Burges Salmon

Burges Salmon Glossary of Nuclear Terms

2018 edition

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Foreword

"This Glossary is a wonderful example of an initiative by a leading nuclear firm to help the industry in a great spirit of collaboration - which is part of what's so special about this industry. We need to make entry into the industry as easy and welcoming as possible at all levels and from all jurisdictions. This is ever more important as the industry expands over the coming years with increasing needs for the UK's decommissioning expertise globally and as the new build program in the UK continues to grow. This Glossary is a real help and is used daily by experienced practitioners and new entrants alike - indeed the inspiration for some of this year's new entries came from enthusiastic international supporters of the UK nuclear industry. I very much commend the Burges Salmon team and all the contributors for their efforts and enthusiasm."

Dr Tim Stone CBE, January 2018

Preface

The nuclear industry uses a unique array of jargon, terminology and acronyms, which can be bewildering and confusing to newcomers.

This Glossary of Nuclear Terms has been produced to assist those new to the UK civil nuclear industry, by explaining and de-mystifying some of the terminology that will be encountered on a daily basis. Understanding the terminology will lead to a greater understanding of the sector, its components and how it works.

The Glossary was originally produced for the 2011 Edition of the "Burges Salmon Guide to Nuclear Law", with a shortened version appearing on the NIA's dedicated supply chain website SC@nuclear (www.nuclearsupplychain.com) to assist organisations and individuals interested in joining supply chain initiatives. This year we hope it will support, for example, the latest NDA initiatives, as well as helping overseas companies looking to the opportunities in the UK.

Due to its popularity, the content has been updated and its scope broadened in this version. As with any glossary, different people will have different views on the emphasis and interpretation of terms. We are keen for readers to contribute items or re-define them to keep the Glossary refreshed, up to date and as comprehensive and useful to readers as possible.

We hope you find the Glossary a useful aid in your introduction to the nuclear industry. If you would like to suggest any changes or additions or have any enquiries on content or any issues raised then please do not hesitate to contact Gareth Davies.

Special thanks is extended to all those who contributed to the writing of this Glossary, and particularly the sector-expert peer reviewers.

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Acronym/Term	Definition
2004 Protocol	Adopted by the contracting parties to the Paris and Brussels Conventions in 2004, this Protocol revises the Conventions so that additional compensation is provided to more people and for a wider scope of nuclear damage. The 2004 Protocol shifts more of the onus for insurance on to industry and establishes new limits of liability which, notably, increase the minimum amount of a nuclear operator's liability. During 2011, DECC issued a public consultation on how the 2004 Protocol should be implemented into UK law by way of amendment to the Nuclear Installations Act 1965. Following public consultation, the Government issued its response in March 2012. The Nuclear Installations (Liability for Damage) Order 2016 was made on 4 May 2016 and will fully come into force when the 2004 Protocol is finally ratified.
AAC	Assistant Access Controller
AACP	Alternative Access Control Point
Absorbed Dose	Quantity of energy imparted by ionising radiation to unit mass of matter such as tissue. Unit Gray, symbol Gy. 1 Gy = 1 joule per kilogram.
ABWR	Advanced Boiling Water Reactor: The latest design of one of the most common types of BWR. The UK ABWR is a generation III+ reactor being developed and offered by Hitachi GE Nuclear Energy as part of the Horizon project at Wylfa. For more information see http://www.hitachi-hgne-uk-abwr.co.uk/.
AC	Access Controller
Accelerated Decommissioning Sites	In line with the commitment made in NDA's Strategy, the NDA's 2011/2012 Business Plan earmarked several Magnox sites (Trawsfynydd and Bradwell) for accelerated decommissioning. Under this plan, funds are directed at swift closure of certain plants.
Accredited Site	Site accredited to hold government protectively marked materials
ACIN	Adverse Condition Investigation
ACP	Access Control Point
ACR-1000	The Advanced CANDU Reactor® (ACR-100®) is an evolutionary, Generation III+, 1200 MWe class heavy water reactor, designed by AECL to meet industry and public expectations for safe, reliable, environmentally friendly and low-cost nuclear generation. The ACR-1000 development program has now been completed, with no reactor sales pending.
Actinides / Actinoids	A group of 15 elements with an atomic number from that of actinium (89) to lawrencium (103) inclusive. All are radioactive. Group includes uranium, plutonium, americium, and curium. Actinides are elements

	with partial occupation of the 5f electron shell. Lawrencium is strictly a transition metal (d-block element) but conventionally included in the actinide grouping. Elements heavier than uranium are collectively termed Trans-uranics.
Activation	This term refers to the process of creating a radioisotope. This is achieved when a stable element is bombarded with either neutrons or protons.
Activation Products	Activation products are materials made radioactive by neutron activation. Fission products and actinides produced by neutron absorption of nuclear fuel itself are normally referred to by their specific names, and activation products reserved for products of neutron capture by other materials, such as structural components of the nuclear reactor, the reactor coolant, control rods or materials in the environment.
Activity	1 The rate at which radioactive material disintegrates or decays per unit time. The units can be measured as either a Curie (Ci) or a Becquerel (Bq). 2 An activity involving radioactive material that requires a Licence.
Acute exposure	A short, intensive exposure (less than one day) to radiation or to toxic substances which can result in severe biological harm or death.
Additional Protocol	A further agreement between a State and the IAEA to improve the efficiency and strengthen the effectiveness of the IAEA safeguards system.
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road. ADR is implemented in UK law by the CDG Regulations.
ADS	Approved Dosimetry Service
AEC	Assistant Emergency Controller
AECC	Alternative Emergency Control Centre
AECL	AECL is Canada's premier nuclear science and technology organisation. For over 60 years, AECL has been a world leader in developing peaceful and innovative applications from nuclear technology through its expertise in physics, metallurgy, chemistry, biology and engineering. AECL is no longer the Design Authority for the CANDU reactor design (see CANDU).
AF	Assessment Finding: ONR findings placed on the Requesting Party during the GDA process.
AGR	Advanced Gas Cooled Reactor: A term used for the second generation of British Power Reactors, currently operated by EDF NGL. The fuel used in the reactor is slightly enriched uranium oxide clad in stainless steel tubes. The coolant is carbon dioxide and the moderator is graphite. The fuel is manufactured by Westinghouse at Springfields and is currently reprocessed in THORP.
AHU	Air Handling Unit
AIC / EIC	Alternative / Emergency Indication Centre
ALARA	As Low As Reasonably Achievable: A term used in radiation protection, meaning to make every reasonable effort to keep exposure to ionising radiation as far below the dose limits as practical, consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to state of technology, the economics of improvements in

	relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed materials in the public interest. A concept from the ICRP, reflected in the Basic Safety Standards Directive 96/29/Euratom.
ALARP	As Low As Reasonably Practicable (social and economic factors taken into consideration): ALARP is unique to the UK context. ALARP is the process by which radiological impacts on workers and the public are kept as low as reasonably practicable. Ensuring that risks are ALARP is a fundamental requirement of UK health and safety legislation. The fundamental steps in the ALARP process are: (a) define and characterise the problem; (b) generate the potential options to address the problem; (c) assess the options and their merits; (d) identify and justify the best option or options; and (e) implement the selected option. In the UK, nuclear regulatory bodies including the EA and ONR equate the concepts of ALARA and ALARP. Where design has an impact on safety and the environment, it may be possible to undertake one integrated assessment that includes the relevant aspects of BAT and ALARP as many of the objectives of BAT and ALARP are consistent.
ALO	Ambulance Liaison Officer
Alpha particle	An ionising particle consisting of two protons and two neutrons. It is a Helium nucleus – i.e. a helium atom stripped of its two electrons.
AMRC	Advanced Manufacturing Research Centre: The aerospace equivalent of the Nuclear AMRC, based on an adjacent site in Rotherham.
ANIA	The Award for Nuclear Industry Awareness: A level 2 qualification designed by industry to provide essential knowledge for all entrants to the nuclear sector. It is ideal for apprentices, graduates and people transferring into the nuclear sector from another industry.
Annual Dose	Total radiation dose received by an individual in a one year period.
AONB	Area of Outstanding Natural Beauty: A statutory designation. The legal framework for Areas of Outstanding Natural Beauty is provided by the Countryside and Rights of Way Act 2000. The Act confirms that the purpose of designating AONBs is the conservation and enhancement of the natural beauty of the area.
AP1000	Advanced Passive 1100MW nuclear reactor designed by Westinghouse, the technology originally considered for the Moorside site in England. This design differs from the EPR™ reactor design of AREVA in that this reactor is smaller and is made up of a series of modules that can be constructed off-site for transport and fitting on-site.
AP1400	KEPCO-designed PWR used domestically in South Korea but also being built in Abu Dhabi (Barakah NPP) and being marketed elsewhere.
Arrêté INB	Arrêté relatif aux Installations Nucléaires de Base (French decree relative to the design, construction, operation, shutdown, decommissioning, maintaining and surveillance of basic nuclear installations).
AREVA	A global integrated fuel cycle company which formerly encompassed mining, conversion, enrichment, fuel manufacture, reactor design and construction, reprocessing and waste management. In 2015 the company was restructured with its reactor business being transferred to a wholly owned subsidiary New NP. On 31 December 2017 New NP

	was sold to EDF, MHI and Assystem and has since been renamed Framatome.
ARM	Availability, Reliability, Maintainability: Often expressed as target performance levels that (safety-critical) plants and systems must meet or better, to underpin the nuclear safety case. For example, key systems must have a certain level of reliability or must be repairable within a maximum time limit. The need to meet these targets often influences both the strategy for the type and number of different parallel / independent systems and the EMIT Schedule (see EMITS).
Article 37 Opinion (Euratom)	An opinion from the European Commission confirming that a State's plan to dispose of radioactive waste is unlikely to result in the radioactive contamination of the water, soil or airspace of another Member State.
Article 41 (Euratom)	A requirement for operators to notify the European Commission of their intent to enter investment contracts for new nuclear facilities.
Article 50 (TEU)	Article 50 of the TEU provides the mechanism by which a Member State can withdraw from the EU. This mechanism also applies to the Euratom Treaty.
ASN	Autorité de Sûreté Nucléaire: The French Nuclear Safety Authority is tasked, on behalf of the French State, with regulating nuclear safety and radiation protection in order to protect workers, patients, the public and the environment from the risks involved in nuclear activities in France. It also contributes to informing the citizens.
Associated Development	A planning concept established by the Planning Act 2008 (section 115) and relating to applications to the Secretary of State for development consent for an NSIP. Associated Development, broadly, is that development which is connected to the principal NSIP development for which development consent is sought. In England, the Secretary of State determines applications for Associated Development where included within an NSIP application. In Wales, responsibility for determining all Associated Development applications lies with the local planning authority.
Association Agreement (Euratom)	An agreement entered into between the EAEC and Third Countries under Article 206 of the Euratom Treaty establishing an association involving reciprocal rights and obligations, common action and special procedures. To date the Euratom Community has not entered into any association agreements but has entered a number of other agreements pursuant to Article 101 of the Euratom Treaty including nuclear co-operation agreements and agreements providing third states with access to the Euratom R&D programme.
ATMEA	A joint venture originally between MHI and Areva to develop, market, license and sell a new generation III PWR. Since the restructuring of Areva and the sale of New NP, the ATMEA project is now owned 50:50 between EDF and MHI with a special share owned by Framatome.
ATO	Authority To Operate (Holder)
Atom	The atom is the smallest particle of an element. It consists of a central core, or nucleus, that is made up of protons and neutrons. The protons and neutrons are themselves made up of sub-atomic particles (Quarks in particular). Electrons revolve in orbits around the nucleus.
Atomic energy	This term refers to the energy that is released in nuclear reactions. There are two chief ways this can occur. The first is nuclear fission, whereby a neutron will initiate the breaking up of an atom's nucleus into smaller pieces. The second is nuclear fusion, whereby two nuclei are

	joined together under intense heat. It is more correctly called nuclear energy.
Atomic mass	The mass of an isotope of an element expressed in atomic mass units, which are defined as one-twelfth of the mass of an atom of carbon-12.
Atomic number	The number of protons in the nucleus of an atom. The symbol for an atomic number is "Z" from the German word "zahl" meaning number.
ATP	Authorisation to Proceed: Often issued by ONR in advance of formal accreditation.
Authorisation	1. See Licence or Permit. 2. A specific consent for the disposal and accumulation of radioactive waste required under the Radioactive Substances Act 1993 which still applies in Scotland and Northern Ireland but has been replaced in England and Wales by the need for operators to hold an environmental permit under the Environmental Permitting (England and Wales) Regulations 2016.
Authority Direction	A direction given by NDA to a contractor in accordance with NDA's powers under section 18 of the Energy Act 2004.
Auxiliary feed-water	A backup water supply for a nuclear power plant. It is used to supply water to steam generators during reactor start-up and shutdown, and during accident conditions to remove decay heat from the reactor.
AWE	Atomic Weapons Establishment: UK nuclear defence sites in Berkshire (Aldermaston and Burghfield).
BA	Breathing Apparatus
Ba	Barium. A fission product of uranium-235.
BAC	Barnwood Alert Centre
Backfill	Material used to fill sections of a GDF once waste has been emplaced.
Background radiation	This is radiation which comes from cosmic and geological sources and from nuclear weapons testing and to which we are all exposed. Typical examples include naturally-occurring radioactive materials (e.g. radon which is associated with the decay of uranium and/or as an induced fission product of thorium both of which naturally exist in small quantities in granite) and global fallout which exists in our environment as a result of nuclear weapon testing. Radiation which comes from sources, by-product, or special nuclear materials subject to regulation by the ONR would not come under this definition. The typically quoted average individual exposure from background radiation is 360 millirems per year / 3,600 micros.
BACO	Breathing Apparatus Control Officer
BACS	Breathing Apparatus Control System
Balance of Plant (BOP)	Parts of the NPP which lie outside the nuclear and turbine islands.
Barrier	Any material placed between radioactive substances and the environment in order to prevent or restrict dispersal.
Base load	The constant amount of power required to meet a continuous minimum electricity demand.
Base load plant	Can refer to facilities supplying power to meet the base load and also to facilities which typically produce electricity at a constant and predictable rate, such as nuclear and coal-fired units, as opposed to facilities which produce an intermittent output.
BAT	Best Available Technique: Applying BAT is a UK regulatory requirement

	and BAT must be demonstrated throughout the nuclear facility lifecycle. "Best" means the most effective in achieving a high level of protection for the environment as a whole. "Available" requires consideration of: (a) whether the techniques under consideration have been developed on a scale which allows implementation in the relevant industrial sector; and (b) whether the conditions mean that techniques are economically and technically viable, taking into consideration both the benefits and detriments. "Techniques" includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned.
BATNEEC	Best Available Technique Not Entailing Excessive Cost: A modification of BAT incorporating an element of financial realism.
BCD	Burst Can Detection
BE	British Energy owned and operated the UK nuclear fleet until 2009 when it was acquired by EDF Energy. UK nuclear power stations are now owned and operated by EDF NGL.
BECBC	Britain's Energy Coast Business Cluster.
Becquerel (Bq)	The unit of radioactive decay equal to 1 disintegration per second. 37 billion (3.7×10^{10}) becquerels = 1 curie (Ci). The Becquerel is named after Henri Becquerel, who shared a Nobel Prize with Pierre and Marie Curie for their work in discovering radioactivity. See REM and Sievert for comparison.
BEPPS	Box Encapsulation Plant Product Store: A plant at Sellafield Limited which is currently under construction, along with a new annex called Direct Import Facility (DIF).
BEIS	The Department for Business, Energy and Industrial Strategy which was formed in July 2016 following the merging of DECC and BIS. BEIS is a ministerial department supported by 46 agencies and public bodies responsible for: (a) Developing and delivering a comprehensive industrial strategy and leading the Government's relationship with business; (b) Ensuring the country has secure energy supplies that are reliable, affordable and clean; (c) Ensuring the UK remains at the leading edge of science, research and innovation; and (d) Tackling climate change. BEIS is ultimately responsible for policy development and regulation of the UK nuclear sector.
BERR	The (former) Department for Business Enterprise and Regulatory Reform which was a UK government department created in 2007 responsible for company law, trade, energy, business growth, employment law, regional economic development and consumer law. BERR was disbanded in June 2009 and succeeded by BIS.
Beta decay	A particular type of radioactive decay in which a beta particle is emitted from an atom. Beta decay can occur in two forms: Beta minus or Beta plus.
Beta Emitter	A radionuclide which decays by emission of an electron or positron.

Beta minus	Beta decay in which an electron is emitted from an atom (β^-).
Beta particle	An electron emitted by the nucleus of a radionuclide in beta decay.
Beta plus	Beta decay in which a positron is emitted from an atom (β^+).
Beyond Design Basis Accident	An accident that is more serious than the one the plant was designed for.
Biodiversity	Term given to the variety of life, within and between all species of plants animals and microorganisms and the ecosystems within which they live and interact.
Biological Shield	This is a mass of absorbing material which is placed around a reactor or radioactive source in order to reduce the radiation to a level safe for humans.
BIS	The (former) Department for Business, Innovation and Skills created in June 2009 following the merger of BERR and the Department for Innovation, Universities and Skills. On 14 July 2016 BIS was merged with DECC to form BEIS.
BNFL	British Nuclear Fuels plc: Formerly a nuclear company owned by the UK Government and the holding company for British Nuclear Group and Nexia Solutions (now known as NNL). On 1 April 2005, all BNFL assets and liabilities of BNFL were transferred to NDA under nuclear transfer schemes provided in the Energy Act 2004. Further assets were subsequently sold. In October 2010, the Government announced that BNFL was to be formally abolished.
BNI/BONI	Balance of Nuclear Island: All components, equipment and systems included in the nuclear island scope, with the exception of the NSSS.
BOCI	Balance of Conventional Island: All components, equipment and systems included in the conventional island scope, with the exception of the turbine generator plant.
BOO	Build, Own, Operate. Rosastom will use this model for the Akkuyu nuclear power plant in Turkey.
Book of Reference	A requirement of Regulation 5(2)(d) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 in relation to NSIPs. The book sets out relevant land interests, including rights over, Crown ownership, and land subject to compulsory purchase as a consequence of the development.
BPEO	Best Practicable Environmental Option: this term has now been replaced by BAT for environmental optimisation. Permitted nuclear sites may still be using this terminology based on historical practices.
BPM	Best Practical Means: this term has now been replaced by BAT for environmental optimisation. Permitted nuclear sites may still be using this terminology based on historical practices.
BPSS	Baseline Personnel Security Standard
BRB	Bradwell B new nuclear power station which will be developed by a consortium of CGN (66.5%) and EDF Energy (33.5%). CGN has put its HPR1000 reactor into the GDP process for deployment at BRB.
Breeder reactor	A reactor designed to produce more fuel (fissile material) than it consumes.
Brexit	The term coined for the potential departure of the UK from the EU.

Brexatom	The term coined for the potential departure of the UK from the European Atomic Energy Community.
Britain's Energy Coast	West Cumbria has major nuclear and wider energy assets and internationally competitive expertise and skills in a range of related activities, including environmental remediation, engineering and decommissioning. Employment in Research and Development is double the regional average. Britain's Energy Coast aims to utilise these strengths and assist the UK to achieve its policy objectives and secure jobs for the local economy.
Brussels Convention / Brussels Supplementary Convention	The Brussels Convention Supplementary to the Paris Convention of 29 July 1960 was adopted in 1963 to provide additional funds to compensate damage as a result of a nuclear incident where Paris Convention funds proved to be insufficient. The Brussels Convention stipulates that public funds are to be provided for this purpose, not only by the State where the liable operator's nuclear installation is located, but also by contributions from all parties to the Brussels Convention. The principles of the Brussels Convention are implemented into UK law by the Nuclear Installations Act 1965.
BUE	Back-up Equipment
BUP	By-products Utilisation Programme
Burn up	Measure of thermal energy released by nuclear fuel relative to its mass, typically Gigawatt days per tonne of fuel (GWd/t).
BWR	Boiling Water Reactor: A reactor design where water is allowed to boil in the core. The resulting steam is used to drive a turbine and electrical generator, thereby producing electricity. Decommissioning BWRs has to take account of the radioactivity of the turbines resulting from leakage from fuel elements into the water and thus the steam which is in direct contact with the turbines.
BWROG	Boiling Water Reactors Owners Group
C&I / I&C	Control and Instrumentation / Instrumentation and Control: The collective term for all the electronics and measurement devices that together run a nuclear power plant. NPP C&I comprises or contributes to some of all of the following: automatic control of plant, alarms and indications, visualisation of plant parameters, facilities to allow manual plant control, automatic protection systems, engineered safety features.
CANDU	CANDU Reactor: A Canadian-invented, pressurized heavy water reactor developed initially in the late 1950s and 1960s. The acronym "CANDU", a registered trademark of Atomic Energy of Canada Limited, stands for "Canada Deuterium Uranium". This is a reference to its deuterium-oxide (heavy water) moderator and its use of uranium fuel (originally, natural uranium). All current power reactors in Canada are of the CANDU type.
CANDU Energy	Candu Energy Inc. is a Canadian wholly owned subsidiary of Montreal-based SNC-Lavalin Inc., specializing in the design and supply of nuclear reactors, as well as nuclear reactor products and services. Candu Energy Inc. was created in 2011 when parent company SNC-Lavalin purchased the commercial reactor division of Atomic Energy of Canada Limited (AECL), along with the development and marketing rights to CANDU reactor technology.
Canister (waste)	A vessel for waste for handling, transport, storage and/or disposal. It is part of the waste container and the waste package. An example would be molten glass poured onto high level waste glass and in a specially designed canister, to cool and solidify. Canister usually refers to high level waste.

CAP	Corrective Action Program
CAP1400	SNTPC and Westinghouse enlarged development of the AP1000.
CARB	Corrective Action Review Board
Carbon Floor Price	The minimum value at which carbon can be traded. The setting of a carbon floor price is essentially a regulatory/taxation policy which obliges polluters to pay at least a minimum value for the right to pollute. In the UK, this floor price was originally adopted as part of a range of measures collectively referred to as Electricity Market Reform.
Care and maintenance	A stage in the process of decommissioning a nuclear site. It begins when the only significant buildings left on a site are the reactor buildings and an ILW store – these will be removed at the dismantling stage.
Carrier	Any person, organisation or government entity undertaking the carriage of radioactive material by any means of transport.
CAT1	Material defined as such by Civil Nuclear Industry Classification Policy issued by ONR, *"Information Concerning the Use, Storage and Transport of Nuclear and Other Radioactive Material".*
CAT A/B/C functionality	Method of identification of the importance of a particular function, or a set of functionality, to nuclear safety. Definition provided in IEC 61226 Nuclear power plants - Instrumentation and control important to safety - Classification of instrumentation and control functions.
Category I Nuclear Material	As defined in Part 5 of IAEA Document INFCIRC/225/Rev.4
Category II Nuclear Material	As defined in Part 5 of IAEA Document INFCIRC/225/Rev.4
CC	Communications Co-ordinator
CCA	Contamination Control Area
CCF	Common Cause Failure: Failure of two or more items of redundant plant, where the failure is linked by a common initiator.
CCFE	The Culham Centre for Fusion Energy: The UK's national fusion research laboratory (formerly UKAEA Culham). Owned and operated by the United Kingdom Atomic Energy Authority.
CCR / MCR	Central Control Room / Main Control Room
CCW	Countryside Council for Wales: Welsh Government-sponsored body with responsibility for nature conservation in Wales.
CDG Regulations	Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 / 1348)
CDM Regulations	Construction (Design and Management) Regulations 2015 (SI 2015 / 15)
CEA	Commissariat à l'Energie Atomique et aux Energies Alternatives: The French Alternative Energies and Atomic Energy Commission, owned and run by the French Government.
CEDE	Committed Effective Dose Equivalent: The total dose to specific organs or tissues from an intake of radiation multiplied by the applicable weighting factor for that organ.
CEMS	Continuous Emergency Monitoring Equipment
CESC	Central Emergency Support Centre
CfD	Contract for Difference: A commercial arrangement between the UK Government and low carbon generators to set the strike price for electricity generated by the new nuclear and other low-carbon

	generation facilities. They take the form of a pre-agreed per MWh price, when the market price is below this the Government will top up the price to that agreed strike price, when the market price is above that strike price the generator will pay the difference to the Government. The payments will be made through the CfD Counterparty Company. The agreement provides long term revenue stabilisation for low carbon generation.
CGNPG / CGN	China General Nuclear Power Group / China General Nuclear: The joint investor with EDF Energy in the HPC, SZC and BRB nuclear new build projects in the UK.
Chain reaction	A reaction that initiates its own repetition. In a fission chain reaction, for example, neutrons released in *fission* produce an additional *fission* in at least one further nucleus. These, in turn, can be absorbed by other fissionable nuclei, releasing still more neutrons. Where the number of neutrons released in a given time equals or exceeds the number of neutrons lost by absorption the fission chain reaction is self-sustaining.
Characterisation	The process of classifying nuclear material or determining the detailed state and condition of a nuclear site.
Characterisation Plan	A plan to characterise a nuclear site, prior to and after remediation activities. More generally, can be applied to any plan to characterise all or part of a nuclear facility.
Chernobyl incident	A nuclear accident that occurred on 26 April 1986 at the Chernobyl NPP in Ukraine. An explosion and fire released large quantities of radioactive contamination into the atmosphere, which spread over much of Western USSR and Europe. It is considered the worst nuclear accident in history, and is one of only two classified as a level 7 event on the International Nuclear Event Scale alongside the 2011 events at Fukushima Daiichi in Japan. The Chernobyl site has been covered by a concrete and steel encasement (a replacement project is underway and due to complete at the end of 2017), and the large evacuation zone around it remains largely uninhabited.
CHILW	Contact Handled ILW: Packaged radioactive ILW that, due to its external dose rate, is able to be directly handled without the need for remote handling equipment.
CHP	Combined Heat and Power or Cogeneration: The use of a heat engine or a power station to generate both electricity and useful heat simultaneously.
CI	Conventional Island: That part of a nuclear plant that does not form part of the nuclear island. The conventional island is sub-divided into the turbine generator (i.e. the plant that converts the nuclear steam into electricity) and everything else that needs to be designed, constructed and tested to complete the conventional island i.e. the balance of conventional island.
CID	Capital Investment Decision
CITB	Construction Industry Training Board: The Sector Skills Council and Industry Training Board for the construction industry.
Cladding	This refers to the thin-walled metal tubes that forms the outer jacket of a nuclear fuel rod. Its primary purpose is to prevent corrosion of the fuel by the coolant and the release of fission products into the coolant. Aluminium, stainless steel, and zirconium alloys are typical cladding materials.
Class 1 / 2 / 3 plant	Method of identification of the importance of a particular item of plant to nuclear safety. Definition provided in IEC 61226 Nuclear power plants -

	Instrumentation and control important to safety - Classification of instrumentation and control functions.
Clean-up	A term used in conjunction with decommissioning. Once a nuclear facility has been decommissioned the site needs to be cleaned-up to remove any possible contamination. The site is then returned (after consultation with the local community) to an agreed End State.
Clearance	Removal of certain levels of *de minimis* radioactivity from regulatory control.
Cliff Edge Effect	A significant consequence that is disproportionate to the change that caused it.
Cm	Curium: A transuranic radioactive element, atomic number 96. CM is dense and silvery with a high boiling point.
CNC	Civil Nuclear Constabulary: Formerly known as 'UKAEA' Constabulary, the CNC was established on 1 April 2005, as directed by the Energy Act 2004. The CNC reports to an independent Civil Nuclear Police Authority (CNPA); it operates under the strategic direction of the BEIS. It is the armed police force which is responsible for the protection of civil nuclear material.
CNNC	China National Nuclear Corporation: Large Chinese state owned enterprise. The main body of the Chinese national nuclear technology and nuclear power development and construction industry.
CNPP	Combined Nuclear Pension Plan: Set up by NDA pursuant to Section 8 and Schedule 8 of the Energy Act 2004.
CNRD	Civil Nuclear Resilience Directorate
CNS	1 Civil Nuclear Security: Formerly the OCNS (see below), now part of the Office of Nuclear Regulation (ONR). 2 Capenhurst Nuclear Services: A wholly owned subsidiary of Urenco UK Limited which runs the former Sellafield Limited part of the Capenhurst site under contract from NDA.
CNSC	Canadian Nuclear Safety Commission: The CNSC regulates the use of nuclear energy and materials to protect health, safety, security and the environment, and to implement Canada's international commitments on the peaceful use of nuclear energy; and to disseminate objective scientific, technical and regulatory information to the public.
CNSiG	Civil Nuclear Sharing in Growth
Cogent Skills	Cogent Skills is the strategic skills and delivery body for the Science based industries.
COL	Combined Construction and Operating Licence: part of the US regulatory environment relating to new nuclear build.
Collective Effective Dose	The quantity obtained by multiplying the average effective dose by the number of people exposed to a given source of ionising radiation. Unit Sievert, symbol Sv. Frequently abbreviated to "collective dose".
COMARE	Committee on Medical Aspects of Radiation in the Environment: An independent advisory committee comprised of experts appointed from academic institutions and responsible for advising on the health impacts associated with natural and man-made radiation.
Combustion Activity Permit	A permit to operate combustion plant from the EA under the Environmental Permitting (England and Wales) Regulations 2016 as amended. Required in relation to back up diesel generators for an operational nuclear power station.
Commissioning	The process of bringing new plant into operation.

Compensating shielding	An amount of radiation shielding implemented in a design to compensate for the lack of shielding in a certain area because of a concession for the incorporation of something else.
Competent Authority	See Regulatory Body.
Condenser	This is used to cool exhaust steam from a turbine below the boiling point so that it can be returned to the heat source as water. In a pressurised water reactor, the water is returned to the steam generator. In a boiling water reactor, it returns to the reactor core. The heat removed from the steam by the condenser is transferred to a circulating water system and is exhausted to the environment, either through a cooling tower or directly into a body of water.
Conditioning Facility	A facility which exists for the purpose of changing the chemical or physical form of a material to make it suitable for a specific purpose. Also applied in waste management to a facility for processing waste to condition it for storage, transport and disposal.
Conditions for Acceptance	The requirements of a receiving body in relation to the parameters with which the material must comply in order for the material to be accepted into the receiving body's facility.
CoNE	Centre of Nuclear Excellence – an initiative centred on West Cumbria.
Confinement	The process of preventing the release of radioactive substances to the environment during operation or following an accident.
CoNP	Certificate of Nuclear Professionalism: A higher educational programme developed in partnership between NSA Nuclear, the Open University and employers designed to equip individuals with the necessary skills required for working within the nuclear industry.
Consignee	Any person, organisation or government entity which receives a consignment.
Consignor	Any person, organisation or government entity which prepares a consignment for transport and consigns material to a consignee through an accredited carrier.
Construction masterplan	A masterplan which covers the construction period of a facility, which may be multi-phased and include all areas required for the laydown of construction materials, spoil handling and staff requirements.
Consultation Report	A requirement of s37 of the 2008 Planning Act in relation to Nationally Significant Infrastructure Projects. Captures and reflects responses to consultee groups and explain how the developer has met its duty (s49 of the Act) in the preparation of the application to have regard to the views expressed.
Container (waste)	See Canister.
Containment area	During the construction of a facility designed to house radioactive materials, a series of containment barriers is put up between the materials inside and the environment outside the facility during construction. This creates separate areas called "containment areas".
Contamination (radioactive)	Radioactive material that is deposited on the surface of or inside structures, areas, objects, or people.
Control of nuclear materials	This function has two aspects: (a) All the provisions implemented by operators to ensure the safety of the materials in their possession: monitoring and accountability, containment, surveillance, physical protection of materials and

	facilities and protection during transportation. (b) Inspection by governmental or international bodies (e.g. IAEA, Euratom) to verify the effectiveness and reliability of the above provisions. In both cases control is aimed at preventing any subversive activities.
Control Rods	Devices to absorb neutrons so that the chain reaction in a reactor core may be slowed or stopped by inserting them further, or accelerated by withdrawing them.
Controlled Area	An area outside a restricted zone but within the site boundary of a nuclear facility. Access to such an area can be limited by the licensee or the responsible organisation for any reason.
Controlled Waste	Waste which is subject to the provisions of the Environmental Protection Act 1990.
Controlling Mind	This legal concept has its origins in health and safety case law relating to corporate manslaughter. In general terms, it is understood as the concept of whether the actions of an individual equate to the "controlling mind" of the company such that the individual should take on the liabilities of the company. The term is frequently used in nuclear and relates more generally to health and safety responsibilities in respect of risk management on a nuclear site. As the holder of the nuclear site licence, the site operator holds specific responsibilities in respect of health, safety and risk management on the nuclear site. The site operator is the only body that can fulfil these responsibilities and therefore any other related company, such as the owner of the site (i.e. NDA in respect of NDA-owned sites), the parent company of the SLC or even contractors entering the site to carry out work on behalf of the SLC, cannot fulfil the role of "controlling mind". Examples of behaviour which could be interpreted as "controlling mind" by a company other than the site operator could include instructing the operator to take specific decisions in respect of risk management on site without recourse to an authorisation by the licensed operator. This could include binding the operator to certain contractual obligations which affect or restrict the way in which the operator manages risks on site – the consequences of which could be that the instructing entity "steps into the shoes of the controlling mind" and thereby assumes liability by course of action.
Convention on Supplementary Compensation / CSC	The Convention on Supplementary Compensation for Nuclear Damage was first adopted on 12 September 1997 but only came into force on 15 April 2015 three months after Japan had deposited its instrument of approval with the IAEA which took installed capacity under the CSC over the required threshold of 400,000 units. Current signatories to the CSC include Argentina, Canada, Ghana, India, Japan, Montenegro, Morocco, Romania, the United Arab Emirates and the United States.
Coolant	Material such as water or pressurised gas that transfers heat from the core.
Co-operation Agreement	1. An agreement between the operators of neighbouring nuclear sites establishing a framework within which all parties can secure compliance with their legal obligations (UK). 2. An agreement between States (or between a State and Euratom) that facilitates nuclear trade and collaboration (International).

Copper canister	Encapsulation technique for the storage of spent nuclear fuel used in Sweden.
CORE	Cumbrians Opposed to Radioactive Environment: Started in 1980 as the Barrow Action Group to oppose the import of foreign fuel through the port of Barrow-in-Furness for reprocessing at Sellafield. Since then, CORE has widened its campaign remit to cover all aspects of Sellafield's operations including the radioactive sea and air discharges, the resultant contamination of the local environment, and the health detriment to local communities and wildlife. Its core mission is to stop reprocessing, foreign imports, and aerial and sea discharges.
Core	The central heat-producing part of a nuclear reactor which contains the fuel assemblies.
Core Catcher	Safety system incorporated into EPR designs to contain, spread and cool the reactor core in the event of a core meltdown.
Core Melt	Overheating of the core of a nuclear reactor resulting in the core melting.
Corium	Term used when referring to the molten core of a nuclear reactor.
CoRWM	Committee on Radioactive Waste Management: An independent committee appointed by the UK Government. Their original task was to review the options for managing those higher-activity UK radioactive wastes for which there is no agreed long-term solution. Their findings were published in July 2006, to which UK Government responded in October 2006, resulting in the incorporation of Nirex into NDA and the establishment of the UK strategy for managing intermediate level nuclear waste within a deep geological disposal facility.
Count	Measuring and monitoring the number of ionizing radiation particles present using radiation detection equipment.
Counterparty Company	The organisation that will pay or receive money under CfD contracts between the Government and low-carbon generators. The money to make the payments under the CfD contracts comes from the Levy Control Framework. The spending cap under the Levy Control Framework is set to rise from £2 billion in 2011-12 to £7.6 billion in 2020-21 (in 2011-12 prices).
CPR-1000	Chinese development of Areva 900 MW design used at Gravelines nuclear site in France.
CRC Energy Efficiency Scheme	The CRC Energy Efficiency Scheme (formerly known as the Carbon Reduction Commitment) is the UK's mandatory climate change and energy saving scheme. The scheme started in April 2010 and is administered by the EA. The scheme is central to the UK's strategy for improving energy efficiency and reducing carbon dioxide (CO_2) emissions, as set out in the Climate Change Act 2008. It has been designed to raise awareness in large organisations, especially at senior level, and encourage changes in behaviour and infrastructure. The scheme will close following the 2018 to 2019 compliance year.
CRCE	Centre for Radiation, Chemical and Environmental Hazards
Crichel Down Rules	Non-statutory guidance which requires that all surplus land acquired by or under the threat of compulsory purchase is offered back to former owners or their successors.
Critical / Criticality	A medium containing a fissile nuclear material becomes critical when neutrons are produced (by the fission of this material) at the same rate as they disappear (through absorption and leakage to the outside). The point at which a nuclear chain reaction becomes self-sustaining.
Critical mass	The smallest amount of fissile material needed to support a self-sustaining nuclear chain reaction. The critical mass of a fissionable material depends upon its nuclear properties (e.g. the nuclear fission

	cross-section), its density, its shape, its enrichment, its purity, its temperature and its surroundings.
CRL	Chalk River Laboratories: CRL is a site of major research and development to support and advance nuclear technology, in particular CANDU reactor technology.
Cs	Caesium. A fission product of uranium-235.
Cs-137	Caesium-137 is a radioactive isotope of caesium which is formed as a fission product by nuclear fission. In small amounts it can be used to calibrate radiation-detection equipment and can also be used in cancer treatments. Caesium shares similar chemical properties to other Group 1 elements including sodium and potassium. If ingested, Cs-137 is distributed fairly uniformly throughout the body's soft tissue, resulting in exposure of those tissues which can be treated with Prussian Blue (Ferric Hexacyanoferrate). The magnitude of the health risk depends on exposure conditions. These include factors such as strength of source, length of exposure, distance from the source, and whether there was shielding between the tissue and the source (such as metal plating).
CSJ	Construction Safety Justification
CSN	Consejo de Seguridad Nuclear (Nuclear Safety Council): The sole competent authority in matters relating to nuclear safety and radiological protection in Spain. The Mission of the Nuclear Safety Council is to protect the workers, the public and the environment against the harmful effects of ionising radiation, by assuring the safe operation of nuclear and radioactive facilities and by establishing preventive and corrective measures against radiological emergencies, whatever their origin.
CTA	Company Technical Advisor
CTP	Counter Terrorism Plan
Culham	The Culham Centre for Fusion Energy 'CCFE' is the UK's national fusion research laboratory (formerly UKAEA Culham).
Curie (Ci)	This unit is used to measure the intensity of radioactivity in a sample of material. The Curie is equal to 37 billion (3.7×10^{10}) disintegrations per second, which is approximately the activity of 1 gram of radium. A curie is also a quantity of any radionuclide that decays at a rate of 37 billion disintegrations per second. It is named after Marie and Pierre Curie, who discovered radium in 1898.
CWS	Cooling Water System: Once-through sea water cooling water systems being adopted for UK sites and commonly used in coastally-sited NPPs.
Cyclotron	a form of particle accelerator
D2O	Heavy Water (deuterium oxide)
DA	Design Authority: The entity that has overall responsibility for the reactor design process, approves design changes and is responsible for ensuring that the requisite knowledge is maintained is referred to as the design authority. The NPP operating company is frequently the only organisation that has an overview of the plant design as a whole and of the impact of operation on the design. It is normally expected to take on the role of design authority.
DAC	Design Acceptance Confirmation/Certificate: Written confirmation issued by ONR that a nuclear reactor design has passed a Generic Design Assessment (GDA, see definition below). ONR may issue an Interim Design Acceptance Confirmation (iDAC) identifying issues to be

	resolved by the requesting party before issuing a DAC.
Dalton Nuclear Institute	Institute at the University of Manchester established in 2005 as a leading centre for nuclear research and education.
DAP	Duly Authorised Person
DCC	Delivery Command Centre: Project management organisation implemented at site to improve interfacing between engineering, construction, and contracting companies.
DCF	Dalton Cumbrian Facility
DCIC	Ductile Iron Cast Container
DCO	Development Consent Order: Developers of nuclear power stations must apply to the Planning Inspectorate (rather than the Local Planning Authority) for a Development Consent Order. If granted, a DCO will combine a grant of planning permission with a range of other separate consents, such as listed building consent. A DCO can include rights to compulsorily purchase land. There are also special procedures relating to cases such as commons, National Trust land, and land protected under the Green Belt (London & Home Counties) Act 1938.
Decay Heat	Heat produced by the decay of radioactive materials in a reactor that has been shut down.
Decay, radioactive	The decrease in the radioactive nature of any material with the passage of time. This is due to the spontaneous emission from the atomic nuclei of either alpha or beta particles and is often accompanied by gamma radiation.
Decay Storage	The process of allowing material containing short lived radionuclides to decay so that the final waste is easier to dispose of as radioactive waste, or until the point where the waste becomes exempt from specific regulatory requirements.
DECC	The (former) Department for Energy and Climate Change: The UK Government department, created in October 2008, with overall responsibility for policy relating to energy and climate change (together with OND in relation to new nuclear). DECC worked to ensure that the UK continued to enjoy a diverse and low-carbon energy mix, delivered through a market framework to ensure competitive prices. DECC was the sponsoring Government department for NDA. In July 2016 DECC was merged with BIS to from BEIS.
Decommissioning	1 The final phase in the life cycle of a nuclear installation covering all activities from shutdown and removal of fissile material to environmental restoration of the site through to its agreed End State. 2 The process of closing down a facility followed by reducing residual radioactivity to a level that permits the release of the property for unrestricted use.
Decommissioning Plan	A plan for the decommissioning of a nuclear facility.
DECON	This is a method of decommissioning in which the equipment, structures, and portions of a nuclear facility and site containing radioactive contaminants are removed. The contaminants are safely buried in a low-level radioactive waste landfill or decontaminated to a level that permits the property to be released for unrestricted use shortly after cessation of operations.
Decontamination	The reduction or removal of (radioactive) material from any structure, area, object, or person. Decontamination may be accomplished by

	treating the surface to remove or decrease the contamination.
De-designate / De-designation	The formal process under the Energy Act 2004 by which a Designating Direction is revoked or amended by the Secretary of State so that an installation, site or facility (or part of an installation, site or facility) is no longer subject to that Designating Direction.
Deep Geological Repository	See GDF
DEFRA	Department for Environment, Food and Rural Affairs: DEFRA is the UK Government department responsible for safeguarding the environment, supporting food and farming and sustaining the rural economy. DEFRA is the UK Government Department which sponsors the Environment Agency.
De-licensing	The process by which a site is removed from the nuclear site licensing requirements set out in the Nuclear Installations Act 1965. A nuclear site licence may also be surrendered or revoked but this does not end the licensee's Period of Responsibility.
Depleted Uranium (DU)	Depleted Uranium is uranium primarily composed of the isotope uranium-238. Typically, it will have a percentage of uranium-235 smaller than the 0.7 percent found in natural uranium. It is obtained from used fuel elements or as by-product tails, or residues, from uranium isotope separation.
DEPZ	Detailed Emergency Planning Zone: The offsite emergency planning area around a nuclear site where the local authority must have a plan for protecting the public in the event of an offsite nuclear emergency pursuant to regulation 9(1) of REPPIR.
Design Basis Accident	The hypothetical accident that informed the design of the plant.
Designation / Designating Direction	The statutory process by which the Secretary of State directs that NDA will have certain responsibilities to secure in relation to an installation, site or facility under the Energy Act 2004. The Secretary of State must lay a copy of every direction containing a designation before Parliament.
Designated Site	1 Nuclear sites designated under Section 3 of the Energy Act 2004. 2 All nuclear licensed sites are "designated sites" for the purposes of section 128 of the Serious Organised Crime and Police Act 2005, making it a criminal offence to enter such sites without the owner's consent. 3 Sites designated as suitable for nuclear new build in the nuclear NPS (EN-6) or its replacement which is currently subject to public consultation. 4 See SPA, SAC, AONB and National Park.
Detection Limit	The level at which radioactivity can be detected above background levels.
DEXEU	The Department for Exiting the EU, the UK government department responsible for overseeing negotiations to leave the EU and establishing the future relationship between the UK and EU.
DfT	Department for Transport (see also definition of RMTT)
DG ENER	European Commission Director General for Energy
DGN	Dangerous Goods Note: A transport document that gives details about the contents of a consignment to carriers, receiving authorities and

	forwarders. The DGN is used to accompany hazardous goods in transit. A DGN is used when transporting goods using all forms of transport except air freight, in which case the IATA Dangerous Goods Declaration is normally used. When dangerous goods are transported, the consignment must be accompanied by a document that declares what the dangers of the goods are. By using a DGN, the same standard document is completed for all consignments of dangerous goods, regardless of which port or ICD (Inland Container Depot) they are going to.
DGSA	Dangerous Goods Safety Advisor
Direct Radiation	Radiation received directly from a source such as a nuclear power plant, rather than indirectly as a result of radioactive discharges.
Directive Wastes	Waste subject to the provisions of the Waste Framework Directive 2008/98/EC of 19 November 2008.
Discharge	Release of gaseous or liquid materials to the environment.
Dispersal	The spread of a radioactive discharge in the environment.
Disposability Assessment	An advisory process carried out by RWM Limited on behalf of NDA to provide advice on whether a proposed waste package would be suitable for geological disposal. The process is jointly agreed with and monitored by the Health and Safety Executive, the EA and SEPA.
Disposal	In the context of solid waste, disposal is the emplacement of waste in a suitable facility without intent to retrieve it at a later date. Retrieval may be possible but, if intended, the appropriate term is storage. Disposal may also refer to the release of airborne or liquid waste to the environment (i.e. emissions and discharges).
Disposal Facility	See Repository.
DIT	Department for International Trade. Created in 2016, it was formerly known as UKTI: UK Trade & Investment.
Diversity	Two separate and independent systems that perform the same task so as to reduce the chances of both failing at the same time.
DNB	Dungeness B (Power Station): AGR power station operated by EDF Energy.
DoE	US Department of Energy (also known as USDoE)
Dose	Measurement characterising the exposure of individuals subjected to radiation. The term ‘dose’ is often mistakenly used instead of ‘dose equivalent’. (a) Absorbed dose: quantity of energy absorbed by matter (living or inert) exposed to radiation. It is expressed in Grays (Gy). (b) Dose equivalent: in living organisms, an absorbed dose has different effect depending on the type of radiation (alpha, beta and gamma). To take these differences into account, a dose-multiplying factor is used to produce a “dose equivalent”. (c) Effective dose: sum of weighted dose equivalents deposited on various tissues and organs by internal and external irradiation. The unit of measurement for effective dose is the Sievert (Sv). (d) Lethal dose: fatal dose of nuclear or chemical origin. (e) Maximum permissible dose: dose that must not be exceeded for

	a given period of time.
Dose Limitation	The process of limiting radiation doses to individuals. Also known as the third radiation protection principle.
Dose rate	The dose rate is the quotient of dose and time. For example, REM or Sieverts per hour.
Dosimeter	Instrument for measuring absorbed dose.
Dosimetry	The theory and application of the principles and techniques involved in the measurement and recording of ionising radiation doses. What is calculated is the absorbed dose in matter and tissue resulting from the exposure to ionising radiation.
DPA	The Data Protection Act 1998
DRAGON	Name of one of the reactors at Winfrith.
Drigg	Site of the Low Level Waste Repository in Cumbria.
DRS	Direct Rail Services Limited: A wholly-owned subsidiary of NDA, which provides rail transport services for nuclear materials (and other commercial rail freight operations) in the UK. DRS is the only remaining publicly owned rail freight company in the UK.
Dry Fuel Store	A building specifically designed for the storage in dry conditions of used nuclear fuel from the operation of a NPP.
Dry Storage	Storage of spent fuel in air or an inert gas rather than water.
DSJ	Design Safety Justification
DSL	District Survey Laboratory
DNSR	Defence Nuclear Safety Regulator
DSR	Design Safety Report
DSRL	Dounreay Site Restoration Limited: The site licence company responsible for the demolition and clean-up of the Dounreay site in the far north of Scotland, the former centre of fast reactor research and development. DSRL is a wholly-owned subsidiary of the Cavendish Dounreay Partnership Ltd, a consortium of Cavendish Nuclear, CH2MHILL and URS. It is funded by NDA to deliver the site closure programme agreed with the Cavendish Dounreay Partnership.
DSU	Distress Signal Warning Unit
DTI	Department of Trade & Industry: A predecessor to BIS and DECC. Business, trade and energy matters all came under the remit of DTI.
Dual Use	Civil nuclear related goods, information, software and technology that could be used for developing a nuclear weapon.
DWMP	Decommissioning Waste Management Plan: The part of the FDP that sets out the steps and costs involved in decommissioning a new nuclear power station and disposing of the waste.
EA	See Environment Agency
EAEC	The European Atomic Energy Community (EAEC or Euratom): An international organisation which is legally distinct from the EU, but has the same membership, and is governed by the EU's institutions. It was established on 25 March 1957 (alongside the European Economic Community/EEC) by the Euratom Treaty, being taken over by the executive institutions of the EEC in 1967. See also Euratom Community.

EAJWG	The Emergency Arrangements Joint Working Group is an internal working group formed by a nuclear operator to ensure good coordination between those organisations directly involved in its nuclear emergency arrangements.
EAL	Evaluation Assurance Level: A security classification for systems.
EARWG	Environment Agencies Requirements Working Group. The purpose of the EARWG is to identify and share good practice in the: (a) minimisation, re-use and recycling of solid radioactive waste (Low Level Waste and Very Low Level Waste) across the industry and in this respect support the UK Nuclear Industry National Low Level Waste Management Plan Re-use and Recycling (RR1) Initiative; and (b) monitoring/ assay of radioactive wastes (solid, liquid and gaseous). In doing so, EARWG will facilitate transparency of the information used by sites to meet the Additional Information and Improvement Requirements (AIIRs) specified in Environmental Permits/ Authorisations issued by the EA and SEPA to nuclear Operators by sharing information regarding waste minimisation and assay techniques, which in turn will help to reduce costs to sites. More can be found at http://www.rwbestpractice.co.uk/.
EC	1 European Commission 2 Emergency Controller
EC-6 (Enhanced Candu)	The EC6 is a 700 MWe class heavy-water moderated and heavy-water cooled pressure tube reactor. Heavy water is a natural form of water used as a moderator to slow down the fission chain reaction neutrons in the reactor. It is one of the most efficient moderators and enables the CANDU design to use natural uranium as fuel, which is unique to CANDU reactors. One of the unique features of this reactor design is its ability to use alternative fuels such as recovered uranium from the reprocessing of used light water reactor fuel, low-enriched uranium and plutonium mixed oxide, thorium and actinides, in addition to the conventional natural uranium.
ECC	Engineering Command Centre: Project management organisation implemented to improve interfacing between design, engineering, and contracting companies.
ECCS	Emergency Core Cooling System: Comprises a series of systems that are designed to safely shut down a nuclear reactor during accident conditions. Under normal conditions, heat is removed from a nuclear reactor by condensing steam after it passes through the turbine. In a boiling water reactor, condensed steam (water) is fed back into the reactor. In a pressurised water reactor, it is fed back through the heat.
ECITB	The Engineering Construction Industry Training Board: A national training organisation for the engineering construction industry which provides information on careers, qualifications and training in engineering construction.
ECO	Export Control Organisation: Part of DIT. The ECO is responsible for legislating, assessing and issuing export, trade transhipment and trade control licences for specific categories of 'controlled' goods. This encompasses a wide range of items including so-called dual-use goods, torture goods, radioactive sources, as well as military items.

EDF	Electricité de France: EDF has 58 reactors on 19 sites in France. The first reactors, built between 1958 and 1966, featured GCR (Graphite-Moderated Gas-Cooled Reactor) technology and are now being decommissioned.
EDF Energy	EDF Energy is the owner of EDF NGL and NNB GenCo in the UK. On 28 July 2016 EDF's Board of Directors made the final investment decision to enter into contracts with the UK Government facilitating the construction of the first new nuclear power station in the UK for over 20 years at Hinkley Point C in Somerset. EDF Energy has stated that Hinkley Point C will be followed by Sizewell C in Suffolk.
EDF NGL	EDF Energy (Nuclear Generation) Limited (formerly British Energy Generation Limited) is the EDF Energy group company that owns and operates the eight operational nuclear power stations in the UK.
EDRMS	Electronic Document Record Management System: More commonly referred to as EDMS (Electronic Document Management System).
EDT	Engineering Development Trust
EES	Engineering Education Scheme
EESW	Engineering Education Scheme Wales
Effective dose	The quantity obtained by multiplying the equivalent dose to various tissues and organs by a weighting factor appropriate to each and summing the products. Unit Sievert, symbol Sv. Frequently abbreviated to dose.
EHS&Q	Environment, Health, Safety & Quality
EHSS&Q	Environment, Health, Safety, Security & Quality
EIA	Environmental Impact Assessment: The formal assessment process of identifying, predicting, evaluating and mitigating the environmental consequences (together consisting of the environmental, social and economic aspects, both positive and negative) of a project in relation to planning permissions, consents, licences and other statutory approvals as required by the EIA Directive prior to the decision to move forward with the proposed action. The aim of EIA is to protect the environment by ensuring that a decision maker, when deciding whether to grant planning permission for a project which is likely to have significant effects on the environment, does so in the full knowledge of the likely significant effects and takes this into account in the decision making process.
EIA Directive	European Council Directive 2011/92/EU (as amended) on the assessment of the effects of certain private and public projects on the environment.
EIA Regulations	The Town and Country Planning (Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 both came into force 16 May 2017. The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 set out the procedures which must be followed to ensure that applications for Nationally Significant Infrastructure Projects fully reflect the requirements of the EIA Directive. The Decommissioning of nuclear reactors is also subject to the Nuclear Reactors (Environmental Impact Assessment) Regulations 1999.
EIB	1. European Investment Bank 2. Energy Island Board

EIF	Energy Island Forum: The local promotional groups driving economic benefit from energy investment in North Wales and the Isle of Anglesey.
EIC	Emergency Indication Centre
EIP	The Anglesey Energy Island™ Programme: A collective effort between stakeholders within the public and private sector working in partnership to put Anglesey at the forefront of low carbon energy production and servicing, research and development, bringing with it potentially huge economic rewards to Anglesey and the wider North Wales economy.
EIR	The Environmental Information Regulations 2004 (SI 2004 / 3391) which set out rights of access of the public to "environmental information" held by public and certain other organisations.
Electron	A very small negatively charged particle which orbits the nucleus of an atom, and can also exist in a free state for short periods of time.
Element	A substance with atoms all of the same atomic number.
Emergency Plan	A plan outlining an Operator's emergency response in the event of a radiological emergency.
Emergency Preparedness	The state of being prepared for a radiological emergency so as to minimise Nuclear Damage.
EMITS	Examination, Maintenance, Inspection and Test Schedule: Focused on maintaining and demonstrating the effective maintenance of safety critical plant and systems that underpin the nuclear safety case. It is a key part of the nuclear safety case and nuclear site compliance arrangements - to demonstrate that any safety systems on which the nuclear safety case is predicated will operate as expected / required in the event that they are needed.
EMR	Electricity Market Reform: The programme of reform to the wholesale electricity market initiated by the White Paper *Planning our electric future: a White Paper for secure, affordable and low-carbon electricity* published in July 2011. The EMR proposals have altered during the process of consultation and pre-legislative scrutiny, but the four key proposals are: (a) the introduction of Contracts for Difference (CfD) Feed-in Tariffs to replace premium Feed-in Tariffs for medium to large-scale renewable energy generating stations, including nuclear, under which a generator will enter a long-term contract based on a pre-determined "strike price" and will receive variable payments to ensure it receives the agreed tariff; (b) a Capacity Market through which the total amount of back-up capacity needed to ensure security of supply will be bought through a central competitive auction conducted by the National System Operator a number of years in advance; (c) an Emissions Performance Standard to apply to all new fossil fuel power stations over 50MW which will place a limit on the amount of CO2 emitted to a maximum of 450gCO2/kWh; and (d) a Carbon Price Floor (introduced through provisions in the Finance Act 2011) which consists of EU ETS price and the Carbon Support Price. The Carbon Price Floor was originally intended to raise the price of carbon to around £15.70/t CO^2 in 2013 to £30/t CO^2 in 2020. In 2014 however the UK Government announced that the Carbon Support Price element would be capped at £18t/tCO^2 until 2020 which has subsequently been extended until 2021.

Encapsulation	The encasement of radioactive waste (usually LLW and ILW) by an encapsulant such as concrete.
End State	The state and condition to which the site of a designated nuclear power station or facility must be restored in order for NDA to have fully satisfied its decommissioning responsibilities under the Energy Act 2004. An End State is defined for each of NDA's individual nuclear sites and is set out in NDA's Strategy, a document which is consulted upon and agreed with the local community and key stakeholders. When the End State has been realised, NDA may make an application to the Secretary of State for Business, Energy and Industrial Strategy seeking the modification or revocation (as appropriate) of the relevant site Designating Direction.
ENEC	Emirates Nuclear Energy Corporation: Established to evaluate and implement nuclear power within the UAE and offer joint-venture arrangements to foreign investors for the construction and operation of future nuclear power plants.
Energy Act 2004	The NDA came into existence in July 2004 when the Energy Act received Royal Assent. The Act was introduced to give the NDA its legal status and the power to fulfil its responsibilities.
Energy Act 2008	Legislation containing provisions relating to the management and disposal of waste produced at nuclear installations, as well as the finances associated with the decommissioning of nuclear facilities (see FDP).
Energy Act 2013	Put in place Electricity Market Reform measures to attract the investment necessary to replace current generating capacity. Includes provisions for: (a) Contracts for Difference: Long term contracts to provide stable and predictable incentives for companies to invest in low-carbon generation; (b) Capacity Market: To ensure the security of electricity supply including provisions to allow Electricity Demand Reduction to be delivered. (c) Emissions Performance Standard: To limit carbon dioxide emissions from new fossil fuel power stations. The Act also includes provisions on de-carbonisation which enable the Secretary of State to set a 2030 de-carbonisation target range for the electricity sector in secondary legislation. Following the recent adoption of the fifth carbon budget the UK is committed to securing a reduction in CO^2 emissions by 57% by 2030 on 1990 levels. The Act also placed the Office for Nuclear Regulation on a statutory footing as the body to regulate the safety and security of nuclear stations and set out its purposes and functions.
Engie	French utility company which held a 40% stake in the NuGeneration Limited nuclear new build project at Moorside in Cumbria (previously called GDF Suez). When Westinghouse entered Chapter 11 insolvency proceedings in the US, Engie exercised a put option under which Toshiba was obliged to buy its stake. The transfer of Engie's shares completed in July 2017 leaving Toshiba as sole owner of NuGeneration Limited.
Enriched Uranium	Uranium in which the percent composition of uranium-235 has been increased from the natural level of approximately 0.7% through the process of isotope-separation.
Enrichment	The process used to increase the abundance of fissile isotopes in an

	element, such as naturally-occurring uranium.
ENSRA	European Nuclear Regulator Association
ENSREG	The European Nuclear Safety Regulators Group
Entomb	This is a method of decommissioning whereby the radioactive material is encased in a structurally long-lived material, such as concrete. The entombment structure is appropriately maintained and continued surveillance is carried out until the radioactivity decays to a level permitting decommissioning and ultimate unrestricted release of the property.
Environment Agency (EA)	The EA was established in 1996 to protect and improve the Environment in England and Wales (for Scotland see SEPA). The EA's role is the enforcement of specified laws and regulations aimed at protecting the environment, in the context of sustainable development predominantly by authorising and controlling radioactive discharges and waste disposals to air, water (surface water, ground water) and land. The principal means by which the EA regulates nuclear sites is through environmental permits issued under the Environmental Permitting (England and Wales) Regulations 2016. The EA also participates in the GDA Process.
Environmental Permit	A permit issued by the EA to control the environmental impacts associated with, among other issues, discharges and waste. Environmental Permits were first introduced in 2007 and replaced the previous consenting regimes of PPC permits and Waste Management Licences. In England and Wales, radioactive substances are covered by the Environmental Permitting regime which replaced the previous authorisation regime under the Radioactive Substances Act 1993. In Scotland and Northern Ireland, radioactive substances are covered by the Radioactive Substances Act 1993 (and subordinate legislation).
EPC Contract	Stands for "engineer, procure and construct" and is a term used both domestically and internationally to describe a contract under which an engineering contractor undertakes to: (a) design process plant (e.g. a petrochemical plant) or power plant (e.g. a turbine generator and ancillary plant, structures and infrastructure) or works with a heavy engineering element, usually to meet a specified level of performance; (b) procure all components comprised in the design; and (c) physically construct and test the plant. The equivalent term used in relation to more standard construction (e.g. housing, office blocks etc.) is 'design-and-build'.
EPCC	Emergency Planning Consultative Committee
EPCG	Emergency Planning Consultative Group
EPD	Electronic Personal Dosimeter
EPE	Emergency Preparedness Engineer
EPG	Emergency Planning Group
EPGMS (PGMS)	Emergency Plume Gamma Monitoring System is a site boundary system for monitoring any airbourne radioactivity released from a nuclear site.

EPR	Originally the European Pressurised Reactor before becoming the Evolutionary Pressurised Reactor and now just the EPR™: A reactor designed by AREVA, the first of which is being constructed at Olkiluoto in Finland. Others are being constructed at Flamanville in France and Taishan in China. Two EPR reactors are planned to be built at Hinkley Point C in Somerset. It is classified as a generation III+ reactor due to the level of safety and the economic savings that it achieves in relation to the earlier models. Full details of the reactor and its design can be found at www.epr-reactor.co.uk.
ERL	Emergency Reference Levels are the doses to an individual that could be avoided if a particular countermeasure were deployed in the event of an accident at a nuclear facility.
ERO	Emergency Response Organisation
ESA	Euratom Supply Agency: an agency established under the Euratom Treaty with the remit to ensure a regular and equitable supply of nuclear fuels to EU Member States. To perform this task the ESA applies a common supply policy and countersigns qualifying contracts for the supply of nuclear fuel.
ESBWR	Economic Simplified Boiling Water Reactor: The latest evolution of General Electric's Boiling Water Reactor design, using passive circulation for normal operations and simplified, passive safety systems. The intention is that the design's simplicity improves the overall safety of the plant, provides more location options, and yields improved economics and operational flexibility. GE Hitachi Nuclear Energy is the owner of the ESBWR.
ESC	Early Site Clearance: Modern PWRs incorporate a range of design features which facilitate decommissioning, including the use of shielding and barriers to minimise the radioactive activation or contamination of equipment, the design of systems to minimise the creation, transportation and deposition of radioactivity and the use of materials which minimise the creation of radioactive activation products. As a consequence there is less benefit from deferring decommissioning to allow radioactivity levels to reduce over time. The EPR proposed at HPC will apply ESC and decommissioning is expected to be completed within 20 years.
Escorted Access	Allowed access to certain areas of an accredited site, but must be accompanied by an escort at all times.
ESFs	Engineered Safety Features: Engineered Systems important to the safety of the plant. These systems relate to shutting down the reactor, provision of cooling, mitigating the effects of a loss of reactor coolant accident (LOCA), or minimizing offsite release.
ESLO	Emergency Services Liaison Officer
ESP	Early Site Permit: Appears to be part of the US regulatory environment leading to the grant of a full Site Licence.
ESPN	Équipements Sous Pression Nucléaires (French industry term for "Nuclear Pressure Equipment"). Derived from the European Directive 97/23/CE, ESPN regulations are used principally to size the nuclear vessel and steam generators under French law.
Espoo Convention	The Convention on Environmental Impact Assessment in a Transboundary Context done at Espoo in Finland on 25 February 1991. The International Law behind the Transboundary EIA requirements in the EIA Regs. Signatory states can raise complaints with the Implementation Committee if they are not properly consulted on developments in other signatory states in accordance with the Convention.

ESWS	Essential Service Water System: The ESWS circulates the water that cools the plant's heat exchangers and other components before dissipating the heat into the environment. Because this includes cooling the systems that remove decay heat from both the primary system and the spent fuel rod cooling ponds, the ESWS is a safety-critical system. Since the water is frequently drawn from an adjacent river, the sea, or other large body of water, the system can be fouled by seaweed, marine organisms, oil pollution, ice and debris. In locations without a large body of water in which to dissipate the heat, water is recirculated via a cooling tower.
ETP	Effluent Treatment Plant
EU	European Union
EU ETS	EU Emissions Trading System: Formerly referred to as the EU Emissions Trading Scheme, the EU ETS is one of the key policies introduced by the EU to help meet its greenhouse gas emissions target of 8 percent below 1990 levels under the Kyoto Protocol. It is a Europe-wide cap and trade scheme that started in 2005 and is the first of its kind. Each EU member state must develop a National Allocation Plan approved by the European Commission which sets an overall cap on the total emissions allowed from all the installations covered by the System. This is then converted into allowances (1 allowance equals 1 tonne of CO_2) which are distributed by EU member states to installations covered by the System. At the end of each year, installations are required to surrender allowances to account for their actual emissions. Installations can emit more than their allocation by buying allowances from the market or can sell surplus allowances to the market.
EU Procurement Rules	One 17 April 2014 three new EU directives on public procurement came into force: (a) The Public Sector Directive (2014/24) on public procurement; (b) The Utilities Directive (2014/25) procurement by entities operating in the water, energy, transport and postal services sectors; and (c) The Concessions Directive (2014/23) on the award of concession contracts. These directives are implemented in the UK by the Public Contracts Regulations 2015, the Concessions Contracts Regulations 2016 and the Utilities Contracts Regulations 2016.
Euratom Community	The European Atomic Energy Community (EAEC) was initially created in 1957 to coordinate the Member States' research programmes for the peaceful use of nuclear energy. The Euratom Treaty today helps to pool knowledge, infrastructure, and funding of nuclear energy. It ensures the security of atomic energy supply within the framework of a centralised monitoring system. The UK will cease to be a member of the Euratom Community after Brexit (or if applicable the expiry of any transitional arrangements agreed between the UK and the EAEC) following which it will become a Third Country under the Euratom Treaty.
Euratom Treaty	Treaty establishing the European Atomic Energy Community 1957
European Sites	A network of internationally important sites designated for their ecological status, comprising Sites of Community Importance (SCI), Special Protection Areas (SPAs), Special Areas of Conservation (SACs), candidate Special Areas of Conservation (cSACs), candidate Special Protection Areas (pSPAs) and European Offshore Marine Sites (EOMS). For the purposes of this glossary this term also includes

	Ramsar sites and potential SPAs.
Evaporators	Components of the plant at Sellafield used to reduce the volume of the highly active liquor through evaporation.
Event Tree	The analysis of initiating events and their consequences. An event tree starts with an initiating event and develops sequences, based on whether a plant system succeeds or fails in performing its function, and the response of related systems. An event tree provides a graphical and probabilistic representation of the various possible sequences, and hence can be used to determine the probability of negative outcomes from a particular initiating event.
EWA	Early Works Agreement
Export Control	The system of controlling the transfer of any nuclear related material including goods, information, software and technology from the UK to another State.
Exposure	Exposure of an organism to a source of radiation characterised by the dose received. (a) External exposure: exposure from a radiation source located outside the organism. (b) Internal exposure: exposure from a radiation source located inside the organism.
Exposure Pathway	A means by which radiation can reach humans.
FA3	See Flamanville 3.
FAP	Funding Arrangements Plan: The part of the FDP that sets out the Operator's arrangements to deliver sufficient funds to meet the estimated cost of the plans set out in the Operators Decommissioning Waste Management Plan.
Fast Breeder	A reactor type which is driven by the use of fast neutrons and which exploits the "plutonium economy" fuel cycle by utilising natural / depleted uranium after an initial fuel charge of plutonium. The fast neutrons (as opposed to the thermal neutrons used in conventional PWR and BWR designs) react with the ^{238}U to produce ^{239}Pu.
Fast neutron	A neutron which has not been slowed down (or "moderated") by a moderator material – typically water or graphite. The slower neutrons are referred to as thermal neutrons – meaning they have the sort of energy associated with "normal" levels of heat.
Fault Tree	The analysis of an event in a top-down manner. The event is analysed by breaking it down at each successive stage to identify what equipment and operator actions, if failed, would lead to the postulated outcome. The fault tree starts with the top event, as defined within the event tree analysis, and at each stage identifies combinations of precursor event(s) using logical operators such as AND / OR.
FCA	Fuel Cycle Area
FCO	Foreign and Commonwealth Office
FCP	Forward Control Point
FDP	Funded Decommissioning Programme: An Operator planning to construct a new nuclear power station must have an FDP in place approved by the Secretary of State prior to commencement of construction and must comply with this programme thereafter. This will include a commitment to pay into a secure, bankruptcy-remote and independently managed fund to cover all the costs of decommissioning,

	clean up and disposing of the waste. Obligations relating to FDPs are contained in the Energy Act 2008. The Nuclear Liabilities Financing Assurance Board (NLFAB) is an independent body established by the Secretary of State to provide impartial scrutiny and advice on the suitability of an FDP submitted by a nuclear operator.
FEED	Front End Engineering Design: The process by which early design and planning of a project is undertaken. The outcomes of FEED will usually provide information for project execution and will assist with gaining more certainty on price models and commercial terms for the project.
Feed in Tariff (FIT)	A means for Governments to set above-market rates for electricity generated from renewable sources. By obliging electricity utility companies to buy renewable electricity at a fixed price for a fixed number of years, renewable installations become cost effective for the installer. A feed in tariff is effectively a subsidy designed to increase the exploitation of renewable energy sources, and to help Governments to meet their carbon reduction obligations.
Feed-water	Water used to remove heat from a reactor and produce ("feed") steam to drive the turbine generators.
Fellside Heat and Power Ltd	This company produces electricity and steam through combined heat and power and has a capacity of 170MW, of which 24-26MW goes to the Sellafield site and the remaining 142-146MW goes to the National Grid. The CHP is situated just outside the licensed site at Sellafield.
FID	Final Investment Decision: In a nuclear context the term is used to refer to the final decision of a company to invest or not invest in a particular project.
FIDIC	The International Federation of Consulting Engineers (Fédération Internationale Des Ingénieurs-Conseils). An international group specialising in the production of standards used for consulting engineering and construction.
Film badge	This photographic film is a type of dosimeter used for the measurement of ionising radiation exposure for personnel monitoring purposes. The film badge may contain two or three films of differing sensitivities, and it may also contain a filter that shields part of the film from certain types of radiation.
FIM	Force Incident Manager
Fissile material	Any material fissionable by thermal (slow) neutrons. The three primary fissile materials are uranium-233, uranium-235, and plutonium-239. Although this term has sometimes been used as a synonym for fissionable material, it has now acquired this more restrictive meaning.
Fission	Fission creates the release of energy where heavy element atoms are split up into smaller atoms, producing free neutrons and large amounts of energy. The energy is derived from small changes in mass that is converted to energy (Einstein, $E = mc^2$).
Fission products	The smaller atoms produced when a large atom undergoes fission, often extremely radioactive.
Fit for Nuclear	A service provided by the Nuclear AMRC to help UK manufacturing companies get ready to bid for work in the UK civil nuclear supply chain.
Flamanville 3	EDF EPR new build project underway in France.
Flask (nuclear –	A shipping container or cask that is used to transport active nuclear

transport)	materials between nuclear sites within the UK.
Flux	This term is applied to the amount of particles or energy that crosses a unit area per unit time. The unit of flux is the number of particles or energy, per square centimetre per second.
FOAK	First Of A Kind
FoI / FoIA	Freedom of Information Act 2000: An Act which came into force on 1 January 2005 and gives people the right to request information held by or on behalf of public bodies.
FORATOM	The Trade Organisation for the Nuclear Industry in Europe.
FP	Fission Product
Friends of the Earth	See NGO.
Fuel assembly	Structured collection of fuel rods or elements, the unit of fuel in a reactor.
Fuel cladding	See Cladding
Fuel cycle	The sequence of steps involved in supplying, using, and disposing of the fuel used in nuclear reactors. The fuel cycle is “closed” if it includes the reprocessing of spent fuel and recycling of fissile materials resulting from reprocessing. The term “open” or “once-through” cycle means that the fuel is disposed of in a permanent storage site after use in the reactor.
Fuel Element Debris	Material made up of mainly metal components removed from the casing of fuel elements after use.
Fuel reprocessing	The method of processing reactor fuel in order to separate the reusable fissionable material from waste material.
Fuel rod	A long, cylindrical rod, often 12 to 14 feet in length, made up of fuel pellets containing enriched uranium in cladding. Fuel rods are bundled into fuel assemblies.
Fuel Route	Term used to refer to the set of processes and areas that fuel passes through to be brought onto a nuclear licensed site, prepared prior to use, used for fission, stored on site, undergo its initial on-site treatment and then be removed from site (as spent fuel) for onward processing.
Fukushima incident	The second most serious civil nuclear accident (after the Chernobyl incident) which occurred as a result of the Great East Japan earthquake and resulting tsunami in March 2011. Severe earthquake damage and flooding resulted in equipment failure, core damage from overheating (meltdown) and subsequent releases of radioactive material into the surrounding environment.
Fungibility	Nuclear materials are considered fungible on the basis they are mutually interchangeable. In practice this means that enriched uranium produced for a customer by a company providing enrichment services will not necessarily be derived from the actual uranium feedstock the customer in question originally supplied to the enricher - as long as the quantity of enriched uranium supplied and of course its quality, match what was originally agreed between the parties.
Fusion	Thermonuclear fusion: A process in which two or more light nuclei are formed into a heavier nucleus and energy is released.
F4E / Fusion for Energy	The European Union’s Joint Undertaking for ITER and the Development of Fusion Energy. The organisation was created under the Euratom Treaty by a decision of the Council of the European Union. F4E, which is located in Barcelona, Spain, is responsible for: providing Europe's contribution to ITER, supporting fusion research and development and

	contributing towards the construction of demonstration fusion reactors.
Gamma radiation	Very high-energy electro-magnetic rays produced during radioactive decay. These are similar to visible light and X-rays but significantly more energetic than the latter.
Gas-cooled reactor	Broad/generic expression describing a nuclear reactor where gas is used as the coolant.
Gd	Gadolinium. A fission product of uranium-235.
GDA	Generic Design Assessment: The joint assessment by the Health and Safety Executive and the EA to ensure that any new nuclear power stations built in the UK meet the highest standards of safety, security, environmental protection and waste management.
GDF	Geological Disposal Facility: A long term nuclear waste management option involving the disposal of waste in an engineered underground facility, where the geology provides a barrier against the escape of radioactivity and where the depth protects the waste from disturbances rising at the surface. Depth in this context can refer to both horizontal as well as vertical depth, for example if the disposal facility is built into the side of a mountain.
GDF (Suez)	See Engie.
Geiger Counter	A detection instrument used to detect particles of ionising radiation - alpha particles, beta particles or gamma radiation. Named after Hans Geiger (1882-1945).
Generation I	The earliest commercial nuclear power stations designs, including Magnox in the UK.
Generation II	The set of designs which makes up the bulk of today's operating nuclear power stations, including PWRs, BWRs, CANDU, VVER and AGR.
Generation III	Reactor designs available for construction today, making more use of passive safety features and including AP1000, Advanced CANDU, ABWR and ESBWR.
Generation III+	Generation III+ designs offer significant improvements in safety and economics over Generation III advanced reactor designs certified by the NRC in the 1990s. The ACR-1000 and EPR designs are considered to be Generation III+ designs.
Generation IV	Generation IV reactors are a set of theoretical nuclear reactor designs that are currently being researched. An international task force known as the Generation IV International Forum is currently developing six such designs which are expected to be ready for deployment between 2020–2030.
GIS	Geographic[al] Information System: Captures, stores, analyses, manages, and presents data that are linked to location.
GNI	General Nuclear International: the UK entity responsible for CGN's nuclear and other projects in the UK.
GNS	General Nuclear Services: joint venture between CGN and EDF responsible for completing the GDA process for the Hualong 1 reactor.
Grant-in-aid	Money received from the Government to fund the NDA's remit.
Graphite	A form of carbon used in nuclear fission reactors to slow down (moderate) neutrons. It is generally constructed in the form of blocks or sleeves.
Gray	Gray (Gy) is a unit of measurement for the absorbed dose. The absorbed dose was formerly measured in rads and 1 Gray = 100 rads. See Absorbed Dose.

	When it comes into contact with matter, ionising radiation collides with the atoms comprising it. During these interactions, it releases a part or all of its energy. The absorbed dose (expressed in Gray) is defined by the ratio of this released energy over the mass of the matter. A Gray corresponds to one Joule of energy released in one kilogram of matter.
Green Energy Certificate	Generators of electricity from renewable sources may be entitled to claim three types of Green Energy Certificate. The three types of certificate are: Renewables Obligation Certificates (ROCs), Levy Exemption Certificates (LECs) and Renewable Energy Guarantees of Origin (REGO).
Greenpeace	See NGO.
GSC	Government Security Classification: a policy introduced on 2 April 2014 replacing the previous Government Protective Marking Scheme (GPMS). It describes how HM Government classifies information assets to ensure they are appropriately protected. It applies to all information that Government collects, stores, processes, generates or shares to deliver services and conduct business. This includes the critical national infrastructure and in particular the civil nuclear and defence sectors. The system also applies to private sector bodies which provide services to the public sector.
GTA	Government Technical Advisor
GTRP	Global Threat Reduction Programme
Guidance for Site Stakeholder Groups	NDA guidance, 'Authority's Guidance for Site Stakeholder Groups', Ref LAR3.0, 27 March 2009.
GW	Gigawatt: being one billion Watts.
GWh	Gigawatt hours: being one billion watt-hours.
Habitats Directive	The European Directive (92/43/EEC) on the Conservation of Natural Habitats and Wild Flora and Fauna.
HAL / Highly Active Liquor	Intermediary stage in the vitrification process at Sellafield. Strict limits are imposed on the amounts of HAL which can be stored. HAL consists of components of spent fuel other than uranium (i.e. radioactive by-products) dissolved in concentrated Nitric Acid after separation by the PUREX process.
HALEF	Highly Active Liquid Effluent Facility: The HALEF is made of seismically qualified reinforced concrete and comprises a series of storage tanks used to store radioactive waste arising from nuclear processing operations.
Half life	The time that it takes for half of the atoms in a radioactive element to decay.
Harbour Empowerment Order	An Order issued under the Harbours Act 1964 allowing a company to establish its own Harbour.
HAZID	Hazard Identification
HAZOP	Hazard and Operability study: Used as the best way to determine what types of hazards can arise from intended design conditions.
Health Impact Assessment (HIA)	An assessment usually carried out in advance of a particular project or course of action being approved, which seeks to analyse the likely impact on human health. The HIA should be used as a tool by decision-makers to determine alternatives which would have lesser impacts on health.

Health Physics	A field of science concerned with radiation physics and radiation biology with the goal of informing the safe use of ionising radiation. Health physicists principally work at facilities where radionuclides or ionising radiation are used or produced.
Heat Exchanger	Any device that transfers heat from one system to another without physical transfer of any matter. In a nuclear reactor, the heat exchanger transfers heat from the reactor cooling system to water that passes through the turbo generators to produce electricity.
Heavy water	Water enriched to contain significantly more than the natural proportions (one in 6,500) of heavy hydrogen (deuterium, D) atoms to ordinary hydrogen atoms. Heavy water, effective in slowing neutrons down and has a low probability of absorbing neutrons, is used as a moderator in some reactor designs e.g. CANDU.
HEP	Human Error Probability: Term used in safety engineering. Probability assigned to represent the likelihood that a human, usually the operator, fails to complete a particular action correctly.
HEPA Filter	High Efficiency Particulate Air Filter
HERCA	Heads of European Radiological Competent Authorities
HEU	Highly Enriched Uranium: Uranium that has been modified by increasing the concentration of the fissionable isotope U-235, containing 20% or more of the isotope uranium-235. A quantity of HEU can be described in terms of either the total mass of all the uranium isotopes, kg U, or as the mass of the fissile isotope uranium-235, kg U 235. For example, 100kg U of 70% enriched HEU could also be described as 70kg U 235.
HEX tails	Depleted Uranium Hexafluoride, a by-product of the uranium enrichment process (part of the nuclear fuel cycle).
HIRE	Hazard Identification and Risk Evaluation: the process of the identification of hazards and their evaluation required by regulation 4 of REPPIR.
Hitachi	Hitachi Ltd is a Japanese multinational engineering and electronics conglomerate company headquartered in Tokyo, Japan. Hitachi completed acquisition of Horizon Nuclear Power on 26 November 2012.
Hitachi GE Nuclear Energy	Established in 2007 Hitachi GE Nuclear Energy is a global alliance between Japan's Hitachi and the United States' General Electric Co with the purpose of providing services under synergetic cooperation for the whole nuclear power business: from research and development, design, manufacturing, construction, test runs, operation and system maintenance.
Hitachi Nuclear Energy Europe Limited	The company established to manage and deliver Hitachi's nuclear business in the UK and Europe.
HLW	High-Level Waste: Radioactive wastes that are highly radioactive materials, usually produced as a by-product of reactions which occur inside nuclear reactors. HLW takes one of two forms: (a) spent (used) reactor fuel when it is accepted for disposal; or (b) waste materials remaining after spent fuel has been reprocessed. HLW is heat-generating and, as a result, the temperature of HLW can rise significantly over time. This has to be taken into account when designing storage or disposal facilities, for example those at Sellafield

	and Dounreay.
HMG	Her Majesty's Government, the Government of the United Kingdom.
HNB	Hunterston B (Power Station)
Horizon Nuclear Power	Horizon Nuclear Power is a UK energy company developing a new generation of Nuclear power stations. A wholly owned subsidiary of Hitachi, Ltd. planning to provide at least 5,400MW of new power capacity across its two sites, Wylfa Newydd on the Isle of Anglesey and Oldbury in South Gloucestershire. www.horizonnuclearpower.com
HP	Health Physics / Health Physicist
HPA	1 Health Protection Agency: An NDPB with a role to provide an integrated approach to protecting the UK public from threats to their health from infectious diseases, environmental hazards and radiation. 2 Hinkley Point A (power station under decommissioning) which is part of the NDA portfolio.
HPB	Hinkley Point B (Power Station): AGR power station operated by EDF Energy.
HPC	Hinkley Point C: A new nuclear power station currently under construction near Bridgewater, Somerset, England. NNB GenCo is constructing two EPR reactors capable of generating a total of up to 3,260MW of electricity.
HRA	1 Habitats Regulation Assessment 2 Hartlepool (Power Station): AGR power station operated by EDF Energy.
HSE	Health and Safety Executive: A statutory body whose role is the enforcement of work-related health and safety law under the general direction of the Health and Safety Commission established by the Health and Safety at Work Act 1974. The ONR is no longer an agency of the HSE but is now a completely independent public corporation. HSE will remain as the health and safety enforcement authority for premises outside the nuclear site licence boundary such as Associated Development sites. The HSE has the right to nominate one non-executive director to the board of the ONR.
HSWA	Health and Safety at Work Act 1974
Hualong 1 Reactor	The HPR1000 is a generation III PWR reactor developed from the ACP1000 design. The Hualong 1 reactor is currently being considered by the ONR and EA under the GDA process for deployment at BRB
HVLA	High Volume Low Activity (waste): A subset of LLW arising from decommissioning activities. Chemical properties of HVLA are such that it can potentially be disposed of to a lower level of containment than LLW.
HYA	Heysham A (Power Station): AGR power station operated by EDF Energy.
HYB	Heysham B (Power Station): AGR power station operated by EDF Energy.
I	Iodine. A fission product of uranium-235.

IACC	Isle of Anglesey County Council: In March 2006, IACC voted to support the construction of Wylfa Newydd, a new build nuclear plant to replace the existing Wylfa A plant owned by NDA and operated by Magnox. IACC also supports the development of EIP.
IAEA	International Atomic Energy Agency: The Vienna-based IAEA (part of the United Nations) is the global focal point for nuclear co-operation and promotes the peaceful use of atomic energy. It gives guidance on nuclear safety and verifies that members comply with their safeguard obligations and use nuclear material only for peaceful purposes.
ICO	Intelligent Customer Organisation: Linked to licence conditions, all nuclear operators must retain control and responsibility regardless of what operations are outsourced. The suitably qualified and experienced personnel required to fulfil this need constitute the Intelligent Customer Organisation.
ICRP	International Commission on Radiological Protection: An independent registered charity established to advance for the public benefit the science of radiological protection, in particular by providing recommendations and guidance on all aspects of protection against ionising radiation.
IDAC	Interim Design Acceptance Confirmation. An interim DAC provided to developers of nuclear power stations going through the GDA which signals that the ONR is satisfied with how designers intend to resolve any outstanding GDA issues (see DAC).
IFNEC	International Framework for Nuclear Energy Co-operation: a forum for participating states to explore mutually beneficial approaches to ensure the use of nuclear energy for peaceful purposes proceeds in a manner that is efficient and meets the highest standards of safety, security and non-proliferation.
ILW	Intermediate Level Waste: Waste with radioactivity levels exceeding the upper boundaries for Low Level Waste (LLW), but which do not require temperature to be taken into account in the design of storage or disposal facilities. ILW arises mainly from the reprocessing of spent fuel, and from general operations and maintenance of radioactive plant. The major components of ILW are metals, sludges and organic materials, with smaller quantities of cement, graphite, glass and ceramics.
Industrial Strategy	In January 2017 BEIS published a Green Paper: Building our Industrial Strategy. The broad objective of the industrial strategy is to improve living standards and economic growth by increasing productivity and driving growth across the whole country. The strategy identifies the following 10 key pillars: (a) Science (b) Research and innovation (c) Skills (d) Infrastructure (e) Business growth and investment (f) Procurement (g) Trade and investment (h) Affordable energy (i) Sectoral policies (j) Driving growth across the whole country

	(k) Creating the right institutions to bring together sectors and places. On 7 December 2017 the Nuclear Industry Council published its proposals for a nuclear sector deal focussing on how working with the UK Government, substantial cost reduction could be achieved across the UK's new build and decommissioning programmes. The Government will now consider the proposal and prepare its response.
INES	International Nuclear Event Scale: A scale from 1 to 7 introduced by the IAEA in 1990 to assess and classify the impact(s) of nuclear accidents, where 1 is an anomaly and 7 is a major accident.
Initiating event	Term used in safety engineering to refer to an initiating cause, when assessing consequences and outcomes. An initiating event can be defined as a challenge to plant operation. Event Tree Analysis involves the analysis of initiating events and their consequences.
INLA	International Nuclear Law Association
INPO	Institute of Nuclear Power Operations: A US based organisation promoting excellence in the operation of commercial nuclear power plants.
INS	International Nuclear Services Limited: A wholly-owned subsidiary of NDA. INS was formerly known as Spent Fuel Services, an operating unit within British Nuclear Group. Its main focus continues to be the customer interface to over 20 utility customers for reprocessing and MOX fuel supply contracts and the associated transportation of these products.
INSAG	International Nuclear Safety Advisory Group: a group of experts with high professional competence in the field of safety which provides advice and guidance on nuclear safety approaches, policies and principles
Intelligent Customer	Part of an organisation's overall attributes which enables it to minimise any risks to nuclear safety in all aspects of its undertaking.
Interim Spent Fuel Store	A store where spent fuel cools until it is suitable for disposal or where such fuel is stored pending disposal.
Ion	An ion can be described as an atom that has too many or too few electrons, causing it to have an electrical charge and, therefore, be electrochemically active.
Ionisation	The process of adding or removing one or more electrons from atoms or molecules, thereby creating ions. Ionisation can occur because of high temperatures, electrical discharges or nuclear radiations.
Ionising radiation	Any radiation capable of displacing electrons from atoms or molecules, thereby producing ions. High doses of ionising radiation may produce severe skin or tissue damage. Some examples are alpha, beta, gamma, x-rays, neutrons, and ultraviolet light.
IOSH	Institution of Occupational Safety and Health
IPA	The Infrastructure Projects Authority which is part of HMT responsible for managing the UK Guarantees Scheme supporting private investment in UK infrastructure projects.
IPC	The Infrastructure Planning Commission, which is now abolished. The IPC was set up under the Planning Act 2008 to determine applications for DCOs for Nationally Significant Infrastructure Projects. It was abolished under the Localism Act 2011 and the powers to determine DCOs returned to the relevant Minister i.e. BEIS in the case of nuclear power stations and major overhead grid connections.

IPPAS	International Physical Protection Advisory Service: created by the IAEA to assist states in strengthening their national security regimes.
IRR17	Ionising Radiation Regulations 2017
IRR99	Ionising Radiation Regulations 1999 now revoked and replaced by the IRR17.
Irradiation	This is the process by which an item is exposed to radiation.
IRT	Incident Response Team
ISoDA	Interim Statement of Design Acceptability. An interim SoDA provided to developers of nuclear power stations going through the GDA which signals that the EA is satisfied with how designers intend to resolve any outstanding GDA issues (see SoDA)
Isotope	Atoms of the same element which have the same number of protons but different numbers of neutrons. Hydrogen has three isotopes – all with one proton but with zero (normal hydrogen), one (deuterium) or two (tritium) neutrons in the nucleus. Similarly the two common isotopes of uranium, ^{235}U and ^{238}U both have 92 protons in their nuclei but (235-92)=143 or (238-92)=146 neutrons respectively.
ITER	Originally the International Thermonuclear Experimental Reactor, this is an international tokamak research/engineering project that could help to make the transition from today's studies of plasma physics to future electricity-producing fusion power plants. ITER is based on the 'tokamak' concept of magnetic confinement, in which the plasma is contained in a doughnut-shaped vacuum vessel. The fuel (a mixture of Deuterium and Tritium, two isotopes of Hydrogen) is heated to temperatures in excess of 150 million°C, forming hot plasma. Strong magnetic fields are used to keep the plasma away from the walls. These are produced by superconducting coils surrounding the vessel, and by an electrical current driven through the plasma. The project aims to demonstrate that it is possible to produce commercial energy from fusion.
IWS	Integrated Waste Strategy: Describes how a site optimises its approach to waste management. It includes the waste streams and discharges expected from current and future operations at the site, and the actions required to improve the site's approach to waste management.
JAERI	Japan Atomic Energy Research Institute
JET	The Joint European Torus fusion research project based at Culham and operated by United Kingdom Atomic Energy Authority on behalf of Euratom. The future of JET must be resolved as part of the Brexit negotiations between the UK and the EU.
Joint Protocol	The Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention 1992 which provides a link between the Vienna Convention and the Paris Convention.
Judicial Review	The process by which decisions of public bodies including Regulators can be challenged in Court.
Justification	The process by which a Regulator confirms that a new practice involving potential radiation exposure is justified in relation to any health detriment caused. Also known as the first radiation protection principle.
KA-CARE	King Abdullah City for Renewable and Atomic Energy: The lead institution in the nuclear programme for the Kingdom of Saudi Arabia.
KEPCO	Korea Electric Power Corporation
KHNP	Korea Hydro & Nuclear Power which operates over 20 nuclear power

	stations and 27 hydropower plants in South Korea
KI	Potassium Iodide: Can be administered in tablet form to prevent accumulation of radioactive iodine (I-131) in the thyroid gland in the event of a nuclear emergency.
KI03	Potassium Iodate: Like KI, can also be administered in tablet form to prevent accumulation of radioactive iodine.
Kinetic energy	The kinetic energy of an object is the energy it possesses because of its motion. It is calculated by virtue of its mass and velocity and is equal to half its mass times its velocity squared. Kinetic energy of atoms or molecules increases with temperature as the heat (energy) transferred into the substance is converted into kinetic energy with resulting increase in the velocities of the particles.
KM	Knowledge Management: The IAEA defines KM as: "*An integrated, systematic approach to identifying, acquiring, transforming, developing, disseminating, using, and preserving knowledge, relevant to achieving specified objectives*."
KNOO	Keeping the Nuclear Option Open: A programme of work involving industry, academia and Government, with Research Council funding, carried out during the period 2005 - 2010.
Kotra	The Korean Trade Investment Promotion Agency
Kr	Krypton. A fission product of uranium-235.
KW	Kilowatt, being one thousand Watts.
LAF	Laminar Air Flow
LC	Licence Condition, see Site Licence
Legacy	The nuclear legacy is represented by: (a) the nuclear sites and facilities operated by UKAEA and BNFL which were developed between the 1940s and the 1960s, including the wastes, materials and spent fuels they produced; and (b) the Magnox fleet of nuclear power stations designed and built in the 1960s and 1970s and operated on the Government's behalf by BNFL, and the plant and facilities at Sellafield used for the reprocessing of Magnox fuel as well as all associated wastes and materials.
Lethal dose (LD)	A lethal dose of radiation is the dose required to cause death to 50 percent of an exposed population within 30 days (LD 50/30). Typically, the LD 50/30 is in the range from 400 to 450 rem (4 to 5 Sieverts) received over a very short period. Duration of the exposure is important here as the dose received by patients in radiotherapy treatments can reach 20 Sv over time.
LEU	Low Enriched Uranium: enriched uranium that contains less than 20% of uranium-235.
LEU Bank	An IAEA owned and controlled facility located at the Ulba Metallurgical Plant in Oskemen, Kazakhstan which maintains a 90 metric tonne reserve of LEU in case there is disruption of existing fuel supply arrangements in member states due to exceptional circumstances and LEU cannot be obtained by any other means.
Levy Exemption Certificates (LECs)	One of the three types of Green Energy Certificate that generators of electricity from renewable sources may be entitled to claim. LECs can be sold to suppliers who use them to prove that they have supplied non-domestic customers with renewable energy.

Liabilities	The costs involved in decommissioning, the processing, long term management, storage and final disposal of waste materials and spent fuel, and the environmental remediation of nuclear sites.
Licensed Site	A site in respect of which a Nuclear Site Licence has been granted.
Licensee	An organisation to which a Nuclear Site Licence has been granted.
Lifetime	The time period during which a nuclear power station is licensed to operate.
Lifetime Dose	Total radiation exposure of an individual over his or her lifetime.
Lifetime Extension	Agreement by the Regulator for a nuclear power station to extend its Lifetime.
Light water	Naturally occurring water (which is predominantly protium isotope) as distinguished from heavy water (i.e. enriched in deuterium isotope) or tritiated water (enriched in tritium isotope).
Light water reactor	Light water reactors use ordinary water as both a moderating material and a reactor coolant. It includes boiling water reactors (BWRs) and pressurised water reactors (PWRs), the most common types used throughout the world.
Limits of Deviation (LoD)	Relating to a DCO and the Order plans, the works plans include the limits within which the development and works may be carried out and any limits of deviation provided for in the Order. A promoter has to explain how these limits of deviation have been derived.
LLET	Low Level Effluent Treatment plant
LLW	Low-Level Waste: Waste which includes metals, soil, building rubble and organic materials, arising principally as lightly contaminated miscellaneous scrap. Wastes other than those suitable for disposal to landfill, but generally not exceeding 4 GBq/te (gigabecquerels/tonne) of alpha or 12 GBq/te of beta/gamma activity. Metals are mostly in the form of redundant equipment or from decommissioning of radioactive/nuclear facilities. Organic materials are mainly in the form of paper towels, clothing and laboratory equipment that have been used in areas where radioactive materials are used – such as hospitals, research establishments and general industry as well as the nuclear industry. The National Repository for LLW is near Drigg, Cumbria.
LLWR	Site of the Low Level Waste Repository in Cumbria, near Drigg.
LMU	Liabilities Management Unit: A unit set up within the DTI (Department of Trade and Industry, now BIS) to strengthen its ability to drive forward work on the nuclear legacy and help to prepare the ground for the NDA. (For more information see the White Paper – Managing the Nuclear Legacy.)
LNT	Linear Non-Threshold: The hypothetical connection between radiation dose and health effects. The assumption is based on early work on Drosophila and the 1956 Biological Effects of Radiation/Genetics panel. The data was collected at higher doses and the effects extrapolated to low dosage levels with the assumption that there is a straight line connection between the two and the line should cross at zero harm occurring at zero dose. It also assumes that the risk per dose is constant and independent of dose-rate. See Brenner et al PNAS November 25, 2003 vol. 100 no. 24 13761–13766. This hypothesis is the international basis of radiological safety but is now being re-examined by a number of medical academics including Professor Pamela Sykes at Flinders University in Australia and others including a number of research projects funded by the Low Dose Radiation

	Research Program of the U.S. Department of Energy. LNT is increasingly controversial.
Load Factor	The ratio of the power a generating assess has produced over a certain time period divided by the energy it would have produced if it had been operating at its peak capacity. In 2016 the load factor of UK nuclear power stations was 77%.
LoC	Letter of Compliance: Written advice issued by Radioactive Waste Management Limited (RWM) following a Disposability Assessment which confirms that RWM considers that a proposed waste package would be suitable for geological disposal.
LOCA	Loss-of-Coolant Accident: A mode of failure for a nuclear reactor. If not managed effectively, the results of a LOCA could result in reactor core damage. Each nuclear plant's emergency core cooling system (ECCS) exists specifically to deal with a LOCA.
LOD	Load of Documents. Contractual document review mechanism whereby documents and records pertaining to a specific contract are submitted together as a LOD.
LOHA	Location Occupational Health Advisor
LOI	Letter of Intent
London Convention 1972	Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972.
LR	Learning Report
LRF	Local Resilience Forum
LTP	Lifetime Plan: A document describing the totality of the activities in terms of scope, schedule and cost to be undertaken at each site to transition from the current state to the proposed End State. Submitted annually from the sites to the NDA.
M&O (Contract)	Management and Operation (Contract): The contract in place between an SLC and the NDA regarding all aspects of the day to day management and operation of the NDA sites.
Magnox	First generation UK reactor, so called because of the non-oxidising magnesium alloy cladding used to contain uranium fuel rods. Not to be confused with Magnox Limited – the SLC carrying out operations on behalf of the NDA at various nuclear sites.
Magnox Ltd	SLC for 12 sites (now including Harwell and Winfrith, 2 ex RSRL sites).
Maintenance Schedule	Identifies the requirements and periodicities for regular and systematic examination, inspection, maintenance and testing of all plant performing a safety function. Refer to “Site Licence Conditions”, LC28.
Mass number	The number of protons plus neutrons in the nucleus of an atom. Symbol A.
Masterplan	A masterplan deals with change in a defined physical area for a defined time period. It sets out proposals for buildings, spaces, movement and land use and matches these aspirations with an implementation strategy. Masterplans can be prepared for any stage of a project’s life.
MBC	Media Briefing Centre
MBUNS	Manual Backup Notification System
MDC	Medical Decontamination Centre
MEBs	Multi Element Bottles: Used to store light water reactor spent fuel assemblies in THORP Storage Ponds.

MECC	Mobile Emergency Control Centre
Megawatt	Equal to one million watts, the productive capacity of electrical generators operated by a utility company is often measured in megawatts.
MELOX	The AREVA MELOX plant, situated in the regional department of Gard (France), produces MOX fuel assemblies intended to power light-water reactors in different countries. MELOX is the world leader in this market, with more than 1,500 metric tons of MOX fuel produced since the plant started operation.
Menter Newydd	A non-incorporated joint venture between Hitachi Nuclear Energy Europe Limited, Bechtel Management Company Limited and JGC New Energy Limited contracted with Horizon for the delivery of a range of services including a significant proportion of on-site construction activities.
Metal Fuels	Fuels using natural uranium metal, as used in early gas-cooled reactors like Magnox.
MFT	Mean-Field Theory
MHI	Mitsubishi Heavy Industries
Milling	Process by which minerals are extracted from ore, usually at the mine site, to produce a mineral concentrate for sale.
MMO	Marine Management Organisation: Established by Part I, Chapter I of the Marine and Coastal Access Act 2009 to make a contribution for sustainable development in marine areas. The MMO assumed much of the work of the Marine and Fisheries Agency and also acquired new roles previously associated with DECC and the Department for Transport. The MMO is responsible for implementing parts of the marine planning and licensing system, responding to emergencies affecting marine areas, and working closely with Natural England to create and manage a network of marine protected areas. Please note, however, that marine regulation and licensing has been devolved in Scottish inshore and offshore waters to the Scottish Executive (Marine Scotland), in Welsh inshore waters to Welsh ministers (Marine Consents Unite) and in Northern Ireland's waters to the Northern Ireland Executive (Department for the Environment).
Moderator	A substance which slows neutrons down in a 'thermal' reactor to enable fission to take place. The term "thermal" refers to the energy of the neutrons after moderation (slowing). See Kinetic Energy for a little more explanation.
MOF / MOLF	Marine Off-Loading Facility: A jetty or harbour built at the site of a NPP for the delivery of materials and construction components.
MOI	Mobile Operating Interface
Molecule	The smallest portion of a substance that can exist by itself and retain the properties of the substance. Molecules consist of multiple atoms and a particular molecule has a specific number of atoms arranged in a specific way. Water is a molecule consisting of two hydrogen atoms and one oxygen atom – the hydrogen atoms are bound to opposite sides of the oxygen atom with an angle of about 104.5° between the two hydrogen atoms.
Monitoring	The measurement of radiation levels, concentrations, surface area concentrations or quantities of radioactive material and the use of the results of these measurements to evaluate potential exposures and doses.
Moorside	Moorside is NuGen's project which originally aimed to develop three

	AP1000 reactors on land in West Cumbria, North West England. In late 2017 Toshiba announced that KEPCO was its preferred bidder to acquire NuGen.
MOS	Monitoring Outstation
MOU	Memorandum of Understanding
MOX Fuel	Mixed Oxide Fuel: A blend of oxides of plutonium and natural uranium, reprocessed uranium, or depleted uranium which behaves similarly (though not identically) to the low enriched uranium feed for which most nuclear reactors were designed. MOX fuel is an alternative to low enriched uranium fuel used in the light water reactors that predominate nuclear power generation.
MPower	SMR reactor vendor
MRWS	Managing Radioactive Waste Safely: Framework for long term management and disposal of higher activity waste.
MSR	Molten Salt Reactor: Reactor technology at experimental stage.
mSv	Millisievert: a measure of the absorption of radiation by the human body.
MTPAS	Mobile Telephone Preference Access Service
Multi Package Contract	Under a multiple package contract (often referred to in the UK as "multi-contracting" or "construction management"), the plant owner, with the assistance of an Architects Engineer (A/E) (or construction manager) and other consultants, assumes overall responsibility for managing the design and construction of the project.
MW	Megawatt
MWe	Megawatt electrical: Unit of electrical power produced.
MWth	Megawatt thermal: Unit of thermal power produced.
NAIR	National Arrangements for Incidents Involving Radioactivity
NAO	National Audit Office: The NAO audits most public-sector bodies in the UK (including the NDA) and produces value-for-money reports into the implementation of Government policies.
National Park	An area of land designated in England, Scotland and Wales at a national level. The aims and purposes of National Parks are laid out in the 1949 National Parks and Access to the Countryside Act, and are to conserve and enhance the natural beauty, wildlife and cultural heritage and to promote opportunities for the understanding and enjoyment of the special qualities by the public and to seek to foster the economic and social well-being of local communities within the National Parks. In Scotland, there are additional aims and purposes concerning the promotion of the sustainable use of the natural resources of the area and to promote sustainable economic and social development of the area's communities. For the Broads, aims and purposes relating to navigation are included. When the aims and purposes conflict with each other, the Sandford Principle should be used to give more weight to conservation of the environment.
National Waste Research Forum	The SLC-led forum for sharing common research and development needs, risks and opportunities.
Natural England	The Government's adviser on the natural environment, providing practical scientific advice on how to look after England's landscapes and wildlife. Natural England is an executive non-departmental public body, sponsored by the Department for Environment, Food & Rural Affairs.

	Within England Natural England is responsible for helping land managers and farmers protect wildlife and landscapes, advising on the protection of the marine environment in inshore waters (0 to 12 nautical miles), improving public access to the coastline, supporting National Trails and managing 140 National Nature Reserves, providing planning advice and wildlife licences through the planning system, managing programmes that help restore or recreate wildlife habitats, conserving and enhancing the landscape, and providing evidence to help make decisions affecting the natural environment.
Natural Uranium	This refers to the properties of naturally-occurring uranium as found in natural sources. It contains 0.7 percent uranium-235, 99.3 percent uranium-238, and a trace of uranium-234 by weight. In terms of the amount of radioactivity, it contains approximately 2.2 percent uranium-235, 48.6 percent uranium-238, and 49.2 percent uranium-234.
Nawah Energy	The new utility company set up to run the UAE NPP project at Barakah in Abu Dhabi.
NCfN	National College for Nuclear
NDA	1 Nuclear Decommissioning Authority: A non-departmental public body (NDPB) set up in 2005 by the Energy Act 2004 to oversee the decommissioning and clean-up of the UK's designated civil nuclear legacy. Its sponsoring department is DECC. 2 Non-Disclosure Agreement
NDA Properties Limited	The wholly owned subsidiary of NDA associated with its property and management activities.
NDA sites	Berkeley, Bradwell, Capenhurst, Chapelcross, Dounreay, Dungeness A, Harwell, Hinkley Point A, Hunterston A, LLWR (near Drigg), Oldbury, Sellafield, Sizewell A, Springfields, Trawsfynydd, Winfrith and Wylfa. Note: The NDA transferred ownership and operation of the Capenhurst site to Capenhurst Nuclear Solutions (CNS), a URENCO Group company, in 2012. An agreement has been signed between the NDA and CNS for the processing of Government-owned by-product and legacy material on the site. From April 2010 the NDA permanently transferred ownership of Springfields Fuel Ltd to Westinghouse Electric with a 150 year lease, with Springfields Fuels Ltd contracted to provide decommissioning and clean-up services to NDA for historic liabilities.
NDPB	Non-Departmental Public Body: A body which has a role in the process of national government, but is not a government department or part of one, and which accordingly operates to a greater or lesser extent at arm's length from ministers. More simply, this means a national or regional public body, operating independently of ministers, but for which ministers are ultimately responsible.
NDT	Non-Destructive Testing
NEA	Nuclear Energy Agency: A specialised agency within the OECD. The mission of the NEA is to assist its Member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for the safe, environmentally friendly and economical use of nuclear energy for peaceful purposes.
NEBOSH	National Examination Board in Occupational Safety and Health
NEC	New Engineering Contract. Created by the Institution of Civil Engineers, NEC guides the drafting of documentation used for civil engineering projects, defining the duties of the Employer and of the Contractor.
NEPD	Nuclear Emergency Planning Delivery Committee
NEPLG	Nuclear Emergency Planning Liaison Group: A forum under the

	chairmanship of BEIS of a wide range of organisations with interests in off-site planning for an emergency at a civil or defence nuclear site. In 2012 NEPLG was incorporated into the Nuclear Emergency Planning Delivery Committee and its associated working groups.
NESA	Nuclear Energy Skills Alliance: A collaboration between skills bodies to ensure a joint approach to addressing the breadth of skills challenges across the nuclear programme. Members include: CITB, Cogent Skills, ECITB, NI, NSAN, Semta, Welsh Government and HEI representation
Neutron	An uncharged atomic particle found in the nuclei of atoms, which can cause fission in some atoms.
Neutron flux	This term refers to the number of neutrons passing through an area over a span of time. It is a measure of the intensity of neutron radiation, which is measured in neutrons/cm^2-sec.
Neutron source	This is a general term referring to the variety of materials that emit neutrons. An example of this is a mixture of radium and beryllium, which can be inserted into a reactor to ensure a neutron flux large enough to be distinguished from background radiation on neutron detection equipment.
New Build Utilities	There are three nuclear new build utilities in the UK: NNB GenCo with plans to build 6.4GW of new nuclear, NuGeneration Ltd which was planning 3.6GW capacity (which Toshiba has just announced it hopes to sell to KEPCO) and Horizon Nuclear Power generating at least 5.4GW.
NEWS	Nuclear Events Web-based System: A system run jointly by the IAEA, the NEA and WANO. The purpose of NEWS is to provide fast, flexible and authoritative information on the occurrence of nuclear events that are of interest to the international community. NEWS has been established to cover all significant events in nuclear power plants, research reactors, nuclear fuel cycle facilities and occurrences involving radiation sources or the transport of radioactive material.
NFCE	Nuclear Fuel Centre of Excellence: A Centre run jointly by NNL and The University of Manchester's Dalton Nuclear Institute, and based in their respective facilities at sites in Manchester, Preston and West Cumbria.
NGO	Non-Governmental Organisation: Independent pressure groups often adopting a strong stance for campaigning against nuclear power. Government decisions (policy or otherwise) to pursue nuclear projects are often met with resistance from NGOs and are regularly challenged in the courts by way of Judicial Review. Prominent anti-nuclear NGOs include Friends of the Earth and Greenpeace.
NGR	National Grid Reference
NI	1. Nuclear Island (see: Nuclear Island) 2. Nuclear Institute: Created on the 1 January 2009 from the merger of the British Nuclear Energy Society and the Institution of Nuclear Engineers. The Nuclear Institute is a charity, professional institute and a learned society. The Institute offers a range of memberships from professorial level to layperson with an interest in nuclear matters.

NIA	1 See Nuclear Installations Act 1965 2 Nuclear Industry Association: The trade association and representative voice of Britain's civil nuclear industry. It represents more than 270 companies including the operators and vendors of nuclear power stations, those engaged in decommissioning, waste management, nuclear liabilities management and all aspects of the nuclear fuel cycle, nuclear equipment suppliers, engineering and construction firms, nuclear research organisations, and legal, financial and consultancy companies. http://www.niauk.org/
NIAS	Nuclear Industry Airwave Signal
NIC	The Nuclear Industry Council
NII	Nuclear Installations Inspectorate, whose functions are now within the ONR.
NIMBY	"Not In My Back Yard" a concept whereby the public complain about developments that mutually benefit society being located close to their home
NIRAB	Nuclear Innovation Research Advisory Board: Established by UK Government as part of the Nuclear Industrial Strategy in 2013, NIRAB was made up of nuclear research experts from across industry, academia and Government and had the remit to advise Government on priorities for UK nuclear R&D and innovation required to underpin policy. NIRAB is currently being restructured.
NIREX	Nuclear Industry Radioactive Waste EXecutive: The company established to manage the long-term disposal of ILW arising from nuclear waste management and decommissioning. In October 2006 the Government announced that the functions of Nirex would transfer to the NDA. The integration of Nirex into the NDA was completed on 2 April 2007 and now forms part of the Radioactive Waste Management Directorate.
NIRO	Nuclear Innovation & Research Office: A small team, hosted in NNL, which will develop and take forward the work of the restructured NIRAB in helping to define a national programme of nuclear energy R&D for the UK.
NISR	The Nuclear Industries Security Regulations 2003: The NISR provide for the security regulation of the UK civil nuclear sector. In particular, the NISR define the term "nuclear material" for the purposes of the Anti-Terrorism, Crime and Security Act 2001.
NLF	Nuclear Liabilities Fund: A Scottish registered company holding investments with a market value of £8.85bn at 31 March 2014, for the purpose of providing funding to meet certain waste management costs of and, in due course, the decommissioning liabilities of, the eight nuclear power stations of EDF Energy Nuclear Generation Group Limited.
NLFAB	Nuclear Liabilities Financing Assurance Board: an independent board created by DECC to provide impartial scrutiny and advice on the suitability of the Funded Decommissioning Programme (FDP), submitted by operators of new nuclear power stations. The Board will advise the Secretary of State on the financial arrangements that operators submit for approval, and on the regular review and on-going scrutiny of funding. NLFAB has robust powers to protect the funds supporting operators' FDPs.
NMA	Nuclear Materials Accountancy

NNA	National Nuclear Archive: A project funded by the NDA to build a new purpose-built archive facility at Wick to provide long-term storage of records and other archive material from civil nuclear sites in the UK from 2016.
NNB GenCo	NNB Generation Company (HPC) Limited: The company responsible for the development of the project at Hinkley Point C. NNB GenCo is owned by EDF Energy (66.5%) and CGN (33.5%).
NNL	The UK's National Nuclear Laboratory: Owned and managed by UK Government. NNL operates on a number of sites – mainly in the North West of England – including Sellafield and Springfields. NNL is a leading nuclear technology services provider, which operates as a commercial business – competing for and delivering work for paying customers. The company has experience all across the fuel cycle and specialises in providing customers with tailored solutions by applying the right level of technical innovation and intellectual support.
NOAK	Nth Of A Kind
No Harm Threshold	The risk of death of one in one million per annum which is generally considered in the radiation protection community as equating to a dose of 10 micro Sieverts.
NORM	Naturally-Occurring Radioactive Materials: Materials found naturally and are often found in the wastes arising from the oil, gas and mining industries.
NORMS	National Objectives, Requirements and Model Standards
Northern Power House	An initiative to boost the local economies in the North by investing in skills, innovation, transport and culture as well as the devolution of significant powers and budgets to elected mayors.
Notification	An alert provided to national or international contacts providing details of a nuclear emergency or potential nuclear emergency.
NPDUK	Nuclear Power Delivery UK: The former partnership between Westinghouse, Shaw Group, Laing O'Rourke and Toshiba, working to deliver the AP1000 nuclear power reactor to the UK.
NPE	Nuclear Pressure Equipment
NPP	Nuclear Power Plant: 1 A nuclear reactor or reactors together with all structures, systems and components necessary for the safe generation of electricity and/or heat. 2 An electrical generating facility using a nuclear reactor as its heat source to provide steam to a turbine generator.
NPS	National Policy Statements: Documents issued by the Secretary of State setting out national policy in relation to one or more specified descriptions of NSIP development. There is an overarching Energy NPS (EN-1). The others relate to specific areas, for example, the Nuclear Power Generation NPS (EN-6). There are 12 designated or proposed NPSs in total. Of these, seven have been designated by Parliament. On 7 December 2017 the UK Government published a consultation on the proposed process and criteria to designated potentially suitable sites as part of a new NPS for nuclear power above 1GW single reactor capacity for deployment between 2026 and the end of 2035.
NRC	Nuclear Regulatory Commission: The US equivalent of the ONR.

NRPB	The National Radiological Protection Board was a public authority in the UK created by the Radiological Protection Act 1970. In 2005 NRPB was amalgamated into the Centre for Radiation, Chemicals and Environmental Hazards (CRCE) which is a division of the HPA.
NRW	Natural Resources Wales: The new environmental regulator for Wales with oversight of the Wylfa Newydd project.
NSP (formerly NSP)	Nuclear Skills Passport: A highly secure web based platform that can be used to record and demonstrate the achievement of competence and nationally agreed and recognised skills and training standards as a tool to drive performance improvement and support transferability and mobility of the workforce. www.ns4p.co.uk
NSAN	National Skills Academy for Nuclear: An employer-led organisation established to ensure that the UK Nuclear Industry and its Supply Chain has the skilled, competent and safe work-force it needs to deal with the current and future UK nuclear programme, including all sub-sectors. NSAN is "The lead strategic body that represents the industry to stimulate, coordinate and enable excellence in skills to support the nuclear programme." www.nsan.co.uk
NSAN-M	National Skills Academy Nuclear Manufacturing: An expansion to the remit of NSA Nuclear to ensure the skills needs for manufacturing in the nuclear supply chain are addressed. This is in partnership with Semta SSC and Nuclear AMRC to ensure a 'one stop shop' for manufacturing nuclear skills development.
NSC	Nuclear Safety Committee: A specific requirement for licensee's compliance to Licence Condition (LC) 13. The purpose of this condition is to ensure that the licensee sets up a nuclear safety committee (NSC) which can consider and advise on all matters which may affect safety on or off the licensed site. The committee must have members who are adequately qualified to perform this task and to provide a source of authoritative advice to the licensee.
NSCP	Nuclear Supply Chain Partnership: Bings together manufacturing companies who have a realistic offering to the nuclear developer, reactor vendor, and top tiers of the supply chain. It acts as a business tool to create a manufacturing legacy for the UK.
NSIP	Nationally Significant Infrastructure Project: These are large infrastructure projects specified in the Planning Act 2008 such as new nuclear power stations. Other developments that can be a NSIP include other power stations (including offshore wind farms), gas storage facilities, energy transmission systems, energy from waste projects, road, port, airport, reservoirs and major waste water treatment plants and water transfer schemes. Applications relating to an NSIP are made to the Secretary of State for a Development Consent Order (DCO) which replaces the old regime of applications for Section 36 Consents under the Electricity Act 1989 (although this remains for some applications which fall outside of the NSIP regime). DCOs bring together a number of different planning and consenting regimes including planning permission, compulsory purchase powers, the diversion or stopping up of rights of way and marine licences. The individual scheme promoter engages in significant community and stakeholder consultation before making its formal application to the Secretary of State, who will decide whether or not to grant development

	consent in accordance with relevant designated National Policy Statements (NPSs). The Secretary of State determines the proposal after the examination of the NSIP application by an examiner (or examiners), appointed by the Planning Inspectorate on behalf of the Secretary of State. That examination process is principally made up of the submission of written representations, but can also include hearings before the examiner(s). The Secretary of State's decisions are open to legal challenge.
NSSS	Nuclear Steam Supply System: That part of an NPP which incorporates the nuclear heat source, the heat transport system and other systems directly connected to the NSSS. Usually referred to as "N-triple S".
NTN	Nuclear Training Network: An online learning portal for the Nuclear Industry where employers and providers can share and enable access to training resources. www.nucleartrainingnetwork.com
Nuclear AMRC	Nuclear Advanced Manufacturing Research Centre: Works with companies along the UK civil nuclear manufacturing supply chain, combining the manufacturing and engineering expertise of the University of Sheffield with the nuclear and materials capacity of Dalton Nuclear Institute at the University of Manchester.
Nuclear Concrete	Concrete for the construction of the nuclear island, usually a key Regulatory Hold Point during construction of an NPP.
Nuclear Energy	The energy released by a nuclear reaction (either fission or fusion) or by radioactive decay.
Nuclear Fuel	Uranium or plutonium which has been fabricated into pins, assemblies, plates, or other such similar form for the purposes of fuelling a nuclear reactor. Other High-Z elements are capable of being used as nuclear fuel (e.g. thorium). For fusion reactors.
Nuclear fuel cycle	See Fuel Cycle.
Nuclear Graduates Programme	Established by the NDA and supported by a range of employers the Nuclear Graduate Programme is for those looking to enter the nuclear industry but wishing to work with a variety of employers in the sector to develop a broad knowledge and understanding of the sector through a range of placements.
Nuclear Installations Act 1965	The Nuclear Installations Act 1965: The NIA 1965 is the principal piece of UK legislation implementing the Paris Convention and Brussels Convention in the UK and sets out statutory provisions for nuclear liability and licensing of nuclear installations.
Nuclear Island (NI)	Nuclear Island: That part of an NPP which incorporates all equipment, systems, installation and control and other relevant hardware installed within the reactor and reactor auxiliary buildings. The boundaries of the NI are normally defined as being one metre outside the external boundaries of the above mentioned buildings in the case of piping and two metres for cable. An NPP is divided into two main parts i.e. the nuclear island and the conventional island. The nuclear island is further sub-divided into the NSSS and the balance of nuclear island i.e. everything else that needs to be designed, constructed and tested to complete the nuclear island.
Nuclear Liability	The strict legal liability of a Licensee for all nuclear damage as defined under the Nuclear Installations Act 1965.

Nuclear Lifecycle	A whole lifecycle approach to a nuclear power project consisting of several phases: R&D, Conceptual Design, Detailed Design, Construction, Commissioning, Operations and Maintenance, Refurbishment or Life Extension (if applicable) and Decommissioning.
Nuclear Non-Proliferation (NPT)	A process by which the spread of nuclear weapons technology is prevented. See also the Treaty on the Non-Proliferation of Nuclear Weapons.
Nuclear Provision	The NDA's best estimate of how much it will cost to clean up the UK's legacy nuclear sites based on the expected costs of decommissioning, dismantling and demolishing buildings, managing and disposing of all waste and remediation of land.
Nuclear Reactor	1 A device in which nuclear fission may be sustained and controlled in a self-supporting nuclear reaction. The varieties are many, but all incorporate certain features, including fissionable material or fuel, a moderating material (unless the reactor is operated on fast neutrons), a reflector to conserve escaping neutrons, provisions of removal of heat, measuring and controlling instruments, and protective devices. The reactor is the heart of a nuclear power plant. 2 A device in which a fusion chain reaction can be initiated, maintained, and controlled. Its essential components are fuel, shielding, and coolant. There are different approaches to fusion of which ITER, being a development of the JET reactor at Culham and the US National Ignition Facility at the Lawrence Livermore National Laboratory are two leading different approaches.
Nuclear Safety	The protection of people and the environment from the harmful effects of ionising radiation.
Nuclear Safety Culture	Nuclear Safety Culture: IAEA Safety Series No75-INSAG-4 Safety Culture defines NSC as "that assembly of characteristics and attitudes in organisations and individuals which establishes that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance".
Nuclear Site Licence	See Site Licence.
Nuclear Supply Chain	The system of organisations, people, technology, activities, information and resources involved in moving nuclear energy from generator/supplier to customer.
Nuclear Waste	A particular type of radioactive waste that is produced as part of the nuclear fuel cycle. Radioactive waste is a broader term that includes all waste that contains radioactivity. Nuclear waste is produced as a result of the activities needed to produce nuclear fission. These include extraction of uranium from ore, concentration of uranium, processing into nuclear fuel, and disposal of by-products.
Nucleus	The core of an atom, occupying little of the volume, containing most of the mass, and bearing positive electric charge. It consists of protons and neutrons with the number of protons defining the identity of the element. Different isotopes of the same element have (by definition) the same number of protons but differ in the number of neutrons in the nucleus.
NuGen	NuGeneration Limited: A UK nuclear company that had been taking forward plans to build 3 AP1000 reactors at Moorside adjacent to the Sellafield complex in West Cumbria. Until July 2017 NuGen was a joint

	venture between Toshiba and Engie. Following the exit of Engie Toshiba announced in December 2017 that KEPCO was its preferred bidder for the acquisition of NuGen.
NuScale	USA based vendor of SMR technology with each of 12 possible units rated at 45 MWe.
OCC	Outage Control Centre
OCNS	Formerly Office for Civil Nuclear Security: It was a unit within HSE which regulated security arrangements in the civil nuclear industry, including security of nuclear material in transit, exercising statutory powers. This was primarily in order to protect against the threats of terrorism and nuclear proliferation. The OCNS is now part of the ONR and its responsibilities fall under the ONR Civil Nuclear Security (CNS).
OE	Operational Experience
OECD	Organisation for Economic Cooperation and Development: An international organisation of 34 countries helping governments tackle the economic, social and governance challenges of a globalised economy.
OEF	Operational Experience Feedback
Off the Bars	When a nuclear power station is not generating electricity.
Off-site release	Postulated outcome in safety engineering. Release of radioactivity which leaves the site boundary.
Oi	Nuclear power plant located in the town of Oi in Japan.
OJEU	Official Journal of the EU: All procurement in the public sector is subject to EC Treaty principles of non-discrimination, equal treatment and transparency. The EC Public Procurement Directives require contracting authorities, such as NDA, to provide details of procurements in a prescribed format, which are then published in the OJEU.
OL	Organisational Learning
Olkiluoto	Site of a new EPR reactor being built in Finland owned by Teollisuuden Voima Oyj (TVO). TVO operates two existing reactors at the site and, in addition to the EPR, a fourth reactor is to be built there although the timing for decisions on this has slipped.
OL3	Oikiluoto 3 (See Oikiluoto).
OND	Office for Nuclear Development: was established to facilitate new nuclear investment in the UK by: (a) enabling operators to build and operate new nuclear power stations in the UK from the earliest possible date and to enable new nuclear to make the fullest contribution it is capable of, with no public subsidy, and with unnecessary obstacles removed; (b) building and maintaining the UK as the best market in the world for companies to do business in nuclear power; (c) creating and supporting a globally competitive UK supply chain, focusing on high value added activities to take advantage of the UK and worldwide nuclear programme; and (d) supporting and advising the Secretary of State on nuclear safety, security and safeguards, ensure continued progress with waste management and decommissioning and to implement the Governments Global Threat Reduction Programme (non-proliferation).

	It was created by John Hutton in 2008 and was the first of the "Offices" in the energy policy area. The founding Chief Executive was Mark Higson and the Expert Chair was Dr Tim Stone CBE.
ONR	The Office for Nuclear Regulation: Established in April 2011 to replace the NII and responsible for all nuclear sector regulation across the UK. The ONR is no longer an agency of the Health and Safety Executive and is now a public corporation. ONR is the regulatory and enforcing authority on GB nuclear sites with a scope of nuclear safety, conventional safety, security, safeguards, and transport. ONR was created following the recommendations of the Stone Review commissioned in 2008 by John Hutton as Secretary of State for BERR.
ONR Security Policy Framework	ONR security requirements for the protection of Sensitive Nuclear Information and personnel security in the civil nuclear industry Reference TRIM Ref:4.4.2.4890.SB1/6.
Operation and Maintenance Costs	The operational costs of running a nuclear power plant excluding fuel and any capital costs.
Operational master plan	A master plan which covers the operational life of a facility, following construction and prior to decommissioning.
OPEX	Operational Experience
Optimisation	The process of ensuring that radiation protection measures are as effective as possible. Also known as the second radiation protection principle.
Order Plans	The Order Plans are those plans which accompany the draft DCO as required by the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009, and include, inter alia, plans showing land, works, access, statutory and non-statutory designations.
Orphan Source	A radioactive source that is not under the control of a Licensee.
ORR	Office of Rail Regulation
OSPAR	Oslo and Paris Convention for the Protection of the Marine Environment of the North-East Atlantic: The OSPAR Convention impacts on the disposal of liquid effluent into the marine environment.
Outage	Period of reactor shutdown during which a nuclear power station ceases to generate electricity. Can be planned, for example for maintenance, or unplanned. Many reactor types can only be refuelled on outage.
Oxide Fuels	Enriched or natural uranium in the form of oxide UO_2, or Mixed Oxide (MOX) used in many types of reactor. Pure metal fuels can also be used in other reactor designs (e.g. Magnox).
Packaging	Fuel packaging: A special way of processing spent fuel for temporary storage or final disposal. Waste packaging: An operation whereby waste is converted into a form suitable for transportation and/or storage and/or final disposal. (a) Very low-level radioactive waste (vinyl, cleaning rags, etc.) is placed in steel drums. (b) Low- and intermediate-level waste is first compacted to reduce its volume as far as possible, then encapsulated in a special material (concrete, bitumen or resin matrix) to form solid blocks capable of withstanding all environmental conditions.

	(c) High-level waste is placed in a glass mixture (vitrification process). Once vitrified, the waste is placed in stainless steel canisters.
Parameters	In relation to a DCO, the Order (in particular its provisions) will set the parameters of the scheme in relation to form, scale, location and elements of the scheme including any restrictions, or limits of deviation if any subsequent flexibility is to be allowed. Such parameters must relate to the assessment of environmental impacts that have been carried out. There is also a relationship with the "Rochdale Envelope" in terms of how schemes may evolve, the need to understand the relationship between parameters and robust assessment of significant environmental effects.
PARJO	An accurate and quick method for leak testing on a variety of containment systems such as gloveboxes and hot cells.
Paris Agreement	Also known as the Paris Climate Accord or Paris Climate Agreement, the Paris Agreement is an act that has been signed by 195 signatories (as of September 2017) with the intention of managing greenhouse gas emission mitigation, its adaptation and financing, beginning in 2020.
Paris Convention	The main international convention on third party nuclear liability alongside the Brussels Convention. The Paris Convention provides for compensation for injury to or loss of life of any person and for damage to, or loss of, any property caused by a nuclear accident in a nuclear installation or during the transport of nuclear substances to and from installations. It does not cover damage to the nuclear installation itself. The principles of the Paris Convention are implemented into UK law by the Nuclear Installations Act 1965.
PAS	Public Address System ("Tannoy")
Passively safe	A passively safe facility can be safely shut down automatically – without any operator intervention and without any external power supply from the grid or from backup generators to drive instruments or equipment. Following the disaster at Fukushima this has attracted greater attention.
PAWB	People Against Wylfa B, see NGO (note that Wylfa B is now known as Wylfa Newydd – see below).
PBA	Parent Body Agreement: The contract between the NDA and the PBO.
PBI	Performance Based Incentives: Contractual figures which include performance-based incentives, key goals, objectives, targets or milestones agreed at the beginning of a financial year and of sufficient importance to warrant incentivisation (typically through a fee) to motivate the contractor to achieve.
PBO	Parent Body Organisation: The shareholder of the relevant SLC which is incentivised by the NDA to achieve "more decommissioning for less". The principal roles of the PBO are: (a) to hold shares in the SLC; (b) to second staff to the SLC; (c) to provide normal parent company functions; and (d) to improve the capability and performance of the SLC. The current PBOs are: (a) Cavendish Fluor Partnership (holding shares in Magnox Limited which now includes ex RSRL); (b) Cavendish Dounreay Partnership, a partnership comprising Cavendish Nuclear Services Limited, CH2M Hill and URS

	Holdings Limited (holding shares in Dounreay Site Restoration Limited); and (c) UK Nuclear Waste Management Limited (holding shares in LLW Repository Limited). (d) NDA - since 1 April 2016 Sellafield Limited has been a wholly owned subsidiary of NDA.
PCI	Pellet Cladding Interaction
Pelletron	a form of particle accelerator
Period of Responsibility	The period from the date a Nuclear Site Licence is granted to the date: (a) the ONR provides written confirmation that the activities for which the licence was required have ceased and the site has reached the No Harm Threshold required for de-licensing, whether or not the Nuclear Site Licence has already been surrendered or revoked; or (b) when a new nuclear site licence in respect of the same site is granted.
PETIS	Public Emergency Telephone Information System
PHE	Public Health England (formerly HPA/NRPB)
PHWR	Pressurised Heavy Water Reactor: A reactor type which uses natural uranium as its fuel and heavy water as the coolant e.g. CANDU. The Canadian CANDU design is the most common example.
Physical Protection	Measures taken to prevent unauthorised access to nuclear material.
PIE	Post Irradiation Examination
Pig	A US colloquialism describing a container used to ship or store radioactive materials. The thick walls of this shielding device, which are usually made of lead or depleted uranium, protect the person handling the container from radiation. Large containers used for spent fuel storage are commonly called casks. Also an implement used for cleaning rust and alien substances from a piping system.
Pile	A term that was used to describe the first nuclear reactors which consisted of "piles" of graphite and uranium blocks. See Windscale Piles.
PIOI	Plant Item Operating Instruction
PIZ	Public Information Zone: the area around a nuclear facility for which an operator required to ensure the provision of specified prior information to the public without them having to ask for it.
Planning Act 2008	Act of Parliament which, amongst other things, establishes the new regime for the consenting of Nationally Significant Infrastructure Projects (NSIPs) and introduces National Policy Statements (NPSs).
PLO	Police Liaison Officer
Plutonium (Pu)	A heavy, radioactive, manmade metallic element with atomic number 94. There are thirteen known isotopes of plutonium, the most important of which in the nuclear industry is isotope Pu-239 which undergoes fission with slow-moving neutrons.
PMO	Principal Medical Officer
PNTL	Pacific Nuclear Transport Limited: PNTL is owned by INS (62.5%), AREVA (12.5%) and a consortium of Japanese nuclear companies

	(25%) and its fleet is managed by Serco Limited. PNTL operates a fleet of purpose built ships capable of carrying all categories of nuclear material.
POCO	Post Operational Clean Out: The first stage in preparing plant for care and maintenance after operations have ceased.
Pond	Water storage facility for encased nuclear waste and fuel units awaiting reprocessing.
Pool reactor	Reactor in which fuel elements are submerged in an open water pool. The water serves as a moderator, reflector and coolant. Popularly called a "swimming pool reactor", it is used for research and training, not for electricity generation.
PPE	Personal Protective Equipment
Practice	A human activity that involves the introduction of a new source of exposure to people or increases an existing exposure. A new practice requires a justification decision.
Pressure vessel	A closed, strong-walled container housing the core of most power reactors and designed to hold gases or liquids at high pressures. It usually also contains the moderator, neutron reflector, thermal shield, and control rods.
PRISM	Power Reactor Innovative Small Module: Also known as S-PRISM or SuperPRISM, PRISM is a fast breeding reactor developed by Hitachi GE Nuclear Energy. Hitachi GE Nuclear Energy announced in July 2012 that it had submitted a proposal to the NDA outlining the feasibility of the PRISM reactor to dispose of the UK's current stockpile of plutonium.
Protective Barrier	A material or set of materials that absorbs radiation and is designed to reduce exposure.
Protective Marking Scheme (UK)	Marking scheme published by the UK Government which is applied to documents and correspondence containing sensitive nuclear information. Allowable protective markings are: (a) OFFICIAL (b) SECRET (c) TOP SECRET The terms “UNCLASSIFIED”, “NON” and “NOT PROTECTIVELY MARKED” are used to indicate positively that a protective marking is not needed for the document or item of correspondence in question. All of the above terms should be avoided outside the context of the marking scheme.
Proton	An elementary particle with unit atomic mass approximately and unit positive electric charge. One of the two elementary particles found in atomic nuclei.
PSA	Probabilistic Safety Assessment, sometimes also known as PRA (Probabilistic Risk Assessment): Methodology to probabilistically estimate risks. Fault tree analysis and event tree analysis are integral techniques to PSA. This mathematical tool is used for calculating the risk of certain problems or accidents occurring at a nuclear power station.
Pu	See Plutonium.
PUREX	Plutonium Uranium Redox Extraction: A solvent extraction process, and the reprocessing process used in THORP and other reprocessing plants to separate out uranium and plutonium from highly active fission products when spent nuclear fuel is recycled.

PWR	Pressurised Water Reactor: A reactor whose primary coolant is maintained under such a pressure that no bulk boiling occurs. The reactor uses light water as a moderator and as a coolant. In the UK, Sizewell B is one such reactor operated by EDF Energy Nuclear Generation Limited (formally British Energy).
Quality Assurance	The process by which a developer ensures that standards are met during manufacturing.
Quarterly Notification Levels	Quarterly emissions level, specified by the EA in the nuclear operator's Environment Permit, and which, if exceeded, must be reported to the EA.
R2P2	Reducing Risks Protecting People: A document which describes the decision-making process of the HSE. It aims to make the procedures and protocols which the HSE follows transparent so as to ensure that the HSE's decision-making process, including risk assessment and risk management, is perceived as valid.
Radiation	The process of emitting energy as waves or particles. The energy is thus radiated. Frequently used for ionising radiation, except when it is necessary to avoid confusion with non-ionising radiation.
Radiation Dose Constraints	A numerical dose figure based on knowledge and assessment that is used as a planning aid for minimising individual radiation dose.
Radiation Emergency	An event (other than a pre-existing) likely to result in a member of the public being exposed to ionising radiation in excess of the doses in Schedule 1 of REPPIR
Radiation Protection	The protection of people from the harmful effects of ionising radiation.
Radiation shielding	Reducing the level of radiation between a radioactive source and a person by interposing a shield of absorbing material.
Radioactive Substances Act 1993 (RSA 1993)	Formerly the principal piece of legislation regulating radioactive substances (still in force but largely repealed or application amended). In England and Wales, the Environmental Permitting regime has replaced the authorisation regime contained in the RSA 1993, such that an Environmental Permit must now be obtained from the EA rather than an authorisation under the RSA 1993 (see Environmental Permit and Radioactive Substances Regulation). In Scotland and Northern Ireland, the authorisation regime under the RSA 1993 (and subordinate legislation) continues to apply.
Radioactive Substances Regulation (RSR)	The Environmental Permitting Regulations 2016, Schedule 23, replace the relevant sections of the Radioactive Substance Act 1993 for legislative controls on keeping and use of radioactive substances and the accumulation or discharge of radioactive waste.
Radioactive Waste	Radioactive materials at the end of a useful life cycle or in a product that is no longer useful and should be properly disposed of.
Radioactivity	The spontaneous emission of radiation, generally alpha or beta particles, often accompanied by gamma rays, from the nucleus of an unstable isotope. Also, the rate at which radioactive material emits radiation. Measured in units of becquerels or disintegrations per second. Other measurements are used (e.g. Sieverts) which relate to physiological effects.
Radionuclide	An unstable nuclide that emits ionising radiation.
Radium	An element which is a radioactive decay product of uranium often found in uranium ore. It has several radioactive isotopes.

Radon	A heavy radioactive gas given off by rocks containing radium (or thorium). These rocks have existed since the formation of Earth's crust and radon is often the single largest contributor to an individual's background radiation dose, and is the most variable from location to location. Radon is a noble gas (a Group VIII element) – other members of the series are helium, neon, argon, krypton and xenon.
RADSAFE	Transport emergency arrangements used by the main organisations in the UK nuclear industry.
RAG	Red/Amber/Green in a risk assessment.
RAIB	Rail Accident investigation Branch
RCA	1 Radiation Control Area 2 Reactor Controlled Area
RCC-E	Design Rules for Electrical Equipment in the Nuclear Island: French electrical design guide published by AFCEN (French Association for Design, Construction and In-Service Inspection Rules for Nuclear Island Components).
RCC-M	AFCEN's (see above) RCC-M code concerns the mechanical components designed and manufactured for pressurised water reactors (PWR). It applies to pressure equipment in nuclear islands in safety classes 1, 2 and 3, and certain non-pressure components, such as vessel internals, supporting structures for safety class components, storage tanks and containment penetrations.
RD	Responsible Designer: Generally NPP Designers and Operators do not have all the detailed, specialised knowledge required of all the systems and components important to nuclear and industrial safety. They may therefore assign their responsibilities for some parts of the plant to other entities that do have that knowledge. Such entities are not simple subcontractors; they have a formal responsibility for maintaining their specialised knowledge of design and their competence in the detailed design process.
Reactor Pressure Vessel (RPV)	The part of the NPP which houses the reactor core and cooling system.
Reactor Protection System	The Reactor Protection Systems are designed to automatically shut-down the reactor and maintain it shut-down when needed. Facilities to instigate a manual backup are provided in whole or part.
Reactor Vendor	A company selling its reactor design to potential operators.
Reference accident	One of a range of accidents at a nuclear reactor or other nuclear installation that can reasonably be foreseen in safety analysis as giving rise to the most significant release of radionuclides from the site.
Regulatory Body	An authority which regulates any aspect of the planning, construction, operation and decommissioning of a nuclear power plant.
Regulatory Hold Points	A system of approvals that must be specifically given by the ONR before an operator can continue with the construction or operation of a nuclear power plant.
REM	(US terminology) Roentgen Equivalent Man: A standard unit of radiation dose. It measures the effects of ionising radiation on humans. The dose equivalent in REMs is equal to the absorbed dose in rads multiplied by the quality factor of the type of radiation.
Remediation	A general term for providing a remedy. Environmental remediation deals with the removal of pollution or contaminants from soil, groundwater, sediment or surface water etc. for the general protection of human

	health and the environment.
Renewable Energy Guarantees of Origin (REGOs)	One of the three types of Green Energy Certificate that generators of electricity from renewable sources may be entitled to claim. REGOs do not have a monetary value in the same way as ROCs and LECs. Rather, their main purpose is as evidence of renewable electricity production. This is particularly useful for renewable generators who are not eligible under the Renewables Obligation. Suppliers are obliged to give their customers details of the mix of fuels used to produce the electricity supplied to them, and are therefore likely to want to purchase electricity from generators with a REGO.
Renewables Obligation (RO)	The current main mechanism for supporting large scale generation of renewable electricity in the UK. It was introduced in April 2002 and places an obligation on UK suppliers of electricity to source an increasing proportion of their electricity from renewable sources.
Repository	Long term radioactive waste storage facility.
REPPIR	The Radiation (Emergency Preparedness and Public Information) Regulations 2001
Reprocessing	Recycling of spent nuclear fuel into reusable uranium, plutonium and fission products. In the UK this work is currently carried out at the THORP facility at Sellafield in Cumbria, although the THORP plant will be closed in 2018. In France, AREVA operates the La Hague facility on the French Cotentin Peninsula. It has been in operation since 1976, and has a capacity of about 1700 tonnes per year. Japan has a not dissimilar facility at Rokkasho.
Requesting Party	The companies who have submitted a nuclear reactor design for assessment by the ONR and EA.
Requirements	A DCO should include "Requirements" to which the development authorised by the DCO is to be subject. Similar to planning conditions, a requirement specifies the matters for which detailed approval needs to be obtained before the development can be lawfully begin.
Research Reactor	A nuclear reactor that is used solely for research purposes.
REX	Retour d'Expérience (French equivalent of "OPEX: Operational Experience").
RHILW	Remote Handled ILW: Package radioactive ILW that, because of its external dose rate, is unable to be directly handled and requires the need of remote handling equipment.
RIMNET	Radioactive Incidents Monitoring Network: A network of monitoring stations used by the UK Government to assess the levels of radioactivity across the UK.
RIO	Rail Incident Officer
Risk	Risk is calculated in a three stage process: (a) What can go wrong? (b) How likely is it to occur? (c) What are the potential consequences?
RMADS	Risk Management Accredited Document Set: The set of documents used by ONR and other Government Agencies (e.g. the Ministry of Defence) to accredit networks to hold sensitive HMG information.
RMTT	Radioactive Materials Transport Team: Unit within Government which has control over issues relating to the transport and movement of nuclear material by road and rail throughout Great Britain. Also adopts an advisory road where radioactive material is transported by sea or air

	in the UK. RMTT was formerly part of DfT, but it was transferred to ONR in October 2011, principally to ensure that the Secretary of State at DECC (now BEIS) is the “competent authority” for matters concerning the transport of radioactive material.
ROA	Report of Assessment: a written report sent to the ONR under REPPIR at least 12 months before commencement of work concluding whether a Radiation Emergency is reasonably foreseeable and whether an off-site emergency plan is needed.
Rochdale Envelope	A term derived from EIA case law which seeks to balance the need for flexibility for a development not fully defined with the ability to assess the likely significant effects of such a scheme upon the environment, and any necessary mitigation, and to set these out in an Environmental Statement. A consent must create "clearly defined parameters" within which the framework of development must take place.
ROCs	Renewables Obligation Certificate: A Green Energy Certificate issued to an accredited generator for eligible renewable electricity generated within the United Kingdom and supplied to customers within the United Kingdom by a licensed electricity supplier. Suppliers meet their obligations under the Renewables Obligation by presenting sufficient Renewables Obligation Certificates. Where suppliers do not have sufficient ROCs to meet their obligations, they must pay an equivalent amount into a fund, the proceeds of which are paid back on a pro-rated basis to those suppliers that have presented ROCs.
Roentgen	A unit of radiation exposure that is equal to the quantity of ionizing radiation that will produce one electrostatic unit of electricity in one cubic centimetre of dry air at 0°C and standard atmospheric pressure. No longer widely used.
Rosatom	Russian based full cycle nuclear services company and international developer of VVER-1200 for international projects.
RoSPA	Royal Society for the Prevention of Accidents
RP	Reactor Physicist
RPA	Radiation Protection Advisor
RPP	Radiation Protection Programme
RPS	Radiation Protection Supervisor
RSR Permit	A permit to make certain radioactive discharges to the environment issued by the EA under Schedule 23 of the Environmental Permitting (England and Wales) Regulations 2016 as amended. One of the operational permits required to operate a nuclear power station.
RSRL	Research Sites Restoration Limited: Formerly the site licence company at the Harwell and Winfrith sites, but the sites are now part of Magnox Ltd.
RWM Ltd	Formerly known as Radioactive Waste Management Directorate, on 1st April 2014 Radioactive Waste Management Directorate became a wholly-owned subsidiary of the NDA and is now known as Radioactive Waste Management Limited (RWM Ltd). It continues to be responsible for delivering Government policy for geological disposal of higher activity radioactive waste and for developing waste management solutions.
RWMD	Radioactive Waste Management Directive: See RWM Ltd.
SAC	A special area of conservation pursuant to the Habitats Directive due to

	its unique characteristics as a habitat.
SACI	Significant Adverse Condition Investigation
Safeguards	1 A term used in the regulation of domestic nuclear facilities and materials. The use of material control and accounting programs must verify that all special nuclear material is properly controlled and accounted for, and the physical protection equipment and security forces; and 2 As used by the IAEA, verifying that the "peaceful use" commitments made in binding non-proliferation agreements, both bilateral and multilateral, are honoured.
Safety Case	A documented body of evidence which is submitted to regulators to provide a convincing and valid argument that a specified system is safe for a given application in a given context or environment.
Safety Rod	A control rod used to decrease the reactor reactivity in the case of emergencies.
SBERGs	Symptom Based Emergency Response Guidelines: Provide advisory guidance to nuclear operators following a beyond design basis accident in an advanced gas cooled reactor.
SCC	Strategic Co-ordination Centre
SCO	Safety Case Officer
SCRAM	Emergency shutdown of a nuclear reactor involving insertion of control rods.
SDP	1 Silos Direct Encapsulation Plant: the project to process nuclear waste recovered from the Magnox Swarf Storage Silo on the Sellafield site and package it ready for long term storage. 2 Sellafield Direct Encapsulation Plant (in the context of Sellafield Limited). 3 Submarine Dismantling Project (in the context of the Ministry of Defence). 4 Sodium Disposal Plant (in the context of Dounreay).
Sealed Source	A device in which a radioactive material has been contained within an outer casing. This outer casing makes an accidental release of the contents extremely unlikely. Sealed sources have an extensive range of medical, educational and industrial uses, notably in general diagnosis and cancer treatments, and in the oil and gas industries.
Sector Deal	A deal between the UK government and the UK nuclear sector under the government's Industrial Strategy, to address challenges and opportunities specific to the sector. In April 2017 the NIA published its response to the Government's consultation on sector deals highlighting the need to help the UK nuclear supply chain maximise its contribution domestically and overseas by: (a) increasing investment in R&D and nuclear skills (b) continuation of EMR (c) proper resourcing of the ONR (d) progressing on the GDF (e) cost effectiveness in nuclear new build from a fleet approach (f) continued progress on nuclear decommissioning (g) ensuring there is no disruption to nuclear business post Brexit
Semta	The skills body for engineering and advanced manufacturing technologies sectors.

SEPA	Scottish Environment Protection Agency: Scotland's environmental regulator. The main role is to protect and improve the environment. SEPA is a non-departmental public body, accountable through Scottish Ministers to the Scottish Parliament. SEPA has been advising Scottish Ministers, regulated businesses, industry and the public on environmental best practice for over a decade.
SERT	Standby Emergency Response Team
SFAIRP	So far as is reasonably practicable
SFEN	Société Française d'Énergie Nucléaire (French equivalent of the NI: Nuclear Institute).
SFEN-JG	Société Française d'Énergie Nucléaire - Jeune Génération (French equivalent of the YGN: Young Generation Network).
SFL	Springfields Fuels Limited (see Springfields)
Shex / Shareholder Executive	Created in September 2003 to improve the Government's performance as a shareholder in businesses. Shex currently has a portfolio of 26 businesses in which the Government has a shareholding. Their role is to work with Government departments and management teams to help these businesses perform better. Shex want to create a climate of ownership that, while challenging, is genuinely supportive and provides the framework for them to succeed. Shex advise ministers and officials on a wide range of shareholder issues including objectives, governance, strategy, performance monitoring, board appointments and remuneration. Companies within Shex include UKAEA, the National Nuclear Laboratory and Urenco (amongst other non-nuclear assets).
Shielding	Broadly, the use of certain protective materials to prevent or reduce the amount of ionising radiation to which people and/or equipment are exposed.
Sievert (Sv)	The Sievert is a measurement unit of radiation close to living tissue. It is the international system (SI) derived unit for a dose equivalent to 1 Joule/kilogram. 1 Sievert = 100 rem. It is named after Rolf Sievert, a Swedish physicist famous for work on the biological effects of radiation. The effective dose in Sieverts is calculated as the absorbed dose measured in Gy multiplied by a weighting factor specific to each type of radiation and organ. Single doses are usually measured in millisievert (mSv) or Microsievert (µSv) See Becquerel and Gray for comparison.
SIL	Safety Integrity Level as defined in IEC 61508:2010 Functional Safety of Electrical/Electronic/Programmable Electronic Safety-Related Systems.
SIO	Site Incident Officer
SIOI	Station Item Operating Instruction
Site Licence	A licence granted in respect of a particular nuclear site pursuant to the Nuclear Installations Act 1965.
Site Licence Conditions	The Nuclear Installations Act 1965 (as amended) requires HSE (through ONR) to attach conditions to nuclear site licences. Licence conditions define areas of nuclear safety to which a licensee should pay attention to ensure safe operation of the site. While some conditions impose specific duties others require the licensee to devise and implement adequate arrangements in particular areas. The issues covered range from arrangements for ensuring the safety of plant and for controlling operations to management issues such as the supervision and training of staff. Breach of a licence condition is an offence under NIA65 s.4(6). A schedule of 35 standard conditions was incorporated into all nuclear site licences granted between 1990 and 1999. A new licence condition,

	Licence Condition 36 (LC36), was attached to all nuclear site licences at the end of July 1999. LC36(5) came into effect on 1 August 1999 and LC36(1)-(4) came into effect on 1 April 2000; this delay allowed time for licensees to develop their arrangements to achieve compliance. A high-level summary of the 36 conditions attached to a nuclear site licence is below: LC1 - Definitions and interpretations. LC2 – Adequate provision to ensure that no unauthorised access to site is allowed. LC3 – Restricts the ability of the site licensee to deal in or dispose of any part of the licensed site (i.e. by way of sale, assignment or leasing). The expression "LC(3) consent" relates to the consent of the ONR which is required before the licensee can deal in or dispose of any part of the licensed site. LC4 – Restricts what nuclear materials can be brought on site and their usage. LC5 – Restricts the destination where the site licensee can ship nuclear materials. LC6 – Ensures that the site licensee has adequate provision for the management of records and documents. LC7 – Ensures that the site licensee has adequate provision for the notification, recording, investigation and reporting of incidents. LC8 – Ensures that the site has adequate warning notices and that their meaning is clear and explained. LC9 - Ensures that every person authorised to be on the site receives adequate instructions (to the extent that this is necessary having regard to the circumstances of that person being on the site) as regards the risks and hazards associated with the plant and its operation, the precautions to be observed in connection therewith and the action to be taken in the event of an accident or emergency on the site. LC10 – Requires the site licensee to make and implement adequate arrangements for suitable training for all those on site who have responsibility for any operations which may affect safety. LC11 – Requires the site licensee to make and implement adequate arrangement for dealing with any accident or emergency arising on the site and their effects. LC12 – Ensures that the site licensee has adequate arrangements to ensure that only suitably qualified and experienced persons perform any duties which may affect the safety of operations. LC13 – Ensures that the site licensee establishes a nuclear safety committee(s). LC14 – Ensures that the site licensee creates and maintains relevant safety cases. LC15 – Ensures that safety cases are regularly reviewed. LC16 – Ensures that there are accurate site plans. LC17 – Ensures that the site licensee has adequate management and quality systems in place. LC18 – Ensures that there are adequate measures in place to assess average worker dosage. LC19 - Where the site licensee proposes to construct or install any new plant which may affect safety, the licensee shall make and implement

	adequate arrangements to control the construction or installation. LC20 – Ensures that no modification is made during the period of construction to the design of the plant which may affect safety, except in accordance with adequate arrangements made and implemented by the site licensee for that purpose. LC21 – Ensures that the site licensee makes and implements adequate arrangements for the commissioning of any plant or process which may affect safety. LC23 – Ensures that the site licensee produces adequate safety cases to demonstrate the safety of operation and to identify the conditions and limits necessary in the interests of safety. LC24 - Ensure that all operations which may affect safety are carried out in accordance with written instructions. LC25 - Ensures that adequate records are made of the operation, inspection and maintenance of any plant. LC26 - Ensures that no operations are carried out which may affect safety except under the control and supervision of suitably qualified and experienced persons. LC27 - Ensures that a plant is not operated, inspected, maintained or tested unless suitable and sufficient safety mechanisms, devices and circuits are properly connected and in good working order. LC28 – Ensures that adequate arrangements for the regular and systematic examination, inspection, maintenance and testing of all plant are in place. LC29 – Gives the regulators the power to specify additional tests, inspections and examinations in connection with any plant. LC30 – Covers the need for periodic shutdown to facilitate maintenance. LC31 – Gives the regulators the power to enforce a shutdown if they believe it necessary. LC32 – Minimises the radioactive waste produced by the site. LC33 – Ensures that waste is disposed of via approved mechanisms. LC34 – Ensures adequate provision against radioactive leakage to the environment. LC35 – Ensures that there is an adequate decommissioning plan. LC36 – Ensures that the site licensee maintains adequate resources to run the site safely. www.hse.gov.uk/nuclear/silicon.pdf
SL	See Sellafield Limited.
SLC	Site Licence Company: The entity that holds the nuclear site licence and the discharge authorisations for a UK nuclear site. Specifically in the case of sites designated the responsibility of the NDA under the Energy Act 2004, the SLC carries out the daily management and operations of the site under a contract (principally an M&O contract) with the NDA. The SLCs across the NDA's nuclear estate are as follows: (a) Sellafield Limited (comprising Sellafield, including Calder Hall & Windscale); (b) Magnox Limited (comprising Berkeley, Bradwell, Chapelcross, Dungeness A, Harwell, Hinkley Point A, Hunterston A, Sizewell

	A, Trawsfynydd, Winfrith, Wylfa & Oldbury); (c) Dounreay Site Restoration Limited (Dounreay only); and (d) LLW Repository Limited (LLWR near Drigg only). Note: Springfields Fuels Ltd is owned by Westinghouse and NDA have leased the site on a long-term basis to Westinghouse. This means that NDA retains responsibility for the historic nuclear liabilities whilst Westinghouse undertake their fuel manufacturing business. Capenhurst is no longer a part of Sellafield. In November 2012 Capenhurst Nuclear Services Limited (CNS), a URENCO Group company, took ownership of the land, combining it with an adjacent site it already owns to create one nuclear licensed site.
SLC	Alternative – see Site Licence Condition
SLCA	Site Licence Company Agreement: The contract between NDA and its SLC following competitions (formerly M&O contracts).
SMAD	Safety Management Arrangement Document
SMART	System-integrated Modular Advanced Reactor: An evolutionary, small integral PWR being developed by the Korea Atomic Energy Research Institute (KAERI) along with significant support by a large group of companies within the expanding South Korean nuclear industry.
SME	1 Small/Medium-sized Enterprise; or 2 Subject Matter Expert. The Cabinet Office uses the EU definition for SME; a small enterprise is a company with fewer than 50 employees and a turnover of balance sheet total under £10m while a medium enterprise is a company with fewer than 250 employees and a turnover or balance sheet total under £43m. See http://ec.europa.eu/enterprise/policies/sme/files/sme_definition/sme_user_guide_en.pdf for the European Commission's user guide and model declaration.
SME Action Plan	Each Government department has an SME Action Plan which details how it will support the Government's aspiration for allocating 25% of spend to SMEs. The NDA has its own SME Action Plan as a subset of DECC's SME Action Plan.
SMP	Sellafield MOX Plant: A plant located at Sellafield used to generate mixed-oxide fuel. In August 2011, the NDA announced that SMP would be closed.
SMR	Small Modular Reactor: Small Modular Reactor: A reactor type with an output of less than 300 MWe, as defined by the IAEA. However, it is generally accepted that a small reactor can have an output of up to 500MWe.
SNF	Spent Nuclear Fuel
SNI	Sensitive Nuclear Information
SNPTC	State Nuclear Power Technology Corporation: Constructor of the first AP 1000 units being constructed in China and developer of the CAP 1400 Gen 111 plant.
SoDA	Statement of Design Acceptability: See GDA.
SOI	Statement of Intent
SOR	Statement of Requirements

SoS	Secretary of State
SPA	A special protection area pursuant to the Habitats Directive due to its resident or transient animal species.
Spark!	A young person's writing contest launched to create and bring together a Franco-British network of bright, outgoing individuals and unite them with today's industry leaders.
Spent (depleted) nuclear fuel	Irradiated nuclear reactor fuel that has reached the end of its useful life to the extent that it can no longer effectively maintain a chain reaction and generate sufficient heat. Spent nuclear fuel is fuel removed from a reactor after final use. The main commercial UK fuels are Magnox, AGR and PWR. Typically, spent fuel is made up of approximately 96% un-reacted uranium, 1% plutonium, and 3% waste products. The precise composition depends largely on the type of reactor and the amount of power produced by the fuel.
SPF / Security Policy Framework	The Security Policy Framework (SPF) describes the standards, best practice guidelines and approaches that are required to protect UK Government assets (people, information and infrastructure). It focuses on the outcomes that are required to achieve a proportionate and risk managed approach to security that enables Government business to function effectively, safely and securely.
SPIRE	SPIRE is an electronic licensing system provided by the Export Control Organisation (see ECO). It allows users to apply for export or trade licences for activities and items that require a licence for the wide range of "controlled" goods (such as radioactive sources, security items and military goods, etc.).
Split Package Contract	The overall responsibility for the design and construction of the project is divided among a relatively small number of contractors, each contractor being in charge of a large package of work.
Springfields	Springfields, near Preston, has provided nuclear fuel fabrication services since the mid-1940s. It was the first plant in the world to produce fuel for a commercial power station. The site has witnessed many changes over the years and today it is run, owned and operated by Springfields Fuels Limited, under the management of Westinghouse Electric UK Limited.
SQEP	Suitably Qualified and Experienced Person(nel)
SRD	Safety and Reliability Directorate
SSA	1 Strategic Siting Assessment: Part of the regulatory framework which applies to new nuclear which is designed to determine the suitability of potential sites for new nuclear electricity generation (which is also required under the Habitats Directive); or 2 Shared Services Alliance: A group of NDA and SLC commercial directors supporting strategic supply chain initiatives and collaborative procurement across the NDA.
SSAC	State System of Accountancy and Control
SSC	Structure, System, or Component
SSOW	Safe System of Work: Used on some sites (e.g. Dounreay) to define how specific tasks should be carried out, particularly those of a hazardous nature. SSOWs are prepared using a team approach to ensure: (a) the plant and workplace is ready for personnel to work safely;

	(b) the incorporation of risk assessment and/or safety case controls into systems of work documents; (c) the provision and use of safe work equipment and materials; and (d) the involvement of competent people engaged in: (i) the planning and scheduling of work; (ii) the preparation and review of documentation; (iii) the design, application and authorisation of safety controls, ready for formal plant release; (iv) the safe execution of work in compliance with written instruction; and (v) the formal restoration of plant to its normal configuration following work.
Stakeholder	The NDA consider a stakeholder to be any person or organisation that has a declared interest in the NDA's work.
Statement of Community Consultation (SOCC)	A requirement of the 2008 Planning Act in relation to Nationally Significant Infrastructure Projects. Produced by the promoter to determine the way they will consult with the local community prior to application.
Steam Generator	Vessel used to transfer heat from one medium to another. Used in pressurised water and gas-cooled reactors to convert water into steam using the heat produced by the reactor core. In PWRs, the heat is supplied as the high-pressure water circulating around the reactor. In Magnox and AGRs, the heat is supplied by the high pressure CO2 used to remove the heat from the reactor core.
STEM	Science, Technology, Engineering & Maths
STFC	Science & Technology Facilities Council
Stone Report	The report commissioned by John Hutton when Secretary of State for BERR from his Senior Advisor, Tim Stone, into the (then) Nuclear Installations Inspectorate. The report examined the NII as an organisation (but did not look at its performance as a safety regulator) and made recommendations on its structure, accountability, governance and financing. The report's recommendations were fully accepted by the Government and led to the creation of the Office of Nuclear Regulation as a public corporation.
Stress Tests	Following the nuclear accident in Fukushima, the EU reacted swiftly and requested that all 143 EU-based nuclear plants undergo specific safety tests based on a common set of criteria. The safety of the plants was to be assessed against the possibility of both natural and man-made hazards (airplane crashes, earthquakes, fires etc.). These tests were carried out in 2011 and 2012. On 4 October 2012 the European Commission released a final Communication on the results of the stress tests. This Communication highlighted that the Commission considers that European nuclear power plants have generally high safety standards but further improvements are needed in almost all of them. Action plans have been prepared by national regulators following the tests. These went through peer reviews in early 2013, in order to verify that the stress test recommendations are consistently implemented throughout the EU in a transparent way. Peer review of the National action plans is ongoing.

Sr	Strontium. A fission product of uranium-235.
Subcritical mass	Fissile material of a quantity insufficient in volume or geometrically arranged in such a way that no chain reaction can be maintained.
Supervised Area	An area that has radiation and contamination present at levels below Controlled Areas. Access to such an area is limited by the licensee or responsible organisation.
Supply Chain (Nuclear)	See Nuclear Supply Chain.
Sv	See Sievert.
SWL	Safe Working Load
SWR-1000	Also known as KERENA™, this is AREVA's 1250 Mwe generation III+ boiling water reactor design. This, along with the ATEMA1™ design is still in the design phase. Design features include enhanced safety, simplified operation, lower fuel requirements and the production of smaller volumes of waste. They typically feature inherent, or "passive", safety features which depend only on physical phenomena such as convection, gravity or resistance to high temperatures, not on functioning of engineered components. For the utility and vendor, standardised design provides the scope for faster licensing, reduced capital costs and shorter construction times.
SZB	Sizewell B (Power Station) Pressurised Water Reactor operated by EDF Energy.
Tailings	Residual material left over from the processing of ore.
TBES	Triple Bar Existing Sites: A set of three short courses which have been designed with industry involvement to prepare individuals requiring unescorted access to existing nuclear sites. The training is focused at a fundamental level to introduce the requirements for compliance, nuclear awareness and industry behaviours.
TBNM	Triple Bar Nuclear Manufacturing: Designed specifically to support employees in the nuclear manufacturing supply chain.
TBNNBS	Triple Bar Nuclear New Build Sites: Contextualises the courses for individuals who will specifically be working on the New Build agenda and is ideal for construction workers to gain the knowledge they need to work safely.
TBNS	Triple Bar Nuclear Security: Designed in collaboration with the IAEA for everyone working in, and in support of the nuclear industry, available globally via the NTN.
TBP/OK extraction	Tri-Butyl Phosphate / Odourless Kerosene: The solvent used in the solvent part of reprocessing operations (along with nitric acid). The kerosene simply serves to dilute the TBP.
Techno-economic Assessment	A report commissioned by UK government in March 2015 and published on 7 December 2017 to contribute to the evidence based to help inform policy decisions on SMRs.
TENORM	Technically-Enhanced Naturally-Occurring Radioactive Materials: Naturally-occurring radioactive materials which have been concentrated or exposed by human activities.
TEPCO	The Tokyo Electric Power Company: Responsible for the maintenance of the nuclear reactors at the Fukushima-Daiichi nuclear power plant in Japan. TEPCO's handling of the crisis at Fukushima has been criticised, and the company is receiving financial support from the Japanese Government to handle compensation claims.

TEU	Treaty of European Union
Terrestrial Energy	A Canadian based company promoting an advanced SMR design based on Integral Molten Salt Reactor technology.
TFS	Trans Frontier Shipment: When waste is imported or exported from one EU member state to another. Also under the term "International Waste Shipments". In England, it is the EA which is responsible for granting approval for a TFS.
Th	See Thorium.
Thermal shield	This is located either within a reactor pressure vessel or between the vessel and the biological shield. The thermal shield is comprised of several layers of high-density material. Its function is to reduce radiation heating in the vessel and the biological shield.
Third Country	A country that is not a member of the Euratom Community which is seeking to trade with a Member State. The UK will become a Third Country after Brexit meaning that different provisions of the Euratom Treaty could apply.
Thorium	An element similar to uranium which is being considered as the basis of an alternative fuel cycle. Thorium is globally more abundant than uranium, but there are a range of technical and commercial factors which need to be addressed to bring it to full scale operation, and it is not yet clear if it will be developed to the same scale as today's uranium fuel cycle. Thorium was/is the principle element that makes gas mantles radiate light when heated by a high-temperature gas flame. A gas mantle, in operation, is a mesh of thorium oxide.
THORP	Thermal Oxide Reprocessing Plant, located at Sellafield. This plant reprocesses spent nuclear fuel from nuclear reactors and separates the uranium and plutonium, which can be reused in mixed oxide fuel, from the radioactive wastes, which are treated and stored at the plant. Construction of THORP started in the 1970s, and was completed in 1994. The plant went into operation in August 1997 and is expected to close in 2018.
Threat Assessment	The process of analysing the security risks to nuclear facilities and material on a national and international basis.
Tier contractors	Tier I contractors: A term used to refer to the PBO/SLC on an NDA site (or the senior "work stream" contractors in new build). Tier 2 contractors: These contractors are the main interface with the Tier 1 companies. They hold a direct contract with the Tier 1 companies, which can include, for example, the supply of services on the licensed site. Tier 3 & 4 contractors: These are often SMEs who generally contract with Tier 2 contractors in support of the Tier 2's contract with Tier 1.
TiiMS	The Incident Information Management System
TLD	Thermo Luminescent Dosimeter
TLM	Through-Life Management Plan
TMI	Three Mile Island: a nuclear power plant in Harrisburg, Pennsylvania, USA at which an accident occurred in 1979. A cooling malfunction caused part of the core to melt destroying one of the reactors. A small amount of radioactive gas was released to the atmosphere but the accident did not cause any injuries or adverse health effects. The accident was classified as level 5 on the International Nuclear

	Event Scale on account of the damage to the reactor core.
Tolerable Risk	The level of risk defined as "tolerable" in the Health and Safety Executive guidance document "*The Tolerability of Risk from Nuclear Power Stations*", 1988 as amended in 1992.
TOR	Torness (Power Station) AGR power station operated by EDF Energy.
ToR	Terms of Reference
Toshiba Corporation	Toshiba Corporation is a Japanese multinational conglomerate corporation headquartered in Tokyo, Japan. Toshiba acquired Westinghouse Electric Company (WEC) in 2006.
Transboundary EIA	An assessment of the impact of a development on the environment of other EU member states under Regulation 24 of the EIA Regs.
Trans-uranics	Elements higher than uranium in the Periodic Table. Many waste products from nuclear fission are trans-uranics. All these elements are unstable and radioactive. The highest element currently known is ununoctium (Uuo) and has an atomic number of 118.
Tritium	An isotope of hydrogen with mass number 3, i.e. it contains two neutrons as well as one proton. It is radioactive with beta decay to Helium-3. Part of the fuel to be used in the ITER fusion reactor (in which it will be fused with Deuterium). This fusion reaction has been extensively studied at the JET facility in Culham, Oxfordshire. Tritium is also a waste product from the irradiation of water under certain specific conditions. Also used in certain luminous tubes.
TRU	Used as an abbreviation for Trans-uranics.
TSC	1 Technical Support Company(ies) 2 Transport Safety Case
Turnkey Contract (procurement structure)	A single contractor or consortium of contractors assumes overall responsibility for completing all parts and all phases of the project design and construction and assumes the majority of key project risks.
TUSNE	Trade Unionists for Safe Nuclear Energy is an informal grouping of trade unionists that is supportive of the use of civil nuclear energy within a balanced energy policy and a safe and clean environment. The organisation's executive committee is made up of senior officials from the major trade unions within the electricity supply industry. TUSNE's main mission is to provide a forum for debate about energy issues, and regularly attends trade union and political conferences throughout the UK.
TW	Terawatt, being one trillion Watts.
TWR	Travelling Wave Reactor
UHF	Ultra High Frequency (Radio)
UK Inventory	The 2010 UK Radioactive Waste Inventory compiled and published jointly by the NDA and DECC.
UKAEA	United Kingdom Atomic Energy Authority: UKAEA is a Non-Departmental Government Body which has a historical role in Nuclear Research. It conducted pioneering research into Nuclear Energy between the 1940s and 1960s. UKAEA manages the nuclear research programme and Fusion Research in the UK (Joint European Torus (JET) at Culham). JET is the only facility in the world to have created sustained nuclear fusion – the current record is around 20 seconds. Many of UKAEA's historic assets and liabilities have been transferred to the NDA, among other entities, pursuant to nuclear transfer schemes under the Energy Act 2004.

UKAEA Combined Pension Scheme	An unfunded, Government-backed pension scheme restricted to members of the public sector which is maintained by UKAEA under paragraph 7(2)(b) of Schedule 1 of the Atomic Energy Authority Act 1954.
UK Guarantees Scheme	The scheme run by the IPA which offers a government backed guarantee to help infrastructure projects such as new nuclear power stations access debt finance where they have been unable to raise finance in the financial markets.
UKTI	United Kingdom Trade & Investment: Works with UK-based businesses to ensure their success in international markets, and encourage the best overseas companies to look to the UK as their global partner of choice. UKTI offers services to British based firms wanting to gain access to global markets through export, and foreign based firms wanting to use Britain as a base to expand globally.
UPS	Uninterruptable Power Supply
Uranics	The UK has significant quantities of materials containing uranium (commonly known as uranics). This uranic material can be generally considered as one of five main types: (a) "Tails" depleted uranium (uranium hexafluoride, known as hex tails); (b) "Magnox reactor" depleted uranium (uranium trioxide, and known as MDU); (c) "THORP" uranium product (uranium trioxide); (d) natural uranium (stored in many forms, such as uranium metal); and (e) HEU.
Uranium	The heaviest known naturally-occurring element, consisting of two isotopes: uranium-235, which undergoes fission, and uranium-238 which does not. Heaver elements are known collectively as Trans-uranics and are all naturally unstable and decay radioactively.
URENCO	One of four major uranium enrichment suppliers, this company supplies fuel for nuclear power utilities worldwide. URENCO UK is based in Capenhurst, near Chester in the north west of England. At the Capenhurst site, URENCO operates three plants producing enriched uranium (the biggest of which, E23, houses more than 80% of the site's enrichment capacity), and employs 300 people.
USDoE	US Department of Energy (also known simply as DoE)
Vetting	Putting someone through the security clearance process.
Vienna Convention	Vienna Convention on Civil Liability for Nuclear Damage 1997 as amended
Vital Areas	An area within a Nuclear Licensed Site which contains nuclear material the compromise of which could lead to serious consequences. Usually guarded by the Civil Nuclear Constabulary.
Vitrification	Process used to solidify concentrated solutions of fission products separated during spent fuel reprocessing by mixing them with a glass matrix at high temperature. The fission products are generally metal oxides at the point of embedding in the glass.
VLLW	Very Low Level Waste: A sub-category of LLW with low radioactive properties such that it can be disposed of to an unspecified destination with other municipal, commercial or industrial wastes.
Voluntarism	In terms of current nuclear issues, a voluntary expression, by a local

	community, of an interest to host an underground nuclear waste facility in return for a package of on-going incentives provided by the NDA/Government. Throughout the cooperative process the needs and concerns of the potential host community are addressed, with the aim of creating a mutually beneficial working partnership between host community and the NDA/Government.
VTR	Vitrification Test Rig: A facility at Sellafield operated by NNL as an inactive plant for testing developments and improvements to the main Sellafield vitrification lines.
VOSA	Voluntary Offer Safeguards Agreement between a Nuclear Weapons State (as defined under the NPT) and the IAEA.
VVER	Vodo-Vodyanoi Energetichesky Reactor / Water-Water Energetic Reactor: A pressurised water reactor designed and utilised throughout the Soviet Union states, and currently utilised in Russian NPPs.
WANO	World Association of Nuclear Operators: An organisation created to improve safety at every nuclear power plant in the world. After the accident at the Chernobyl nuclear power plant in 1986, nuclear operators world-wide realised that the consequences had an effect on every nuclear power plant and international cooperation was needed to ensure that such an accident can never happen again. WANO was formed in May 1989 by nuclear operators world-wide uniting to exchange operating experience in a culture of openness, so members can work together to achieve the highest possible standards of nuclear safety. The culture of openness allows each operator to benefit and learn from others' experiences, challenges and best practice, with the ultimate goal of improving nuclear plant safety, reliability and performance levels for the benefit of their customers throughout the world.
Waste	By-products of nuclear power generation and other applications of nuclear fission or nuclear technology, such as research and medicine. Radioactive waste is hazardous to most forms of life and the environment, and is regulated by government agencies in order to protect human health and the environment.
Waste Acceptance Criteria (WAC)	Conditions which must be met before radioactive waste is accepted at a Repository. Describe the nature, form, physical, chemical, radiological characteristics that can be accepted for onward management and disposal by a waste management operator or waste management site.
Waste container	A vessel used for the purposes of containing a waste form for disposal.
Waste Framework Directive	European Parliament and Council Directive 2008/98/EC of 19 November 2008 on waste and repealing certain Directives.
Waste Management	The process of managing, treating and storing radioactive waste pending its final disposal.
Waste package	The total waste product including the waste, waste form and the waste container.
Waste form	Waste which is in the final chemical and physical form in which it will be disposed of (but excluding the waste container and any capping material).
Water Discharge Activity Permit	A permit to discharge water into a watercourse or the sea issued by the EA under Schedule 21 of the Environmental Permitting (England and Wales) Regulations 2016 as amended. One of the operational permits required if cooling water is discharged into the sea during the operation of a nuclear power station.
Watt	A unit of energy. A watt is the power of one amp of current flowing with a potential difference of one volt. A power of one watt acting for one

	second is one Joule of energy and would raise the temperature of one gram of water by approximately 0.24°C.
WEC	1 Westinghouse Electric Company (see Westinghouse) 2 World Energy Council
Weightman (Final) Report	Following the Fukushima incident and publication of his Interim Report, the UK's Chief Inspector of Nuclear Installations, Dr Mike Weightman, published a final report in September 2011 on the implications for the UK nuclear industry of the events in Japan. The report concludes that there are no fundamental weaknesses in the UK nuclear licensing regime or safety assessment principles, and that the UK practice of periodic safety reviews of licensed sites provides a robust means of ensuring continuous improvement in line with advances in technology and standards. However, it highlights the need to continue decommissioning former nuclear sites with vigour.
Weightman (Interim) Report	Following the Fukushima incident, the UK's Chief Inspector of Nuclear Installations, Dr Mike Weightman, published a report in May 2011 which concludes there is no need to curtail the operations of nuclear plants in the UK, but that lessons should be learnt from the events in Japan. The report identifies 25 recommended areas for review - by either industry, the Government or regulators - to determine if sensible and appropriate measures can further improve safety in the UK nuclear industry. These include reviews of the layout of UK power plants, emergency response arrangements, dealing with prolonged loss of power supplies and the risks associated with flooding. This report was followed by a Final Report published in September 2011 (see Weightman (Final) Report).
WENRA	Western Europe Nuclear Regulators Association
West Lakes Renaissance	The urban regeneration company for Furness and West Cumbria. West Lakes Renaissance attempted to turn around the economy of this area which has and still is suffering from industrial decline, resulting in out-migration (particularly of young people), unemployment and a worn-out infrastructure. Now replaced by Britain's Energy Coast.
Westinghouse	The designer/manufacturer of the AP1000 nuclear reactor, one of the three designs included within the GDA. It provides fuel, services, technology, plant design and equipment to utility and industrial customers in the worldwide commercial nuclear electric power industry. It has a 150 year contract with the NDA for the management of the Springfields site. Westinghouse was sold by BNFL to Toshiba in 2006. In January 2014, Toshiba Westinghouse agreed to buy 60 percent of the NuGen project. Toshiba's Westinghouse originally planned to provide three of its AP1000 nuclear reactors, with a combined capacity of 3,400 megawatts (MW), for construction on the NuGen Moorside nuclear site. In March 2017 Westinghouse filed for Chapter 11 insolvency proceedings in the US. This in turn triggered a transfer of Engie's 40% holding in NuGen to Toshiba. In December 2017 Toshiba announced that KEPCO was its preferred bidder for the acquisition of NuGen.
Wet Storage	Storage of spent fuel in a pond filled with water.
WG	Welsh Government: WG is facilitating and supporting development of Wylfa Newydd (see WG's *"Towards a Low Carbon Future"*, March 2012) and is responsible for developing skills and education agenda in Wales and supporting Welsh supply chain to take advantage of opportunities in nuclear industry - new build, operations and maintenance, and decommissioning.

WIN	Women in Nuclear: Women in Nuclear Global (WiN Global) is a world-wide non-profit making association of women working professionally in various fields of nuclear energy and radiation applications.
Windscale Pile	On 10 October 1957 unit 1 of the two-pile Windscale facility in Cumbria, England caught fire. The fire burned for three days causing the release of radioactive contamination. The accident was classified as level 5 on the International Nuclear Event Scale.
WNA	World Nuclear Association
WINS	World Institute of Nuclear Security
WNTI	World Nuclear Transport Institute
WRAT	Waste Requiring Additional Treatment
Wylfa Newydd	The new build nuclear power station to be constructed by Horizon Nuclear Power near the site of the current Wylfa A nuclear plant in Anglesey, North Wales. Previously known as "Wylfa B".
X-ray	A discrete quantity of electromagnetic energy without mass or charge. Emitted by an x-ray machine. See gamma ray.
Xe.	Xenon. A fission product of uranium-235.
Yellowcake	Yellowcake is the product of the uranium extraction (milling) process; early production methods resulted in a bright yellow compound, hence the name yellowcake. Yellowcake is commonly referred to as U3O8. This fine powder is packaged in drums and sent to a conversion plant that produces uranium hexafluoride (UF6) as the next step in the manufacture of nuclear fuel.
YGN	The Young Generation Network (YGN) is a group created by the Nuclear Institute (NI) to offer the younger members (of the NI the opportunity to further their knowledge and facilitate networking between generations. It assists career progression and provides a resource for the future of the industry.

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