://www.insouthglos.co.uk/
[11] Copeland Local Plan 2013 - http://www.copeland.gov.uk/sites/default/files/attachments/copeland_local_plan_2013_2028.pdf
[12] Science Vale UK - http://www.sciencevale.com/
[13] Purbeck's Growth Agenda https://www.dorsetforyou.com/economicdevelopment/purbeck

Site (Local / Unitary Authority)	Other relevant future development in Local Authority
Chester)	
Springfields (Fylde)	Strategic locations for development identified in Lytham and St Annes, the Blackpool Periphery, Warton and Kirkham and Wesham.[15]
Sizewell A (Suffolk Coastal)	Felixstowe South Seafront Development, Seafront Gardens and Pier development.[16]
Chapelcross (Dumfries & Galloway)	Regeneration projects are underway in Lockerbie, Annan, Annandale, Eskdale, Dumfries and Stranraer and Loch Ryan.[17]
Dounreay (Highland)	Gills Harbour has been identified as a potential location for a service base in the marine renewables sector. Land at Scrabster Mains Farm identified as an Enterprise Area for Renewable Energy[18]
Hunterston A (North Ayrshire)	Possible new power station adjacent to existing site.[19]
Trawsfynydd (Gwynedd)	Potential future economic investment in the area and in the site itself may be related to the Snowdonia Enterprise Zone as it has existing energy infrastructure. [20]
Wylfa (Isle of Anglesey)	Anglesey Coastal Environment Project and Three Towns Regeneration Project underway in the area.[21]

[14] Cheshire West and Chester Regeneration - http://www.cheshirewestandchester.gov.uk/business/regeneration.aspx
[15] Fylde Local Plan to 2030 - http://www.fylde.gov.uk/assets/files/4228/Web-Fylde-Local-Plan-Part-1-Preferred-Option.pdf
[16] Suffolk Coastal District Council – Current Major Projects in Felixstowe - http://www.suffolkcoastal.gov.uk/yourdistrict/felixstowefutures/majorprojects/
[17] Dumfries and Galloway Council - http://www.dumgal.gov.uk/index.aspx?articleid=10705
[18] Caithness and Sutherland Local Development Plan - http://www.highland.gov.uk/download/downloads/id/12069/casplan_main_issues_report-interactive_version
[19] North Ayrshire Council Local Plan - http://www.north-ayrshire.gov.uk/Documents/CorporateServices/LegalProtective/LocalDevelopmentPlan/post-examination/adopted-LDP-policy.pdf
[20] Snowdonia Enterprise Zone http://business.wales.gov.uk/enterprisezones/enterprise-zone-locations/snowdonia/about-snowdonia-zone
[21] Isle of Anglesey Regeneration and Development http://www.anglesey.gov.uk/business/regeneration-and-investment/

4.2.3 Radiological safety

National

The UK national and European public dose limit for authorised/ permitted releases of radiation is 1 millisievert (mSv) per year as set by the Ionising Radiation Regulations 1999.[22] The actual dose experienced by the public is dependent on variations in natural background radiation, man-made discharge concentrations and individual habits such as diet. Over time there has been a general declining trend in radiation exposure from man-made discharges across many of the NDA sites.

Regional

Natural background radiation is influenced by three key sources; cosmic radiation at ground level, radon and thoron gas and terrestrial gamma radiation. The greatest degree of regional variation is attributable to radon and thoron gas exposure. Cornwall experiences the highest levels of overall background radiation, followed by Devon and Somerset.[23]

Local

Local trends in radiation exposure can be influenced by gaseous and liquid discharges from activities at the sites, however it should be noted that radioactive discharges at all sites are within statutory limits. Table 4-C indicates doses from gaseous and liquid discharges in 2012 at each of the sites in the NDA estate.

Table 4-C: Doses from radiation sources and dominant contributions in 2012[24]

Site	Gaseous releases and direct radiation (mSv)	Liquid releases and direct radiation (mSv)	Total doses (mSv)
Statutory Discharge Limit	**1**	**1**	**1**
Berkeley and Oldbury	<0.008	0.010	0.010
Bradwell	<0.005	<0.005	<0.005
Dungeness (A & B)	0.021	0.006	0.021
Hinkley Point (A & B)	0.014	0.022	0.022
Sellafield	0.012	0.076	0.076
LLW Repository	0.037	0.061	0.061
Harwell	0.010	<0.005	0.010
Winfrith	<0.005	<0.005	<0.005
Capenhurst	0.080	0.008	0.080
Springfields	0.024	0.060	0.060
Sizewell (A & B	0.021	0.018	0.021
Chapelcross	0.024	0.014	0.024
Dounreay	0.012	0.011	0.012
Hunterston (A & B)	0.021	<0.005	0.021
Trawsfynydd	0.017	0.012	0.017
Wylfa	<0.005	<0.005	0.006

[22] Ionising Radiation Regulations http://www.legislation.gov.uk/uksi/1999/3232/contents/made
[23] Ionising Radiation Exposure of the UK Population 2005 Review http://www.ndawg.org/images/HPA-RPD-001.pdf
[24] Radioactivity in Food and the Environment (RIFE 19), 2013 - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/387254/RIFE19_report.pdf

It is likely that the declining trend in radioactivity will continue across the sites as they progress through their respective decommissioning programmes. Discharges of aqueous and aerial radioactivity have decreased significantly in the sites that have ceased power generation. As decommissioning continues, radioactive discharges are broadly likely to remain steady or decrease, however certain activities such as waste retrieval and treatment, and pond decommissioning may result in temporary spikes. Such increases are anticipated to be well within statutory limits.

4.3 Future environmental baseline

4.3.1 Air quality

National

UK emissions of air pollutants are anticipated to reduce steadily over time, as shown in Table 4-D.[25] This trend is attributed to several factors which include but are not limited to:

- legislation specifically aimed at reducing the emissions of certain pollutants (Pollution Prevention and Control Act 1999);
- technology developments, increased efficiency and abatement measures;
- changes in activity; e.g. the increased use of natural gas instead of coal for power generation and the switch from diesel to petrol in the transport sector; and
- fiscal measures that encourage positive behaviours.

Table 4-D: Anticipated future changes in UK air pollutants between 2002 and 2020[25]

Pollutant	Emissions in 2002 (measurements in kilotonnes (kt))	Predicted Emissions in 2020 (kt)	Percentage reduction
Particulate Matter (PM_{10})	161	142	-11.8%
Particulate Matter ($PM_{2.5}$)	93	75	-19.4%
Oxides of Nitrogen (NO_x)	1582	869	-45.1%
Sulphur Dioxide (SO_2)	1002	360	-64.1%
Volatile Organic Chemicals (VOCs)**	1186	883	-25.5%
Benzene	13.5	10.4	-23.0%

Regional

DEFRA (The Department for Environment, Food and Rural Affairs) records the latest regional air pollution data across the UK. As of December 2014, all regions were described as having 'low' levels of air pollution. Total regional emissions reductions were also recorded across the UK between 2005 and 2012. These are presented in Table 4-E alongside the regional contributions to national emissions.

[25] The Air Quality Strategy for England, Scotland, Wales and Northern Ireland Volume 2 - http://www.scotland.gov.uk/Resource/Doc/1052/0051688.pdf

Table 4-E: Regional trends in air pollutant emissions[26]

Country / Region	Local / Unitary Authority	Site	2005	2012
			Total UK Emissions	**Total Emissions**
UK	N/A	N/A	528 Mt (8.7)	454 Mt (7.1)
			Regional Contribution (tonnes per capita)	**Regional Contribution (tonnes per capita)**
East of England	Maldon	Bradwell	8.7% (8.3)	9.0% (7)
	Suffolk Coastal	Sizewell		
North West	Copeland	Sellafield	11.2% (8.7)	11.5% (7.3)
		LLWR		
	Cheshire West and Chester	Capenhurst		
	Fylde	Springfields		
South East	Shepway	Dungeness	12.7% (8.2)	12.8% (6.7)
	Vale of White Horse	Harwell		
South West	Stroud	Berkeley	7.8% (8.2)	7.9% (6.7)
	West Somerset	Hinkley		
	South Gloucestershire	Oldbury		
	Purbeck	Winfrith		
Scotland	Dumfries & Galloway	Chapelcross	8.0% (8.7)	7.9% (6.7)
	Highland	Dounreay		
	North Ayrshire	Hunterston		
Wales	Gwynedd	Trawsfynydd	6.3% (11.1)	5.9% (8.7)

Local

At a local level, vehicles and diesel generators are used at the sites which can generate pollutant emissions. Such emissions are likely to remain steady throughout each site's care & maintenance preparation phase and will decline substantially during care & maintenance. Dust will be generated by various construction and demolition activities undertaken as part of care & maintenance preparation and final site clearance.

Currently none of the sites in the NDA estate are located in designated Air Quality Management Areas (AQMA), and this is expected to remain the case due to the remote locations of the sites and the reduction in emissions anticipated as sites progress through their respective decommissioning programmes.

4.3.2 Climate change and energy

National

In central England, temperatures have risen by about one degree Celsius since the 1970s, with 2014 being the warmest year on record.[27] The anticipated general trend in UK climate is towards drier summers and wetter winters with a greater proportion of precipitation falling as heavy events. Higher summer temperatures

[26] Local authority carbon dioxide emissions estimates 2012. Department of Energy and Climate Change Statistical release June 2014

[27] 2014 confirmed as UK's warmest year on record - http://www.metoffice.gov.uk/news/releases/archive/2015/Record-UK-temps-2014

are expected to result in a rise in energy demand for cooling, although this may be balanced by a lower demand for energy if temperatures are higher during winter months.

The key driver of climate change is an increase in atmospheric concentrations of greenhouse gases (GHG), predominantly attributed to increased usage of fossil fuels since the beginning of the industrial revolution. Carbon dioxide (CO_2) accounted for 82% of UK GHG emissions in 2012.[28]

Total UK CO_2 emissions decreased by an estimated 14% between 2005 (the earliest year for which data are available at Local Authority level) and 2012. Whilst the overarching trend has been a reduction, there were year-on-year increases in both 2010 and 2012; linked to the cold winters experienced in those years. It is anticipated that UK CO_2 emissions will continue to decrease in line with its international commitments and the agreed targets set out in the Climate Change Act 2008 (England) and the Climate Change (Scotland) Act 2009.

Regional

Regional climate change trends vary significantly, with the greatest increases in mean temperature expected in the South East and East of England, and the lowest increase in mean temperature expected in North Scotland.

Historically, regional trends in CO_2 emissions have varied significantly, as shown in Table 4-F. This trend for variation is expected to continue.

Table 4-F: Regional trends in UK CO_2 emissions 2005-2012[29]

Change in emissions since 2005	Number of Local Authorities in UK
Decrease of more than 20%	39
Decrease of 15%-20%	69
Decrease of 10%-15%	155
Decrease of 5%-10%	91
Decrease of 0% to 5%	32
Increase	20

Site-specific energy consumption is expected to change over time and is dependent on the activities being undertaken. In general, all sites will draw power from the grid and operate plant and vehicles for decommissioning works such as Intermediate Level Waste (ILW) processing and for general domestic needs until the completion of their decommissioning programmes.

During the interim end state/ care & maintenance phase, site power requirements reduce considerably, although periodic inspections and maintenance can result in very small spikes in energy use. Retrieval of waste packages from ILW storage might also result in intermittent vehicle movements to and from the sites. Energy use and vehicle movements will then increase substantially during final site clearance.

Future changes in the climate could affect baseline conditions across a number of environmental topics. Links between climate change and other aspects of the environment are identified below.

Links to air quality

Variations in energy use can have a direct impact on air quality at the sites, especially after nuclear reactors are shut down and sites switch to using fossil fuels. Diesel generators and fossil fuel-powered vehicles can lead to emissions of air pollutants and particulate matter.

[28] 2012 UK Greenhouse Gas Emissions, Final Figures - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/295961/20140204_2012_UK_Greenhouse_Gas_Emissions_Final_Figures_-_revised_27_March_2014.pdf

[29] Local authority carbon dioxide emissions estimates 2012 - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/322819/20140624_Statistical_release_Local_Authority_CO2_emissions.pdf

Links to flood risk and coastal erosion

One anticipated impact of climate change is its influence upon surface water, fluvial and coastal flooding (including coastal erosion). Changes may result from increased precipitation, flash floods as a result of drier ground conditions and higher sea levels with associated changes in extreme wave and tidal events.

Links to biodiversity, flora and fauna

It is anticipated that there will be regional differences in the impact of climate change on biodiversity, flora and fauna. Some habitats are recognised as being particularly vulnerable to climate change, e.g. montane habitats (from increased temperatures), wetlands (from changes in water availability) and coastal habitats (from sea-level rise) (Morecroft & Speakman 2013).

Link to geology and soils

Hotter drier summers and warmer wetter winters, coupled with increased frequency of extreme weather occurrences such as heat waves, dry spells, heavy rain and flooding, has the potential to substantially affect soils and increase the risk of their degradation. Risk of soil erosion will increase if trends for wetter winters and heavier rainfall continue, whilst drier soils in the summer could accelerate runoff.

Links to water resources and quality

Climate change may have long-term effects on water quality for a variety of reasons. Increases in mean air temperature will result in increased water temperatures as heat is transferred between them. This may lead to a decline in water quality due to deoxygenation (warmer water holds less oxygen) and increased rates of pollutant dissolution. Increased precipitation and flooding can also result in deterioration in water quality due to increased diffuse pollution from runoff derived from agriculture and industry.

4.3.3 Flood risk and coastal erosion

National

The future baseline for climate change and energy is intrinsically linked to flood risk and coastal erosion. Changes to mean temperature, precipitation and sea level associated with climate change are predicted to exacerbate existing risks posed by flooding and coastal erosion.

It is likely that the number of people in the UK exposed to flooding, taking into account population growth, will rise to between 1.7 million and 5 million by the 2080s (0.8 - 4.1 million higher than the current figure of 900,000). Surface water flooding is expected to increase significantly up to the year 2100.

Regional and local

Regional changes in flood risk are likely to be linked to regional changes in mean temperature and precipitation, whereas the impact of sea level rise will have a more localised effect. Therefore, future trends in coastal erosion can be considered largely site-specific. Changes in erosion would be dependent on a combination of factors, including the extent of sea level rise, changes in surges and wave strength and the geology of coastal rock formations.

As impacts from fluvial and pluvial flooding are likely to increase as a result of climate change, it is broadly assumed that sites currently at risk of fluvial or pluvial flooding (as indicated by flood zones in Table 4-G) will remain at risk throughout the Strategy period in the absence of intervention.

Anticipated future changes in coastal erosion and sea level rise risk at the NDA sites are outlined in Table 4-G, with a description of current coastal defences and any erosion predictions provided from information in the Site Specific Baseline reports.

Table 4-G: Anticipated flood risk changes and existing coastal defences at NDA sites

Site	Flood Zone[30, 31]	Risk from Sea-Level Rise	Current coastal defences
Berkeley	3	Yes	Continuous embankment along shoreline, Minimum height of these defences is 9.72 m above sea level.
Bradwell	1	Yes	Continuous 4.8 – 5 m high sea wall and gully.
Dungeness A	3	Yes	Continuous 20 m wide, 11 m high man-made shingle embankment along the shoreline.
Hinkley Point A	1	Yes	Elevation of 11 m above sea level. Continuous concrete sea wall founded on the shoreline rock platform (crest height 8.5 m) and a secondary gabion wall (crest 12 m) behind the main sea wall.
Oldbury	1	Yes	Elevation of 10 m above sea level. Grass covered embankment up to 2 m high above the adjacent natural ground level, with stone pitching (to withstand erosion).
Sellafield	1	Yes	Elevation around 5 m to 50 m above sea level. Generally protected from coastal flooding by cliffs, Ehen shingle spit and a railway embankment. Southern end of the site vulnerable within the next 100 years if existing defences are not maintained.
LLW Repository	1	Yes	10-15 m headland and natural dune spit.
Harwell	1	No	N/A Inland.
Winfrith	1 to 2	No	N/A Inland.
Capenhurst	1	No	N/A Inland.
Springfields	3	No	N/A Inland.
Sizewell A	1	Yes	Elevation around 9 m above sea level and is protected from flooding and erosion by soft defences comprising a line of relict, vegetated sand dunes which were remodelled to provide a two-layered defence, consisting of an inner ridge (10 m above sea level) and 5 m high outer ridge.
Chapelcross	1:10	No	N/A Inland
Dounreay	N/A	No	Elevation approximately 20 m above sea level. Coastline recession rates of around 1-2 m in 20 to 30 years have been estimated, taking into account sea level rise.
Hunterston A	1:1000	Yes	Average elevation of approximately 4.5 m above sea level. Engineered rock and crushed concrete bunds that were built during the construction phase.
Trawsfynydd	1	No	N/A Inland.
Wylfa	1	No	Shallow gradient rock foreshore which is topped off by a sea wall in localised areas. The high integrity of the cliffs at Wylfa Head generally negates the need for additional defences.

[30] England and Wales: Environment Agency Flood Map for Planning (Rivers and Sea) - http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=floodmap&layerGroups=default&lang=_e&ep=map&scale=7&x=531500&y=181500

[31] Scotland: SEPA Flood Maps - http://map.sepa.org.uk/floodmap/map.htm

4.3.4 Biodiversity, flora and fauna

Overall, evidence on the status and trends of biodiversity in the UK suggests long-term declines, but there have been improvements recently for some species and habitats.

Of the range of ecosystem services delivered in the UK by eight broad habitat types, about 30 per cent have been assessed as declining since 1990. Reductions in ecosystem services are associated with declines in habitat extent or condition and changes in biodiversity, though the exact relationships are not well understood.

England

- The percentage of habitats of European importance in favourable or improving conservation status has declined between 2007 and 2013.
- The percentage of species of European importance in favourable or improving conservation status has improved from 2007 to 2013.
- Marine ecosystem integrity declined overall between 1983 and 2011, however there were improvements between 2006 and 2011.
- Environmental pressure on biodiversity from air pollution improved between 1996 and 2011
- Marine pollution (combined input of hazardous substances) improved between 1990 and 2012 but has changed little since 2007.
- Environmental pressures on terrestrial, freshwater and marine species deteriorated between 1960 and 2014.[32] [33]

Scotland

- Overall appraisal of 39 priority habitats showed improvement between 2005 and 2008. Among 41 habitats assessed in 2008, the proportion that were stable or increasing (41%) exceeded those declining (31%).[34]
- Among 230 species assessed in 2008, the proportion that were stable or increasing since 2005 (32%) exceeded those declining or lost (15%). Of eight coastal and marine habitats assessed in 2008, those that were stable exceeded those declining. The appraisal of 136 species in these habitats showed overall improvement.

Wales

- In Wales, more than half of UK Biodiversity Action Plan (BAP) priority habitats are classed as in 'declining' condition (BARS, 2011). However, this decline is slowing at many sites and 65% of BAP habitats in Wales can therefore be classed as improving, remaining stable or showing signs that decline is fluctuating or slowing. Habitats within the marine environment exhibit the greatest deterioration, with continued or accelerated decline compared to terrestrial habitats and freshwater habitats.

Regional and Local

There is currently no assessment of spatial indicators of ecosystem health at a regional or local level.

It is not possible to accurately predict future changes in biodiversity, flora and fauna at the sites. Changes may be caused by external alterations in other topic areas such as climate change and air quality or by changes in the activities undertaken at the sites themselves. Generally, impacts upon biodiversity, flora and

[32] http://www.cbd.int/doc/world/gb/gb-nr-05-en.pdf
[33] Biodiversity 2020: a strategy for England's wildlife and ecosystem services- Indicators.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/383902/England_full_2014_finalv2.pdf
[34] http://www.snh.gov.uk/docs/B536405.pdf
Scottish Natural Heritage- Scotland's wildlife: An assessment of biodiversity in 2010

fauna will reduce over time as the sites move through the decommissioning process and are eventually delicenced following final site clearance.

4.3.5 Cultural heritage

The historic environment can be considered a finite resource. It cannot be replaced and is susceptible to decline over time as historic features experience degradation and decay. However, cultural heritage as a whole can evolve and change, and features which are not currently considered a valued part of the historic environment may become so in the future, either due to their uniqueness, past use or historic or cultural significance.

England

The National Heritage Protection Plan (NHPP)[35] sets out how English Heritage together with partners in the heritage sector will prioritise and deliver heritage protection from 2011 to 2015. Its objective is to make the best use of resources so that England's vulnerable historic environment is safeguarded in the most cost-effective way at a time of massive social, environmental, economic and technological change.

Scotland

Scotland's first ever Historic Environment Strategy is a high-level framework which sets out a 10 year vision for the historic environment. The key outcome is to ensure that the cultural, social, environmental and economic value of Scotland's historic environment continues to make a strong contribution to the well-being of the nation and its people.[36]

Wales

Wales Historic Environment Strategy[37] sets out the role of the historic environment in delivering tangible social, economic and environmental benefits for Welsh communities. The Strategy aims to build on the country's strong heritage base and further develop the economic role of heritage, as well as maximising the educational, training and leisure opportunities associated with it.

Regional and local

It is not possible to accurately predict future trends in cultural heritage and the historic environment. Some features may become statutorily protected over time, whilst others may experience degradation and decay. At regional to local scales, infrastructure, development and environmental pressures such as extreme weather and flooding present the greatest risk to cultural heritage assets.

4.3.6 Geology and soils

Soil is a finite natural resource on which life depends. It regenerates only over extremely long geological timescales and provides many essential services on which humans rely, including food production, water management and support for valuable biodiversity and ecosystems. As a large store of carbon, it also plays a vital role in preventing adverse climate change.

England and Wales

The vision[38] is that by 2030 all of England's soils will be managed sustainably and degradation threats tackled successfully. This will improve the quality of soils and safeguard their ability to provide essential services for future generations.

[35] http://www.english-heritage.org.uk/content/imported-docs/k-o/nhpp-action-plan.pdf
[36] Our Place in Time - The Historic Environment Strategy for Scotland Tuesday, March 4, 2014. http://www.scotland.gov.uk/Publications/2014/03/8522
[37] http://cadw.wales.gov.uk/historicenvironment/policy/historicenvironmentstrategyforWales/?lang=en
[38] Safeguarding our Soils a Strategy for England http://archive.defra.gov.uk/environment/quality/land/soil/documents/soil-strategy.pdf

Soils in England have degraded over the last 200 years due to intensive agricultural production and industrial pollution. Soils continue to face three main threats:

- Soil erosion by wind and rain - erosion affects both the productivity of soils but also water quality and aquatic ecosystems.
- Compaction of soil reduces agricultural productivity and water infiltration, and increases flood risk through higher levels of run off.
- Organic matter decline - the loss of organic matter reduces soil quality, affecting the supply of nutrients and making it more difficult for plants to grow, as well as increasing emissions to the atmosphere.

The gradual build-up of pollutants in soil over many decades is a serious threat to soil function. The presence of pollutants can adversely affect soil biota that is needed for healthy functioning soil, as well as to support plants and other animals. Soil pollutants also have the potential to adversely affect human health if they enter into the food chain or drinking water sources.

Scotland

Due largely to the sustainable management employed by land managers over a prolonged period, Scotland's soils are generally in good health. However, compared with air or water quality, for which national long-term datasets exists, for soils there is a lack of national trend data from which evidence of change or damage to soils might be determined.[39]

According to recently published research, climate change and loss of organic matter are the most significant threats to Scottish soils.

Links to biodiversity, flora and fauna

The biodiversity of soil organisms plays a vital but poorly understood role in maintaining healthy soils. Many semi-natural habitats in England and Wales are suffering from soil-related problems, including nutrient over-enrichment, acidification and erosion.

Links to water resources and quality

Underlying geology and soil type have a significant impact upon water quality and the capacity of surface waters to dilute or buffer the impacts of pollutants. Alkalinity ($CaCO_3$) of surface waters determines their capability of maintaining pH in response to acidic pollutants and is often governed by underlying geology.

Geological features

Important geological features of conservation value can also be subject to impacts from climate change and development, the trends for which are discussed above. For example, impacts may include direct loss from land-take or effects caused by changes to the water table or air quality.

4.3.7 Landscape and visual impacts

Landscape consists of an overall pattern of elements which together determine the landscape character and local or regional distinctiveness. It can be impacted by alterations to designated landscapes, conservation sites and cultural associations and is sensitive to changes in perceived characteristics.

Many sites within the NDA estate are in a rural setting and as such tranquillity and remoteness are valued in these areas. Many changing trends can influence the landscape, which also includes townscape and seascape. Population growth and increasing demand for development heightens pressure on undeveloped land and can lead to changes in the way that the built environment interacts with the natural. Climate change is also likely to have an influence on the future of landscapes via changes in agriculture and development.

[39] http://www.scotland.gov.uk/resource/doc/273170/0081576.pdf

Landscape is best defined at a regional to local scale. Future regional and local scale changes in landscape are set out in the short to medium-term in local authority strategic plans and local development plans. These documents have been used to inform the assessment.

4.3.8 Water resources and quality

National

Water quality is influenced by a wide range of internal and external factors, including climate change, geology and soils, human consumption (including population change) and pollution from human activities such as industry and agriculture.

In the UK, water quality is managed under the EU Water Framework Directive (2000/60/EC) (WFD) requiring all 'water bodies' (rivers, streams, canals, lakes, coastal waters etc.) to achieve 'good' ecological status by 2015 or over agreed timescales to 2027. To help fulfil WFD aims, River Basin Management Plans must be produced for the river basin districts identified under WFD. Water bodies are classified under a risk-based classification system that includes five quality classes (High, Good, Moderate, Poor, Bad) and pressures on those water bodies must be identified and monitored. In 2012, 41% of natural surface water bodies in the UK were of 'Good' or 'High' ecological status and 41% were of 'Good' chemical status. This is expected to improve to 50% and 42% respectively in 2015.[40]

Regional

Regional water quality changes are highly variable and monitored regularly by river basin district. These regional variations are expected to continue through to 2027 and beyond, however the general trend is for water quality to improve in line with the WFD. Table 4-H indicates variation in water bodies of Good ecological and chemical status or better in 2009, and expected changes following the first WFD reporting period in 2015.

Table 4-H: Anticipated future changes in water quality by River Basin District

River Basin District	Good ecological status or better in 2009 (%)	Good ecological status or better in 2015 (%)	Good chemical status in 2009 (%)	Good chemical status in 2015 (%)
UK	41.3	50.1	41.4	41.5
Scotland (Dounreay, Hunterston A)	65.9	72	99.5	99.8
Solway Tweed (Chapelcross)	47.1	54.7	77.2	77.2
North West (Sellafield, LLWR, Springfields, Capenhurst)	33.9	41.1	6.9	6.9
Western Wales (Trawsfynydd, Wylfa)	28.5	36.2	4.3	4.3
Severn (Oldbury, Berkeley)	26.7	33.2	7.6	7.9
South West (Hinkley Point A.	33.2	44.6	3.3	3.3
Anglian (Bradwell, Sizewell A)	23.1	25.9	4.4	4.8
South East (Dungeness A)	26.9	34	9.9	9.9

[40] Commission Staff Working Document. Member State: United Kingdom. Accompanying the document: Report from the Commission to the European Parliament and the Council on the Implementation of the Water Framework Directive (2000/60/EC) River Basin Management Plans - http://ec.europa.eu/environment/water/water-framework/pdf/CWD-2012-379_EN-Vol3_UK.pdf

Local

The WFD timescales conclude in 2027, at which point all water bodies are expected to be of Good status or better. This coincides with entry into interim end state/ care & maintenance at many of the NDA sites. During this period, aqueous discharges are generally low. Certain activities such as the retrieval, treatment and passivation of wastes may result in short-term spikes in aqueous discharges, but these are anticipated to be within statutory limits.

4.3.9 Materials and waste

National

In the UK, the total amount of radioactive waste (including radioactive waste forecast to arise from existing nuclear facilities) is approximately 4.7 million m^3 or 5 million tonnes. Of this, approximately 94% is Low Level Waste (LLW), 6% is Intermediate Level Waste (ILW) and less than 0.1% is classed as High Level Waste (HLW). Although the volume of HLW is relatively small, it makes up around 95% of the total inventory in terms of radioactivity.

Regional and local

A combination of radioactive and conventional waste is produced at all sites. LLW is packaged and sent to the Low Level Waste Repository (LLWR) near Drigg in Cumbria for disposal. ILW is and has been generated from both operational and decommissioning activities. Decommissioning activities do not generate HLW, which is produced from the reprocessing of spent nuclear fuels.

Table 4-I below shows the amount of UK radioactive waste reported in April 2013 and the estimated lifetime arisings for each site.

Please note that the lifetime total volume of HLW is less than that reported in April 2013. This is due to two reasons:

1. HLW is initially stored in a liquid form and when the HLW is treated to produce vitrified glass blocks, the blocks take up roughly one-third of the volume of the original liquid; and

2. The future arisings of HLW are the net total following export to overseas reprocessing customers.

Table 4-I: UK Radioactive Waste Volumes reported in April 2013 and estimated total lifetime arisings for each site[41]

Site	HLW	ILW	LLW	VLLW	Total	HLW	ILW	LLW	VLLW	Total
	Reported April 2013 (m^3)					Estimated Lifetime Total (m^3)				
UK	1,770	95,600	66,700	1,170	165,240	1,080	286,000	1,370,000	2,840,000	4,497,080
Berkeley	0	1,620	122	0	1,742	0	5,290	33,600	0	38,890
Bradwell	0	779	156	0	935	0	4,510	41,700	640	46,850
Dungeness	0	338	129	0	467	0	4,440	34,400	0	38,840
Hinkley Point A	0	1,250	34	45	1,329	0	5,360	40,500	0	45,860
Oldbury	0	594	30	0	624	0	4,770	69,200	0	73,970
Sellafield	1,770	69,600	3,450	1,080	75,900	1,080	182,000	295,000	2,830,000	3,308,080
LLW Repository	0	34	32,800	0	32,834	0	525	35,100	0	35,625
Harwell	0	2,310	1,240	0	3,550	0	2,790	34,000	0	36,790
Winfrith	0	6	4,400	0	4,406	0	71	13,600	0	13,671
Capenhurst	0	1	1,020	0	1,021	0	3	14,400	0	14,403
Springfields	0	0	133	0	133	0	0	228,000	0	228,000
Sizewell	0	863	137	0	1,000	0	5,050	34,400	950	40,400
Chapelcross	0	213	3,150	14	3,377	0	4,780	61,400	1,040	67,220
Dounreay	0	4,600	14,400	0	19,000	0	7,130	98,400	0	105,530
Hunterston	0	2,660	754	0	3,414	0	6,420	41,700	0	48,120
Trawsfynydd	0	2,010	88	0	2,098	0	6,680	48,200	13	54,893
Wylfa	0	842	197	1	1,040	0	7,290	69,000	27	76,317

[41] UK Radioactive Waste Inventory 2013

4.4 Assumptions / Limitations

4.4.1 Data gathering

The different data gathering and processing approaches used by the sources described in Chapter 1 causes some complexities for comparison and analysis. For example, data forms tend to vary between countries, with different indicators used by England compared to Scotland and Wales. For this reason, direct comparison of certain datasets across all sites has not been possible. This limitation will be taken into account during the assessment.

Some datasets which may be relevant for informing the IIA could not be obtained at this time. Notable omissions include mortality rates by local authority and numbers of Disability Living Allowance (DLA) claimants. If required, these gaps in the data coverage will be filled during the assessment.

4.4.2 Site activities

Due to the sensitivity of some information pertaining to activities at nuclear sites, information has been gathered solely from documents in the public domain. It is expected that the information provided in these documents is accurate and sufficient in detail to meet the requirements of the assessment.

It is acknowledged that for all sites the indicative timescales given for decommissioning activities and achievement of site interim and end states are subject to change based on ongoing developments to the sites' lifetime plans. It is assumed that the Low Level Waste Repository (LLWR) and other suitable facilities to manage LLW will continue to be available through most of the timescale to which the Strategy applies (i.e. up to 2120). It is recognised that decommissioning milestones are not fixed and can be influenced by external factors. This will be considered in the course of the assessment.

4.4.3 Health and socio-economic baseline conditions

All data has been gathered using official government sources. It is assumed that the indicators used are comparable (unless otherwise stated), reliable (without error), and where appropriate, valid throughout the timescale to which the NDA Strategy applies.

It is assumed that all legally set limits relating to radioactive discharges and sources of background radiation will remain constant throughout this period and that, in the absence of new technological developments, fossil fuels will continue to be the dominant form of energy provision. This particular assumption also has implications for the environmental baseline.

4.4.4 Environmental baseline conditions

It is assumed that nature conservation features in the vicinity of the sites will remain into the long-term, and that their composition will have broadly the same characteristics/ sensitivities. In addition, currently statutorily designated nature sites will remain so throughout the timescale to which the Strategy applies.

A similar assumption has been made that all currently statutorily designated cultural heritage features within close proximity of the NDA sites will remain so over this timeframe. Other features may become statutorily protected during this time, however as this cannot be predicted at this stage, consideration of effects on such features is beyond the scope of the assessment.

It is deemed reasonable to assume that superficial and bedrock geology and aquifers will remain unchanged throughout the timescale to which the Strategy applies, and that surface waters and groundwater will continue to be regulated under the Water Framework Directive (WFD) in the UK until the final reporting date after the year 2027.

Appendix A Socio-economic and health indicators

i) Population by Age Group[42]

Site	Country	Local/Unitary Authority	Total Population	0-14	15-24	25-44	45-59	60-74	75+	Mean Age
-	-	UK	63,185,000	18%	13%	27%	20%	15%	8%	N/A
Berkeley	England	Stroud	112,779	17%	11%	23%	22%	18%	9%	42.3
Bradwell		Maldon	61,629	16%	11%	27%	22%	20%	9%	43.0
Dungeness A		Shepway	107,969	17%	12%	23%	20%	18%	10%	42.4
Hinkley Point A		West Somerset	34,675	13%	10%	18%	21%	24%	14%	47.7
Oldbury		South Gloucestershire	262,767	18%	13%	26%	20%	15%	8%	39.8
Sellafield		Copeland	70,603	16%	11%	24%	22%	18%	8%	42.1
LLW Repository										
Harwell		Vale of White Horse	120,988	18%	11%	26%	21%	16%	9%	40.8
Winfrith		Purbeck	44,973	15%	11%	21%	21%	21%	12%	44.9
Capenhurst		Cheshire West and Chester	329,608	17%	12%	25%	21%	17%	9%	41.3
Springfields		Fylde	75,757	15%	10%	22%	22%	20%	12%	44.9
Sizewell		Suffolk Coastal	124,298	16%	10%	21%	21%	20%	11%	44.2
Chapelcross	Scotland	Dumfries & Galloway	151,324	17%	15%	17%	22%	20%	10%	N/A
Dounreay		Highland	232,131	18%	15%	19%	23%	18%	8%	N/A
Hunterston		North Ayrshire	138,146	18%	16%	19%	22%	18%	8%	N/A
Trawsfynydd	Wales	Gwynedd	121,874	16%	15%	22%	19%	18%	10%	41.6
Wylfa		Isle of Anglesey	69,751	16%	11%	23%	20%	20%	10%	43.4

[42] Office for National Statistics (ONS) (2011).

ii) Education, Skills and Training[43]

Site	Country	Local/Unitary Authority	All persons over 16	% with highest qualification	Distribution by age				
					16 to 24	25 to 34	35 to 49	50 to 64	65 and over
-	-	England and Wales	45,496,780	27.2%	7.3%	24.5%	32.4%	22.7%	13.1%
-	-	Scotland	4,379,072	26.1	-	-	-	-	-
Berkeley	England	Stroud	92,251	32.9%	3.8%	13.3%	34.3%	30.4%	18.2%
Bradwell		Maldon	50,804	23.6%	4.8%	12.5%	32.9%	31.3%	18.5%
Dungeness A		Shepway	88,760	21.8%	5.4%	15.7%	29.9%	28.9%	20.2%
Hinkley Point A		West Somerset	29,844	24.8%	4.2%	10.1%	21.2%	32.5%	32.0%
Oldbury		South Gloucestershire	212,837	26.7%	5.6%	21.3%	36.1%	23.8%	13.2%
Sellafield		Copeland	58,613	21.0%	5.4%	18.2%	31.9%	28.4%	16.2%
LLW Repository									
Harwell		Vale of White Horse	97,867	37.2%	4.5%	18.7%	33.7%	26.3%	16.9%
Winfrith		Purbeck	37,678	25.7%	3.8%	12.1%	26.9%	31.0%	26.2%
Capenhurst		Cheshire West and Chester	271,473	29.4%	5.7%	18.4%	33.7%	26.4%	15.8%
Springfields		Fylde	63,757	29.8%	4.6%	14.2%	32.0%	28.5%	20.7%
Sizewell		Suffolk Coastal	102,401	29.0%	3.8%	12.1%	30.4%	30.5%	23.3%
Chapelcross	Scotland	Dumfries & Galloway	126,160	21.5%	4.9%	13.4%	27.0%	31.5%	23.2%
Dounreay		Highland	190,734	26.4%	4.0%	15.5%	29.2%	31.1%	20.3%
Hunterston		North Ayrshire	113,663	19.6%	5.9%	16.4%	30.5%	28.7%	18.5%
Trawsfynydd	Wales	Gwynedd	100,923	26.4%	7.6%	17.5%	27.2%	26.7%	20.9%
Wylfa		Isle of Anglesey	57,890	26.1%	6.1%	15.7%	26.0%	28.2%	24.0%

[43] Office for National Statistics (2011).

iii) Employment and Income[44],[45]

Economic Activity			Active						Inactive				
Site	Country	Local / Unitary Authority	All	Part Time	Full time	Self-employed	Unemp-loyed	Full time student	Retired	Student	looking after home or family	Long-term sick or disabled	Other
-	-	England and Wales	41,126k	5,646k	15,815k	3987k	1,799k	1,410k	5,682k	2,389k	1,781k	1,714k	898k
Berkeley	England[1]	Stroud	81,955	12,899	31,910	10780	2,306	2,085	12,806	2,929	2,866	2,275	1,099
Bradwell		Maldon	45,406	6,640	16,765	6108	1,381	962	8,148	1,353	2,122	1,293	634
Dungeness A		Shepway	77,938	11,151	27,386	11265	2,277	25,551	13,794	2,869	3,486	3,785	1,617
Hinkley Point A		West Somerset	24,918	3,626	7,290	4618	445	8,800	5,764	754	844	1,047	391
Oldbury		South Gloucestershire	192,468	31,453	82,489	21917	6,755	49,270	27,390	7,885	6,244	4,872	2,879
Sellafield		Copeland	52,702	7,984	20,525	5750	916	17,367	9,657	1,596	1,922	2,872	1,320
LLW Repository													
Harwell		Vale of White Horse	87,477	12,547	39,197	9441	2,190	2,335	12,150	3,400	3,374	1,682	1,161
Winfrith		Purbeck	32,379	5,222	11,568	3953	899	758	6,493	909	1,131	952	494
Capenhurst		Cheshire West and Chester	243,155	36,206	95,642	21856	8,949	8,125	39,893	10,746	8,620	9,574	3,544
Springfields		Fylde	54,544	7,374	20,222	5689	1,687	1,475	11,262	1,785	1,699	2,161	1,190
Sizewell		Suffolk Coastal	88,250	14,036	31,974	12370	2,145	27,244	17,161	2,817	3,423	2,328	1,515
Chapelcross	Scotland[2]	Dumfries & Galloway	126160	19134	38822	12652	5119	5641	35761	3549	3684	5422	2017
Dounreay		Highland	190734	28216	68401	19388	7387	8411	45418	5517	6506	6776	3125
Hunterston		North Ayrshire	113663	13000	24800	7200	6400	7338	4200	4300	4400	6600	1600
Trawsfynydd	Wales[1]	Gwynedd	88,913	12,300	27,834	13732	3,756	30,918	14,561	7,814	3,062	3,867	1,614
Wylfa		Isle of Anglesey	50,818	6,949	17,274	5200	2,381	1,219	10,150	2,266	1,891	2,592	896

[44] Office for National Statistics (2011) –The dataset includes usual residents aged 16 to 74
[45] Scotland's Census (2011)

iv) Industry Sectors[46] [47] [48]

Site	Country	Local/ Unitary Authority	All	UK SIC 2007 Industry Sectors by economic activity (%)[3]														
				A, B, D, E	C	F	G	H	I	J	K	L	M	N	O	P	Q	R, S, T, U
-	-	UK	26,681,568	2.3	8.9	7.7	15.9	4.9	5.6	4	4.3	1.5	6.6	4.9	6	9.9	12.5	5
Berkeley	England	Stroud	57,745	4.2	12.6	8.5	14.1	3.1	4.5	4	3.3	1.3	7.5	4.2	5.1	10.6	12.3	4.7
Bradwell		Maldon	30,543	3.6	10.9	11.5	15.7	4.6	3.8	2.4	5.8	1.4	6.7	4.5	4.8	9.1	10.3	4.9
Dungeness A		Shepway	48,639	3.8	5.2	9.7	15.4	6.4	6	2	4.9	1.1	4.4	6.1	7.6	8.9	14.1	4.4
Hinkley Point A		West Somerset	15,557	7.8	6.3	7.4	15.3	3	14.4	1.7	1.5	1.6	4.3	4.7	4	8.9	12.9	6.2
Oldbury		South Gloucestershire	137,271	2.1	9.8	8.6	16.3	4.9	4.1	4.2	6.4	1.2	5.8	4.4	7.6	8.4	12.3	3.9
Sellafield		Copeland	33,073	9.5	19.9	9.2	11.4	2.9	6.4	1.3	0.9	0.9	4.5	4.1	5.5	7.4	12.3	3.8
LLW Repository																		
Harwell		Vale of White Horse	63,646	2.7	7.6	7.8	13.7	3.1	4	6.3	2.1	1.4	11	4.2	7.6	13.7	9.8	5
Winfrith		Purbeck	21,662	4.2	8.9	8.6	13.7	3.3	8.3	2.4	3	1.6	5.1	4.1	9.5	9	12	6.2
Capenhurst		Cheshire West and Chester	161,037	3	11.5	6.4	17.1	4.2	5.9	3.1	4.9	1.3	7.1	4.7	4.9	9.6	11.8	4.4
Springfields		Fylde	34,796	1.8	12.5	6.3	13.4	3.1	7.4	3.7	4.3	1.5	5.9	3.7	9.7	9.4	12.6	4.7
Sizewell		Suffolk Coastal	58,882	4.6	5.7	7.1	14.1	9.6	5.6	5.2	3.6	1.4	5.1	4.1	6.8	9.7	12.1	5.4
Chapelcross	Scotland	Dumfries & Galloway	N/A															
Dounreay		Highland																
Hunterston A		North Ayrshire																
Trawsfynydd	Wales	Gwynedd	54,523	6.2	5.8	9.6	14.4	3.4	9.8	2	1.1	1.2	3.7	3.5	6.4	12.6	14.6	5.6
Wylfa		Isle of Anglesey	30,726	7.2	7.7	8.8	14.4	5.3	6.9	1.5	1.1	1.1	3.6	3.2	9.0	11.1	15	4.2

UK Standard Industrial Classification 2007 (UK SIC 2007) Industry sectors:

[46] Office for National Statistics (2011)
[47] NOMIS official labour market statistics (2013)
[48] UK Standard Industrial Classification 2007 (UK SIC 2007)

A	Agriculture, Forestry and Fishing
B	Mining and Quarrying
C	Manufacturing
D	Electricity, Gas, Steam and Air Conditioning Supply
E	Water Supply; Sewerage, Waste Management and Remediation Activities
F	Construction
G	Wholesale and Retail Trade; Repair Of Motor Vehicles and Motorcycles
H	Transportation and Storage
I	Accommodation and Food Service Activities
J	Information and Communication
K	Financial and Insurance Activities
L	Real Estate Activities
M	Professional, Scientific and Technical Activities
N	Administrative and Support Service Activities
O	Public Administration and Defence; Compulsory Social Security
P	Education
Q	Human Health and Social Work Activities
R	Arts, Entertainment and Recreation
S	Other Service Activities
T	Activities of Households As Employers; Undifferentiated Goods-And Services-Producing Activities of Households for Own Use
U	Activities of Extraterritorial Organisations and Bodies

v) Employment by Industry Sector[49]

Site	Country	Local/Unitary Authority	UK SIC 2007 Industry Sectors[50] (%)

[49] NOMIS official labour market statistics (2013)
[50] UK Standard Industrial Classification 2007 (UK SIC 2007)

			A-B	D-E	C	F	G	H	I	J	K-N	O-Q	R-S
-	-	Great Britain	0.3	1.1	8.5	4.4	15.9	4.5	7	4	21.8	28	4.6
Berkeley	England	Stroud	0.1	2.5	24.4	5.8	14.3	3	9.1	2.5	11.9	22.6	3.8
Bradwell		Maldon	0.4	1.7	13.1	6.4	18.1	4.6	7.7	1.8	15.8	26.7	3.9
Dungeness A		Shepway	0.1	3	4.3	5	15	6	7.9	1.7	21.2	31.4	4.4
Hinkley Point A		West Somerset	0.4	7.8	5.7	7.5	15.1	2.4	22.6	0.8	6.6	26.1	5
Oldbury		South Gloucestershire	0.1	0.9	12.3	5.7	14.6	4.4	5.5	5.1	21.3	27.4	2.7
Sellafield		Copeland	0.2	1.2	34.8	5.5	8.6	1.6	5.5	0.5	15.1	23.6	3.4
LLW Repository													
Harwell		Vale of White Horse	0.2	1.3	6.1	5.5	14.2	3.4	6.8	7	28.3	22.2	4.8
Winfrith		Purbeck	2.5	2.1	14	6.2	9.7	2.8	15.2	1.2	13.6	25.1	7.6
Capenhurst		Cheshire West and Chester	0.2	0.7	9.3	3.8	17.8	4.1	7.9	2	24.1	24.7	5.3
Springfields		Fylde	0.1	0.7	23.2	3.6	10	2.3	7.6	4	25.5	20.2	2.8
Sizewell		Suffolk Coastal	0.7	2.2	6.1	3.4	16.3	15.6	8.1	7.8	10.4	24.7	4.7
Chapelcross	Scotland	Dumfries & Galloway	1.4	1.6	10.6	5	18.2	4.5	9.3	0.9	9.3	34.4	4.8
Dounreay		Highland	1.5	1.2	6.1	6.4	14.9	4.7	12.2	2	13.1	32.4	5.4
Hunterston		North Ayrshire	0.4	3.3	10.8	6.4	17.1	3.4	10.1	0.8	11.7	29.8	6.3
Trawsfynydd	Wales	Gwynedd	0.7	2.4	6.2	4.2	15.7	2	13.8	1.6	9.2	39.2	4.9
Wylfa		Anglesey	0.4	3.8	10.1	5.9	17.7	7.8	11.9	0.4	11.4	26.3	4.2

vi) Occupation by economic activity[51] [52]

Site	Country	Local/Unitary Authority	All categories: Occupation (aged 16+)	Managers, directors and senior officials	Professional occupations	Associate professional and technical occupations	Administrative and secretarial occupations	Skilled trades occupations	Caring, leisure and other service occupations	Sales and customer service occupations	Process, plant and machine operatives	Elementary occupations
-	-	UK	29,886k	10%	20%	14%	11%	11%	9%	8%	6%	10%
Berkeley	England	Stroud	47k	11%	20%	11%	12%	10%	10%	7%	8%	10%
Bradwell		Maldon	24k	13%	16%	13%	15%	10%	9%	8%	7%	10%
Dungeness A		Shepway	40k	10%	14%	13%	12%	9%	13%	11%	7%	12%
Hinkley Point A		West Somerset	11k	10%	13%	8%	11%	11%	15%	9%	7%	17%
Oldbury		South Gloucestershire	120k	10%	18%	12%	15%	9%	9%	10%	6%	10%
Sellafield		Copeland	29k	7%	15%	12%	10%	13%	10%	8%	12%	13%
LLW Repository												
Harwell		Vale of White Horse	54k	12%	24%	14%	12%	8%	8%	7%	5%	9%
Winfrith		Purbeck	18k	11%	14%	13%	13%	12%	11%	9%	6%	12%
Capenhurst		Cheshire West and Chester	139k	11%	18%	12%	12%	8%	9%	10%	7%	12%
Springfields		Fylde	29k	10%	22%	13%	14%	8%	10%	8%	5%	10%
Sizewell		Suffolk Coastal	48k	11%	18%	12%	14%	8%	10%	8%	7%	12%
Chapelcross	Scotland	Dumfries & Galloway	67k	9%	12%	10%	10%	15%	11%	9%	8%	15%
Dounreay		Highland	111k	9%	17%	13%	12%	16%	9%	7%	6%	11%
Hunterston		North Ayrshire	57k	7%	12%	13%	10%	13%	11%	10%	7%	15%
Trawsfynydd	Wales	Gwynedd	43k	8%	18%	9%	11%	11%	13%	9%	7%	14%
Wylfa		Isle of Anglesey	25k	8%	17%	10%	12%	12%	13%	9%	8%	12%

[51] Office for National Statistics (2011)
[52] NOMIS official labour market statistics (2013)

vii) Business Births and Deaths[53] [54] [55] [56]

Site	Country	Local/Unitary Authority	Active enterprises	No. of births	Birth rate	No. of deaths[2,4]	Death rate[2,3,4]	Active enterprises	No. of births	Birth rate	No. of deaths[4]	Death rate[3,4]
			2010					2011				
-	-	United Kingdom	2,351.4k	235.1k	10%	249.6k	11%	2,342.6k	261.4k	11%	229.8k	10%
		Great Britain	2,292.4k	230.6k	10%	244.4k	11%	2,285.2k	257.6k	11%	224.9k	10%
Berkeley	England	Stroud	5.4k	0.4k	8%	0.4k	8%	5.4k	0.5k	9%	0.4k	8%
Bradwell		Maldon	3.3k	0.3k	9%	0.4k	11%	3.2k	0.3k	10%	0.3k	7.8%
Dungeness A		Shepway	3.5k	0.3k	10%	0.4k	11%	3.6k	0.4k	12%	0.4k	10%
Hinkley		West Somerset	1.4k	0.1k	7%	0.1k	9%	1.4k	0.1k	7%	0.2k	11%
Oldbury		South Gloucestershire	9.2k	0.9k	9%	1.0k	11%	9.1k	1.0k	11%	0.8k	9%
Sellafield		Copeland	2.1k	0.2k	8%	0.2k	12%	2.0k	0.2k	11%	0.2k	10%
LLW Repository												
Harwell		Vale of White Horse	5.5k	0.5k	9%	0.5k	10%	5.4k	0.5k	9%	0.5k	9%
Winfrith		Purbeck	2.0k	0.1k	7%	0.2k	9%	2.0k	0.2k	9%	0.2k	9%
Capenhurst		Cheshire West and Chester	12.3k	1.2k	10%	1.2k	10%	12.3k	1.4k	11%	1.2k	10%
Springfields		Fylde	3.3k	0.3k	9%	0.4k	13%	3.3k	0.3k	10%	0.4k	14%
Sizewell		Suffolk Coastal	5.1k	0.4k	8%	0.5k	9%	5.0k	0.4k	9%	0.5k	9%
Chapelcross	Scotland	Dumfries & Galloway	4.8k	0.3k	7%	0.4k	9%	4.7k	0.4k	8%	0.4k	8%
Dounreay		Highland	8.9k	0.7k	8%	0.8k	9%	8.9k	0.8k	9%	0.7k	7%
Hunterston		North Ayrshire	3.1k	0.3k	10%	0.3k	10%	3.0k	0.3k	10%	0.3k	9%
Trawsfynydd	Wales	Gwynedd	4.5k	0.3k	7%	0.4k	8%	4.4k	0.3k	8%	0.3k	7%
Wylfa		Isle of Anglesey	2.1k	0.2k	9%	0.2k	10%	2.0k	0.2k	8%	0.2k	9%

[53] Enterprises registered for VAT and/or PAYE.

[54] Revisions to 2010 data were larger than usual due to the way new businesses identified by improvements to HMRC systems have been processed on the IDBR. This affected Active enterprises and Deaths.

[55] Birth and Death rates are expressed as a percentage of Active enterprises.

[56] Source: Office for National Statistics (2013)

viii) Economic Productivity[57] [58]

Site	Country	NUTS3* Local Area	GVA (Gross Value Added)** per hour worked[59] 2006 (UK = 100)	GVA per hour worked[2] 2011 (UK = 100)	Workplace based GVA[60], NUTS3 at current basic prices 2012 (£million)***
-	-	UK	£1,360,925 million		1,383,082
Berkeley	England	Gloucestershire	101.3	94.3	12,685
Bradwell		Essex CC	102.4	99.1	25,563
Dungeness A		Kent CC	97.0	96.7	26,509
Hinkley Point A		Somerset	86.7	85.6	8,727
Oldbury		Gloucestershire	101.3	94.3	12,685
Sellafield		West Cumbria	81.1	81.5	3,931
LLW Repository					
Harwell		Oxfordshire	99.9	103.2	16,450
Winfrith		Dorset CC	88.7	85.0	6,524
Capenhurst		Cheshire West and Chester	105.4	105.3	7,419
Springfields		Lancashire CC	86.4	83.2	19,761
Sizewell		Suffolk	93.4	91.7	13,021
Chapelcross	Scotland	Dumfries & Galloway	80.7	81.9	2,074
Dounreay		Caithness & Sutherland and Ross & Cromarty	72.0	75.2	1,146
Hunterston		East Ayrshire and North Ayrshire mainland	92.7	91.4	1,146
Trawsfynydd	Wales	Gwynedd	74.6	68.0	1,876
Wylfa		Isle of Anglesey / Ynys Môn	77.8	87.6	726

*Nomenclature of Territorial Units for Statistics (NUTS) – 3 at small regional level
**Gross Value Added is a measure in economics of the value of goods and services produced in an area, industry or sector of an economy.
*** Components may not sum to totals as a result of rounding.

57 Source: Office for National Statistics (2013)
58 5-year moving averages. Data for the UK, countries and regions are available in the Labour Productivity table. Note that the above data are smoothed and are therefore not comparable with the data in the Labour Productivity table.
59 The annual hours figure used is an average of the four quarters and includes employees, self-employed and Government-supported trainees.
60 Estimates of workplace based GVA allocate income to the region in which the economic activity takes place.

ix) General Health of the Community[61] [62]

Site	Country	Local/Unitary Authority	All Usual Residents	Very Good Health	Good Health	Fair Health	Bad Health	Very Bad Health
-	-	UK	63,182,315	47.2%	34.2%	13.1%	4.2%	1.2%
Berkeley	England[1]	Stroud	112,779	47.7%	35.2%	12.8%	3.4%	0.9%
Bradwell		Maldon	61629	46.2%	35.6%	13.4%	3.7%	1.1%
Dungeness A		Shepway	107969	42.2%	36.1%	15.2%	4.9%	1.5%
Hinkley Point A		West Somerset	34675	40.6%	36.4%	16.6%	5.1%	1.4%
Oldbury		South Gloucestershire	262767	49.1%	34.9%	11.8%	3.3%	0.9%
Sellafield		Copeland	70603	44.4%	33.9%	14.9%	5.3%	1.5%
LLW Repository								
Harwell		Vale of White Horse	120988	51.9%	34.0%	10.8%	2.6%	0.7%
Winfrith		Purbeck	44973	45.0%	35.9%	14.1%	4.0%	1.0%
Capenhurst		Cheshire West and Chester	329608	48.5%	33.0%	12.9%	4.3%	1.2%
Springfields		Fylde	75757	44.6%	33.8%	15.3%	4.9%	1.4%
Sizewell		Suffolk Coastal	124298	46.3%	35.5%	13.8%	3.6%	0.8%
Chapelcross	Scotland[2]	Dumfries & Galloway	151324	49.1%	31.4%	13.8%	4.3%	1.3%
Dounreay		Highland	232132	54.1%	29.9%	11.6%	3.4%	1.0%
Hunterston		North Ayrshire	138146	48.9%	30.4%	13.9%	5.2%	1.6%
Trawsfynydd	Wales[1]	Gwynedd	121874	50.4%	30.7%	13.6%	4.1%	0.0%
Wylfa		Isle of Anglesey	69751	48.0%	30.6%	15.1%	4.9%	1.4%

[61] Office for National Statistics (2011)
[62] Scotland's Census (2011)

x) Incidence of Cancer[63] [64] [65]

Site	Country	Local/Unitary Authority	Per 100,000 people
-	-	England	398.1
		Scotland	645.6*
		Wales	421.4
		UK	N/A
Berkeley	England	Stroud	381.6
Bradwell		Maldon	381.7
Dungeness A		Shepway	388
Hinkley Point A		West Somerset	398.5
Oldbury		South Gloucestershire	393.6
Sellafield		Copeland	387.8
LLW Repository			
Harwell		Vale of White Horse	425.2
Winfrith		Purbeck	411.5
Capenhurst		Cheshire West and Chester	427.2
Springfields		Fylde	425.7
Sizewell		Suffolk Coastal	391.1
Chapelcross	Scotland	Dumfries & Galloway	599.3*
Dounreay		Highland	609.1*
Hunterston		North Ayrshire	638.4*
Trawsfynydd	Wales	Gwynedd	425.2
Wylfa		Isle of Anglesey	437.1
*Scotland source not comparable. Weighting of calculation refers to updated 2013 methods. Rest of UK countries continue to use 1976 weighting at the time of this report.			

63 NCIN Cancer E-Atlas (2010)
64 ISD Scotland (2013)
65 Welsh Cancer Intelligence and Surveillance Unit (WCISU) (2012)

xi) Mental Health[66] [67] [68]

Site	Country	Local/Unitary Authority	Adults Accessing NHS Mental Health Services	Population with mental health condition	Any mental illness of 16 years and over	Total population	% of population
-	-	England	1,259,650	-	-	53,012,456	2.4%
-	-	Scotland	-	232,998	-	5,295,403	4.4%
-	-	Wales	-	-	275,711	3,063,456	9%
Berkeley	England	Stroud	2996	-	-	112,779	2.7%
Bradwell		Maldon	1361	-	-	61,629	2.2%
Dungeness A		Shepway	2571	-	-	107,969	2.4%
Hinkley Point A		West Somerset	905	-	-	34,675	2.6%
Oldbury		South Gloucestershire	3574	-	-	262,767	1.4%
Sellafield		Copeland	1422	-	-	70,603	2.0%
LLW Repository							
Harwell		Vale of White Horse	1835	-	-	120,988	1.5%
Winfrith		Purbeck	785	-	-	44,973	1.7%
Capenhurst		Cheshire West and Chester	4961	-	-	329,608	1.5%
Springfields		Fylde	2420	-	-	75,757	3.2%
Sizewell		Suffolk Coastal	1266	-	-	124,298	1.0%
Chapelcross	Scotland	Dumfries & Galloway	-	5599	-	151,324	3.7%
Dounreay		Highland	-	8357	-	232,131	3.6%
Hunterston		North Ayrshire	-	6631	-	138,146	4.8%
Trawsfynydd	Wales	Gwynedd	-	-	8531	121,874	7.0%
Wylfa		Isle of Anglesey	-	-	4883	69,751	7.0%

66 ONS Neighbourhood Statistics 2011
67 Scotland's Census 2011
68 National Assembly for Wales 2008: Any mental illness of 16 years and over.

xii) Life Expectancy at Birth (2010-2012)[69]

Site	Country	Local/Unitary Authority	Males	Females
-	-	UK	78.85	82.72
Berkeley	England	Stroud	79.1	83.2
Bradwell		Maldon	78.9	83.4
Dungeness A		Shepway	78.6	83.2
Hinkley Point A		West Somerset	79.8	84
Oldbury		South Gloucestershire	80.4	83.5
Sellafield		Copeland	77.6	80.4
LLW Repository				
Harwell		Vale of White Horse	81	85.2
Winfrith		Purbeck	80.8	84.3
Capenhurst		Cheshire West and Chester	78.8	82
Springfields		Fylde	78.9	82.5
Sizewell		Suffolk Coastal	80.6	83.8
Chapelcross	Scotland	Dumfries & Galloway	77.5	81.9
Dounreay		Highland	77.2	81.9
Hunterston		North Ayrshire	76	80.7
Trawsfynydd	Wales	Gwynedd	77.3	82
Wylfa		Isle of Anglesey	76.7	81.9

[69] Office for National Statistics (2011): Life expectancy at birth (years) UK 2010-2012 with 95% confidence intervals. Figures have been revised in light of the 2011 Census population.

xiii) Long-Term Health Problem or Disability[70]

Site	Country	Area	All categories	Day-to-day activities limited a lot	Day-to-day activities limited a little	Day-to-day activities not limited
-	-	England and Wales	56,075,912	8.5%	9.4%	82.1%
Berkeley	England	Stroud	112,779	7.2%	9.6%	83.3%
Bradwell		Maldon	61,629	7.6%	9.8%	82.6%
Dungeness A		Shepway	107,969	10.0%	11.1%	79.0%
Hinkley Point A		West Somerset	34,675	10.6%	13.2%	76.2%
Oldbury		South Gloucestershire	262,767	6.8%	8.8%	84.4%
Sellafield		Copeland	70,603	10.7%	10.7%	78.7%
LLW Repository						
Harwell		Vale of White Horse	120,988	5.8%	8.4%	85.8%
Winfrith		Purbeck	44,973	8.2%	11.2%	80.5%
Capenhurst		Cheshire West and Chester	329,608	8.8%	9.7%	81.5%
Springfields		Fylde	75,757	10.4%	11.5%	78.1%
Sizewell		Suffolk Coastal	124,298	7.9%	10.6%	81.5%
Chapelcross	Scotland	Dumfries & Galloway	N/A	N/A	N/A	N/A
Dounreay		Highland	N/A	N/A	N/A	N/A
Hunterston		North Ayrshire	N/A	N/A	N/A	N/A
Trawsfynydd	Wales	Gwynedd	121,874	9.7%	10.8%	79.5%
Wylfa		Isle of Anglesey	69,751	11.4%	11.7%	76.9%

[70] Office for National Statistics (2011)

xiv) Deaths from Chronic Heart Disease (CHD)[71]

			Males		Females	
Site	**Country**	**Local/Unitary Authority**	**Number of deaths 2008-2010**	**Age-standardised death rate/ 100,000**	**Number of deaths 2008-2010**	**Age-standardised death rate/ 100,000**
-	-	UK	143,026	114.3	107,783	53.1
Berkeley	England	Stroud	259	106.3	230	49.5
Bradwell		Maldon	125	66.5	91	38.7
Dungeness A		Shepway	328	116.3	224	49
Hinkley Point A		West Somerset	102	42.6	95	37.6
Oldbury		South Gloucestershire	487	92.6	356	43.4
Sellafield		Copeland	179	119.6	139	60.7
LLW Repository						
Harwell		Vale of White Horse	232	91.2	176	39.1
Winfrith		Purbeck	118	59.8	78	35.5
Capenhurst		Cheshire West and Chester	751	103.6	611	51.5
Springfields		Fylde	206	96.6	184	44.9
Sizewell		Suffolk Coastal	358	112.2	301	49.4
Chapelcross	Scotland	Dumfries & Galloway	526	141	371	69.6
Dounreay		Highland	589	150	450	48.2
Hunterston		North Ayrshire	408	110.5	337	88.6
Trawsfynydd	Wales	Gwynedd	354	113.7	279	64.7
Wylfa		Isle of Anglesey	208	81.9	148	33.7

[71] British Heart Foundation (2012), Coronary heart disease statistics – All ages

xv) Radiation - approximate variation of exposure to natural background radiation by region[72]

Site	Country	Local/Unitary Authority	Cosmic radiation at ground level (mSv)	Terrestrial gamma radiation (mSv)	Internal sources (mSv)	Radon & Thoron (mSv)
-	-	UK	0.3	0.35	0.27	2.2
Berkeley	England	Gloucestershire	0.3	0.25	0.27	2
Bradwell		Essex	0.3	0.25	0.27	1.1
Dungeness A		Kent	0.3	0.25	0.27	1.65
Hinkley Point A		Somerset	0.3	0.25	0.27	3.25
Oldbury		Gloucestershire	0.3	0.25	0.27	2
Sellafield		Cumbria	0.3	0.25	0.27	1.25
LLW Repository						
Harwell		Oxfordshire	0.3		0.27	2
Winfrith		Dorset	0.3	0.15	0.27	1.1
Capenhurst		Cheshire	0.3	0.3	0.27	1
Springfields		Lancashire	0.3	0.3	0.27	1
Sizewell		Suffolk	0.3	0.25	0.27	1.25
Chapelcross	Scotland	Dumfries & Galloway	0.3	0.3	0.27	2
Dounreay		Highland	0.3	0.4	0.27	1.75
Hunterston		North Ayrshire	0.3	0.3	0.27	0.8
Trawsfynydd	Wales	Gwynedd	0.3	0.2	0.27	2
Wylfa			0.3	0.2	0.27	2

[72] Estimates from graphic data sourced from Watson et al (2005), Ionising Radiation exposure of the UK Population: 2005 review, Health Protection Agency.

xvi) Transport - method of travel to work[73] (%)

Site	Country	Local/ Unitary Authority	Total	Work mainly at home	Underground, metro, light rail, or tram	Train	Bus, minibus or coach	Taxi	Passenger in a car or van	Driving a car or van	Passenger in a car or van	Bicycle	On foot	Other	Not in employment
-	-	England and Wales	41,126,000	3.5	2.5	3.3	4.7	0.3	**0.5**	37.1	3.3	1.9	6.9	0.4	35.5
Berkeley	England	Stroud	81,955	6.0	0.1	1.0	1.5	0.1	0.6	48.9	3.6	1.5	6.3	0.4	30.0
Bradwell		Maldon	45,406	4.9	0.1	5.2	1.0	0.2	0.4	44.9	2.9	1.2	5.4	0.4	33.3
Dungeness A		Shepway	77,938	3.5	0.1	2.4	3.0	0.3	0.5	39.0	3.4	1.1	8.0	0.5	38.1
Hinkley Point A		West Somerset	24,918	7.9	0.1	0.3	1.3	0.2	0.4	33.8	2.7	1.7	12.6	0.6	38.4
Oldbury		South Gloucestershire	192,468	3.4	0.1	0.9	3.5	0.1	1.0	49.5	3.6	2.8	5.8	0.3	29.1
Sellafield		Copeland	52,702	2.5	0.0	1.0	3.0	0.3	0.5	41.2	6.0	1.1	6.5	0.4	37.6
LLW Repository															
Harwell		Vale of White Horse	87,477	5.1	0.1	1.7	4.2	0.1	0.7	45.5	3.0	4.6	6.8	0.4	27.8
Winfrith		Purbeck	32,379	5.2	0.1	1.3	1.2	0.1	0.9	42.9	3.2	2.0	8.7	0.6	33.8
Capenhurst		Cheshire West and Chester	243,155	3.9	0.1	1.3	2.3	0.4	0.4	45.0	3.7	1.8	6.6	0.4	34.1
Springfields		Fylde	54,544	3.9	0.1	0.8	2.5	0.3	0.4	43.1	3.2	1.8	6.8	0.4	36.7
Sizewell		Suffolk Coastal	88,250	5.3	0.1	1.4	1.6	0.2	0.7	44.1	2.8	3.1	6.3	0.4	34.0
Chapelcross	Scotland	Dumfries & Galloway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dounreay		Highland	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hunterston		North Ayrshire	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Trawsfynydd	Wales	Gwynedd	88,913	5.1	0.0	0.4	2.7	0.1	0.3	38.2	3.6	0.8	8.8	0.5	39.3
Wylfa		Isle of Anglesey	50,818	4.1	0.0	0.4	1.6	0.2	0.4	42.2	3.7	0.9	5.7	0.6	40.1

[73] Source: Office for National Statistics (2011) – usual residents aged 16 to 74

xvii) Housing - accommodation type by household spaces[74]

			Unshared dwelling						Shared dwelling
Site	Country	Local/Unitary Authority	All Accommodation	House or bungalow: Detached	House or bungalow: Semi-detached	Terraced house / bungalow	Flat, maisonette or apartment	Other	All types
-	-	England and Wales	23,366,044	22.7%	31.3%	24.6%	20.7%	0.4%	0.3%
Berkeley	England	Stroud	49,983	36.5%	32.5%	19.0%	8.5%	3.4%	0.1%
Bradwell		Maldon	27,212	44.3%	29.4%	15.7%	7.0%	3.6%	0.0%
Dungeness A		Shepway	49,873	27.0%	24.1%	22.1%	15.5%	10.6%	0.8%
Hinkley Point A		West Somerset	17,594	36.1%	29.4%	18.3%	8.5%	7.5%	0.2%
Oldbury		South Gloucestershire	110,024	26.4%	34.1%	27.4%	9.3%	2.8%	0.1%
Sellafield		Copeland	32,450	23.3%	37.5%	31.0%	5.4%	2.7%	0.1%
LLW Repository									
Harwell		Vale of White Horse	51,036	36.4%	30.3%	18.8%	10.8%	3.6%	0.0%
Winfrith		Purbeck	22,140	38.2%	24.2%	18.7%	12.0%	7.0%	0.1%
Capenhurst		Cheshire West and Chester	147,746	29.6%	35.8%	21.7%	9.9%	2.8%	0.2%
Springfields		Fylde	37,435	26.2%	31.6%	17.4%	15.2%	9.3%	0.3%
Sizewell		Suffolk Coastal	58,385	43.5%	29.1%	16.9%	6.9%	3.4%	0.1%
Chapelcross	Scotland	Dumfries & Galloway	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dounreay		Highland	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hunterston		North Ayrshire	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Trawsfynydd	Wales	Gwynedd	61,075	34.9%	22.9%	31.0%	6.2%	4.8%	0.2%
Wylfa		Isle of Anglesey	34,183	47.9%	21.3%	22.3%	4.9%	3.6%	0.1%

[74] Source: Office for National Statistics (2011)

xviii) Indices of Multiple Deprivation (IMD)[75] [76]

The Indices of Multiple Deprivation are calculated by ranking areas on the basis of seven indicators (domains). In the table below, the percentage of most deprived areas in which local / unitary authorities fall is provided. Stroud for example, is considered overall to be within the top 60% most deprived areas in England. There is no data for Wales.

Site	Country	Local/Unitary Authority	Percentage of most deprived areas (overall)	Most Deprived Domains
-	-	England and Wales	80%	Barriers to Housing and services (10%) and living environment (50%)
Berkeley	England	Stroud	60%	Barriers to Housing and services (10%) and Education, Skills and Training (40%)
Bradwell		Maldon	30%	Income (30%), employment (30%), Health and disability (30%), Education, skills and training (30%), Barriers to housing and services (10%)
Dungeness A		Shepway	40%	Barriers to housing and services (10%), Living environment (20%) Education, skills and training (50%),
Hinkley Point A		West Somerset	80%	Barriers to housing and services (10%), Living Environment (40%)
Oldbury		South Gloucestershire	80%	Barriers to housing and services (20%)
Sellafield		Copeland	60%	Barriers to housing and services (10%), Living environment (40%)
LLW Repository				
Harwell		Vale of White Horse	90%	Barriers to housing and services (10%), Living environment (40%)
Winfrith		Purbeck	60%	Barriers to housing and services (10%), Living environment (20%)
Capenhurst		Cheshire West and Chester	80%	Barriers to housing and services (20%), Living environment (60%)
Springfields		Fylde	70%	Barriers to housing and services (20%)
Sizewell		Suffolk Coastal	50%	Education, skills and training (20%), Income (40%), living environment (50%)
Chapelcross	Scotland	Dumfries & Galloway	N/A	N/A
Dounreay		Highland	40-60%	N/A
Hunterston		North Ayrshire	20-40%	N/A

[75] Open Data Communities. Department for Communities and Local Government (2014)
[76] Scottish Index of Multiple Deprivation (2012)

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Policy and Legislative Context Review

1.0 Introduction

1.1 Purpose of the review

This document presents a review of international, national and local legislation, plans, policies and strategies relevant to the decommissioning of sites in the NDA's estate. Since there are no NDA sites in Northern Ireland, the scope of the review at the national level has focused on England, Scotland and Wales. However, the key messages drawn from this review (particularly at the international level) are broadly reflective of environmental policy direction of the entire UK, including Northern Ireland.

The purpose of this review is, as relevant to the objectives of legislation and policy, to inform the scope of the Integrated Impact Assessment (IIA) (incorporating Strategic Environmental Assessment – SEA) by identifying:

- environmental matters which must be considered for possible relevance to the Strategy in accordance with legislation and international / national policy;
- environmental matters which should be considered for possible relevance to the Strategy in accordance with other plans, strategies and policy;
- development and environmental objectives which are relevant to the Strategy, such that the IIA seeks to avoid hindering the achievement of those objectives, and to maximise contribution towards achievement;
- sources of baseline information, including:
  - information developed in support of plans and strategies (e.g. landscape characterisation or water resource management / resource availability assessments), and
  - Proposed levels of development, schemes, interventions and other actions which may alter the future baseline.

Sources of baseline information identified are reflected in the IIA Baseline Report.

1.2 Review structure

Chapters 2 and 3 of this review set out the key objectives and targets of relevant legislation, plans, policies and strategies and provide analysis in the context of the NDA Strategy.

Understanding of this context will be used to inform the IIA of the NDA's Strategy. This will help to ensure that the IIA is compliant with requirements of legislation, and that national and local policy objectives can be taken into account during the assessment process, with particular relevance to the scope of the IIA agreed with statutory stakeholders.

A reference list of the legislation, plans, policies and strategies covered in the review is given in Chapter 4.

2.0 Relevant legislation and policy

This chapter outlines legislation, policies, plans and strategies relevant to the environmental, health and socio-economic issues that apply to the NDA's sites. This legislative and policy context will be used to inform the Integrated Impact Assessment (IIA) of the NDA Strategy.

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
2.1 The NDA Strategy	
The Energy Act (2004) requires the NDA to develop and publish a strategy which must be reviewed at least every five years. Specifically it commits the NDA to: • include the NDA's strategy for decommissioning and cleaning up the UK's civil nuclear legacy; • set out the priorities the NDA has adopted to discharge its responsibilities; • set out how it proposes to promote effective competition for contracts; • set out its proposals for ensuring the adoption of what it considers to be good practice; • outline how it proposes to support activities which benefit the social or economic life of communities living near its sites or that produce other environmental benefits; and • give an explanation of how and why it arrived at the decisions and proposals which are set out in the strategy.	54
2.2 Radioactive emissions and discharges	
UK radioactive substances regulation and policy is influenced by a number of international agreements and is underpinned by the *1957 Euratom Treaty* and subsequent European Union (EU) Directives. EU Member States are responsible for putting in place national policies which: • Keep the generation of radioactive waste to the minimum practicable; • Ensure the interdependence of the different steps in spent fuel and radioactive waste generation and management; • Safely manage spent fuel and radioactive waste, including in the long-term; • Implement appropriate measures following a graded approach; and • Govern all stages of the management of spent fuel and radioactive waste. Member States are required to dispose of waste within their own territory unless they have agreements with other Member States for the use of their disposal facilities.	14, 44, 45

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
The UK government's vision for nuclear energy is to have a nuclear sector that: • Has safety and security as its highest priorities; • Continues to contribute to a low carbon and secure energy future, with nuclear energy competing successfully with other low carbon technologies; • Leads the way in successfully decommissioning redundant nuclear facilities; • Contributes to employment and prosperity in the UK; and • Continues to command public confidence, by operating safely, securely, sustainably and transparently.	117
The government considers that the unnecessary introduction of radioactivity into the environment is undesirable, even at levels where the doses to both human and non-human species are low and, on the basis of current knowledge, unlikely to cause harm. Activities involving ionising radiation are subject to the following controls: • Justification of practices by the government to ensure that the environmental, social and economic benefits they provide to society exceed the potential detriment resulting from them; • Optimisation of protection on the basis that radiological doses and risks to workers and members of the public from a source of exposure should be kept as low as reasonably achievable (ALARA), taking into account social and economic factors; and • Application of limits and conditions to control discharges from justified activities to ensure that individuals (workers and members of the public) and sensitive environmental receptors are not exposed to unacceptable radiation risks from these practices.	118, 119
The *UK Strategy for Radioactive Discharges* is based on the principles of sustainable development and the use of Best Available Techniques (BAT) in England and Wales, and Best Practicable Means (BPM) and Best Practicable Environmental Option (BPEO) in Scotland, to prevent and, where that is not practicable, minimise waste generation and discharges to the environment.	118
The UK government's policy for the long-term, safe and secure management of Higher Activity Radioactive Waste (HAW) (which includes some Low Level Waste (LLW) that is not suitable for near surface disposal in current facilities) is to place it deep underground in a geological disposal facility (GDF), sited and developed in partnership with a willing UK community. The two key requirements in the disposal programme are a willing host community and suitable geology. The Welsh Government has adopted the UK's policy for geological disposal. In Scotland, the preference is for long-term management of HAW in near-surface facilities. These facilities should also be as near to the waste generating sites as possible.	120, 121, 122, 123, 124, 130, 160

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
2.3 Air quality	
Action to manage and improve air quality is largely driven by European legislation. The *Ambient Air Quality Directive (2008/50/EC)* sets legally binding limits for concentrations in outdoor air of major air pollutants that impact public health, such as particulate matter and nitrogen dioxide (N_2O). The directive became law in the UK through the *Air Quality Standards Regulations 2010*, and equivalent regulations in Scotland and Wales.	1, 22, 55, 56, 57,
Separate legislation exists for emissions of air pollutants, with the main legislation being the *UNECE Gothenburg Protocol* which sets national emission limits (ceilings) for sulphur dioxide (SO_2), oxides of nitrogen (NO_x), ammonia and volatile organic compounds (VOCs). Similar ceilings have also been set in European law under the *National Emission Ceilings Directive (2001/81/EC)*, which was subsequently transposed into UK law as the *National Emission Ceilings Regulations 2002*.	1, 23, 58
The *Air Quality Strategy for England, Scotland, Wales and Northern Ireland* sets out air quality objectives and policy options to improve air quality in the UK. As well as direct benefits to public health, these options are intended to provide important benefits to quality of life and help to protect the environment. *Part IV of the Environment Act 1995* requires local authorities in the UK to review air quality in their area and designate Air Quality Management Areas (AQMAs) if targeted improvements are necessary.	59, 60, 61, 63, 77, 144
2.4 Climate change and energy	
Under the *Kyoto Protocol (1997)* many of the world's developed countries agreed to reduce collective emissions of greenhouse gases (GHG) by 5.2% from 1990 levels by 2012. The Doha amendment adds a second commitment period, in which parties must reduce emissions by at least 18% below 1990 levels between 2013 and 2020.	15
Other international objectives include: • eliminating or reducing the release of Persistent Organic Pollutants (POPs) into the environment; • setting ceilings for emissions of ammonia, oxides of nitrogen, sulphur dioxide and volatile organic compounds for EU member states; and • setting a target of 6% reduction in the lifecycle of GHG emissions from fuels by 2020.	2, 16, 23, 25, 26

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
The EU is committed to providing 20% of energy from renewable sources by 2020 and a mandatory 10% minimum target should be achieved by all Member States for the share of biofuels in transport petrol and diesel consumption. The UK is legally committed to meeting 15% of the UK's energy demand by renewable sources by 2020 (this can be further broken down into 30% electricity; 12% heat; and 10% transport fuels). The Scottish government has set a target to source 30% of energy demand from renewables by 2020 including 100% electricity, 11% heat and 10% transport. Increasing the amount of energy produced from low-carbon technologies such as renewable and nuclear will help the UK to: • secure domestic energy supply; • reduce GHG emissions to slow down climate change; and • stimulate investment in new jobs and businesses.	15, 24, 61, 62, 63, 64, 65, 66, 77
The *Climate Change Act (2008)* and *Climate Change (Scotland) Act (2009)* outline the UK's legally binding climate change target. The latest UK policy aims to reduce the UK's GHG emissions by at least 80% (from the 1990 baseline) by 2050 through moving to a more energy efficient, low-carbon economy. This will help the UK become less reliant on imported fossil fuels. In 2009, Scotland committed to a 42% reduction in emissions by 2020 and annual reductions between 2010 and 2050. In Wales, the Welsh government aims to cut GHG emissions by 3% per year in areas of devolved competence.	61, 65, 67, 68, 69, 70, 71
2.5 Biodiversity, flora and fauna	
The EU has agreed to an ambitious conservation plan to protect global biodiversity. The EU vision for biodiversity centres upon protecting biodiversity and the ecosystem services it provides, valuing them appropriately and restoring biodiversity's intrinsic value for human well-being and economic prosperity. The European Commission adopted a new *EU Biodiversity Strategy* in 2011 to help meet this goal. The strategy provides a framework for action over the next decade and covers the following key areas: 1. ensuring the sustainability of agriculture, forestry and fisheries; 2. combating invasive alien species; and 3. addressing the global biodiversity crisis.	3, 4, 5, 6, 7, 8, 9, 27, 28, 29, 30, 31

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services provides a comprehensive picture of how England is implementing the international and EU commitments. The mission for this strategy over the next decade is: "to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people." The Scottish biodiversity strategy; *The 2020 Challenge for Scotland's Biodiversity: It's in your Hands* sets out how Scotland is implementing international and EU commitments. It envisages that by 2030 Scotland will be recognised as a world leader in biodiversity conservation. One of the key challenges set out in the Environment Strategy for Wales is the identification of pressures on biodiversity and halting its decline. Individual national strategies for biodiversity and the environment in England, Scotland, Wales and Northern Ireland underpin the new *UK Post-2010 Biodiversity Framework*. The strategies set out priorities, measures and indicators that reflect the countries' different responsibilities, needs and views. Consistent themes across the strategies include: • halting the loss of biodiversity and continuing to reverse previous losses; • increasing awareness, understanding and enjoyment of biodiversity, and engaging more people in conservation and enhancement; and • restoring and enhancing biodiversity in urban, rural and marine environments through better planning, design and management.	72, 73, 74, 75, 76, 77, 78, 79
A number of designated nature sites are provided protection at an international level, including: • Ramsar Sites – wetlands of international importance. • Special Protection Areas (SPAs) – a network of sites protected for rare and vulnerable birds as well as regularly occurring migratory species. • Special Areas of Conservation (SACs) – high quality conservation sites. In addition to these habitats, a number of species are also protected by international legislation. In the UK, Sites of Special Scientific Interest (SSSIs) designations protecting a range of habitats for fauna and flora.	4, 10, 27, 28, 29, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
2.6 Landscape and visual impacts	
Public authorities are encouraged to adopt policies and measures at appropriate levels to protect, manage and plan landscapes throughout Europe under *the European Landscape Convention*.	32
In England and Wales, nationally important landscapes are protected by the *National Parks and Access to the Countryside Act 1949*. This Act sets out to conserve and enhance certain areas for their natural beauty, with areas designated either as National Parks or Areas of Outstanding Natural Beauty (AONBs). In England, the *National Planning Policy Framework* states that the planning system should contribute to and enhance the natural environment by protecting and enhancing valued landscapes. In Scotland, National Parks are designated under *the National Parks (Scotland) Act 2000* with the aim of conserving and enhancing the natural and cultural heritage of the area. The character and appearance of National Scenic Areas are also safeguarded under the *Planning (Scotland) Act 2006*. *Scotland's Landscape Policy Framework* also seeks to safeguard and enhance the distinct identity, the diverse character and the special qualities of Scotland's landscapes as a whole, so as to ensure tomorrow's landscapes contribute positively to the human environment and are at least as attractive and valued as they are today.	77, 79, 91, 92, 93, 94
2.7 Cultural heritage	
At the international level, protection is provided for cultural and natural heritage of outstanding interest by the *European Convention on the Protection of Archaeological Heritage* and the *Convention Concerning the Protection of the World Cultural and Natural Heritage.*	3, 33
In the UK, the historic environment should be protected and sustained and provision made for investigation, preservation and recording of matters of archaeological or historic value. This is reflected in the policies of England, Scotland, and Wales. In England, the *National Heritage Protection Plan (2013)* sets out the approach for considering the historic environment in Strategic Environmental Assessment (SEA) and Sustainability Appraisal (SA) at each stage of the assessment process.	77, 79, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
2.8 Water resources and quality	
The *OSPAR Convention* aims to prevent pollution of the marine environment by discharges from land based activities and the *OSPAR Radioactive Substances Strategy* specifically sets the objective of preventing pollution of the maritime area from ionising radiation through the reduction of discharges, emissions and losses of radioactive substances. The ultimate aim is to reduce concentrations in the environment to near background values for naturally occurring radioactive substances and close to zero for other radioactive substances. Targets include that by 2020 OSPAR will ensure that discharges, emissions and losses of radioactive substances are reduced to levels where the additional concentrations in the marine environment above historic levels, resulting from such discharges, emissions and losses are close to zero.	12, 13, 8
The *EC (1996) Directive on Pollution Prevention and Control (96/61/EC)* stipulates that there is a need for planning authorities to contribute to a high quality of life for citizens by providing an environment where levels of pollution do not give rise to harmful effects on human health and the environment.	34, 36, 41, 63, 108, 109, 110
The European *Water Framework Directive (WFD) (2000/60/EC)* applies to all surface freshwater bodies (including lakes, streams and rivers), ground waters and associated ecosystems, estuaries and coastal waters out to one mile from low-water. The WFD aims to: • prevent further deterioration and protect and enhance the status of aquatic ecosystems; • promote sustainable water use based on a long-term projection of available water resources; and • enhance protection and improve the aquatic environment through specific measures for the progressive reduction of discharges, emissions and losses of priority substances. Member States must monitor, protect, enhance and restore all surface and ground water bodies and aim to achieve 'good' ecological and chemical water status by 22 December 2015. The WFD is translated into UK legislation through the *Groundwater Daughter Directive*. The WFD's approach to water management is consistently reflected in UK-wide and regional strategies and plans.	37, 39, 109

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
2.9 Coastal change and flood risk	
All EU Member States are required to assess the risk of flooding from water courses and around coast lines, to map flood extent, assets and humans at risk from flooding in these areas, and to take measures to reduce flood risk.	38
In England and Wales, *The Flood & Water Management Act 2010* aims to provide better, more sustainable management of flood risk for people, homes and businesses, help safeguard community groups from unaffordable rises in surface water drainage charges and protect water supplies to the consumer. In Scotland, the *Flood Risk Management (Scotland) Act 2009* introduced a more sustainable approach to flood risk management in order to consider all sources of flooding including river, coastal and ground waters.	111, 112, 113,
Specific policy on how to take flood risk into account in development schemes can be found in the *NPPF* (England), *TAN15* (Wales), *Scottish Planning Policy*.	77, 79, 114
In 2010/11, councils published *Shoreline Management Plans* (SMPs) covering the entire coast of England and Wales, and set the 'direction of travel' for future coastal management. Four potential policies were identified for each stretch of coast, 'hold the line', 'advance the line', 'managed retreat' and 'no active intervention'. The management policies have since been collated and included in the Environment Agency's online mapping services.	
In 2013, the UK government published the policy *Reducing the threats of flooding and coastal change* that updated the way in which flood risks would be managed and funded. This was subsequently updated in 2014 in response to widespread flooding, by the environmental management policy paper *Programme of flood and coastal erosion risk management schemes.*	
2.10 Geology and soils	
The *Environmental Liability Directive (99/31/EC)* focuses on prevention and remediation of environmental damage, including land contamination, which presents a threat to human health. The Directive is based on the polluter pays principle, where polluters are responsible for remediating damage they cause to the environment. The Directive provides specific criteria to determine when damage is significant, although damage from nuclear and maritime accidents falls outside the scope of the regime. Annex I of the Directive includes criteria for determining whether effects are significant and this can be used to inform the SEA process.	40, 41, 42, 43, 77, 79

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
Specifically relating to landfill waste, the *Landfill Directive (99/31/EC)* is also intended to reduce and prevent the adverse effects of waste on the environment, including soil. The *EC's Thematic Strategy for Soil Protection* identifies eight main threats to soil, including erosion, contamination, compaction and salinization. The Strategy advocates higher levels of protection to the soil resource than is currently in place.	
Little statutory protection exists specifically for soils in the UK, although they are indirectly protected by other legislation such as that covering the prevention of pollution and contamination, and for land use planning. In England, the Department for Environment, Food and Rural Affairs (DEFRA) aims for all England's soils to be managed sustainably and degradation threats tackled successfully by 2030. This will improve the quality of England's soils and safeguard their ability to provide essential services for future generations. The Environment Agency also seeks to protect water, air and soil from pollution by promoting good soil management.	108, 115, 116
2.11 Materials and waste	
The *EU Waste Framework Directive 2008/98/EC* requires all member states to take necessary measures to ensure waste is recovered or disposed of without endangering human health or causing harm to the environment and includes permitting, registration and inspection requirements. The directive also requires member states to take appropriate measures to encourage firstly the prevention or reduction of waste production and its harmfulness and secondly the recovery of waste by means of recycling, reuse or reclamation or any other process with a view to extracting secondary raw materials; or the use of waste as a source of energy. This system is known as the 'waste hierarchy'.	46, 48
Separate regulations exist transposing the *Waste Framework Directive (2008/98/EC)* into law in England and Wales, and Scotland, and the principle of the waste hierarchy is reflected in each nation's policies. The Welsh government's overarching waste strategy aims to reduce the impact of waste to within their environmental limits (which is defined as roughly 65% less waste than was being produced in 2010), aiming to phase out residual waste through enhanced actions on waste prevention and sustainable consumption and production and ensuring that all waste that is produced is reused or recycled by 2050.The Scottish government aims for 70% of all waste to be recycled by 2025. No specific targets are currently set for England.	40, 77, 79, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134
The waste hierarchy is at the heart of the regulation of radioactive waste. Operators are expected to reduce quantities of waste and its impact on the environment by careful planning and design and re-using or recycling the materials they use. The energy and materials within waste that cannot be reused or recycled should be recovered, for instance by generating energy.	130, 118, 131

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
2.12 Noise and vibration	
Harmful effects from noise, including annoyance, should be avoided, prevented and reduced. Each EU Member State is expected to determine exposure to environmental noise through noise mapping, ensure that information on environmental noise and its effects is made available to the public, and to adopt action plans based on noise mapping results with a view to preventing and reducing environmental noise where necessary (particularly where exposure effects could induce harmful effects on human health). Noise maps are available for England, Wales and Scotland. *The Noise Policy Statement* for England (2010) clarifies current policies and practices relating to noise management and provides guidance for practitioners.	49, 77, 79, 142
2.13 Socio-economics	
The *2002 World Summit on Sustainable Development* reaffirmed the international commitment to sustainable development. *The EU Sustainable Development Strategy (2001*) and updated *Europe 2020 Strategy (2010)* aim to identify and develop policies and actions to enable the EU to achieve a continuous long-term improvement of quality of life through the creation of sustainable communities that are able to: • manage and use resources efficiently; • tap the ecological and social innovation potential of the economy; and • ensure prosperity, environmental protection and social cohesion. In the UK, sustainable development is about positive growth; making economic, environmental and social progress for current and future generations. These sustainable development principles are reflected in UK legislation and policies across England, Wales and Scotland.	17, 50, 61, 73, 77, 135, 137, 138, 139, 140, 141
The UK government set out its plans for the economy in the policy *Achieving strong and sustainable economic growth (2013).* These included investing heavily in infrastructure development and science and technology, encouraging investment and creating a more educated workforce. In Scotland, the 2011 government *Economic Strategy* reaffirms the commitment to delivering fast sustainable economic growth by focussing on six strategic priorities: • supportive business environment; • learning, skills and well-being • effective government	138, 156, 157, 158

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
• transition to a low-carbon economy • infrastructure, development and place; and • equity. Other relevant policies include the 2005 *People and Place – Regeneration Policy Statement* and *Scottish Planning Policy*, which encourages better transport and connectivity, and sustainable social and economic development of communities. In Wales, *Economic Renewal: A new direction* sets out priorities for delivering the vision of the Welsh economy.	
2.14 Health	
The 1994 International Atomic Energy Agency (IAEA) Convention on Nuclear Safety aims to legally commit participating states operating land-based nuclear power stations to maintain a high level of safety by setting international benchmarks. The convention is an incentive instrument designed to achieve higher levels of safety. The *UK Strategy for Radioactive Discharges* states that there should be progressive reductions in human exposure to ionising radiation resulting from radioactive discharges. There are two groups of people who may be considered to be the most exposed to radiation from artificial sources; those who work with radioactivity (site workers) and members of the public who are likely to receive the highest radiation dose as a result of a given artificial radiation source (known as the critical group).	14, 18, 118, 120, 145
Health 2020 is the new European health policy framework. It aims to support action across government and society to "significantly improve the health and well-being of populations, reduce health inequalities, strengthen public health and ensure people-centred health systems that are universal, equitable, sustainable and of high quality".	53
A number of health and safety objectives for the workplace have been identified in governmental strategies for the UK. These include: • identify new approaches to reduce rates of accidents and ill health caused by work; • ensure that the approach to health and safety regulation remains relevant for the changing world of work and address new and emerging work related health issues; • use the work environment to help people maintain or improve their health; and • ensure those that fail their health and safety duties are held to account.	146, 147, 148
The Health and Social Care Act 2012 creates a duty on the Secretary of State, NHS England and Directors of Public Health (DsPH) to secure continuous improvement in the quality of services provided to individuals for or in connection with 'protection or improvement of public health'. The Act sets out the statutory responsibilities which local authorities have for public health services.	77, 149, 159

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
From 1st April 2013 local authorities have had a new duty to take such steps as they consider appropriate for improving the health of the people in their areas. The DsPH are responsible for the local authority's contribution to health protection matters, including the local authority's roles in planning for, and responding to, incidents that present a threat to the public's health. These local Health and Wellbeing Strategies are outlined in the Local Policy section of this review under the relevant site sections. The National Planning Policy Framework (NPPF) supports the role of planning to create healthy, inclusive communities by supporting local strategies to improve health, social and cultural well-being for all and by working with public health leads and health organisations. *Healthy Lives, Healthy People: Our Strategy for Public Health in England (2010)* sets out the government's long-term vision for the future of public health in England. It aims to create a "wellness" service (Public Health England) and to strengthen both national and local leadership. In Scotland, there are a number of strategies to address inequalities in health, specifically *Equally Well: Report of the Ministerial Task Force on Health Inequalities (2008)*, which was reviewed in 2010. *Our Healthy Future* is the strategic framework for Public Health in Wales. It sets the context and direction for action to protect and improve health in Wales by 2020. It is supported by *'Together for Health'*, which outlines the challenges facing the health service and the actions necessary to ensure it is capable of world-class performance.	

3.0 Site-specific local policy and development strategies

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
Site: **Berkeley** Local/ Unitary Authority: Stroud District Council The *Stroud District Local Plan: Submission Draft* sets out numerous policies to protect the environment, including noise, odour, air, light, and water pollution, as well as increased flood risk and adverse impacts on contaminated land (Policy ES3). The council also has specific policies to ensure that development will not cause unacceptable levels of pollution on water resources, quality and flood risk (Policy ES4); air quality (Policy ES5); biodiversity and geodiversity (Policy ES6); landscape character (Policy ES7); and the historic environment and assets (Policy ES10). *Stroud District Council Health & Wellbeing Plan 2013 – 2017*. The plan sets out the Council's main actions and focus, which includes improving health, reducing poverty and inequality among the district's population.	161, 162
Site: **Bradwell** Local/ Unitary Authority: Maldon District Council Maldon District Council's local development plan includes several policies to safeguard the environment. Policy D2 ensures that developments minimise adverse impacts on the environment by protecting the water environment, minimising air, land, water, odour, noise and light pollution, as well as minimising energy demand and greenhouse gas emissions. Additionally, the council requires developers to either include mitigation measures in proposals to preserve and enhance heritage assets or provide a Heritage Statement (Policy D3). The council encourages developers to improve the existing ecological conditions, deliver net biodiversity gain, and requires mitigation against any adverse impacts on the natural environment (Policy N2). Maldon District Council also has policies regarding socio-economics and human health. The council has a policy to encourage employment generating development and investment in the District (Policy E1). Additionally, the council requires any detrimental impacts and potential risks to human health from a development to be either avoided, alleviated or mitigated (Policy D2). Bradwell was identified by the UK government as potentially suitable for the deployment of a new nuclear power station before the end of 2025.	163
Site: **Chapelcross** Local/ Unitary Authority: Dumfries and Galloway Council *The Dumfries and Galloway Council Local Development Plan* has an overarching policy that environmental impacts from developments, including noise and vibration,	164, 165

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
odour and fumes, loss of daylight / sunlight, emissions and light pollution, should be assessed and mitigated appropriately. Additionally, developments should protect or enhance the historic environment, landscape, and biodiversity and geodiversity (Policy OP1). The Council's specific policies to protect habitats, landscape, species, the natural environment and cultural heritage include: • Policy NE1: National Scenic Areas; • Policy NE2: Regional Scenic Areas; • Policy NE3: Sites of International Importance for Biodiversity; • Policy NE4: Species of International Importance; • Policy NE5: Sites of National Importance for Biodiversity and Geodiversity; and • Policy HE3: Archaeology. Protection of the water environment from pollution, flood risk management and drainage are underpinned by the following policies: • Policy NE11: Supporting the Water Environment; • Policy NE12: Protection of Water Margins; • Policy IN7: Flooding and Development; • Policy IN8: Surface Water Drainage and Sustainable Drainage Systems (SuDS); and • Policy IN9: Waste Water Drainage. A key element of the plan's vision is sustainable economic growth. Policy OP1 encourages and supports the development of the local economy through sustainable economic growth. The Council has housing targets based on the Housing Need and Demand Assessment (HNDA). The Building Healthy Communities in Dumfries and Galloway Strategy (2008 – 2013) sets out the strategy for improving health and wellbeing, as well as enabling individuals to manage stress and influence their social environment in the area.	
Site: **Dounreay** Local/ Unitary Authority: The Highland Council The *Caithness and Sutherland Local Development Plan: Main Issues Report* sets outs the main issues in Caithness and Sutherland and the approaches for tackling them. The Highland Council's approach to resolving environmental issues is to appreciate, protect and enhance the natural, built and cultural heritage in Caithness and Sutherland. This includes protecting all natural environments from World Heritage Sites to Locally Valued Special Landscape Areas. The Council aims to strengthen and support communities, which includes providing access to employment and training.	166, 167

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
The Council has proposed specific economic and settlement areas for accommodating and managing future growth. The two economic areas in Caithness and Sutherland are Dounreay and Gills Harbour. *A Smart Successful Highlands and Islands: An Enterprise Strategy for the Highlands and Islands of Scotland* sets out aims for the region, including an increase in residents and in employment opportunities.	
Site: **Dungeness A** Local/ Unitary Authority: Shepway District Council The *Shepway Core Strategy: Local Plan* states that development should contribute to sustainable water resource management that maintains or improves the quality and quantity of surface and groundwater bodies, as well as the quality of the coastal environment (Policy CSD5). The council ensures that developments avoid net biodiversity loss, as well as protect and enhance the natural environment (for example of sites of international nature conservation importance, nationally designated sites, and Areas of Natural Beauty (Policy CSD4). Local strategies in the Shepway region focus on increasing local employment and business opportunities. The *Joint Health and Wellbeing Strategy* outlines Kent County Council's strategy to improve health outcomes, deliver better coordinated quality care, and improve the public's experience of integrated health and social care services.	168, 169
Site: **Harwell** Local/ Unitary Authority: Vale of White Horse Council According to the *Vale of White Horse Local Plan 2011*, development will not be permitted if there are unacceptable levels of noise, light, air, and odour pollution, as well as loss of light. The policy also states that contaminated land should be remediated before reuse, as well as requiring appropriate health and safety controls for hazardous substances (Policy DC9). Development proposals are required to include hard and soft landscaping measures to increase opportunities for wildlife conservation and to protect the visual amenities of the site and surrounding areas (Policy DC6). The council will not permit development with adverse impacts on the quality of groundwater, rivers, and surface water, or would disturb contaminated land (Policy DC12, Policy DC13). The council supports economic and employment growth through the *Local Plan 2029: Part 1 Strategic Sites and Policies*, specifically in the Science Vale UK (SVUK) area. The Council has a Spatial Strategy which makes provision for growth of around 14,300 new jobs, including 143 hectares of employment land, and at least 13,294 new homes during 2006 to 2029.	170, 171, 172

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
Site: **Hinkley Point A** Local/ Unitary Authority: West Somerset Council *The West Somerset Local Plan to 2032* contains policies to ensure that proposals mitigate against flood risk and avoid any increase in risk (Policy CC2). Proposals that negatively impact on the existing water table and water resources must incorporate suitable protection and mitigation measures into the design (Policy CC6). The council aims to safeguard the built and archaeological environment (Policy NH1), as well as minimise adverse impacts on the landscape (Policy NH2). Proposals should also protect and enhance biodiversity (Policy NH3). Impacts on air quality, noise pollution, and human health are required to be minimised and mitigated (Policy NH6). The council encourages all types of employment-generating developments in the area (Policy EC1). Additionally, proposals which will provide training and educational opportunities will be supported by the Council (Policy EC7). Proposals in close proximity to land that is known or likely to be contaminated must include mitigation measures to prevent adverse impacts on public health (Policy NH6). Hinkley Point was proposed as a potential site for a new nuclear station in the National Policy Statement for Nuclear Power Generation (now Hinkley Point 'C'). The council has a policy to mitigate any adverse cultural, economic, environmental and social impacts of proposed developments (Policy en1).	173, 174
Site: **Hunterston A** Local/ Unitary Authority: North Ayrshire Council North Ayrshire Council have numerous policies in their Local Development Plan to protect and enhance the natural environment, including Special Landscape Areas (Policy ENV 7) as well as international, national, and local designated areas (Policy ENV 9), during and post-development. The council also have a policy to protect both the environmental and recreational value of coastal zones (Policy ENV 8), policies to protect cultural heritage, including archaeological sites (Policy HE 4), cultural conservation areas (Policy HE 1), and historic landscapes (Policy HE 5). Additionally, the council has a policy to ensure proposals do not increase flood risk and that developers manage changes in the water environment and drainage to an acceptable level (Policy PI 8). North Ayrshire Council's overarching policy for employment includes a target to create 13,000 new jobs in North Ayrshire by 2020). The council has several policies on employment growth and development, as well as specific areas designated as employment land. One of these policies (Policy IND 2: Hunterston National Development), notes that development for radioactive waste storage will be restricted to materials accumulated through Hunterston A and Hunterston B Stations only.	175

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
Sites: **Low Level Waste Repository and Sellafield** Local/ Unitary Authority: Copeland Borough Council *Copeland Local Plan 2001-2016* has a suite of policies relating to nuclear development. Policy NUC 1 ensures that radioactive waste and disposal will only be permitted if the proposals adhere to the City of Carlisle structure plan policy (ST4) and local Major development policy (DEV 8), the local community support the development and measures meet the local community's requirements. Development related to the nuclear fuel cycle will only be permitted where the development contributes towards a long-term strategy for the future management of the Sellafield site (Policy NUC 2). Policies also relate to the relocation of non-radioactive development (Policy NUC 3), the LLWR (referred to as "Drigg Disposal Site") (Policy NUC 4) and transport of materials to LLWR (Policy NUC 5). Additionally, developments must be in-keeping with the existing landscape and reflect local landscape character (Policy ENV 12). The Council will not permit developments that would increase flood risk, as well as interfere or cause the loss of access to water (Policy ENV 16). Mitigation measures are required for air pollution (Policy ENV 19), noise pollution (Policy ENV 21), and light pollution (Policy ENV 22). Conservation of the built environment is protected through policies on cultural conservation areas (Policy ENV 26; Policy ENV 25), designated or potential local archaeological and historical sites of importance (Policy ENV 36; Policy ENV 37). Copeland Borough Council aims to develop a diverse and strong economy. The Council have designated 89 hectares of land specifically for employment uses; including local employment sites at Whitehaven, Cleator Moor, Egremont, and Millom (Policy EMP 1; Policy EMP 3). Investigation and remediation works will be required for developments proposed on land known to be contaminated (Policy ENV 18). Hazardous substances will not be introduced into locations which significantly increase the risk of damage to the health of nearby residents or the environment (Policy ENV 24). Sellafield has been identified by the UK government as potentially suitable for the deployment of a new nuclear power station by 2025. NuGen are proposing to locate the power station immediately north of Sellafield and it is referred to as 'Moorside'. Four key challenges have been identified by the Cumbria Health and Wellbeing Board: children and young people; mental health and wellbeing; the ageing population; and health inequalities. The *Cumbria Joint Health and Well-being Strategy* sets out priorities and targets for each of these key challenges.	176, 177

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
Site: **Springfields** Local/ Unitary Authority: Fylde Council, Lancashire County Council The *Fylde Local Plan Part 1* contains a number of policies related to environmental effects of development. Specific policies are in place to ensure that developments consider and are appropriate to landscape and biodiversity (ENV1), green spaces (ENV2-4), heritage assets (ENV5), and water efficiency (Policy CL1). Policy HW1 Health and Wellbeing aims to integrate public health principles and reduce health inequalities. The *Fylde Local Plan Part 1* contains policies relating to the maintenance of existing employment land use for sites (Policy EC2), and developer contributions to mitigate the effects of development on the community (Policy INF2). The *Lancashire Climate Change Strategy* sets out the vision for mitigating and adapting to climate change across the county. *Lancashire County Council off-site emergency plan* is designed to protect the public and environment from any radiation emergency which may have off-site consequences. This is a requirement under the radiation (emergency preparedness and public information) regulations (REPPIR) 2001. The local biodiversity action plan is *Delivering Biodiversity in Lancashire* which notes the species and habitats of local importance, including the sand dunes located within the authority of Fylde Council.	178, 179, 180
Site: **Capenhurst** Local/ Unitary Authority: Cheshire West and Cheshire The *Cheshire West and Chester Local Plan* contains policies relating to open space and green infrastructure (SOC6 and ENV3), water efficiency (ENV1), landscape (ENV2), biodiversity and geodiversity (ENV4), and the historic environment (ENV5). It also sets out policies for the encouragement of business growth and investment in the borough (ECON1). Through the health and well-being policy of the Local Plan (SOC5), development that gives rise to significant adverse impacts on health and quality of life e (e.g. soil, noise, water, air or light pollution, and land instability, etc.) including residential amenity, will not be supported. *West Cheshire Sustainable Community Strategy* is a partnership plan which sets out a vision for the borough which includes healthier lifestyles, addressing disadvantage and deprivation and encouraging a thriving economy supported by skills. *The Health and Well-being Strategy 2014-2019* sets out the strategic framework for improving health and reducing inequalities across the borough. The local biodiversity plan for Cheshire West and Chester is written by the Cheshire Regional Biodiversity Partnership and contains habitat and species action plans to assist with nature conservation in the region.	181, 182, 183

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
Site: **Wylfa** Local/ Unitary Authority: Isle of Anglesey Council The emerging *Anglesey and Gwynedd Joint Local Development Plan* contains policies related to developmental effects on the environment, namely to conserve and enhance the natural environment (PS14), protect and enhance cultural and heritage assets (PS15) and related to alleviating and adapting to the effects of climate change (PS2). There is also a policy on nuclear related development at Wylfa (PS7) including integrating the new build into the decommissioning of the existing nuclear site. The Joint Local Development Plan contains policies relating to infrastructure and developer contributions (PS5), and focussed on providing opportunities for a flourishing economy (PS8). The site at Wylfa is identified as within an energy focused Enterprise Zone. The *Anglesey Single Integrated Plan* focuses on working to create jobs, improve health and deliver a safe and sustainable place to live; supporting people and communities to improve their quality of life and maximising work opportunities with high quality education and skills.	184, 185
Site: **Winfrith** Local/ Unitary Authority: Purbeck District Council *Planning Purbeck's Future: Purbeck Local Plan Part 1 (2012)* sets out a number of policies related to environmental impacts from development, including; respect the landscape character and enhance biodiversity (Policy CO); protect, manage and enhance biodiversity (Policy BIO); groundwater protection (Policy GP); and conserve the integrity of landscape and heritage assets (Policy LHH). With regards to socio-economic impacts, the plan promotes employment through safeguarding employment land (Policy E). The *Dorset Joint Health and Well-being Strategy (2013-2016)* aims to improve the health and well-being of people in Dorset and reduce inequalities in health. Through the *Purbeck District Council Economic Development Strategy (2013-2027) the Local Authority* aims to improve the local economy and infrastructure through attracting resources and investment to the area.	186, 187, 188
Site: **Trawsfynydd** Local/ Unitary Authority: Gwynedd Council / Snowdonia National Park Authority The emerging *Anglesey and Gwynedd Joint Local Development Plan* contains policies related to developmental effects on the environment, namely to conserve and enhance the natural environment (PS14), protect and enhance cultural and heritage assets (PS15) and related to alleviating and adapting to the effects of climate change (PS2). It also contains policies relating to infrastructure and developer contributions (PS5), and focusses on providing opportunities for a flourishing economy (PS8).	184, 189, 190, 191

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
The nuclear site at Trawsfynydd has been identified as within an Information and communications technology (ICT) and low carbon energy focused Enterprise Zone. Adopted in 2011, policies within the *Local Development Plan* protect the natural environment from inappropriate development. The *Snowdonia Local Biodiversity Action Plan* includes action plans for species and habitats of local importance to contribute to the delivery of national targets. *Gwynedd Council Health, Social Care and Well-being Strategy* focuses on the link between poverty and health and welfare. It also aims to improve health services in Gwynedd, whilst promoting healthy lifestyles.	
Site: **Sizewell** Local/ Unitary Authority: Suffolk Coastal District Council Within the *Suffolk Coastal District Local Plan – Core Strategy and Development Management Policies* adopted in 2013, there are a number of development management policies which aim to restrict the environmental impacts of development. These include protecting and enhancing biodiversity and geodiversity (DM27), constructing developments in a sustainable manner (DM24) and residential amenity (DM23). The plan considers the town of Leiston, the nearest settlement to the NDA site at Sizewell, to be a priority for economic regeneration and has a strategic policy dedicated solely to it (SP24). The policy outlines opportunities for development growth and enhancement of tourism industries. The *Joint Health and Wellbeing Strategy for Suffolk (2013)* sets out the priorities for Suffolk, including improving health and narrowing health inequalities between affluent and poorer areas. The National Policy Position Statement for Nuclear Generation identifies Sizewell as potentially suitable for the deployment of a new nuclear power station before the end of 2025.	192, 193
Site: **Oldbury** Local/ Unitary Authority: South Gloucestershire Council The *South Gloucestershire Local Plan: Core Strategy* sets out a number of policies relating the environment including: green infrastructure (CS2), the natural and historic environment (CS9) and minerals (CS10). Policy CS6 states that the Council will work with developers to improve sustainability and mitigate impacts to communities. The *South Gloucestershire Biodiversity Action Plan* aims to contribute towards safeguarding and benefitting the 15 species and 7 habitats designated as important and to provide a focus for nature conservation.	194, 195, 196

Legislation / Policy / Plan / Strategy	Document reference (click to follow link or see Chapter 4)
The *South Gloucestershire Sustainable Community Strategy* was written by private, public, voluntary and community groups to identify and tackle local issues relating to the environment, the economy and health. Priorities include: • conserving and enhancing the natural and built environment; • creating a balanced economy, a well trained workforce and sustainable jobs for all; • supporting communities and improving access to services; and • promoting personal well-being and reducing inequalities. The Local Authority sets out its priorities for health in the *South Gloucestershire Joint Health and Wellbeing Strategy*. These include tackling health inequalities, and assisting people to live healthy, fulfilling lives.	

4.0 Reference list of legislation, plans, policies and strategies

4.1 International level

1. UNECE (1999) *Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone*
2. UN (1992) United Nations Framework Convention on Climate Change
3. UNESCO (1972) Convention Concerning the Protection of the World Cultural and Natural Heritage
4. UN (1979) Bonn Convention on the Conservation of Migratory Species of Wild Animals
5. UN (1992) Conference on Environment and Development (Rio Earth Summit)
6. UN (1992) Convention on Biological Diversity
7. OSPAR Commission (2003) Biodiversity and Ecosystems Strategy
8. OSPAR Commission (2003) Eutrophication Strategy
9. Convention on Biological Diversity (2010)The Strategic Plan for Biodiversity 2011–2020 and The Aichi Targets
10. UNESCO (1971) Ramsar Convention on Wetlands of International Importance
11. UNESCO (1972) Convention Concerning the Protection of the World Cultural and Natural Heritage
12. OSPAR Commission (1992) Convention for the Protection for the Marine Environment of the North East Atlantic
13. OSPAR Commission (2003) Radioactive Substances Strategy
14. IAEA (1997) Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
15. UN (1998) Kyoto Protocol to the United Framework Convention on Climate Change including DOHA amendment 2012
16. UN (2001) Stockholm Convention on Persistent Organic Pollutants (POPs)
17. United Nations (UN) (2002) World Summit on Sustainable Development, Johannesburg
18. IAEA (1994) Convention on Nuclear Safety
19. UN (1991) Espoo Convention on Environmental Impact Assessment in a Transboundary Context
20. UNECE (2003) Protocol on Strategic Environmental Assessment (Kiev Protocol)

4.2 European level

21. EC (2008) Ambient Air Quality Directive (2008/50/EC)
22. EC (1996) Air Quality Framework Directive (96/62/EC), and Daughter Directives (1999/30/EC), (2000/69/EC), (2002/69/EC), and (2004/107/EC)
23. EC (2001) National Emission Ceiling Directive (2001/81/EC)
24. EC (2009) Promotion of The Use of Energy from Renewable Sources Directive (2009/28/EC)
25. EU (2005) European Climate Change Programme (ECCP II)
26. EC (2009) Fuel Quality Directive (2009/30/EC)

27. EU (1979) Bern Convention on the Conservation of European Wildlife and Natural Habitats
28. EC (1979) Directive on the Conservation of Wild Birds (79/409/EEC)
29. EC (1992) The Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive) (92/43/EEC)
30. EC (2009) Birds Directive (2009/147/EC)
31. EU (2011) Our life insurance, our natural capital: an EU biodiversity strategy to 2020 (COM(2011) 244)
32. EU (2000) European Landscape Convention
33. EU (2001) European Convention on the Protection of Archaeological Heritage (Revised)
34. EC (1996) Directive on Pollution Prevention and Control (96/61/EC)
35. EU (2004) Environmental Liability Directive (2004/35/EC)
36. EU (2013) European Seventh Environmental Action Programme to 2020
37. EU (2000) Water Framework Directive (2000/60/EC)
38. EC (2007) Assessment and Management of Flood Risks Directive (2007/60/EC)
39. EC (2006) Groundwater Daughter Directive (2006/118/EC)
40. EC (1999) Landfill Directive (99/31/EC)
41. EU (2004) Environmental Liability Directive (2004/35/EC)
42. EC (2006) Thematic Strategy for Soil Protection
43. EU (2010) Industrial Emissions (Integrated Pollution Prevention and Control) (2010/75/EU)
44. EU (1957) European Atomic Energy Community (EURATOM treaty) – Amended by Council Directive 96/29/EURATOM (Laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation)
45. EU (2011) Radioactive Waste and Spent Fuel Management Directive (2011/70/Euratom)
46. EC (2005) Taking Sustainable Use of Resources Forwards: A Thematic Strategy on the Prevention and Recycling of Waste
47. EC (2014) Proposals for a Directive of the European Parliament and of the Council amending Directives 2008/98/EC on waste, 94/62/EC on packaging and packaging waste, 1999/31/EC on the landfill of waste, 2000/53/EC on end-of-life vehicles, 2006/66/EC on batteries and accumulators and waste batteries and accumulators, and 2012/19/EU on waste electrical and electronic equipment
48. EU (2008) Waste Framework Directive (2008/98/EC)
49. EU (2002) Environmental Noise Directive (2002/49/EC)
50. EU (2006) European Strategy for Sustainable Development (Reviewed 2009)
51. EC (2001) The Strategic Environmental Assessment (SEA) Directive (2001/42/EC)
52. EU (2011) The Environmental Impact Assessment (EIA) Directive (2011/92/EU) (as amended by Directive 2014/52/EU)
53. EU (2012) Health 2020: The European Policy for Health and Well-being

4.3 National level

54. Energy Act (2004)
55. The Air Quality Standards (Wales) Regulations 2010
56. The Air Quality Standards Regulations 2010
57. The Air Quality Standards (Scotland) Regulations 2010
58. National Emission Ceilings Regulations 2002
59. Defra (2009) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Updated from 2007)
60. Environment Act 1995
61. Defra (2005) Securing the Future – The UK Government Sustainable Development Strategy
62. Welsh Assembly Government (2005) Technical Advice Note 8: Renewable Energy
63. DECC (2011) Overarching National Policy Statement for Energy (EN1)
64. Scottish Government (2011) 2020 Routemap for Renewable Energy in Scotland
65. Welsh Government (2012) Energy Wales: A Low Carbon Transition
66. Scottish Government (2013) Route Map for Renewable Energy in Scotland
67. The Climate Change and Sustainable Energy Act 2006
68. Climate Change Act 2008
69. Welsh Assembly Government (2008) People, Places, Futures: The Wales Spatial Plan
70. Climate Change (Scotland) Act 2009
71. Welsh Government (2011) Climate Change Strategy for Wales
72. Scottish Government (2004) Scotland's Biodiversity – It's In Your Hands
73. Welsh Assembly Government (2006) Environment Strategy for Wales
74. Welsh Assembly Government (2009) Technical Advice Note 5: Nature Conservation and Planning
75. Defra (2011) Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services
76. HM Government (2011)Natural Environment White Paper – The Natural Choice: Securing The Value of Nature
77. Department for Communities and Local Government (2012) National Planning Policy Framework (NPPF)
78. Scottish Government (2013) 2020 Challenge for Scotland's Biodiversity – A Strategy for the Conservation and Enhancement of Biodiversity in Scotland
79. Scottish Government (2014) Scottish Planning Policy
80. Salmon and Freshwater Fisheries Act 1975
81. The Wildlife and Countryside Act 1981
82. The Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003
83. Nature Conservation (Scotland) Act 2004
84. Natural Environment and Rural Communities (NERC) Act 2006

85. Scottish Government (2008) Planning Advice Note 60: Planning for Natural Heritage
86. The Eels (England and Wales) Regulations 2009 (as amended)
87. Marine and Coastal Access Act 2009
88. Marine (Scotland) Act 2010
89. The Conservation of Habitat and Species Regulations 2010
90. Wildlife and Natural Environment (Scotland) Act 2011
91. National Parks and Access to the Countryside Act 1949
92. National Parks (Scotland) Act 2000
93. Scottish Natural Heritage (2005) Landscape Policy Framework
94. Planning Etc. (Scotland) Act 2006
95. The Historic Buildings and Ancient Monuments Act 1953
96. Ancient Monuments and Archaeological Areas Act 1979
97. Planning (Listed Buildings and Conservation Areas) Act 1990
98. The Planning (Listed Buildings & Conservation Areas) (Scotland) Act 1997
99. Scottish Executive (2004) Planning Advice Note 71: Conservation Area Management
100. DCMS and Welsh Assembly Government (2007) Heritage Protection for the 21st Century
101. English Heritage (2011) The Setting of Heritage Assets
102. Historic Scotland (2011) Scottish Historic Environment Policy
103. Historic Environment (Amendment) (Scotland) Act 2011
104. Scottish Government (2011) Planning Advice Note 2/2011: Planning and Archaeology
105. English Heritage (2013) The National Heritage Protection Plan (Revision 2)
106. Welsh Government and Cadw (2013) Historic Environment Strategy for Wales
107. Scottish Government (2014) Scottish Planning Policy
108. Environmental Protection Act 1990 (as amended)
109. Environment Agency (2009) Water for people and the environment – Water resources strategy for England and Wales
110. Defra (2011) Water for Life – Water White Paper
111. Flood & Water Management Act 2010
112. Environment Agency (2010) National Flood and Coastal Erosion Risk Management Strategy for England
113. Welsh Government (2011) National Strategy for Flood and Coastal Erosion Risk Management in Wales
114. Scottish Executive (2004) Planning Advice Note 69: Planning and Building Standards Advice on Flooding
115. Environment Agency (2007) Soil a precious resource: Strategy for protecting, managing and restoring soil
116. Defra (2009) Safeguarding our Soils – A Strategy for England

117. HM Government (2013) Long Term Nuclear Energy Strategy
118. DECC (2009) UK Strategy for Radioactive Discharges (Revised)
119. Defra, DECC, NDA and EA (2013) Managing the use and disposal of radioactive and nuclear substances and waste
120. Welsh Assembly Government, Scottish Executive, Defra and DoENI (2007) Policy for the Long Term Management of Solid Low-level Radioactive Waste in the United Kingdom
121. CoRWM (2013) Statement on Geological Disposal
122. HM Government (2013) Nuclear Industrial Vision Statement
123. HM Government (2013) Nuclear Industry Strategy: The UK's nuclear future
124. DECC (2014) Implementing Geological Disposal
125. Scottish Executive (2002) Planning Advice Note 63: Waste Management Planning
126. Welsh Government (2010) Towards Zero Waste: The overarching waste strategy document for Wales
127. Scottish Government (2010) Zero Waste Plan
128. Defra (2013) Waste Management Plan for England
129. DCLG (2014) National Planning Policy for Waste
130. Scottish Government (2011) Scotland's Higher-activity Radioactivity Waste Policy
131. Scottish Government et al (2014) Strategy for the Management of Naturally Occurring Radioactive Material (NORM) waste in the United Kingdom
132. The Waste (England and Wales) (Amendment) Regulations 2012
133. Waste (Scotland) Regulations 2012
134. DCLG (2014) National Planning Policy for Waste
135. Welsh Government (2009) One Wales: One Planet – The Sustainable Development Scheme for Wales
136. Conservation of Habitat and Species Regulations 2010
137. Welsh Assembly Government (2010) Technical Advice Note 6: Planning for Sustainable Rural Communities
138. Scottish Government (2011) Achieving Sustainable Future: Regeneration Strategy
139. Defra (2011) The Government Carbon Plan
140. The Sustainable Communities Regulations 2012
141. Scottish Government (2014) Scotland's Third National Planning Framework (NPF3)
142. Department for Environment, Food and Rural Affairs (2010) Noise Policy Statement for England
143. The Town and Country Planning (Scotland) Act 1997
144. Scottish Executive (2004) Air Quality and Land Use Planning
145. WAG, DoENI, The Scottish Government and DECC (2009) UK Strategy for Radioactive Discharges
146. HSE (2004) A Strategy for Workplace Health and Safety in Great Britain to 2010 and Beyond
147. HSE (2009) The Health and Safety of Great Britain: Be part of the solution
148. HSE (2004) A Strategy for Workplace Health and Safety in Great Britain to 2010 and Beyond

149. HM Government (2010) Healthy Lives, Healthy People: Our strategy for public health in England
150. The Environmental Assessment of Plans and Programmes Regulations 2004
151. The Environmental Assessment of Plans and Programmes Regulations (Scotland) 2004
152. The Environmental Assessment of Plans and Programmes Regulations (Wales) 2004
153. The Environmental Assessment (Scotland) Act 2005
154. The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011
155. Town and Country Planning (Environmental Impact Assessment Regulations) 2011
156. UK Government (2013) Achieving strong and sustainable economic growth
157. Scottish Government (2011) Economic Strategy
158. Welsh Government (2010) Economic Renewal: A new direction
159. UK Government (2012) Health and Social Care Act
160. Welsh Government (2015) Welsh Government Policy on the Management and Disposal of Higher Activity Radioactive Waste

4.4 Local level

161. Stroud District Council (2013) Stroud District Local Plan: Submission Draft
162. Stroud District Council (2013) Stroud District Council Health & Wellbeing Plan 2013 - 2017
163. Maldon District Council (2014) Pre-Submission Local Development Plan 2014-2029 [submitted to Secretary of State in 2014]
164. Dumfries and Galloway (2014) Local Development Plan
165. Dumfries and Galloway District Council (2008) Building Healthy Communities in Dumfries and Galloway Strategy 2008 – 2013
166. The Highland Council (2014) Caithness and Sutherland Local Development Plan: Main Issues Report
167. Highlands and Islands Enterprise (2005) A Smart, Successful Highlands and Islands: An Enterprise Strategy for the Highlands and Islands of Scotland
168. Shepway District Council (2013) Shepway Core Strategy: Local Plan
169. Kent County Council (2014) Joint Health and Wellbeing Strategy.
170. Vale of Horse District Council (2006) The Vale of White Horse Local Plan 2011
171. Vale of Horse District Council (2011) Assessment of Saved Local Plan polices for consistency with the National Planning Policy Framework
172. Vale of Horse District Council (2013) Local Plan 2029: Part 1 Strategic Sites and Policies
173. West Somerset Council (2013) The West Somerset Local Plan to 2032: revised draft preferred strategy
174. Somerset County Council (2013) Health and Wellbeing Strategy for Somerset 2013 – 2018
175. North Ayrshire (2014) North Ayrshire Council Local Development Plan
176. Copeland Borough Council (2006) Copeland Local Plan 2001-2016
177. Cumbria Health and Wellbeing Board (2012) Cumbria Joint Health and Wellbeing Strategy 2012 – 2015

178. Fylde Council (2013) Fylde Local Plan to 2030: Part 1 – Preferred Options
179. Lancashire County Council off-site Emergency Plan [Not in the public domain due to security protocols]
180. Lancashire County Council (2009) Lancashire Climate Change Strategy 2009-2020
181. Cheshire West and Chester Council (2013) Cheshire West and Chester Council Local Plan: Part One Strategic Policies
182. Cheshire West and Chester Council (2013) Draft Health and Well-being Strategy
183. West Cheshire Together (2010) Sustainable Community Strategy 2010-2026
184. Isle of Anglesey County Council and Gwynedd Council (2013) Draft Anglesey and Gwynedd Joint Local Development Plan [Consultation draft]
185. Local Service Board (2013) Anglesey Single Integrated Plan
186. Purbeck District Council (2012) Planning Purbeck's Future: Purbeck Local Plan Part 1
187. Dorset Health and Well-being Board (2013) Dorset Joint Health and Wellbeing Strategy (2013-2016)
188. Purbeck District Council (2013) Purbeck District Council Economic Development Strategy
189. Snowdonia National Park Authority (2011) Snowdonia National Park Local Development Plan
190. Snowdonia National Park Authority (1997) Snowdonia Local Biodiversity Action Plan
191. Gwynedd Council (2013) Health, Social Care and Wellbeing Strategy
192. Suffolk Coastal District Council (2013) Suffolk Coastal District Council Local Plan – Core Strategy and Development Management Policies
193. Suffolk Health and Well-being Board (2013) Joint Health and Wellbeing Strategy for Suffolk
194. South Gloucestershire Council (2013) South Gloucestershire Local Plan: Core Strategy
195. South Gloucestershire Council (2006) South Gloucestershire Biodiversity Action Plan
196. South Gloucestershire Joint Health and Wellbeing Strategy