

“production” means all production stages, including product engineering, manufacture, integration, assembly (mounting), inspection, testing and quality assurance.

Review

4.—(1) The Secretary of State must from time to time—

- (a) carry out a review of the regulatory provision contained in these Regulations; and
- (b) publish a report setting out the conclusion of the review.

(2) The first report must be published before the end of the period of three years beginning with the day on which these Regulations come into force for any purpose.

(3) Subsequent reports must be published at intervals not exceeding three years.

(4) Section 30(4) of the Small Business, Enterprise and Employment Act 2015(a) requires that a report published under this regulation must, in particular—

- (a) set out the objectives intended to be achieved by the regulatory provision referred to in paragraph (1)(a);
- (b) assess the extent to which those objectives are achieved;
- (c) assess whether those objectives remain appropriate; and
- (d) if those objectives remain appropriate, assess the extent to which they could be achieved in another way which involves less onerous regulatory provision.

(5) In this regulation, “regulatory provision” has the same meaning as in sections 28 to 32 of the Small Business, Enterprise and Employment Act 2015 (see section 32 of that Act).

Date

Name
Parliamentary Under Secretary of State
Department for Business, Energy and Industrial Strategy

SCHEDULE 1 Advanced materials

Regulation 2

Interpretation

1. In this Schedule—

“2D” means two-dimensional;

“3D” means three-dimensional;

“advanced composites” relates to structural composite materials with either metallic or ceramic matrices and includes 3D reinforcing architectures for any matrix (polymer, metal or ceramic);

“advanced materials” means completely new materials and materials that are developments on traditional materials, where such materials provide any of the following—

- (a) targeted properties;
- (b) advantageous properties;
- (c) outstanding structural properties; or

(a) 2015 c. 26.

(d) outstanding functional properties;

“enabler” means any material or process which is not a material described in paragraph 2(3) or 3 but is used in the manufacture or application of such materials;

“fabrication” in sector (7) (semiconductors) of the table set out in paragraph 3 means the process of producing a microelectronic circuit on a semiconductor substrate or using other advanced materials;

“graphene and related 2D” are those materials with attributes as defined within ISO/TS 80004-13:2017(a);

“metamaterial”—

(a) means a composite material in which the constituents are designed and spatially arranged through a rational design-led approach to change the manner in which electromagnetic, acoustic or vibrational energy interacts with the material, in order to achieve a property or performance that is not possible naturally and includes a metasurface and for this purpose “composite material” means a solid material formed from two or more constituents and “constituent” includes a region containing a vacuum, gas or liquid;

(b) does not include the types of composite materials the advanced composites described in paragraph 5 and composites or coatings containing pigments or fillers that are mixed in or blended into a binder material where both of these types of composite materials can be a constituent from which a metamaterial may be formed;

“metasurface” means a two-dimensional form of metamaterial which includes one or more layers of material that are intentionally patterned or textured (irrespective of whether they are periodic or not) through a rational design-led approach;

“nanotechnology” means the manipulation and control of matter predominantly in the nanoscale to make use of size-and-structure-dependent properties and phenomena distinct from those associated with individual atoms or molecules, or extrapolation from larger sizes of the same material (where “manipulation and control” includes material synthesis in relation to nanotechnology) with current or potential utility for defence, including nanomaterials, nanodevices, nanocomponents and nanosystems (including nanomachines) in accordance with ISO/TR 10993-22:2017(b);

“nanomaterials” means materials with any external dimension in the nanoscale or having internal structure or surface structure in the nanoscale and include nano-objects, dispersions or mixtures containing nano-objects, and nanostructured material (including structuring at an interface between materials, including air, and within a material) in accordance with ISO/TR 10993-22:2017;

“packaging” in sector (7) (semiconductors) of the table set out in paragraph 3 means the process of turning a microelectronic circuit on an appropriate substrate into a package suitable for use in an electronic circuit but does not include the assembly and packaging of chips and devices into circuit boards;

“photonic and optoelectronic materials and devices” in sector (8) of the table set out in paragraph 3 relate to high power lasers that are characterised by a combination of power at the output apertures (values of 1 kilowatt and above), beam quality (M^2 of less than 1.2), intended operating ranges (greater than 1 kilometre) and at wavelengths compatible with propagation over those distances (typically 1 micrometre to 2 micrometres wavelengths);

“semiconductor” means—

(a) semiconductors used to form radio frequency and microwave devices;

(b) semiconductors used to realise imaging sensor arrays;

(a) ISO/TS 80004-13:2017 Nanotechnologies-Vocabulary-Part 13 Graphene and related two-dimensional (2D) materials is published by the International Organization for Standardization. The terms and definitions set out in the standard are available at <https://www.iso.org/obp/ui/#iso:std:iso:ts:80004:-13:ed-1:v1:en>.

(b) ISO/TR 10993-22:2017 Nanotechnologies-Vocabulary-Part 1: Core terms is published by the International Organization for Standardization. The terms and definitions set out in the standard are available at <https://www.iso.org/obp/ui/#iso:std:iso:tr:10993:-22:ed-1:v1:en>.

- (c) the accessibility of design and production for semiconductor devices and chips where “chips” include Field Programmable Gate Array devices, System on Chip, Application Specific Integrated Circuits and Readout Integrated Circuits and where “devices” includes radio and microwave frequency control circuitry, power amplifiers, low noise amplifiers and monolithic microwave integrated circuits and detectors;

“technical textiles” means textiles (and their processes and enablers) specifically developed for their functional performance including additional functionality (such as integrated computing, processing or data transmission), 3D architectures, protection against blast and ballistic events but does not include sportswear or clothing that is ordinarily available to consumers or household goods.

Activities

2.—(1) A qualifying entity carrying on activities that consist of or include any of the activities set out in sub-paragraph (2) in relation to—

- (a) any of the matters described in sub-paragraph (3); or
- (b) any of the matters described in relation to the sectors set out in paragraph 3.

(2) The activities referred to in sub-paragraph (1) are—

- (a) research;
- (b) development or production;
- (c) development or production of anything designed as an enabler;
- (d) development or production of anything designed to be used for the purpose of production;
- (e) the provision of qualified or certified designs, materials, parts or products;
- (f) owning, creating, supplying or exploiting intellectual property;
- (g) provision of know-how or services of enablers;
- (h) recycling or re-using.

(3) The matters referred to in sub-paragraph (1)(a) are materials, the export or transfer of which is controlled by virtue of their being specified in—

- (a) Schedule 2 to the Export Control Order 2008(a); or
- (b) Annex I and Annex IV to Council Regulation (EC) No 2009/428 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items(b).

Sectors and matters

3. The following Table sets out the sectors and matters referred to in paragraph 2(1)(b).

Table

<i>Sector</i>	<i>Matters</i>
(1) Advanced composites	<p>1. The matters are, in relation to the sector of advanced composites, those set out in paragraphs 2 to 4.</p> <p>2. In relation to test, inspection and production equipment—</p> <ul style="list-style-type: none"> (a) production technologies and capabilities for the manufacture of metal matrix composites; (b) production technologies and capabilities for the manufacture of ceramic matrix composites;

(a) S.I. 2008/3231. Schedule 2 was substituted by S.I. 2017/85 and subsequently amended by S.I. 2017/697, 2018/165, 2018/939 and 2019/989.

(b) EUR 2009/428 as amended by S.I. 2020/1502 and 2020/1510.

- (c) manufacture of 3D fibre architectures (that is with interlaminar reinforcement) for all composite types.

3. In relation to materials—

- (a) metal matrix composites, powder-based metal matrix composites and continuous fibre reinforced metal matrix composites;
- (b) fibre reinforced ceramic matrix composites;
- (c) continuous silicon carbide fibres with diameters at and below 140 micrometres;
- (d) continuous oxide-based ceramic fibres with diameters at or below 20 micrometres;
- (e) coatings for the protection of ceramic matrix composites from degradation in the environment, for example ytterbium mono- and di-silicates;

4. In relation to software and data—

- (a) capabilities for the design and design for manufacturing of metal matrix composites and fibre reinforced ceramic matrix composites;
- (b) software and computer-aided design for 3D fibre architectures and 3D preforms (with interlaminar reinforcement) for all composite types.

(2) Metals and alloys

1. The matters are, in relation to the sector of metal and alloys, those set out in paragraphs 2 to 5.

2. In relation to systems, equipment and components, magnets utilising rare earth element-lean or element-free permanent magnetic materials with remanent magnetism, known as “B_r”, greater than 1.0 Tesla and all rare-earth magnetic materials;

3. In relation to testing, inspection and production equipment—

- (a) any processes that are involved in the reduction of either pure or mixed oxides in the solid state into either metals or alloys in or into crude or semi-fabricated forms, including powders, in batches of at least 1 kilogram;
- (b) hot isostatic pressing (also referred to as “HIP”);
- (c) spark plasma sintering (also referred to as “SPS”) or field assisted sintering technology (also referred to as “FAST”);
- (d) diffusion and friction-based joining processes for steel for power transmission shafts described in paragraph 4(e) of this sector (metal and alloys), titanium alloys, nickel alloys or cobalt alloys;
- (e) friction-based processes to join metallic material layer by layer to create a structure;
- (f) superplastic forming of titanium and aluminium alloys;
- (g) electron beam, laser and weld arc-based metal additive manufacturing capabilities.

4. In relation to materials—

- (a) any alloys that are formed by chemical or electrochemical reduction of feedstocks in the solid state

directly from their oxides;

- (b) titanium alloys with continuous temperature-of-use capabilities above 350 Celsius;
- (c) powder metallurgy alloys;
- (d) nickel and cobalt based superalloys with continuous temperature-of-use capabilities above 700 Celsius;
- (e) steels for power transmission shafts with yield strengths of at least 1030 megapascals at 20 Celsius and 760 megapascals at 450 Celsius, ultimate tensile strengths of at least 1240 MPa at 20 Celsius and 950 megapascals at 450 Celsius and fracture toughnesses of at least 40 megapascals square root metres at 20 Celsius;
- (f) high strength high toughness weldable marine grade steels (toughness levels D, E and F);
- (g) armour grade steels;
- (h) armour grade aluminium alloys;
- (i) high entropy alloys and compositionally complex alloys (alloys that are formed by five or more elements where the composition is not dominated by one or two elements);
- (j) rare earth element-lean or element-free permanent magnetic materials with remanent magnetisation (also known as “B_r”), greater than 1.0 Tesla, and all rare-earth magnetic materials;
- (k) magnetic materials with high total saturation flux densities greater than 2.0 Tesla, which may include monolithic and laminate forms, and particulate and fibre reinforced composite materials.

5. In relation to software and data—

- (a) computer models of complex metallic components, formed by powder-based additive manufacture, that embody a fluid and heat transfer function within their structure;
- (b) data on the performance of complex metallic components, formed by powder-based additive manufacture, that embody a fluid and heat transfer function within their structure.

(3) Engineering and technical polymers

1. The matters are, in relation to engineering and technical polymers, those set out in paragraphs 2 and 3.

2. In relation to test, inspection and production equipment, machines for additively manufacturing the materials listed in paragraph 3 of this sector (Engineering and technical polymers), including loaded polymer filaments to enable electrically insulating and electrically conducting, thermally conducting and insulating, or magnetic and non-magnetic materials (or any further combination).

3. In relation to materials—

- (a) engineering polymer materials and formulations with a glass transition temperature greater than 190 Celsius;
- (b) polymers responsive to external stimuli such as

electromagnetic, load, chemical and biological stimuli (for example electroactive polymers, thermoactive polymers and self-healing systems) but not hydrogels in applications such as nappies;

- (c) high temperature, high pressure and chemically resistant elastomeric seals and systems;
- (d) polymer electrical insulation materials with high temperature (greater than 200 Celsius) and high voltage (above 1kilovolt)) capabilities for application in aviation electrical power management systems;
- (e) filaments and feedstocks for additive manufacturing or 3D printing with bespoke and elevated electrical, magnetic, or electromagnetic properties (typically formed from filled polymer compositions);
- (f) adhesives capable of retaining performance at high temperatures (above 190 Celsius);
- (g) adhesives with underwater curing capabilities;
- (h) void-filling viscoelastic polymers, created using at least a thermoplastic polyester and curing agent, intended for use to damp vibrations in metallic structures.

(4) Engineering and technical ceramics

1. The matters are, in relation to engineering and technical ceramics, those set out in paragraphs 2 and 3.

2. In relation to test, inspection and production equipment, spark plasma sintering or field assisted sintering technology.

3. In relation to materials—

- (a) boron carbide and silicon carbide ceramics for the manufacture of hard armour plates;
- (b) ultra-high temperature ceramics (with melting temperatures of at least 3000 Celsius) including transition metal diborides, either as monolithic or composite forms, including other ceramic monoliths or composites where ultra-high temperature ceramics have been added to their bulk or into surfaces;
- (c) magnetic materials, including fibres and particulates, for electromagnetic applications at frequencies above 500 megahertz;
- (d) functional ceramics (including ferroelectrics, magneto-dielectrics, or multi-ferroics) for acoustic applications, or electromagnetic applications above 100 megahertz;
- (e) dielectric and ferroelectric materials for use in the generation of, and manipulation of, high energy or high power radio frequency radiation, including functioning under high voltage conditions.

(5) Technical textiles

1. The matters are, in relation to technical textiles, those set out in paragraphs 2 to 6.

2. In relation to systems, equipment and components, textile materials and products manufactured primarily for technical performance and functional properties rather than aesthetic or decorative characteristics but not sportswear or clothing ordinarily available to consumers or household goods;

3. In relation to test, inspection and production equipment—

- (a) knitting, weaving, nonwoven or hybrid manufacturing processes related to the textile materials and products described in paragraph 2 of this sector;
- (b) fibre manufacturing processes related to the textile materials and products described in paragraph 2 of this sector (Technical textiles);
- (c) yarn manufacturing and texturing, dry fabric coating and laminating;
- (d) manufacture of 3D textiles;
- (e) closed loop recycling processes associated with the textile materials and products described in paragraph 2 of this sector.

4. In relation to materials—

- (a) smart fabrics with fibres or yarns equipped with embedded sensors that respond to stimuli and perform a specific function;
- (b) fabrics made of smart polymers and textiles to protect and prevent injury or damage from blast and ballistic events;
- (c) energy harvesting fabrics;
- (d) textiles or fibres incorporating activated carbon;
- (e) fabrics with embedded devices for data storage and communication.

5. In relation to software and data—

- (a) software and computer-aided design for 3D textiles and preforms;
- (b) machine learning software systems for smart textile manufacturing facilities, or for data-driven design and manufacturing of textile materials and systems.

6. In relation to technology—

- (a) textile-based wearable electronics with potential to enable subtle integration of electronics with the human body for human-machine interfacing;
- (b) integration technologies to enable functionalities such as energy harvesting, data storage and communication, camouflage, structural and personnel health monitoring and protection.

(6) Metamaterials

1. The matters are, in relation to metamaterials, those set out in paragraphs 2 to 6.

2. In relation to systems, equipment and components, metamaterials used in—

- (a) electromagnetic components including antennas, arrays, lens, devices;
- (b) electromagnetic applications including radio frequencies and microwave through to ultraviolet wavelengths;
- (c) nano-photonics or quantum technology as an enabler;

- (d) thermal control or protection;
- (e) airborne or underwater acoustics; or
- (f) structural applications.

3. In relation to test, inspection and production equipment—

- (a) test, inspection and production equipment associated with the fabrication of 2D and 3D arrangements of one or more material and/or device constituents to form a metamaterial (including additive manufacturing, printed electronics methods, nano-fabrication, chemical self-assembly or engineering biology);
- (b) equipment associated with the non-destructive test and assurance of assembled or produced metamaterial, including composition, spatially varying composition and spatial arrangement parameters.

4. In relation to materials—

- (a) a metamaterial;
- (b) tailored or bespoke feedstocks used in fabricating metamaterials including blended or formulated filaments referred to in paragraph 3(e) of sector (3) (engineering and technical polymers)), inks or dispersions used for additive manufacturing or printing but excluding inks or dispersions commercialised for forming electrically conducting pathways (known as “wires”) in printed electronics.

5. In relation to software and data, accumulations of metamaterial designs, or of elements comprising metamaterials, any of which that enable artificial intelligence, machine learning design or optimisation of metamaterials.

6. In relation to technology, the inclusion with a metamaterial of technology in the form of systems or components, as well as material constituents, as part of the means and methods that enable metamaterials to alter their function and behaviour once installed or produced.

(7) Semiconductors

1. The matters are, in relation to semiconductors, those set out in paragraphs 2 to 5.

2. In relation to systems, equipment and components—

- (a) high performance thermal imaging systems, equipment and components providing system sensitivity less than 30 milli-Kelvin for large format systems with more than 1 megapixels;
- (b) integrated systems having multiple operating wavebands on a single camera including mid-wavelength and long-wavelength infrared;
- (c) imaging systems with on-chip (smart) processing;
- (d) type II superlattice detectors;
- (e) single photon counting detector arrays operating at wavelengths longer than the visible band (wavelength greater than 750 nanometres), and with a size of at least 32x32 elements, or linear arrays with a size of at least

1x256 elements;

- (f) low noise CMOS (complementary metal-oxide-semiconductor) and EMCCD (electron multiplying charge coupled device) cameras where low noise would be less than 1 photoelectron/pixel/second;
- (g) technology and components for non-Von Neumann computing architectures, including but not limited to neuromorphic computing systems.

3. In relation to test, inspection and production equipment—

- (a) the production of radio and microwave frequency systems, equipment and components incorporating compound semiconductors; example components include but are not limited to control circuitry, power amplifiers, low noise amplifiers and monolithic microwave integrated circuits, detectors and photonic devices;
- (b) facilities operating as a compound semiconductor foundry or providing compound semiconductor processing capability;
- (c) chip and device fabrication;
- (d) ceramic and polymeric packaging of processed semiconductor chips;
- (e) the production and integration capabilities for the high-performance imaging systems described in paragraph 2 of this sector (semiconductors).

4. In relation to materials—

- (a) all compound semiconductors for radio frequency and microwave application including gallium nitride, gallium arsenide, gallium oxide, silicon germanium and indium phosphide;
- (b) imaging camera detector materials including cadmium mercury telluride, aluminium gallium arsenide, indium gallium arsenide and germanium silicon.

5. In relation to software and data, chip and device design.

(8) Photonic and optoelectronic materials and devices

1. The matters are, in relation to photonic and optoelectronic materials and devices, those set out in paragraphs 2 to 6.

2. In relation to systems, equipment and components—

- (a) polarisation control components including materials (solid and liquid) especially for high power applications (greater than 100 watts);
- (b) optical fibre designs mitigating nonlinear effects and enabling polarisation control of the output light for high power applications in both transverse single-mode and multimode optical fibre formats;
- (c) optical fibre based components such as light diodes, tap couplers and fibre Bragg gratings;
- (d) nonlinear components for nonlinear frequency conversion such as optical fibre geometries, crystal materials and optical patterning techniques;

- (e) low loss, high bandwidth optical fibre technologies (for laser sources and amplifier stages) and manufacturing techniques where the output power is capable of being scaled up for lasers that meet the characteristics set out in the description of “photonic and optoelectronic material and devices” in paragraph 1 of this Schedule (Interpretation);
- (f) phase modulators, where the spectral linewidth of fibre laser amplifiers is limited to no more than 16 gigahertz.

3. In relation to test, inspection and production equipment—

- (a) optical fibre designs and production techniques, including coating techniques and test methodologies;
- (b) laser materials manufacturing techniques, host material doping techniques and characterisation techniques.

4. In relation to materials—

- (a) materials that enable increased amplification, improved quality, improved robustness, improved increased electro-optical efficiency or reduced size or volume;
- (b) materials and or coatings or treatments that reduce optical losses of lenses or mirrors;
- (c) materials and or coatings or treatments that improve or increase the physical stability or robustness of lenses or mirrors;
- (d) materials enabling non-mechanical beam steering for detectors, sensors and imaging systems;
- (e) materials that reduce the size, weight and power requirements of optical detection, sensing and imaging systems;
- (f) materials suitable for aberration correction of high-power lasers (greater than 1 kilowatt) in the atmosphere.

5. In relation to software and data—

- (a) algorithms, and their implementation in firmware, that compensate for the adverse atmospheric effects on laser beam propagation at distances greater than 1 kilometre;
- (b) software, hardware and algorithm developments that improve phase control/coherent beam combination and efficiency.

6. In relation to technology—

- (a) any approaches that enable high average optical power (greater than 3 kilowatts) combined with high quality ($M2 < 1.2$) amplifiers;
- (b) any aspects that enable the propagation of light over significant distances (greater than 1 kilometre), including aberration correction devices.

(9) Graphene and related 2D materials

1. The matters are, in relation to graphene and related 2D materials, those set out in paragraphs 2 to 5.

2. In relation to systems, equipment and components—

- (a) developing and operating equipment to synthesise single

to few layer graphene and related 2D materials, including controlling the desired structure of the materials or their properties for application;

- (b) using processes including chemical exfoliation, electrochemical exfoliation, atom or molecule intercalation, surface growth, solution phase growth, vapour deposition and large area chemical vapour deposition.

3. In relation to test, inspection and production equipment—

- (a) synthesis and manufacturing routes to either or both—
 - (i) graphene and related 2D; or
 - (ii) graphene and related 2D materials with bespoke or optimised functional properties, including but not limited to functioning as semi-conductors;
- (b) research, development and production of materials at scale for use as a filler or pigment including forming or using graphene and related two-dimensional materials in dispersions or mixed with other binders;
- (c) research, development and production to integrate the use of materials in devices and systems;
- (d) conversion of graphene and other 2D materials into intermediaries using processes including surface treatment and functionalisation, dispersion in matrices, mechanical and laser shaping, coating and ink printing processes.

4. In relation to materials, all graphene and related 2D materials, including—

- (a) graphene, hexagonal boron nitride and transition metal dichalcogenides (such as MoS₂ and WS₂);
- (b) graphene and related 2D materials as thin films or coatings, powder form or mixtures with other materials; and
- (c) energetic materials (such as propellants or explosives).

5. In relation to technology—

- (a) stacking of different 2D crystals resulting in either or both a charge redistribution between neighbouring crystals or causing structural changes;
- (b) components with finely tuned properties made by combining different 2D materials, including stacking different 2D materials.

(10) Nanotechnology

1. The matters are, in relation to nanotechnology, those set out in paragraphs 2 to 5.

2. In relation to systems, equipment and components—

- (a) sensors or detectors including quantum dots with very high sensitivity to—
 - (i) chemical, biological or nuclear materials (where the threshold is close to and including single molecule levels); or
 - (ii) light or other forms of radiation (where the

threshold is close to and including single photon levels);

- (b) autonomous remote or remotely activated sensing and reporting systems that are enabled by nanotechnology including Smart Dust;
- (c) nanomachines or nanoscale robots either with physically moving parts or capable of physical movement.

3. In relation to test, inspection and production equipment—

- (a) test, inspection or production of nanotechnology or nanomaterials but not including services only offering test and inspection requiring the prior destruction of the produced nanotechnology or nanomaterials to form a test artefact (such as using Scanning Electron Microscopy or Atomic Force Microscopy);
- (b) methods to create or integrate nanotechnology for use in any of the following—
 - (i) computer processing or memory devices (excluding commoditised silicon microelectronics technologies);
 - (ii) communications or electronic warfare devices or components;
 - (iii) precision navigation and timing systems;
 - (iv) detectors, sensing or imaging systems;
 - (v) counter-measure devices or systems;
 - (vi) moving parts or soft robotics.

4. In relation to materials, high-density nanoceramics and carbon nanotubes to reinforce ceramics for ballistic and blast protection.

5. In relation to technology—

- (a) technology that exploits nanoscale phenomena or technology that is nano-enhanced or nanoscience that further enhances nanoscale phenomena;
- (b) materials possessing exploitable magnetic, quantum or atomic spin states, or in combination for spinwave effects or technologies including defect centres in nanomaterials or utilising skyrmions;
- (c) electro-optic, magneto-optic, photonic or nanophotonic effects or devices (including vertical cavity emitting lasers) and circuits;
- (d) micromechanical, nanomechanical, electromechanical, optomechanical, or electro-opto-mechanical effects or systems;
- (e) metamaterials.

(11) Critical materials

1. The matters are, in relation to critical materials, the extraction, refinement, processing, production and end of life recovery (in single element, compound or product form) of any the following—

- (i) activated carbon;
- (ii) antimony

- (iii) arsenic;
- (iv) beryllium;
- (v) bismuth;
- (vi) boron;
- (vii) cadmium;
- (viii) cerium;
- (ix) chromium;
- (x) cobalt;
- (xi) dysprosium;
- (xii) erbium;
- (xiii) europium;
- (xiv) fluorspar;
- (xv) gadolinium;
- (xvi) gallium;
- (xvii) germanium;
- (xviii) graphite;
- (xix) holmium;
- (xx) indium;
- (xxi) iridium;
- (xxii) lead;
- (xxiii) lithium;
- (xxiv) lutetium;
- (xxv) mercury;
- (xxvi) molybdenum;
- (xxvii) neodymium;
- (xxviii) niobium;
- (xxix) osmium;
- (xxx) palladium;
- (xxxi) platinum;
- (xxxii) praseodymium;
- (xxxiii) rhenium;
- (xxxiv) ruthenium;
- (xxxv) samarium;
- (xxxvi) scandium;
- (xxxvii) selenium;
- (xxxviii) tantalum;
- (xxxix) tellurium;
- (xl) terbium;
- (xli) thulium;
- (xlii) tungsten;
- (xliii) vanadium;
- (xliv) ytterbium;
- (xlv) yttrium.

(12) Other materials

1. The matters are, in relation to other materials, those set out in paragraphs 2 to 6.

2. In relation to systems, equipment and components—

- (a) capacitors based on tantalum;
- (b) components used in equipment or systems for the purpose of protecting optical systems and human vision from dazzle or damage by lasers.

3. In relation to test, inspection and production equipment—

- (a) machines for additively manufacturing fully-assembled robotic, soft-robotic, sub-systems and systems or autonomous robotic sub-systems, systems and vehicles but not including machines for additively manufacturing individual components for such sub-systems systems and vehicles;
- (b) circuit board manufacturing of pitch, track or gap dimensions less than 30 micrometres;
- (c) new component placement technologies, including multi-axis component placement;
- (d) additive manufacturing or printing of moving parts, components and machines (known as “4D printing”);
- (e) battery pack assembly specifically for defence and security applications at the stage of integration, not isolated battery cell construction.

4. In relation to materials—

- (a) materials (including paints or other forms of coating or surface) that are capable of modifying (including in real time) the appearance, detectability, traceability or identification of any object to a human or to sensors within the range of 15 terahertz up to and including ultraviolet;
- (b) foams with designed electrical, electromagnetic or thermal protection properties;
- (c) honeycombs with designed electrical or electromagnetic properties;
- (d) smart materials (including micro-fluidic systems) the properties of which can be repeatedly altered once installed at rates exceeding 1 megahertz;
- (e) materials enabling extreme size, weight and power reduction for energy, power and propulsion sources, or sensing or communications devices and systems for use in micro or smaller unmanned systems;
- (f) materials used in equipment or systems for the purpose of protecting optical systems and human vision from dazzle or damage from lasers.

5. In relation to software and data—

- (a) creative artificial intelligence algorithms for material discovery and optimisation;
- (b) quantum simulation for material discovery and optimisation.

6. In relation to technology, neuromorphic or quantum technologies enabling creative artificial intelligence or quantum simulation for materials discovery.

SCHEDULE 2

Advanced robotics

Regulation 2

Interpretation

1. In this Schedule—

“cognitive” means having the abilities of reasoning, perception, communication, learning, planning, problem solving, abstract thinking, decision making or organisation;

“core components” means—

- (a) sensors enabling advanced robotics to track and sense its environment;
- (b) end effectors or other devices attached to advanced robotics allowing it to interact with its task or perform its operation;
- (c) locomotion, where the advanced robotics is capable of moving in its environment;
- (d) an energy source, including passive sources such as solar energy, providing power delivery enabling advanced robotics to move independently and to carry out its functions;
- (e) hardware or software enabling sophisticated computational capabilities, including the use of artificial intelligence to process data and data sets received from the sensors and adapt the behaviour of the advanced robotics;
- (f) communications capability, including the ability to communicate with a human operator or other advanced robotics.

Activities – advanced robotics

2. A qualifying entity carrying out any of the following activities—

- (a) developing advanced robotics;
- (b) producing advanced robotics;
- (c) developing or producing core components specially designed or modified for use in advanced robotics.

Advanced robotics

3. Subject to paragraph 6, “advanced robotics” means a machine that meets either or both the descriptions set out in paragraph 4 and is capable of carrying out multifunctional physical actions, including positioning or orientating materials, parts, tools, special devices or itself through variable movements in three-dimensional space.

Description of advanced robotics

4. The descriptions referred to in paragraph 3 are—

- (a) having the characteristic of autonomy set out in paragraph 5; and
- (b) being capable of using its sensors to carry out sophisticated surveillance and data collection in respect of any aspects of its environment in order to collect, store or communicate to the operator, significant volumes of high-fidelity data.

Characteristic of autonomy

5.—(1) Advanced robotics has the characteristic of autonomy where it is capable of performing actions—

- (a) independent of human control; or
- (b) independent of human control but complemented by—
 - (i) manual (including tele-operation) control;
 - (ii) pre-programmed operations or controls; or
 - (iii) control derived from other robotics or software control systems.

(2) The characteristics of autonomy may include either or both of the following—

- (a) using physical, sensory and cognitive capabilities in combination, to decide on and implement a course of action that will vary depending on—
 - (i) the environment; or
 - (ii) the behaviour, dynamics, properties or arrangement of objects in the environment, which may include the ability to self-navigate or react to stimuli or changes in order to improve performance; or
- (b) adapting or learning by carrying out actions to improve the performance of tasks from iteration and experience, which may include—
 - (i) the ability to self-heal;
 - (ii) the capability to identify and repair damaged robotics or components; or
 - (iii) having soft robotics capabilities (robotics made from compliant materials that mimic capabilities in living organisms that enable them to adapt or respond to their surroundings).

Exclusions

6.—(1) Subject to sub-paragraph (2), “advanced robotics” does not include—

- (a) machines containing robotic systems that are readily available for purchase by consumers, including robotic toys, domestic appliances described as “smart”, vacuum cleaning robots and consumer-focussed drones, where “consumer” means an individual acting for purposes that are wholly or mainly outside of that individual’s trade, business or craft;
- (b) industrial automation systems that use mechanical tools performing repetitive functions with very basic or no sensors or cognitive ability, including—
 - (i) simple sensing or imaging devices that do not confer any ability to react or change their behaviour given a change in circumstances, without human intervention;
 - (ii) devices that carry out functions that require pre-set sequences of actions or require pre-set sensing of the environment;
- (c) smart speakers or similar devices lacking end effectors or locomotion.

(2) The description of exceptions set out in sub-paragraph (1)(a) does not include self-driving vehicles.

SCHEDULE 3

Regulation 2

Artificial intelligence

Interpretation

1. In this Schedule—

“artificial intelligence” means technology enabling the programming or training of a device or software to—

- (i) perceive environments through the use of data;
 - (ii) interpret data using automated processing designed to approximate cognitive abilities; and
 - (iii) make recommendations, predictions or decisions;
- with a view to achieving a specific objective;

“advanced robotics” has the same meaning as in Schedule 2;

“cognitive abilities” means reasoning, perception, communication, learning, planning, problem solving, abstract thinking, decision-making or organisation;

“cyber security” means the activities necessary to protect network and information systems, the users of such systems, and other persons affected by cyber threats;

“cyber threat” means any potential circumstance, event or action that could damage, disrupt or otherwise adversely affect network and information systems, the users of such systems and other persons;

“network and information system” has the same meaning as in regulation 1 of the Network and Information Systems Regulations 2018(a);

“technology” has the same meaning as in Schedule 2 to the Export Control Order 2008(b).

Activities – artificial intelligence

2.—(1) A qualifying entity carrying on any of the following activities for one or more of the purposes set out in sub-paragraph 2—

- (a) research into artificial intelligence; or
- (b) developing or producing goods, software or technology that use artificial intelligence.

(2) The purposes are—

- (a) the identification or tracking of objects, people or events;
- (b) advanced robotics;
- (c) cyber security.

SCHEDULE 4

Regulation 2

Civil nuclear

Activity - civil nuclear

1. A qualifying entity carrying on activities that consist of or include any of the following—

- (a) subject to paragraph 2, holding a nuclear site licence granted in accordance with section 3 of the Nuclear Installations Act 1965(c) or applying for such a licence;
- (b) subject to paragraph 2, being a tenant on a site in respect of which a nuclear site licence has been granted in accordance with section 3 of the Nuclear Installations Act 1965;
- (c) holding either or both Category I/II or Category III nuclear material as defined in regulation 3(3) and (4) of the Nuclear Industries Security Regulations 2003(d);

(a) S.I. 2018/506. There are amendments to regulation 1, which are not relevant for the purposes of these Regulations.
(b) S.I. 2008/3231. Schedule 2 was substituted by S.I. 2017/85 and subsequently amended by S.I. 2017/697, 2018/165, 2018/939 and 2019/989.
(c) 1965 c. 57. Section 3 was substituted by the Energy Act 2013 (c. 32), section 116, Schedule 12, Part 2, paragraphs 16 and 18.
(d) S.I. 2003/403; amended by S.I. 2016/795, regulation 2.

- (d) being a Class A carrier or a Class B carrier of nuclear material as approved under regulation 14 of the Nuclear Industries Security Regulations 2003(a);
- (e) being in receipt of an order granting development consent under the Planning Act 2008(b) in relation to a nuclear reactor (as defined in section 26(1) of the Nuclear Installations Act 1965), or applying for such development consent;
- (f) being, or having been, required to pay a fee to the Office for Nuclear Regulation under regulation 16(1) of the Health and Safety and Nuclear (Fees) Regulations 2021(c), where the outcome of the assessment for which that fee is to be, or has been, paid has not been determined;
- (g) holding any equipment, software or information to which regulation 2(3) or (4), of the Uranium Enrichment Technology (Prohibition on Disclosure) Regulations 2004 applies(d);
- (h) holding sensitive nuclear information as defined in section 77(7) of the Anti-Terrorism, Crime and Security Act 2001(e);
- (i) being given financial support under section 5 of the Science and Technology Act 1965(f), or under section 93 of the Higher Education and Research Act 2017(g), for or in relation to nuclear reactors (as defined in section 26 of the Nuclear Installations Act 1965).

Exclusion

2. Paragraph 1(a) or (b) do not apply where the site to which the nuclear site licence relates is controlled or operated wholly or mainly for defence purposes as defined in section 70(3) of the Energy Act 2013(h).

SCHEDULE 5 Communications

Regulation 2

Interpretation

1. In this Schedule—

“cable landing station” means a cable landing station for a submarine cable system;

“electronic communications service” has the meaning given by section 32(2) of the Communications Act 2003(i)

“public electronic communications network” means a public electronic communications network as defined by section 151(1) of the Communications Act 2003(j) and includes a submarine cable system that is provided for purposes which include the purpose of making electronic communications services available to the public;

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- (a) Regulation 14 was amended by S.I. 2014/469.
 - (b) 2008 c. 29.
 - (c) S.I. 2021/33.
 - (d) S.I. 2004/1818.
 - (e) The definition of “nuclear material” in section 77(7) was substituted by the Energy Act 2004 (c. 20), section 69(1), Schedule 14, paragraph 10(1).
 - (f) 1965 c. 4. Section 5(1) was substituted by S.I. 1995/2985, art. 5(1), Schedule para. 1(2)(a). Other amendments have been made to section 5 which are not relevant to these Regulations.
 - (g) 2017 c. 29.
 - (h) 2013 c. 32.
 - (i) 2003 c. 21. Section 32(3) was substituted by S.I. 2020/1419.
 - (j) There are amendments to section 151(1) not affecting the definition of “public electronic communications network”. The definition of “electronic communications services” in section 32(2) of the Communications Act 2003 was amended by S.I. 2011/1210.

“public electronic communications service” means a public electronic communications service as defined by section 151(1) of the Communications Act 2003(a), and includes an electronic communications service that is provided by means of a submarine cable system so as to be available for use by members of the public;

“submarine cable system” means a system of fibre optic cables which—

- (a) are beneath the sea (whether on or in the seabed or in a tunnel); and
- (b) are used for the conveyance of signals.

Public electronic communications providers

2.—(1) A qualifying entity which—

- (a) carries on activities which consist of or include either or both of the following—
 - (i) providing a public electronic communications network;
 - (ii) providing a public electronic communications service; and
- (b) meets the turnover condition in sub-paragraph (2).

(2) The turnover condition is that the turnover of the entity’s relevant business for the relevant period is at least £50,000,000.

(3) In sub-paragraph (2)—

- (a) “relevant business” means so much of any business carried on in the United Kingdom by the entity in question or any of its associated entities as consists of either or both of the following—
 - (i) the provision of a public electronic communications network;
 - (ii) the provision of a public electronic communications service;
- (b) “relevant period” means—
 - (i) the period of one year ending with the 31st March last before the time when a person gains control of the qualifying entity, by virtue of one or more of the cases described in subsection (2), (5) or (6) of section 8 of the Act; and
 - (ii) in the case of an entity which at that time has been carrying on that business for a period of less than a year, the period, ending with that time, during which it has been carrying it on.

(4) For the purposes of sub-paragraph (3)(a), another qualifying entity is an associated entity of the entity in question if—

- (a) the entity in question owns, or has a controlling interest in, the other qualifying entity;
- (b) the other qualifying entity owns, or has a controlling interest in, the entity in question; or
- (c) a person or group of persons owns, or has a controlling interest in, both entities.

(5) For the purposes of sub-paragraph (4), a person has a controlling interest in a qualifying entity if the person holds more than 50% of the shares or voting rights in the entity; and subsections (3), (4), and (7) of section 8 of the Act apply for the interpretation of this sub-paragraph.

(6) For the purposes of this paragraph—

- (a) turnover is to be calculated in conformity with accounting practices and principles which are generally accepted in the United Kingdom;
- (b) turnover is to be limited to the amounts derived by an entity from the relevant business after deduction of sales rebates, value added tax and other taxes directly related to amounts so derived;

(a) There are amendments to section 151(1) not affecting the definition of “public electronic communications service”. The definition of “electronic communications service” in section 32(2) of the Communications Act 2003 was substituted by S.I. 2020/1419.

- (c) where the relevant business of the entity in question is carried on by two or more entities that each prepare accounts the turnover shall be calculated by adding together the turnover of each, except that no account shall be taken of any turnover resulting from the supply of goods or the provision of services between them.

Associated facilities

3.—(1) A qualifying entity carrying on activities which consist of or include the making available of anything that—

- (a) is an associated facility by reference to a qualifying network or qualifying service; and
- (b) is not excluded by sub-paragraph (2) or (3).

(2) An associated facility consisting of a building or an entry to a building is excluded by this sub-paragraph unless the main purpose of the building is to host a network element that is active.

(3) An associated facility other than a building or an entry to a building is excluded by this sub-paragraph if the associated facility is an element (such as a pipe, mast, duct, antenna installation, tower or pole) which—

- (a) is not itself active; and
- (b) is designed merely to host either or both of the following—
 - (i) other network elements that are not active;
 - (ii) cables (including strands of optical fibre).

(4) In this paragraph—

“associated facility” has the meaning given by section 32(3) of the Communications Act 2003^(a) but as if the reference in that provision to a “facility, element or service” included a reference to a cable landing station;

“qualifying network” means a public electronic communications network provided by a qualifying entity falling within paragraph 2;

“qualifying service” means a public electronic communications service provided by a qualifying entity falling within paragraph 2.

Repair or maintenance of submarine cable systems or cable landing stations

4.—(1) A qualifying entity carrying on activities which consist of or include the provision of services for the repair or maintenance of—

- (a) a submarine cable system (in the United Kingdom or elsewhere) forming part of a public electronic communications network that—
 - (i) is provided in the United Kingdom by a qualifying entity falling within paragraph 2;
or
 - (ii) interconnects with a public electronic communications network provided in the United Kingdom by a qualifying entity falling within paragraph 2; or
- (b) a cable landing station in the United Kingdom that is used in connection with a public electronic communications network or public electronic communications service provided in the United Kingdom by a qualifying entity falling within paragraph 2.

(2) In this paragraph “interconnect” is to be read in accordance with section 151(2) of the Communications Act 2003.

Information systems

5.—(1) A qualifying entity carrying on activities that consist of or include supplying to persons in the United Kingdom services which consist of or include one or more of the following—

(a) Section 32(3) was substituted by S.I. 2011/1210.

- (a) providing a top-level domain name registry which, in any relevant 168-hour period, serviced 14 billion or more queries from devices located in the United Kingdom for domains registered within the Internet Corporation for Assigned Names and Numbers;
 - (b) providing a domain name system resolver service which, in any relevant 168-hour period, serviced 500,000 or more different Internet Protocol addresses used by persons in the United Kingdom;
 - (c) providing a domain name system authoritative hosting service servicing 100,000 or more domains registered to persons with an address in the United Kingdom.
- (2) A qualifying entity which—
- (a) carries on activities which consist of or include supplying to persons in the United Kingdom services which consist of or include providing an internet exchange point; and
 - (b) has 30% or more of the market share among operators of internet exchange points in the United Kingdom in terms of interconnected autonomous systems.

(3) In this paragraph—

“domain name system” has the meaning given to “Domain Name System” in paragraph 10(5)(a) of Schedule 2 to the Network and Information Systems Regulations 2018(a);

“internet exchange point” has the meaning given in paragraph 10(5)(c) of Schedule 2 to the Network and Information Systems Regulations 2018;

“relevant 168-hour period” means any consecutive period of 168 hours falling within the 12 months ending with the time when a person gains control of the qualifying entity by virtue of one or more of the cases described in subsection (2), (5) or (6) of section 8 of the Act;

“top-level domain name registry” has the meaning given in paragraph 10(5)(d) of Schedule 2 to the Network and Information Systems Regulations 2018.

SCHEDULE 6

Regulation 2

Computing hardware

Interpretation

1. In this Schedule—

“computer processing unit” means—

- (a) a central processing unit (also referred to as “CPU”);
- (b) a field programmable gate array (also referred to as “FPGA”);
- (c) a microcontroller;
- (d) a system on chip;
- (e) a graphics processor unit; or
- (f) a specialist processor for artificial intelligence applications;

“fabrication” means the process of producing a microelectronic circuit on a semiconductor substrate or using other advanced materials;

“packaging” means the process of turning a microelectronic circuit on an appropriate substrate into a package suitable for use in an electronic circuit but does not include the assembly and packaging of chips and devices into circuit boards;

“roots of trust” means hardware, firmware or software components that are inherently trusted to perform critical security functions.

(a) S.I. 2018/506; paragraph 10(5)(a) of Schedule 2 was amended by S.I. 2020/1245.

Activity – computing hardware

2. A qualifying entity whose activities consist of one or more of the activities set out in paragraph 3.
3. The activities referred to in paragraph 2 are—
 - (a) the ownership, creation, supply or exploitation of intellectual property relating to any of the following—
 - (i) computer processing units;
 - (ii) architectural, logical or physical designs for such units;
 - (iii) the instruction set architecture for such units;
 - (iv) code, written in a low-level language, that can control how such units operate;
 - (v) integrated circuits with the purpose of providing memory;
 - (b) the design, maintenance or delivery of a service for the secure provisioning or management of either or both of the following—
 - (i) roots of trust of computer processing units;
 - (ii) code, written in a low level language, that can control how such units operate;
 - (c) the fabrication or packaging of either or both of the following—
 - (i) computer processing units;
 - (ii) integrated circuits with the purpose of providing memory.

SCHEDULE 7

Regulation 2

Critical suppliers to government

Interpretation

1. In this Schedule—

“government” has the same meaning as “contracting authorities” in regulation 2 of the Public Contracts Regulations 2015(a);

“relevant public contract” means a contract for pecuniary interest between one or more persons and government, where the contract has as its object the execution of works, the supply of products or the provision of services.

Activity – critical suppliers to government

2. A qualifying entity being a party to a relevant public contract where the contract contains one or more of the features set out in paragraph 2.
3. The features referred to in paragraph 1 are—
 - (a) either or both the processing or storage of material to which a security classification of SECRET or TOP SECRET has been applied in accordance with the document titled “Government Security Classifications Version 1.1 – May 2018”(b) published by the Cabinet Office;
 - (b) a requirement to have List X accreditation as described in the document titled “Security Requirements for List X Contractors Version 10.0 – April 2014” published by the Cabinet Office(c);

(a) S.I. 2015/102. The regulation has been amended but the amendments do not affect the definition of “contracting authorities”.

(b) <https://www.gov.uk/government/publications/government-security-classifications>.

(c) <https://www.gov.uk/government/publications/security-requirements-for-list-x-contractors>.

- (c) a requirement for employees of the qualifying entity to be vetted at or above ‘Security Check’ level as described in guidance titled “National security: vetting clearance levels” published on 12 February 2020^(a) by the United Kingdom Security Vetting.

SCHEDULE 8

Regulation 2

Cryptographic authentication

Interpretation

1. In this Schedule—

“consumer” means an individual acting for purposes that are wholly or mainly outside that individual’s trade, business, craft or profession;

“authentication” means verifying—

- (a) the identity of a user, process or device; or
- (b) the origin or content of a message or other information;

“cryptography” means the discipline which embodies principles, means and methods for the transformation of data in order to hide its information content, prevent its undetected modification or prevent its unauthorised use and is limited to the transformation of information using one or more secret parameters or associated key management;

“secret parameter” means a variable, constant or key kept from the knowledge of others or shared only within a group.

Activity – cryptographic authentication

2. A qualifying entity carrying on activities consisting of or including research into, developing or producing, any product which—

- (a) has authentication as a primary function;
- (b) employs cryptography in performing that function; and
- (c) is not ordinarily supplied to or made available for acquisition by consumers.

SCHEDULE 9

Regulation 2

Data infrastructure

Interpretation

1. In this Schedule—

“administrative access” refers to either or both authorisation or access granted via either or both logical or administrative access controls by virtue of which an entity may access relevant data infrastructure or control access to relevant data infrastructure where such access would otherwise be restricted or compartmented and where such access would permit the modification of the relevant data infrastructure in a way that was not authorised;

“electronic communications network” has the meaning given in section 32(1) of the Communications Act 2003^(b);

(a) <https://www.gov.uk/government/publications/united-kingdom-security-vetting-clearance-levels/national-security-vetting-clearance-levels>.

(b) 2003 c. 21. Section 32 was amended by S.I. 2011/1210, regulation 1(2), Schedule 1 paragraph 9(a)(i) and Schedule 3 paragraph 2, and S.I. 2020/1419, regulation 1(2), Schedule 1, paragraph 6.

“public electronic communications network” has the meaning given in section 151(1) of the Communications Act 2003;

“public electronic communications service” has the meaning given in section 151(1) of the Communications Act 2003;

“public sector authority” means an authority listed in paragraph 2;

“relevant activity” means storing, processing or transmitting data in digital form which are used in connection with the administration and operation of a public sector authority;

“relevant data infrastructure” is physical or virtualised infrastructure, which—

- (a) is used for a relevant activity and the qualifying entity—
 - (i) has a contract with a public sector authority to provide the relevant activity; or
 - (ii) is a sub-contractor who has been notified that it is in a chain of sub-contractors which begins with the contractor that has a contract with the public sector authority for the purpose of providing the relevant activity, where the sub-contractor is providing a relevant activity that would fulfil or contribute towards the fulfilment of the main contract;
- (b) is provided for peering, interconnection or exchange of digital data between providers of public electronic communications networks and/or providers of public electronic communications services but which is not owned by a provider of public electronic communications networks or a provider of a public electronic communications service; or
- (c) enables the interconnection of one or more public electronic communications networks with an electronic communications network where part of that network is provided by means of a submarine cable system;

“specialist or technical services” means either or both—

- (a) equipment installation services;
- (b) equipment repair and maintenance services;

“submarine cable system” means a system of fibre optic cables which—

- (i) are beneath the sea (whether on or in the seabed or in a tunnel); and
- (ii) are intended for the conveyance of signals.

Interpretation – public sector authority

2. The authorities referred to in the definition of a “public sector authority” in paragraph 1 are set out in the following Table.

Table

Public sector authority

Prime Minister’s Office

Attorney General’s Office
Crown Prosecution Service
Government Legal Department
Serious Fraud Office

Cabinet Office
Crown Commercial Service
Government Property Agency
The Electoral Commission
UK Statistics Authority

Department for Business, Energy and Industrial Strategy
Competition and Markets Authority

HM Land Registry
Intellectual Property Office
Meteorological Office
Nuclear Decommissioning Authority
Office of Gas and Electricity Markets (Ofgem)
United Kingdom Space Agency

Department for Digital, Culture, Media and Sport
Information Commissioner
The National Archives
Office of Communications (Ofcom)

Department for Education
Education and Skills Funding Agency
Office of Qualifications and Examinations Regulation (Ofqual)
Office for Standards in Education, Children's Services and Skills (Ofsted)
Teaching Regulation Agency

Department for Environment, Food and Rural Affairs
Water Services Regulation Authority (Ofwat)

Department for International Trade
UK Export Finance (also known as the Exports Credit Guarantee Department)

Department for Transport
Civil Aviation Authority
Driver and Vehicle Licensing Agency
Maritime and Coastguard Agency
Office of Rail and Road

Department for Work and Pensions
Health and Safety Executive
Office for Nuclear Regulation

Department of Health and Social Care
Health and Social Care Information Centre
Joint Committee on Vaccination and Immunisation
Medicines and Healthcare products Regulatory Agency
Public Health England
UK Health Security Agency

Foreign, Commonwealth and Development Office
Wilton Park

GCHQ

HM Treasury
Bank of England
Financial Conduct Authority
Government Actuary's Department
Government Internal Audit Agency
HM Revenues and Customs
National Audit Office

National Infrastructure Commission
National Savings and Investments
Office for Budget Responsibility
UK Debt Management Office
Valuation Office Agency

Home Office
National Crime Agency
Investigatory Powers Commissioner's Office

Ministry of Defence
Defence Electronics and Components Agency
Defence Equipment and Support
Defence Science and Technology Laboratory
Submarine Delivery Agency
United Kingdom Hydrographic Office

Ministry of Housing, Communities and Local Government
Queen Elizabeth II Centre

Ministry of Justice
Criminal Injuries Compensation Authority
HM Courts and Tribunals Service
HM Prison and Probation Service
Legal Aid Agency
Office of the Public Guardian
Supreme Court of the United Kingdom

Northern Ireland Office

Office of the Advocate General for Scotland

Office of the Leader of the House of Commons

Office of the Leader of the House of Lords

Office of the Secretary of State for Scotland

Office of the Secretary of State for Wales

Secret Intelligence Service

Security Service

Northern Ireland Executive
The Executive Office
Department of Agriculture, Environment and Rural Affairs
Department for Communities
Department for the Economy
Department of Education
Department of Finance
Department of Health
Department for Infrastructure

Department of Justice
Invest Northern Ireland

The Scottish Government
Crown Office and Procurator Fiscal Service
Disclosure Scotland
Education Scotland
Office of the Accountant in Bankruptcy
Registers of Scotland
Revenue Scotland
Scottish Courts and Tribunals Service
Scottish Fiscal Commission
Scottish National Investment Bank
Scottish Public Pensions Agency
Social Security Scotland
Student Awards Agency for Scotland
The Scottish Ministers
Transport Scotland

The Welsh Government
Permanent Secretary's Group
Office of the First Minister Group
The Health and Social Services Group
The Economy, Skills and Natural Resources Group
The Education and Public Services Group

Activity – data infrastructure

3. A qualifying entity carrying on any of the activities set out in paragraph 4.
4. The activities referred to in paragraph 3 are—
 - (a) owning or operating relevant data infrastructure;
 - (b) managing relevant data infrastructure on behalf of other entities;
 - (c) managing facilities where relevant data infrastructure is located;
 - (d) providing specialist or technical services to entities carrying on activities described in sub-paragraphs (a), (b) or (c), which give the entity providing those specialist or technical services physical access to relevant data infrastructure;
 - (e) providing services where the provision of such services gives the entity providing those services administrative access to relevant data infrastructure;
 - (f) producing or developing software designed for use in the services in sub-paragraph (e) which configures or manages the provision of administrative access.

SCHEDULE 10

Regulation 2

Defence

Interpretation

1. In this Schedule—

“defence” has the meaning given to it by section 2(4) of the Official Secrets Act 1989(a); and
“government contractor” has the meaning given to it by section 12 of the Official Secrets Act 1989(b).

Activity - defence

2. A qualifying entity carrying on activities that comprise or include the research, development, production, creation or application of goods or services which are used or provided for defence or national security purposes where that entity meets a condition in paragraph 3.

3. The conditions referred to in paragraph 2 are that the entity—

- (a) is a government contractor or any sub-contractor in a chain of sub-contractors which begins with the government contractor which provides goods or services within the scope of paragraph 2; or
- (b) has been notified by or on behalf of the Secretary of State of information, documents or other articles of a classified nature which the entity or an employee of the entity may hold or receive relating to the activities within the scope of paragraph 2.

SCHEDULE 11

Regulation 2

Energy

Interpretation

1. In this Schedule—

“aggregation” means combining multiple customer loads or generated electricity for sale, purchase or auction in the electricity market of Great Britain;

“downstream oil activity” means any of the following activities—

- (a) the import of any of crude oil, intermediates, components and finished fuels;
- (b) the storage of any of crude oil, intermediates, components and finished fuels;
- (c) the production of intermediates, components and finished fuels through refining or blending processes;
- (d) the distribution of petroleum-based fuels to storage sites by road, pipeline, rail or ship;
- (e) the delivery of petroleum-based fuels to retail sites, airports or end users;

“existing upstream petroleum facility” means an upstream petroleum facility that began operating before the first day of the month that is 12 calendar months before the month in which a person gains control, by virtue of one or more of the cases described in subsection (2), (5) or (6) of section 8 of the Act, of the qualifying entity;

“gas” means any substance which is or (if it were in a gaseous state) would be gas within the meaning set out in section 48(1) of the Gas Act 1986;(c)

“gas interconnector” has the meaning set out in section 5(8) of the Gas Act 1986(d);

(a) 1989 c. 6.

(b) 1989 c. 6. Section 12 was amended by paragraph 22 of Schedule 10 to the Reserve Forces Act 1996 (c. 14), by paragraph 30 of Schedule 12 to the Government of Wales Act 1998 (c. 38), by paragraph 26 of Schedule 8 to the Scotland Act 1998 (c. 46), by paragraph 9(3) of Schedule 13 to the Northern Ireland Act 1998 (c. 47), by paragraph 9 of Schedule 6 to the Police (Northern Ireland) Act 2000 (c. 32), by paragraph 6 of Schedule 14 to the Energy Act 2004 (c. 20), by paragraph 58 of Schedule 4 to the Serious Organised Crime and Police Act 2005 (c. 15), by paragraph 34 of Schedule 10, and paragraph 1 of Schedule 12, to the Government of Wales Act 2006 (c. 32) and by paragraph 36 of Schedule 8 to the Crime and Courts Act 2013 (c. 22).

(c) 1986 c. 44.

(d) Subsection (8) was substituted by section 149(1) and (3) of the Energy Act 2004 (c. 20).

“gas processing facility” has the meaning set out in section 90(1) of the Energy Act 2011(a);

“gas processing operation” has the meaning set out in section 90(2) of the Energy Act 2011;

“generate” in relation to electricity means carrying on an act within section 4(1)(a) of the Electricity Act 1989(b);

“generating asset” means an asset used to generate electricity;

“group undertaking” has the meaning set out in section 1161(5) of the Companies Act 2006(c);

“LNG import or export facility” has the meaning set out in section 12(6) of the Gas Act 1995(d) but does not include facilities in the territorial sea adjacent to Great Britain or the sea in any area designated under section 1(7) of the Continental Shelf Act 1964(e);

“new upstream petroleum facility” means an upstream petroleum facility that had not begun operating before the first day of the month that is 12 calendar months before the month in which a person gains control, by virtue of one or more of the cases described in subsection (2), (5) or (6) of section 8 of the Act, of the qualifying entity;

“oil equivalent” means petroleum and, for the purposes of assessments of throughput, where petroleum is in a gaseous state 1,100 cubic meters of this petroleum at a temperature of 15 degrees Celsius and pressure of one atmosphere is counted as equivalent to one tonne;

“petroleum” has the same meaning as in Part 1 of the Petroleum Act 1998(f), and includes petroleum that has undergone any processing;

“petroleum licence” means a licence granted under section 3 of the Petroleum Act 1998(g) or section 2 of the Petroleum (Production) Act 1934(h);

“petroleum production project” has the meaning set out in section 90(2) of the Energy Act 2011;

“terminal” has the meaning set out in section 90(2) of the Energy Act 2011, but does not include gas processing facilities in the United Kingdom or LNG import or export facilities;

“upstream petroleum facility” means a terminal, upstream petroleum pipeline or unit of infrastructure that is or will be necessary to a petroleum production project;

“upstream petroleum pipeline” has the meaning set out in section 90(2) of the Energy Act 2011, but does not include gas interconnectors.

Activity - energy

2. A qualifying entity carrying on any of the activities set out in paragraph 3.
3. The activities referred to in paragraph 2 are—
 - (a) in respect of any existing upstream petroleum facility that meets the conditions set out in paragraph 4(2)—
 - (i) owning;
 - (ii) operating;
 - (iii) holding a petroleum licence in respect of; or

(a) 2011 c. 16.

(b) 1989 c. 29. Section 4 was amended by sections 28(2) and 28(3)(a) of the Utilities Act 2000 (c.27), sections 89(2), 135(2), 135(3), 135(4), 145(2) and 145(3) of the Energy Act 2004 and section 147(2) of the Energy Act 2013 (c. 32). There are other amendments which are not relevant.

(c) 2006 c. 46.

(d) 1995 c. 45. Section 12 of the Gas Act 1995 was amended by section 92(11)(b) of the Energy Act 2011 (c. 16).

(e) 1964 c. 29. Section 1(7) of the Continental Shelf Act 1964 was amended by Schedule 3, paragraph 1 to the Oil and Gas (Enterprise) Act 1982 (c. 23) and section 103 of the Energy Act 2011 (c. 16).

(f) 1998 c. 17.

(g) Section 3 was amended by sections 48(3)(a), 48(3)(b) and 48(4) of the Scotland Act 2016 (c. 11) and SI 2016/898.

(h) 1934 c. 36. This Act was repealed by section 51 of and Schedule 5 to the Petroleum Act 1998 (c. 17), subject to the savings provisions set out in Schedule 3.

- (iv) where the qualifying entity meets the condition set out in paragraph 4(3), enabling the operation of;
- (b) in respect of any new upstream petroleum facility that meets the conditions set out in paragraph 4(4)—
 - (i) owning;
 - (ii) operating;
 - (iii) holding or applying for a petroleum licence in respect of; or
 - (iv) where the qualifying entity meets the condition set out in paragraph 4(5)—
 - (aa) developing;
 - (bb) enabling the operation of; or
 - (cc) enabling the development of;
- (c) holding a transmission licence, distribution licence or interconnector licence under section 6 of the Electricity Act 1989(a) or carrying on any activity in pursuance of an exemption from section 4(1)(b), 4(1)(bb) or 4(1)(d) of the Electricity Act 1989 granted to the qualifying entity by order under section 5(1) of the Electricity Act 1989(b);
- (d) where the qualifying entity meets the condition set out in paragraph 4(6)—
 - (i) holding a generation licence under section 6 of the Electricity Act 1989 or carrying on any activity in pursuance of an exemption from section 4(1)(a) of the Electricity Act 1989 granted to the qualifying entity by order under section 5(1) of the Electricity Act 1989; or
 - (ii) carrying on aggregation;
- (e) holding a licence under section 7 or 7ZA of the Gas Act 1986(c) or carrying on any activity in pursuance of an exemption from sections 5(1)(a) or 5(1)(aa) of the Gas Act 1986 (d) granted to the qualifying entity by order under section 6A(1) of the Gas Act 1986(e);
- (f) owning or operating—
 - (i) any gas processing facility in Great Britain that meets the condition set out in paragraph 4(8); or
 - (ii) any LNG import or export facility that meets the condition set out in paragraph 4(9);
- (g) where the qualifying entity meets the conditions set out in paragraph 4(10), supplying petroleum-based road, aviation or heating fuels (including liquefied petroleum gas) to persons in the United Kingdom.

Conditions

4.—(1) This paragraph sets out the conditions referred to in paragraph 3.

(2) The conditions referred to in paragraph 3(a) are that the existing upstream petroleum facility—

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- (a) 1989 c. 29. Section 6 was substituted by section 30 of the Utilities Act 2000 (c. 27) and was amended by sections 136(1) and 145(5) of the Energy Act 2004. There are other amendments which are not relevant.
 - (b) Section 5 was substituted by section 29 of the Utilities Act 2000 and amended by SI 2012/2400. There are other amendments which are not relevant.
 - (c) 1986 c. 44. Section 7 was substituted by section 5 of the Gas Act 1995 (c. 45) and amended by sections 3(2), 76(2), 76(3) and 76(4) of and Schedule 6(1), paragraph 4 and Schedule 8, paragraph 1 to the Utilities Act 2000 (c. 27), section 149(5), section 197(9) and Schedule 23 Part 1 to the Energy Act 2004 (c. 2) and by S.I. 2011/2704. Section 7ZA was added by section 149(6) of the Energy Act 2004 (c. 20).
 - (d) Section 5 was substituted by section 3(1) of the Gas Act 1995 (c. 45) and amended by Schedule 6(I), paragraph 3 to the Utilities Act 2000 and sections 149(2)(a) and 149(2)(b) and 149(3) of the Energy Act 2004 (c. 20). There are other amendments which are not relevant.
 - (e) Section 6A was substituted by section 4 of the Gas Act 1995 (c. 45) and amended by Schedule 8, paragraph 1 to the Utilities Act 2000 and SI 2012/2400. There are other amendments which are not relevant.

- (a) has a throughput of greater than 3,000,000 tonnes of oil equivalent over the 12 calendar months preceding the month in which a person gains control, by virtue of one or more of the cases described in subsection (2), (5) or (6) of section 8 of the Act, of the qualifying entity; and
 - (b) is—
 - (i) situated in whole or in part in the United Kingdom; or
 - (ii) used in connection with the supply of petroleum to persons in the United Kingdom.
- (3) The condition referred to in paragraph (3)(a)(iv) is that the qualifying entity is an owner or operator of the existing upstream petroleum facility.
- (4) The conditions referred to in paragraph 3(b) are that the new upstream petroleum facility—
- (a) has an expected throughput of greater than 3,000,000 tonnes of oil equivalent in its first 12 calendar months of operation; and
 - (b) is or will be—
 - (i) situated in whole or in part in the United Kingdom; or
 - (ii) used in connection with the supply of petroleum to persons in the United Kingdom.
- (5) The condition referred to in paragraph 3(b)(iv) is that the qualifying entity is or will be an owner or operator of the new upstream petroleum facility.
- (6) The condition referred to in paragraph 3(d) is that—
- (a) the qualifying entity is an owner or operator of any individual generating asset that has a total installed capacity equal to or greater than 100 megawatts; or
 - (b) the relevant capacity of the qualifying entity is equal to or greater than one gigawatt.
- (7) For the purposes of sub-paragraph (6)(b), the “relevant capacity” of the qualifying entity is the total of—
- (a) the total installed capacity of any generating assets owned or operated by the qualifying entity;
 - (b) the total installed capacity of any generating assets owned or operated by the acquirer or group undertakings of the acquirer;
 - (c) the amount of customer load and generated electricity available to the qualifying entity for aggregation; and
 - (d) the amount of customer load and generated electricity available to the acquirer or group undertakings of the acquirer for aggregation.
- (8) The condition referred to in paragraph 3(f)(i) is that the gas processing facility has the technological capacity to carry on gas processing operations in relation to greater than 6 million cubic metres of gas per day.
- (9) The condition referred in paragraph 3(f)(ii) is that the LNG import or export facility has the technological capacity to carry on the importation, regasification or liquefaction of greater than 6 million cubic metres of gas per day.
- (10) The conditions referred to in paragraph 3(g) are that—
- (a) the qualifying entity carries on any downstream oil activity; and
 - (b) the qualifying entity—
 - (i) has capacity of greater than 500,000 tonnes; or
 - (ii) owns a facility in the United Kingdom that has capacity of greater than 50,000 tonnes.
- (11) For the purposes of sub-paragraph (10)—
- (a) a qualifying entity “has capacity of greater than” a specified number of tonnes if any downstream oil activity was carried on in the United Kingdom by that qualifying entity in relation to greater than that number of tonnes of oil in at least one of the three calendar years preceding the year in which a person gains control, by virtue of one or more of the

cases described in subsection (2), (5) or (6) of section 8 of the Act, of the qualifying entity; and

- (b) a facility “has capacity of greater than” a specified number of tonnes if it was used for the purposes of any downstream oil activity in relation to greater than that number of tonnes of oil in at least one of the three calendar years preceding the year in which a person gains control, by virtue of one or more of the cases described in subsection (2), (5) or (6) of section 8 of the Act, of the qualifying entity.

SCHEDULE 12

Regulation 2

Military and dual-use

Interpretation

1. In this Schedule—

“restricted goods” and “restricted technology” are respectively goods and technology, including software or information (other than information in the public domain), the export or transfer of which is controlled by virtue of their being specified in the relevant export control legislation;

“relevant export control legislation” means—

- (a) Schedules 2 and 3 to the Export Control Order 2008(a);
- (b) the Schedule to the Export of Radioactive Sources (Control) Order 2006(b);
- (c) Annex I to Council Regulation (EC) No. 2009/428 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items.

Activity - military and dual-use

2. A qualifying entity carrying on activities that consist of or include researching, developing or producing restricted goods or restricted technology.

SCHEDULE 13

Regulation 2

Quantum technologies

Interpretation

1. In this Schedule—

“quantum technology” means—

- (a) quantum communications;
- (b) quantum connectivity;
- (c) quantum imaging, sensing, timing or navigation;
- (d) quantum information processing, computing or simulation; or
- (e) quantum resistant cryptography;

“quantum communications” means—

(a) S.I. 2008/3231; Schedule 2 was substituted by S.I. 2017/85 and subsequently amended by S.I. 2017/697, 2018/165, 2018/939 and 2019/989 and Schedule 3 was substituted by S.I. 2010/2007 and subsequently amended by S.I. 2012/1910, 2014/1069, 2015/940, 2017/85, 2018/939, 2019/137, 2019/1159 and 2020/1502.

(b) S.I. 2006/1846.

- (a) the transmission of information, using the properties of quantum mechanics, specifically superposition, entanglement, single photon technology, the use of conjugate variable technologies or a combination of these;
- (b) the use of a communication network (quantum or otherwise) to distribute quantum states or quantum state information; or
- (c) the establishment of cryptographic keys or the generation of provably random numbers using a quantum physical process;

“quantum connectivity” means the ways in which quantum coherence, during processes such as transmission, propagation or amplification, is preserved;

“quantum imaging” means using the phase or amplitude properties of quantum mechanics, specifically superposition, entanglement, the use of sub-Poissonian sources or detectors of photons or a combination of these, to create images of objects;

“quantum information processing, computing or simulation” means—

- (a) the simulation or realisation of systems that use certain properties of quantum mechanics, specifically superposition or entanglement, to acquire, encode, manipulate or process information, run algorithms or perform operations or measurements on data;
- (b) algorithms, applications, software, error correction, noise reduction and operating systems that enable the functionality of the system;
- (c) the capability of a classical computer to represent the internal state and operations of a quantum computer (“quantum emulation”); or
- (d) the hosting or provision of third-party access of a quantum information processing, computing or simulation cloud-based service;

“quantum navigation” means using phase properties of quantum mechanics, specifically measurements of atoms or ions, or atom-ion interferometry, to establish the location or inertia of, and to guide, objects;

“quantum resistant cryptography” means methods of securing information or data being transmitted or stored, with a view to resisting attack by a quantum computing or simulation device;

“quantum sensing” means utilising the phase properties of quantum mechanics, specifically measurements of atoms or ions or atomic spin systems, to determine a property or rate of change in the property of an object, or the effect of an object on a measurable quantity;

“quantum timing” means using the phase properties of quantum mechanics, specifically measurements of atoms or ions or atomic gases, and the application of associated hardware including stable frequency mixers, optical or microwave sources, crystal oscillators and frequency combs, to provide a timing or synchronisation signal, or frequency reference.

Activity - quantum technology

2. A qualifying entity carrying on activities that consist of developing or producing quantum technology.

SCHEDULE 14

Regulation 2

Satellite and space technology

Interpretation

1. In this Schedule—

“defence” has the meaning given to it by section 2(4) of the Official Secrets Act 1989;

“infrastructure” includes any of the following—

- (a) command and control stations;

- (b) ground stations, ground sites and ground support equipment;
- (c) software (including analysis software);
- (d) information technology and telecommunications networks (including fibre cables);
- (e) uplink and downlink terminals;
- (f) data processing and storage facilities (including databases);
- (g) satellites;
- (h) technological systems and equipment deployed in outer space or on earth;

“outer space” has the meaning given to it by section 13(1) of the Outer Space Act 1986(a);

“space activity” and “sub-orbital activity” have the meaning given to them by section 1(4) of the Space Industry Act 2018(b);

“spacecraft” has the meaning given to it by section 2(6) of the Space Industry Act 2018;

“space derived data” means data obtained from space activity or from ground stations receiving data from outer space or from both space activity and ground stations receiving data from outer space, including data relating to—

- (a) position, navigation and timing;
- (b) earth observation;
- (c) space situational awareness;
- (d) telecommunications;
- (e) signal intelligence;
- (f) remote sensing; and
- (g) research and development;

“space situational awareness” includes surveillance and tracking of satellites in outer space, monitoring and forecasting of weather in outer space, and mapping or detection of near earth objects or debris in outer space;

“testing” includes any service that provides quality assurance assessment of—

- (a) equipment or systems for space activity or services derived from space activity, including engines, component parts, radio frequency, software and systems;
- (b) facilities that manufacture, design or create any of the equipment set out in paragraph 3(e);
- (c) launch site equipment or facilities; and
- (d) equipment or facilities for transport of satellites, launch vehicles or their component parts between sites.

Activity – satellite and space technology

2. A qualifying entity carrying on activities that consist of or include operating, developing, producing, creating or using facilities for any of the activities set out in paragraph 3.

3. The activities referred to in paragraph 2 are—

- (a) management of debris in outer space, including sending an object into outer space to remove debris;
- (b) the provision of—
 - (i) in-orbit servicing, maintenance or manoeuvring of satellites;

(a) 1986 c. 38. The definition of “outer space” in section 69 of the Space Industry Act 2018 (c. 5) also refers to the Outer Space Act 1986. The Outer Space Act 1986 is amended by the Space Industry Act 2018 but does not have any amendments relevant to this definition.

(b) 2018 c. 5.

- (ii) in-orbit capabilities, including inspection services or life extension services, including refuelling, repair or relocation services; or
- (iii) any technology or system—
 - (aa) that performs any of the activities set out in sub-paragraphs (a), (b)(i) and (b)(ii); or
 - (bb) which is designed to, or may be used to, disrupt, modify or interfere with satellites;
- (c) the provision of satellite communications links, including radio frequency or optical links—
 - (i) between satellites in orbit;
 - (ii) between spacecraft and satellites in orbit;
 - (iii) between satellites in orbit and celestial bodies; or
 - (iv) from earth to outer space, and from outer space to earth;
- (d) operating or maintaining the capability of secure infrastructure related to—
 - (i) space activity; or
 - (ii) sub-orbital activity;
- (e) the manufacture or testing of spacecraft, launch vehicles, satellites, planetary probes, orbital stations, ground support equipment, or component parts of, or materials used in, any equipment set out in this sub-paragraph;
- (f) the use of space-derived data for a defence purpose;
- (g) the operation or control of infrastructure;
- (h) the provision or processing of space situational awareness data by activity on earth or by space activity or by means of infrastructure for any of the following—
 - (i) sub-orbital activity;
 - (ii) orbital activity;
 - (iii) a defence purpose.

SCHEDULE 15

Regulation 2

Suppliers to the emergency services

Interpretation

1. In this Schedule—

“ambulance services provider” means—

- (a) in England—
 - (i) an NHS trust or NHS foundation trust established pursuant to Part 2 of the National Health Service Act 2006^(a) (or their subsidiaries), which has a function of providing ambulance services;
 - (ii) any private, public or voluntary sector entity which has been commissioned under any arrangement by or on behalf of the NHS Commissioning Board or a Clinical Commissioning Group pursuant to Parts 1 and 4 of the National Health Service Act 2006 to provide ambulance services;

^(a) 2006 c. 41.

- (iii) any private, public or voluntary sector entity which has been commissioned under any arrangement by or on behalf of the Secretary of State pursuant to Part 1 of the National Health Service Act 2006 to provide ambulance services;
- (b) in Wales, an NHS Trust established by the Welsh Ambulance Services National Health Service Trust (Establishment) Order 1998(a);
- (c) in Northern Ireland, the Northern Ireland Ambulance Service Trust as defined in the Northern Ireland Ambulance Service Health and Social Services Trust (Establishment) Order (Northern Ireland) 1995(b);
- (d) in Scotland, the Special Health Board constituted by the Scottish Ambulance Service Board Order 1999(c) or any other private, public or voluntary sector entity providing ambulances and other means of transport under section 45 of the National Health Service (Scotland) Act 1978 (ambulances)(d);

“associated facility” has the meaning given in section 32(3) of the Communications Act 2003(e);

“the British Transport Police Force” means the police force established by Part 3 of the Railways and Transport Safety Act 2003(f);

“the Civil Nuclear Constabulary” means the constabulary established under section 52(1) of the Energy Act 2004 (the Civil Nuclear Constabulary)(g);

“emergency service” means—

- (a) Border Force;
- (b) the British Transport Police Force;
- (c) the Civil Nuclear Constabulary;
- (d) a fire and rescue authority;
- (e) the Ministry of Defence Police;
- (f) the National Crime Agency;
- (g) a police body;

“a fire and rescue authority” is—

- (a) in England—
 - (i) an authority constituted by a scheme under section 2 of the Fire and Rescue Services Act 2004 (a combined fire and rescue authority)(h);
 - (ii) an authority constituted by a scheme to which section 4 of the Fire and Rescue Services Act 2004 applies (a combined fire and rescue authority constituted under the Fire Services Act 1947)(i);
 - (iii) an authority created by an order under section 4A of the Fire and Rescue Services Act 2004 (a police and crime commissioner as fire and rescue authority)(j);
 - (iv) a metropolitan county fire and rescue authority;
 - (v) the London Fire Commissioner;

(a) S.I. 1998/678; amended by S.I. 2009/201, 2013/2729, 2016/483, and 2019/777.

(b) S.R. 1995 No. 143.

(c) S.I. 1999/686, to which there are amendments not relevant to these Regulations.

(d) 1978 c. 29.

(e) 2003 c. 21. Section 32(3) was substituted by S.I. 2011/1210.

(f) 2003 c. 20.

(g) 2004 c. 20.

(h) 2004 c. 21. Section 2 was amended by the Local Government and Public Involvement in Health Act 2007 (c. 28), Schedule 1 paragraph 22(2), the Local Democracy, Economic Development and Construction Act 2009 (c. 20), section 146(3) and Schedule 7, Part 4, and the Deregulation Act 2015 (c. 20), Schedule 22, paragraph 16(2).

(i) Section 4 was amended by the Local Government and Public Involvement in Health Act 2007, Schedule 1 paragraph 22(2), the Local Democracy, Economic Development and Construction Act 2009, section 146(3) and Schedule 7, Part 4, and the Deregulation Act 2015, Schedule 22, paragraph 16(3).

(j) Section 4A was inserted by the Policing and Crime Act 2017 (c. 3), Schedule 1, paragraph 5.

- (vi) a combined authority established under section 103 of the Local Democracy, Economic Development and Construction Act 2009 (combined authorities and their areas)(a);
 - (b) in Wales—
 - (i) for a county, a county council;
 - (ii) for a county borough, a county borough council;
 - (c) in Northern Ireland, the Northern Ireland Fire and Rescue Service Board, as defined in article 3 of the Fire and Rescue Services (Northern Ireland) Order 2006 (the Northern Ireland Fire and Rescue Service Board)(b);
 - (d) in Scotland, the Scottish Fire and Rescue Service, as defined in section 1A the Fire (Scotland) Act 2005 (the Scottish Fire and Rescue Service)(c);
- “electronic communications network” has the meaning given in section 32(1) of the Communications Act 2003(d);
- “electronic communications service” has the meaning given in section 32 of the Communications Act 2003;
- “fuel card” means a card, the production of which enables the person to whom it is issued to discharge his obligation to a supplier of fuel in respect of payment for that fuel, the supplier being reimbursed by a person other than the person producing the card;
- “Ministry of Defence Police” means the police force established under the Ministry of Defence Police Act 1987(e);
- “National Crime Agency” means the agency established under the Crime and Courts Act 2013(f);
- “personal data” has the meaning given in section 3(2) of the Data Protection Act 2018(g);
- “police body” means—
- (a) in England and Wales—
 - (i) a local policing body as defined in section 101 of the Police Act 1996(h) (interpretation); or
 - (ii) the chief officer of police as defined in section 101 of the Police Act 1996;
 - (b) in Northern Ireland, the Police Service of Northern Ireland and Police Service of Northern Ireland Reserve;
 - (c) in Scotland—
 - (i) the Scottish Police Authority, as defined in section 1 of the Police and Fire Reform (Scotland) Act 2012 (the Scottish Police Authority)(i);
 - (ii) the Chief Constable of the Police Service of Scotland, as appointed under section 7 of the Police and Fire Reform (Scotland) Act 2012 (senior officers);
- “public electronic communications network” has the meaning given in section 151(1) of the Communications Act 2003(j);

(a) 2009 c. 20 Section 103 was amended by the Cities and Local Government Devolution Act 2016 (c. 1), sections 12(2) and 14(2).

(b) S.I. 2006/1254 (N.I. 9).

(c) 2005 asp 5. Section 1A and Schedule 1A were inserted by the Police and Fire Reform (Scotland) Act 2012 (asp 8), section 101A.

(d) Section 32 was amended by S.I. 2011/1210, reg. 1(2), Schedule 1 paragraph 4, 9(a)(i) and (ii) and 9(b) and S.I. 2020/1419, regulation 1(2), Schedule 1, paragraph 6.

(e) 1987 c. 4.

(f) 2013 c. 22.

(g) 2018 c. 12.

(h) 1996 c. 16. The definition of local policing body was inserted by the Police Reform and Social Responsibility Act 2011 (c. 13), section 96(2).

(i) 2012 asp 8.

(j) There are amendments to section 151(1) not affecting the definition of “public electronic communications network”.

“public electronic communications service” has the meaning given in section 151(1) of the Communications Act 2003;

“unmanned aircraft” means any aircraft operating or designed to operate autonomously or to be piloted remotely without a pilot on board.

Activity – suppliers to emergency services

2. A qualifying entity which supplies directly to—
 - (a) an emergency service of one or more of the goods and services set out in paragraph 3;
 - (b) an ambulance services provider of one or more of the goods and services set out in paragraph 4.

Good and services – emergency services

3. The goods and services referred to in paragraph 2(a) are the following—
 - (a) unmanned aircraft, any component, part or product of an unmanned aircraft, and any equipment, including an electronic device, relating to an unmanned aircraft;
 - (b) equipment designed to disrupt the operational system of an unmanned aircraft;
 - (c) equipment designed to detect, track or identify unmanned aircraft;
 - (d) firearms as defined in section 57(1) of the Firearms Act 1968 (interpretation: firearm)(a);
 - (e) ammunition as defined in section 57(2) of the Firearms Act 1968 (interpretation: ammunition);
 - (f) certification, maintenance, support or repairs to vessels operated by Border Force for frontline operational purposes;
 - (g) maintenance or repairs of unmanned aircraft, any component, part or product of an unmanned aircraft, and any equipment, including an electronic device, relating to an unmanned aircraft;
 - (h) an electronic communications network, electronic communications service or associated facility, that—
 - (i) is not a public electronic communications network or public electronic communications service; and
 - (ii) is used by the emergency service for the purposes of—
 - (aa) the prevention or detection of crime; or
 - (bb) fulfilling the functions of a fire and rescue authority;
 - (i) hardware, systems or platforms to facilitate the storage of electronic data, used exclusively or primarily by the emergency service for the purposes of—
 - (i) the prevention or detection of crime;
 - (ii) fulfilling the functions of a fire and rescue authority; or
 - (iii) the storage of personal data, including personnel data;
 - (j) the maintenance and repair of the goods and services referred to in sub-paragraphs (g) and (h);
 - (k) fuel cards;
 - (l) services to control systems relating to access and security of buildings;
 - (m) front line operational delivery of firefighting services in the event of strike action.

(a) 1968 c. 27. Section 57(1) was substituted by the Policing and Crime Act 2017 (c. 3), section 125(2).

Goods and services – ambulance services provider

4. The goods and services referred to in paragraph 2(b) are an electronic communications network or electronic communications service that—

- (a) is not a public electronic communications network or a public electronic communications service; and
- (b) is used by the ambulance services provider for the purposes of fulfilling its functions.

SCHEDULE 16

Regulation 2

Synthetic biology

Interpretation

1. In this Schedule—

“basic scientific research” means experimental or theoretical work undertaken principally to acquire new knowledge of the fundamental principles of phenomena or observable facts and not primarily directed towards a specific practicable aim or objective;

“medicine” means—

- (i) any substance or combination of substances presented as having properties of preventing or treating disease in human beings or animals;
- (ii) any substance or combination of substances that may be used by or administered to human beings or animals with a view to—
 - (aa) restoring, correcting or modifying a physiological function by asserting a pharmacological, immunological or metabolic action;
 - (bb) making a medical diagnosis;

“services” means routine synthetic biology processes that are outsourced to specialist providers for completion before being re-integrated into the original work stream to assemble into an experiment or goods, including making a specific strand of DNA or running a proprietary algorithm on a dataset.

Activities

2. Subject to the exceptions referred to in paragraphs 5 and 6, a qualifying entity carrying on activities that consist of or include any of the following—

- (a) carrying on basic scientific research into synthetic biology;
- (b) the development of synthetic biology;
- (c) the production of goods using synthetic biology;
- (d) the formulation of synthetic biology to enable the degradation of materials;
- (e) the provision of services that enable the activities in paragraphs (a) to (d).

Meaning of synthetic biology

3. In this Schedule, “synthetic biology” means the process of applying engineering principles to biology to design, redesign or make biological components or systems that do not exist in the natural world.

4. Synthetic biology includes but is not limited to—

- (a) the design and engineering of biological-based parts of—
 - (i) enzymes;

- (ii) genetic circuits and cells;
- (iii) novel devices and systems;
- (b) redesigning existing natural biological systems;
- (c) using microbes to template materials;
- (d) cell-free systems;
- (e) gene editing and gene therapy;
- (f) the use of DNA for data storage, encryption and bio-enabled computing.

Exceptions - general

5. Exceptions to the activities described in paragraph 2 are—

- (a) general services or servicing not related to core synthetic biology, where “core” means those activities without which experiments cannot be conducted, such as DNA synthesis or cloning;
- (b) the use of microorganisms to remove harmful contaminants, pollutants or toxins from the environment (known as bioremediation), including bio-based reagents that allow for testing for contaminants;
- (c) any approach used to gather clinical information for the purpose of making a clinical decision or making a diagnosis (known as diagnostics) but not the storage or ownership of sensitive human genetic information that enables the identification of an individual;
- (d) industrial biotechnology research, development or production using enzymes or organisms that have not been modified through the application of synthetic biology;
- (e) the production of substances ordinarily consumed as food or used as feed, including any ingredient or component of such substances;
- (f) gene therapy, where it is used solely for the purpose of replacing missing or defective genes to restore phenotypes to achieve a therapeutic effect;
- (g) cell therapy, where cells are modified by genetic engineering and then introduced into a patient to treat disease.

Exceptions – human or veterinary medicines or immunomodulatory approaches

6.—(1) Exceptions to the activities described in paragraph 2 are the ownership, ownership of intellectual property or development of the matters set out in sub-paragraph (2) that employ synthetic biology at any stage of the development or production, unless the circumstances set out in sub-paragraph (3) apply.

(2) The matters referred to in sub-paragraph (1) are—

- (a) human or veterinary medicines;
- (b) immunomodulatory approaches.

(3) The circumstances referred to in sub-paragraph (1) are where the matter described in sub-paragraph (2)—

- (a) has a synthetic biology technology that could be employed or modified to produce, deliver or produce and deliver—
 - (i) toxic chemicals to achieve an incapacitating or lethal effect on humans or animals;
 - (ii) materials restricted under Schedule 5 to the Anti-terrorism, Crime and Security Act 2001(a); or
- (b) uses substances or pathogens set out in Schedule 5 to the Anti-terrorism, Crime and Security Act 2001.

(a) Schedule 5 was amended by S.I. 2007/929 and 2012/1466.

Transport

Interpretation - ports and harbours**1.** In paragraph 2—

“harbour” is to be construed in accordance with section 313(1) of the Merchant Shipping Act 1995(a);

“infrastructure” means infrastructure, facilities and equipment within a port or harbour directly related to the movement of freight, passengers or seafarers;

“operating” means controlling the functioning of the port, harbour, terminal, wharf or other infrastructure;

“port” means an area of land and water made up of infrastructure which permits—

- (a) the receiving and departing of ships;
- (b) the loading and unloading of ships;
- (c) the storage of cargo;
- (d) the receipt and delivery of cargo; or
- (e) the embarkation and disembarkation of passengers, crew and other persons;

“ship” is to be construed in accordance with section 313(1) of the Merchant Shipping Act 1995.

Activity – ports and harbours**2.** A qualifying entity carrying on activities that consist of or include—

- (a) owning or operating a port or harbour in the United Kingdom that handled 1 million tonnes or more of cargo as recorded in the Port Freight Annual Statistics(b) published by the Department for Transport, in the year preceding the year in which the acquisition is due to be completed; or
- (b) owning and operating terminals, wharves or other infrastructure situated in a port or harbour described in sub-paragraph (a).

Interpretation -airports and air traffic control**3.—(1)** In paragraph 4—

“airport” has the meaning set out in section 66(1) of the Civil Aviation Act 2012(c);

“en route air traffic control services” mean services provided pursuant to a licence under section 6 of the Transport Act 2000(d);

“operating an airport” means having overall responsibility for its management;

“parent undertaking” has the meaning set out in section 1162 of the Companies Act 2006(e);

(2) The entities that are to be regarded as owning an airport for the purposes of paragraph 4 are—

- (a) a company which owns the airport (“C”); and
- (b) any parent undertaking of C ;

(a) 1995 c. 21.

(b) The Port Freight Annual Statistics are collected by the Department for Transport under S.I. 1997/2330 and is published on <https://www.gov.uk/search/research-and-statistics> under ‘Port Freight Annual Statistics’.

(c) 2012 c. 19.

(d) 2000 c. 38.

(e) 2006 c. 46.

(3) The entities that are to be regarded as owning a provider of en route air traffic control services for the purposes of paragraph 4 are—

- (a) a company which owns such a provider (“C”); and
- (b) any parent undertaking of C.

Activity – airports and air traffic control

4. A qualifying entity carrying on activities that consist of or include—

- (a) owning or operating an airport in the United Kingdom that handled at least six million passenger movements or 100,000 tonnes of freight in 2018, as recorded in the UK Airports Annual Statements of Movements, Passengers and Cargo published by the Civil Aviation Authority(a);
- (b) providing en route air traffic control services in the United Kingdom;
- (c) owning a provider of en route air traffic control services in the United Kingdom.

EXPLANATORY NOTE

(This note is not part of the Regulations)

Under section 6(2) of the National Security and Investments Act 2021 (“the Act”), a notifiable acquisition takes place when a person gains control of a qualifying entity of a specified description, by virtue of one or more of the cases described in section 8(2), (5) or (6) of the Act. These Regulations specify the descriptions of such qualifying entities.

Section 6(4) provides that a description of a qualifying entity that is specified must include provision that the entity carries on activities in the United Kingdom which are of a specified description and these Regulations specify the activities of the qualifying entities.

Regulation 2 provides that the description of a qualifying entity and the description of activities carried on in the United Kingdom by a qualifying entity are specified in Schedules 1 to 17.

Regulation 3 sets out the definition of terms used in these Regulations.

Regulation 4 requires the Secretary of State to carry out a review of the Regulations and publish a report setting out the conclusions of the review within three years of the Regulations coming into force. Subsequent reports must be published at intervals not exceeding three years.

Schedules 1 to 17 specify the description of qualifying entities and activities of a qualifying entity. Each Schedule describes entities and activities in particular sectors: advanced materials, advanced robotics, artificial intelligence, civil nuclear, communications, computing hardware, critical suppliers to government, cryptographic authentication, data infrastructure, defence, energy, military and dual-use, quantum technologies satellite and space technology, suppliers to emergency services, synthetic biology and transport.

(a) Regulation (EC) 437/2003 of the European Parliament and of the Council of 27 February 2003 on statistical returns in respect of the carriage of passengers, freight and mail by air (“the Statistical Returns Regulation”) placed an obligation on EU Member States to collect specified aviation statistical data. In practice, this data was collected by the CAA on behalf of the UK. The Statistical Returns Regulation is now EU retained law (EUR 2003/437as amended by SI 2019/646). The Aviation Statistics (Amendment Etc.) EU Exit Regulations 2019, (SI 2019/646) now requires airport operators to provide statistical data to the CAA and obliges the CAA to collect that data. The UK Airports Annual Statements of Movements, Passengers and Cargo 2018 can be found at: <https://www.caa.co.uk/Data-and-analysis/UK-aviation-market/Airports/Datasets/UK-Airport-data/Airport-data-2018/>. Passenger movements at airports can be viewed in the first column of Table 8 which is set out at: https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Data_and_analysis/Datasets/Airport_stats/Airport_data_2018_annual/Table_08_Air_Pax_by_Type_and_Nat_of_Op.pdf. Tonnes of freight handled at airports can be viewed in the last column of Table 13.2 which is set out at: https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Data_and_analysis/Datasets/Airport_stats/Airport_data_2018_annual/Table_13_2_Freight.pdf.

Schedules 1 (Advanced materials), 7 (Critical suppliers to government) and 17 (Transport) refer to documents produced in digital form. Printed versions of the documents are available on request from the Department for Business, Energy and Industrial Strategy, 1 Victoria Street, London SW1H 0ET.

An impact assessment has not been produced for this instrument. An impact assessment was produced for the National Security Investment Bill which considered the impact of the national security and investment regime set out in the Act.

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