Office for Nuclear Regulation Post Implementation Review 2022

Full Report

March 2022

Department for Business, Energy & Industrial Strategy

Post Implementation Review of Part 3 of the Energy Act 2013

Presented to Parliament by the Secretary of State for Business, Energy and Industrial Strategy pursuant to Part 3 of the Energy Act 2013

This publication is available at www.gov.uk/official-documents.

Any enquiries regarding this publication should be sent to us at: enquiries@beis.gov.uk

ISBN 978-1-5286-3526-4

E02764197 06/22

Printed on paper containing 40% recycled fibre content minimum

Printed in the UK by HH Associates Ltd. on behalf of the Controller of Her Majesty's Stationery Office

Contents

Recommendations Index

Glossary

ALARP	As Low As Reasonably Practicable
AMRs	Advanced Modular Reactors
ANTs	Advanced Nuclear Technologies
ACoPs	Approved Codes of Practice
ARAC	Audit and Risk Assurance Committee
BEIS	Department for Business, Energy and Industrial Strategy
CE	Chief Executive
CIO	Chief Information Officer
CISO	Chief Information and Security Officer
CNI	Chief Nuclear Inspector
DIT	Department for International Trade
DNSR	Defence Nuclear Safety Regulator
DWP	Department for Work and Pensions
EA	Environment Agency
ECI	Export Controlled Information
GDA	Generic Design Assessment
GDF	Geological Disposal Facility
GIAA	Government Internal Audit Agency
HMT	HM Treasury

HSE	Health and Safety Executive
IAEA	International Atomic Energy Agency
IRRS	Integrated Regulatory Review Service
ISG	International Steering Group
MHRA	Medicines and Healthcare products Regulatory Agency
MOD	Ministry of Defence
MoU	Memorandum of Understanding
NAO	National Audit Office
NAMRC	Nuclear Advanced Manufacturing Research Centre
NDA	Nuclear Decommissioning Authority
NED	Non-Executive Director
NGO	Non-Governmental Organisation
NIM3	Nuclear Integrated Management Maturity Model
NIRAB	Nuclear Innovation and Research Advisory Board
NIRO	Nuclear Innovation and Research Office
NNL	National Nuclear Laboratory
NRW	Natural Resources Wales
NSSG	Nuclear Skills Strategy Group

ONR	Office for Nuclear Regulation
QAR	Quarterly Accountability Review
RD	Regulatory Directorate
RGP	Relevant Good Practice
SAPs	Safety Assessment Principles
SDF	Safety Director's Forum
SEPA	Scottish Environment Protection Agency
SFAIRP	So Far As Is Reasonably Practicable
SMRs	Small Modular Reactors
SyAPs	Security Assessment Principles
TAGs	Technical Assessment Guides
TEA13	The Energy Act 2013
TIGs	Technical Inspection Guides
UK SSAC	UK State System of Accounting for and Control of Nuclear Materials
WIReD	Well Informed Regulatory Decisions

Introduction

1. This full report sets out the detailed findings and evidence from the Post Implementation Review of the Office for Nuclear Regulation (ONR) to support the summary report.

2. The Office for Nuclear Regulation is the United Kingdom's (UK) independent nuclear regulator for safety, security and safeguards.[1] It was established in 2014 under *The Energy Act 2013* (*TEA13*)[2], with the mission of protecting society by securing safe nuclear operations across the UK. This includes the regulation of operational reactors, fuel cycle facilities, waste management and decommissioning sites, and authorised defence sites.[3] ONR also regulates the design and construction of new nuclear facilities, including the supply chain and the transport of nuclear and radioactive materials by road, rail, and inland waterways.

Aims and scope of review

3. Section 118 of *TEA13* places a requirement on the Secretary of State to conduct a post implementation review of the provisions of Part 3. Such a review will provide assurance and challenge on whether the

1 Under the *Nuclear Safeguards Act 2018* ONR became the UK nuclear safeguards regulator for the domestic standards regime, which had previously been regulated on a European basis, and began to operate the UK State System of Accountancy for and Control of Nuclear Materials (SSAC) on 1 January 2021.

2 *The Energy Act 2013*, Part 3, Chapter 3.

3 On authorised defence sites ONR regulate the *Health and Safety at Work Act 1974*, including *Radiation (Emergency Preparedness and Public Information) Regulations 2019* and *Ionising Radiation Regulations 2017*.

objectives of the Act are being met and continue to be appropriate.

4. Within this context, the review has considered ONR's purpose and functions, governance, accountability, efficacy, and efficiency. It also considers whether and how, ONR needs to evolve to support future nuclear development and innovation, including as part of the government's net zero objectives.[4]

Methodology

5. The review was led by an independent reviewer supported by a dedicated review team from across the Department for Business, Energy and Industrial Strategy (BEIS) and the Department for Work and Pensions (DWP) between August 2021 and March 2022.

6. Evidence was collected from documentary reviews, extensive discussion with ONR and interviews with over 40 external stakeholders, where open and constructive insights were provided with considerable enthusiasm, for which the review team are grateful.

7. The circumstances being driven by COVID-19 have dictated that the review be carried out remotely. Reliance has been placed on electronically shared information, Microsoft Teams meetings, and telephone calls. We are thankful to ONR and interviewees for their cooperation.

---

4 Including commitments made in the *Prime Ministers Ten Point Plan for a Green Industrial Revolution* (November 2020), the *Energy White Paper Powering Our Net Zero Future* (December 2020), and the *Net Zero Strategy: Build Back Greener* (October 2021).

8. The review terms of reference were agreed by the Minister for Business, Energy and Clean Growth, by the Minister for Work and Pensions, and the Secretary of State for Work and Pensions.

Conclusions

9. The objectives of *The Energy Act 2013* are being met and the review has concluded that ONR is effectively delivering its regulatory purposes, enabling the safe and secure use and storage of nuclear materials. The statutory purposes and functions are still required, these being in areas where independence of regulation remains important. Similarly, ONR's form is appropriate to build and maintain its capability and capacity, and therefore carry out its intended functions. We do not propose any changes to the form or function of ONR.

10. As a regulator, ONR is seen domestically and internationally as a strong example of principles-based regulation. It is respected for its technical ability. It generally engages well with stakeholders and its approach internally, and with industry, through the COVID-19 pandemic has been valued. Its stability and commitment to ensuring a high-quality safety culture is welcomed. Its record of making sure that industry operates safely and securely is good and its planned areas of focus are stable and transparent.

11. As an organisation, ONR is eight years old and has been on a journey to set up its own independent infrastructure, corporate functions, and people culture which were either shared or poorly resourced after it

was formally separated from the Health and Safety Executive (HSE) in 2014. Several significant initiatives have been identified by ONR to further support its maturity and are key to ensuring capacity and capability for future demand. These activities are focused on enhancing internal capabilities, increasing the efficiency of operations, delivering better value for money, and improving how ONR regulates and engages with its duty holders.

12. The recommendations in this report are aimed at assisting ONR as it develops and delivers these actions to underpin its future capability and capacity. They support its strategy to 2025[5] and its vision of being a "modern, transparent regulator delivering trusted outcomes and value", as well as minimising potential burdens on and unnecessary costs for duty holders. Also included within the full report there are several less significant suggestions which have been informally discussed with ONR.

13. The successful implementation of these recommendations will be even more critical if the scale and pace of demand on ONR increases. This may impact funding and the prioritisation of projects.

Next steps

14. The team have worked closely with ONR, DWP and BEIS throughout the review, and have discussed

5 Office for Nuclear Regulation, *Strategy 2020-25,* 2020.

the findings and recommendations to ensure a common understanding.

15. ONR should consider the findings and recommendations of the review, identifying a delivery plan and agreeing with BEIS and DWP the key milestones against which progress can be tracked. Where appropriate BEIS and DWP sponsorship teams should support ONR with the delivery of the recommendations.

16. A formal review of progress should be completed and published within 24 months of publication.

Meeting the Objectives of the Energy Act 2013

17. The objectives of Part 3 of *TEA13* were to create a UK nuclear regulator that is effective, independent, fully resourced, transparent, accountable, and sufficiently flexible to meet future challenges of the sector.

18. The Act set out a clear governance model and regulatory functions, with the intended effect of providing the regulator with a clear mandate, and increased industry and public confidence in the quality and independence of nuclear regulatory decision making.

19. The review has concluded that these objectives are being met and ONR is effectively delivering its five regulatory purposes, enabling the safe and secure use and control of nuclear technology and material.

20. The review has also concluded that the objectives set out in *TEA13* remain appropriate and that there are no fundamental changes to the way in which they are achieved which would impose less regulation.

21. There are, however, several areas for improvement as ONR matures. These are discussed in detail in the rest of this report.

Form, Function, Vires

22. Cabinet Office guidance[6] sets out three tests, of which a Non-Departmental Public Body must meet one, to remain at arm's length from government:

- does the organisation perform a technical function which needs external expertise to deliver
- do the activities of the organisation require political impartiality
- does the organisation need to act independently of Ministers to establish facts and/or figures with integrity

23. ONR satisfies all three of these tests. The statutory purposes and functions are still required, and this is an area where independence of regulation remains important. We do not, therefore, propose any changes to the form or function of ONR.

Form

24. Following the 2008 White Paper, *Meeting the energy challenge: a white paper on nuclear power*, a review of the nuclear regulatory environment was undertaken to ensure that it was in line with government's ambition to become a world leader in the safe, efficient use of nuclear energy, including the operation of a "highly effective regulatory framework".[7]

---

6 Cabinet Office, *Public Bodies Handbook – Part 2, The Approvals Process for the Creation of New Arm's-Length Bodies: Guidance for Departments,* 2018, p. 6.

7 Department for Business, Enterprise & Regulatory Reform, *Meeting the Energy Challenge, A White Paper on Nuclear Power,* 2008, p.5.

25. A key recommendation from the *Nuclear Regulatory Review Private Advice and Reasoning Observations by Tim Stone for the Secretary of State for Energy and Climate Change* ('*Stone Review*')[8] was the creation of an independent governing body for the nuclear regulator.

26. Following the review, an interim agency was set up within HSE and in 2014, subject to *TEA13*, ONR was formally established as a public corporation independent from government.[9] The formation of ONR consolidated the UK regulatory approach, bringing together many years of experience and skill in successfully protecting society from the risks of nuclear operation, civil nuclear security, and transport of radioactive materials.

27. As a public corporation, ONR operates at arm's length from central government, with operational and regulatory independence, however, Ministers are ultimately accountable for its performance and continued existence.[10] This gives ONR sufficient financial and organisational flexibility to provide the sector with the necessary regulatory oversight to grow, whilst maintaining a safe and secure regime.

28. This independence is important, not only to ensure ONR can effectively manage and obtain resources to deliver its mission and statutory purpose, but also to ensure it is free from undue influence, particularly

---

8 T. Stone, *Nuclear Regulatory Review Private Advice and Reasoning, Observations by Tim Stone for the Secretary of State for Energy and Climate Change,* 2008.

9 *The Energy Act 2013 (Commencement No. 1) Order 2014*, Article 4.

10 *The Energy Act 2013*, Part 3, Section 92.

relevant given the government's policy of promoting nuclear power and nuclear defence capability.

29. To reinforce ONR's independence, DWP is ONR's sponsorship department, with the Secretary of State for Work and Pensions holding principal responsibility to Parliament for ONR. This ensures that decision making, and management remain independent from the Secretary of State for Business, Energy and Industrial Strategy, who is accountable to Parliament for the UK civil nuclear regulatory framework and policies, and the Secretary of State for Defence, who is accountable to Parliament for nuclear safety and security at nuclear sites operated wholly or mainly for defence purposes. Whilst ONR works closely with DWP, BEIS, and MOD, Ministers do not have any responsibility for regulatory decision making.

30. This structure continues to work well, and the relevant parties have not suggested any need to change this interface with government.

31. Furthermore, the need for independence is required by the IAEA (International Atomic Energy Agency) Safety Standards[11] and was positively assessed in the IAEA's 2019 International Regulatory Review Service Mission.[12] Regulatory independence is a key part of international

---

11 International Atomic Energy Agency, *IAEA Safety Standards: Fundamental Safety Principles*, Safety Fundamentals No. SF-1, Principle 2 *IAEA Safety Standards: Governmental, Legal and Regulatory Framework for Safety*, Series No. GSR Part 1; Requirement 4, 2010.

12 IAEA Integrated Regulatory Review Service, *Report of the Integrated Regulatory Review Service (IRRS) Mission to The United Kingdom of Great Britain and Northern Ireland*, 2020.

regulations[13][14] and ONR has strong views that the current structure is fundamental to achieving that.

32. **Suggestion 1:** If at some stage in the future clear efficiency benefits are identified from an alternative structure, then there may be an argument to reconsider whether independence can be achieved in a different way.

33. Whilst the growth of new nuclear developments may have been slower than expected since ONR's inception, there has been considerable activity in UK nuclear. To date, the majority of ONR's regulatory work has been directed towards maintaining the existing fleet of operating nuclear reactors and fuel cycle facilities, decommissioning, and the safe handling and storage of hazardous waste materials at licensed civil and authorised defence sites. It has also considered the approval of new large-scale reactor designs, such as the HPR1000, and construction of new nuclear facilities, such as Hinkley Point C.

34. Looking forward ONR's regulatory work may expand because of developments in these areas. In addition, ONR's activities will evolve to reflect new investment in Advanced Nuclear Technologies (ANTs), Small Modular Reactors (SMRs) and Advanced Modular Reactors (AMRs). The volume and timing of these new initiatives is

---

13 International Atomic Energy Agency, *Independence in Regulatory decision making, INSAG-17, A Report by The International Nuclear Safety Advisory Group,* 2003.

14 Nuclear Energy Agency, Organisation for Economic Co-Operation and Development, *The Characteristics of an Effective Nuclear Regulator,* 2014.

uncertain at the time of writing but will place demands on ONR's capability and capacity.

35. We conclude that ONR's form is appropriate to build and maintain their capability and capacity, and therefore carrying out their intended functions.

Function

36. ONR has five sets of purposes – nuclear safety, nuclear site health and safety, nuclear security, nuclear safeguards, and the transport of radioactive materials.[15] These purposes are mutually reinforcing and the expertise that ONR requires for each supports the delivery of the others. Consolidating these purposes within ONR allows it to maintain expertise and strong relationships with different parts of the sector.

37. The review has not identified any concerns with ONR's purposes under *TEA13* and we have determined that each remains relevant and appropriate to the central mission of securing safe and secure nuclear operations across the UK.

38. Despite positive comments on ONR's competence and ability to deliver against these purposes we are aware that, on occasion, internal functions dealing with different purposes operate in silos leading to internal and external inefficiency.

39. ONR is currently developing a Nuclear Integrated Management Maturity Model (NIM3) for implementation

15 *The Energy Act 2013*, Part 3, Section 67.

by 2025, to enhance collaboration across its purposes and better target its attention in ways that are proportionate and, secure sustainable improvements.

40. **Suggestion 2:** ONR should give priority to this project as a mechanism by which management can ensure greater efficiency, collaboration, and joint working across its Regulatory Directorate (RD), building on the recent successful examples of joint safety and security inspections.

41. Following the UK's withdrawal from Euratom on 31 December 2020, the UK became responsible for its own safeguards arrangements and implemented a new domestic nuclear safeguards regulatory regime.[16] ONR's safeguards purposes were expanded, with ONR becoming the UK's nuclear safeguards regulator and part of the UK State System of Accounting for and Control of Nuclear Materials (UK SSAC).

42. ONR's implementation of the new regime has been positive, with the UK SSAC continuing to operate successfully, enabling the UK to meet all its international safeguards obligations and deliver all its required reports on time. This was strongly evidenced by the IAEA annual safeguards review for UK safeguards implementation, with the IAEA stating that ONR's first year performance had exceeded their expectations. A review of the *2019 Nuclear Safeguards (EU Exit) Regulations* is due before the end of 2024.

16 As amended by the *Nuclear Safeguards Act 2018.*

Vires

43. *TEA13* gives ONR a flexible and general power to act to further its purposes in addition to the specific powers provided in the Act. Vires primarily relate to permissioning/licensing and inspecting/enforcement to regulate these purposes.

44. In exercising its regulatory responsibilities at nuclear installations, ONR works in parallel with other regulators, such as HSE on conventional health and safety, environmental agencies on the environmental impact of activities, and the Defence Nuclear Safety Regulator (DNSR) on MOD authorised or Crown sites. ONR seeks to ensure effective regulation and ways of working through both formal Agency Agreements and Memoranda of Understanding, and informal lines of communication. Assessments of their success will be made in the Stakeholder Engagement and Working with Others chapter.

45. Overall, ONR's vires remain fit for purpose, with proposed changes to improve ONR's ability to deliver its purposes and enhance the efficiency and effectiveness of regulation already under way.

Proposed changes to vires

46. To support the delivery of their purposes under *TEA13*, ONR is guided by other relevant UK legislation regarding security, radiation, nuclear installations, and workplace health and safety. Following engagement with ONR and industry, government is considering several

legislative changes that would enable ONR to improve its ability to deliver its purposes.

47. Proposed amendments to the *Nuclear Installations Act 1965* (*NIA65*) and *Nuclear Installations Regulations 1971* (*NIR71*), will give ONR the power to license high hazard radioactive waste disposal facilities, including a Geological Disposal Facility (GDF).

48. The amendments to *NIA65* will enable ONR to license and regulate nuclear installations that are located beneath the seabed within the UK's territorial waters. Installations for the disposal of the most hazardous radioactive waste will then need to be added to the list of licensable installations in *NIR71*. Revision of *NIR71,* such that a GDF is defined as a nuclear licensed site, is one of the recommendations from the IAEA's *IRRS Mission to The United Kingdom* in 2019.[17]

49. Further amendment of *NIA65* is required to ensure that nuclear sites of sufficiently low hazard are removed from ONR's purview, avoiding functional overlap with the other regulators including the Environment Agency (EA), Scottish Environment Protection Agency (SEPA), and Natural Resources Wales (NRW). This requires adoption of the Decommissioning Exclusion[18] and changing

17 IAEA Integrated Regulatory Review Service, *Report of the Integrated Regulatory Review Service (IRRS) Mission to The United Kingdom of Great Britain and Northern Ireland*, 2020, p. 21-22.

18 The 2014 *Paris Convention Decommissioning Exclusion* states that sites in the process of being decommissioned may be excluded from the international nuclear liability regime, when the main nuclear hazards have been removed and the risks to the public are small.

procedures for licence revocation, in addition to the adoption of the Low Level Waste Exclusion.[19]

50. As the government's net-zero ambitions come to fruition, a stable, safe, and secure supply of nuclear generation is likely to become an increasingly important part of the energy mix.

51. **Suggestion 3:** ONR should continue to work with Ofgem and BEIS to assess and inform how security of supply needs could be appropriately considered in nuclear without compromising ONR's ability to deliver any of its five purposes.

52. During the review we identified a potential need for ONR's Fees Regulations to be updated. BEIS and DWP should work closely with ONR to consider the need and options for change. See **Recommendation 7 and 8** and the Financial Administration chapter for further discussion.

53. ONR supports a significant portfolio of international work and collaboration. Certain elements of the information ONR need to share are classed as Export Controlled Information (ECI). ONR is not classed as part of the Crown for export purposes, instead requiring individual licences to share ECI with any organisation outside the UK, which represents a significant administrative burden and can cause delays in completing site or design acceptance work. The average

19 The 2016 *Paris Convention Low Level Waste Exclusion* excludes qualifying low level waste disposal sites that meet strict radiological criteria from the requirement for nuclear third-party liability.

time for ONR to obtain an export licence is usually around six months, however ONR currently has five applications outstanding which have exceeded this.

54. ONR wish to share ECI where the justification is nuclear safety, security and safeguarding, using similar licences to those available to the Crown. The Department for International Trade (DIT), as the licensing authority in the UK, would be responsible for any relevant legislation change required to enable this.

55. **Suggestion 4:** Ahead of making a proposal for change to DIT, ONR should work with BEIS to identify all their exporting requirements (items, end users, etc.) and licensing options, establishing the most efficient and effective process to deliver outcomes.

56. **Suggestion 5:** Noting that any legislative change will take time to establish, and the current problem needs addressing now, ONR should continue to work closely with Export Control Joint Unit and BEIS to engage effectively on upcoming licenses to ensure alignment and timeliness.

Governance & Accountability

57. ONR's governance structure has changed as the organisation has evolved from an agency within HSE, to an independent public corporation.

58. Current governance arrangements are set out in a Framework Document[20] drawn up between DWP and ONR. This document sets out the broad framework within which ONR operates, including powers and duties, but also the roles and responsibilities of the Chief Executive (CE), Chair, and ONR Board. In addition, the document sets out DWP's requirements, as the sponsor responsible to Parliament for ONR governance and finance.

59. Further detail on how ONR works with government, including both BEIS and DWP, can be found in the Stakeholder Engagement & Working with Others chapter.

Chair and Chief Executive

60. Since vesting in 2014, ONR has had two Chairs and three CEs, with Mark McAllister taking his post as the current Chair in March 2019 and Mark Foy moving from the role of Chief Nuclear Inspector (CNI) to joint CE/CNI in June 2021.

61. The transition to a joint CE/CNI brings ONR in line with other international nuclear regulatory bodies, providing more focused leadership on issues cutting

20 Office for Nuclear Regulation, Department for Work & Pensions. *Framework Document Between Department for Work and Pensions and Office for Nuclear Regulatio*n, 2018.

across both the regulatory and corporate functions of ONR. The 2008 '*Stone Review*'[21] originally envisaged the CNI as the most senior leader, but a separate CE role was initially established to lead the newly formed organisation through its transition and early years.

62. The early signs of this leadership change are positive, echoed by the majority of interviewees who commented that a single CE/CNI role can enable such a post-holder to have a more holistic view of the organisation and how best to deliver its mission. Some however commented on whether the joint role had sufficient resilience to protect against potential situations where demands on the CE/CNI increased due to significant external events.

63. **Recommendation 4:** ONR's Board is continuing to review the impact of recent organisational changes. In doing so, we recommend the Board consider, by the end of 2022, the resilience of the new structure (and certain roles) against sudden or prolonged, internal or external events that could impact business continuity, and the timely realisation of ongoing projects. ONR should make suggestions for further improvements and share the findings openly with both BEIS and DWP.

Board

64. The Board has responsibility for oversight of ONR's strategic vision, strategic business plan, and policies.

---

21 T. Stone. *Nuclear Regulatory Review Private Advice and Reasoning, Observations by Tim Stone for the Secretary of State for Energy and Climate Change.* 2008.

It monitors resources and performance, holding the organisation to account. The Board also ensures that effective arrangements are in place within the organisation to provide assurance on governance, risk management, and internal control. The responsibility for regulatory matters rests with the Chief Nuclear Inspector.

65. The Chair and Non-Executive Directors (NEDs) are appointed as members of the Board as part of a public appointment process defined by Cabinet Office.[22] This is overseen by the Arm's Length Partnership Division within DWP, except for the ONR Security NED which is overseen by BEIS.

66. The Board currently comprises ten members (evenly split between male and female), with six NEDs, including the Chair. It currently meets eight times a year, with additional shorter meetings when necessary. Board remuneration is in line with that paid to the other arm's length bodies sponsored by DWP.

67. Having witnessed a Board meeting, we were impressed with the professional and open style of the Chair and the way issues were thoroughly discussed, supported by an appropriate level of presentational material and with scope for all views to be heard and responded to.

68. However, we have noted that at times, supporting paperwork is too detailed and repetitive. The Board has identified this as an issue and taken steps, which we

22 Cabinet Office, *Governance Code on Public Appointments,* 2016.

welcome, to improve how papers are presented, reducing bureaucracy and ensuring greater consistency and focus across all topics. There is, however, a wider cultural issue identified across ONR around how information is presented, and what is appropriate to support discussions and decisions in different contexts.

69. **Recommendation 5:** As a part of wider actions on efficiency, we recommend ONR continues to keep paperwork under review, embedding a culture of 'less is more' where appropriate.

70. The Board is supported by three committees:

- Audit and Risk Assurance Committee (ARAC)
- Remuneration and Nominations Committee
- Security Committee

71. We make no findings on the latter two committees which are operating well – as indeed is ARAC – but we note a potential issue with the balance of responsibilities between ARAC and the Board on risk management. This was identified and noted in ONR's independent review of Board effectiveness, referenced in ONR's *Annual Report and Accounts 20/21*. Further detail is set out in the Risk Management chapter.

72. From April 2020, several new appointments have been made to the Board, including two new executives and three new non-executives. This has provided ONR with fresh perspectives and, as currently structured, provides the Board with a good mix of industry and wider

experience. The Board is providing stable leadership and is well regarded by the partnership and policy leads in DWP and BEIS.

73. As covered in the Changing & Improving chapter, the review has identified project management, IT, and digital projects as areas for improvement. ONR is already building internal competence in these areas to strengthen capability in the short term and ensure the successful delivery of priority programmes such as Well Informed Regulatory Decisions (WIReD).

74. **Recommendation 10:** To aid in realising IT and digital projects (such as WIReD), we recommend ONR considers co-opting a C-suite IT specialist to its Audit and Risk Assurance Committee for at least the financial year 2022/23. This would provide deep specialist support and ONR's Chief Information Officer (CIO) and Chief Information and Security Officer (CISO) with a sounding board.

Senior Leadership Team

75. ONR has committed to developing the Senior Leadership Team over the last five years to ensure a structure that supports its maturity as a regulator. 2021 saw several significant changes, bringing in fresh perspectives as well as ensuring appropriate capacity to support the new combined CNI/CE post.

76. A new Executive Director of Operations post has been established, which alongside the Deputy Chief Executive, resources leadership of the regulatory and

corporate parts of the organisation respectively. Several other key roles also have new postholders, including the Finance Director, CIO, and CISO who have come from outside ONR.

77. The transition to this new leadership structure was well thought out and supported by a strong risk analysis. The structure is already leading to an increased focus on strategy and improved consideration of regulatory and organisational matters as appropriate, whilst also promoting closer working arrangements amongst teams.

78. In addition, recognising that it can take time for a new team to get to know one another and embed the right culture, ONR has enlisted the support of executive development specialists to empower the team to work together in a way that maximises effectiveness and efficiency.

79. The review has concluded that no changes are required to the composition or remits of the Senior Leadership Team at this time.

80. ONR's RD adopt a matrix management approach to leadership. This structure has been in place since before vesting and has enabled the efficient use of resources across different functions. However, it carries some inherent risks which need to be monitored and managed to ensure benefits are felt across the whole organisation. These include avoiding added bureaucracy that may slow down decision making, ensuring power dynamics are balanced between different parts of the business and breaking down silo mentalities at all levels.

81. Alongside regular monitoring of staff views (using pulse and wellbeing surveys) and internal audits, ONR is planning a review of matrix management as part of their review of capacity and capability in 2022/23. We welcome this activity as part of ONR's commitment to continuous improvement.

Financial Oversight

82. ONR generally has a good understanding of financial processes and controls at Board and Executive Team level. Oversight is considered proportionate, with a strong ARAC in place.

83. As set out in the Financial Administration chapter, there have been delays and issues with securing loans from DWP. Both DWP and ONR are working to resolve these issues, ensuring associated processes are effective and fit for purpose for the future.

HR, People & Culture

84. ONR has an established set of organisational values[23] which underpin how it behaves internally and with its stakeholders. These are:

- accountable
- open minded
- fair
- supportive

85. By aiming to embed these values, ONR seeks to enable a robust and inclusive environment that will not only support ONR's ability to recruit and retain quality staff in an increasingly competitive market but also play a role in enabling ONR to effectively deliver its regulatory programme.

Staff numbers

86. ONR employs approximately 650 staff across three office locations in Bootle, Cheltenham, and London.

87. Staff numbers across different functions have increased significantly since vesting. In April 2015 ONR employed 320 FTE regulatory specialists and 181 FTE corporate and regulatory support staff. As of November 2021, this had increased to 402 FTE regulatory specialists and 230 FTE corporate and regulatory support staff.

23 Office for Nuclear Regulation, *Strategy 2020-25*, 2020.

88. When ONR was established in 2014, the capacity and capability to provide the corporate functions essential to run a public corporation were minimal. Based on the 'ONR Essentials for Vesting Programme' ONR secured a small number of staff, seconded from HSE for up to two years, to cover finance, governance, HR, and communications. This was not sufficient for ONR to operate fully as an organisation independent of the civil service, and it remained dependent on legacy services from HSE and/or other arrangements (such as contractors). Other critical corporate functions such as IT, procurement, security, commercial and risk management, programme and project management, and policy were minimal, non-existent or dependent on legacy arrangements.

89. It has therefore been necessary for ONR to establish core functions leading to significant growth across its corporate services in the last eight years which, alongside sustained increases within the regulatory divisions, ensure ONR has adequate capability and capacity to deliver its mission.

90. **Suggestion 6:** Government should learn from this experience, ensuring plans for vesting arm's length bodies are appropriately informed by an awareness of the scale of resource independence requires, including additional technical and corporate requirements, so that future bodies are vested with adequate resource from the start.

91. In addition, there has been growth within the Regulatory Directorates to meet demands from industry and government.

92. During interviews we identified concerns around the expansion of support staff, with questions raised around whether increases were proportionate and if certain directorate/divisional functions were still relevant in a modern workplace and could make better use of technology and software.

93. In line with its strategy, ONR is investing significantly in several projects and initiatives to modernise and improve effectiveness. These provide the opportunity for new efficiencies and value for money, with the correct structures in place to monitor performance and benefits realisation. Taking advantage of this opportunity will be key to ONR achieving agreed efficiency savings in its budget, over the next spending review period.

94. In reviewing staffing levels, ONR is also using intelligence gathered from members of the UK Health & Safety Regulators Forum to benchmark its resources, ensuring its organisational shape remains balanced, proportionate, and cost effective as part of its review of organisational capacity and capability.

95. **Recommendation 3:** In addition to the above, to ensure benefits from resources and new systems are maximised, we recommend ONR develops an enduring approach to identifying opportunities and consolidating efficiency across the organisation, with findings reported to the Board at regular intervals. The initial report in

financial year 2022/23 should reflect findings from current organisational reviews, and benchmarking of structure, capability and capacity, as well as performance and talent management and business-as-usual project reviews. (See also Value for Money chapter).

Remuneration

96. ONR's strategy is to pay in the upper quartile for nuclear roles, ensuring it can attract and retain the highly skilled people needed to regulate.

97. An externally commissioned report in 2017 concluded that ONR is largely a competitive payer within the sector:

- nuclear roles pay 40.1% above the nuclear market median
- administrative roles pay 8.5% above the public sector market median, noting that the public sector already pays more for these roles compared to the private sector
- corporate roles pay 7.8% below the general market median, with Bands 2 and 3 being the most competitive

98. A further report commissioned in 2019 confirmed this position[24], concluding that ONR's pay is appropriate to support attraction and retention.

24 PWC, *Review of Pay and Grading at ONR*, 2019.

99. The report did however note that a large proportion of employees are “stuck” at the top of their band, unable to progress in terms of pay, beyond promotion or annual pay uplifts. This could cause issues in the medium term, with up to 80% of employees at the top of their respective bands within five years.

100. To date this has not led to mass departures and with pay already market competitive presents a challenge which ONR must address as part of its pay and grading review due to be conducted from May 2022 onwards. ONR should be mindful not just of employee expectations but also the wider political and economic environment and the need to align (although not comply) with public sector pay principles.

101. ONR’s low turnover of approximately 20 staff per year (more than 50% of which is through retirement) illustrates the efforts put in by ONR to retain valuable staff once recruited, ensuring job satisfaction and engagement with organisational values is a priority. This is confirmed by staff surveys.

102. During interviews a point of tension was noted around how pay for HSE radiation specialists and conventional health and safety inspectors compares to other agencies, with ONR able to pay significantly more than equivalent roles at EA and HSE, impacting the ability of these organisations to recruit and retain specialists.

103. HSE resource issues were raised as a concern during the 2019 IRRS mission.[25] Whilst EA has been successful in securing an increased pay deal to address the gap, HSE is restricted by public sector pay rules resulting in up to a 37% difference.

104. We recognise it is not ONR's responsibility to resolve this issue.

Talent pipeline and succession planning

105. The next decade will place increased pressure on the UK nuclear workforce with the simultaneous challenges of the end of generation and decommissioning of the aging existing fleet, as well as the pursuit of large-scale new nuclear projects and next generation technologies, such as SMRs and AMRs.[26]

106. The demand for skilled staff with the necessary training and experience threatens to increase the costs of projects alongside a possible increased reliance on foreign expertise and investment for civil projects. Given the high age of the existing (and retiring) workforce, as well as the required years of training and development for new entrants into the sector, a focus on talent pipeline and succession planning is key to handle this transition period for both the industry and ONR.

---

25 IAEA Integrated Regulatory Review Service, *Report of the Integrated Regulatory Review Service (IRRS) Mission to The United Kingdom of Great Britain and Northern Ireland*, 2020, p. 34-35.

26 Department for Business, Energy & Industrial Strategy, *The ten point plan for a green industrial revolution,* 2020.

107. ONR is often seen as a pinnacle of careers by those in the nuclear sector. ONR estimates the average tenure of staff to be 15-18 years, and 20+ years for frontline inspectors. These factors are reflective of the specialist knowledge and experience held by ONR staff, as well as reflecting its status within the industry as a desirable place of work. The average age of staff has decreased in the last decade, from 52 to 47 years. The loss of knowledge and duty holder relationships occurring upon retirement, was highlighted as a key weakness in ONR's last full staff survey in 2018.

108. Within its Organisational Learning Function, ONR has established a Knowledge Management practitioners' group, which is due to develop a strategy by the end of 2022. Additionally, the 'Maximising Our Potential' project, which focuses on succession planning for critical roles within the RD and evaluating wider talent management discussions and assessments by April 2023, will help address concerns around retention of knowledge and relationships.

109. In 2016, ONR reported 10 targeted areas for recruitment, now reduced to three – Cyber, Business Intelligence and IT. ONR currently apply a market-based uplift for relevant roles and are successfully growing capacity in these areas including recruitment of a CISO, CIO, and Head of Business Intelligence.

110. Cyber and IT skills are in high demand across the sector, with an economy wide shortage leading to resource gaps and increased salaries. ONR is already

working with industry to address gaps, supporting pipeline growth and development through its graduate and nuclear degree programmes, and taking an active role in the Nuclear Skills Strategy Group (NSSG), including as chair of the Exciting the Next Generation group to support the introduction of T level qualifications[27] and entry into the sector.

111. As recognised by the NSSG, ONR's participation in the nuclear graduates scheme, apprenticeship opportunities, and the ONR academy are helping to ensure skills and knowledge continuity.[28] Additionally, ONR has introduced new development roles of Associate and Equivalence Inspector roles and a new Degree Apprenticeship scheme. ONR has also committed to the development of a mature framework for evaluating learning to better characterise the impact of its integrated assurance.

112. To ensure ONR maintains stable high-quality leadership, it is important it has proactive succession planning in place, identifying and developing capable individuals who can assume senior roles.

113. To date, talent management and leadership programmes have focused on staff at Band 2 and below, however it is important that those at Band 1 (highest grade below director level) also have access to targeted programmes.

---

27 Department for Education, *Introduction of T Levels*, 2021.

28 Nuclear Skills Strategy Group, *Case Study: Securing talent to meet regulatory demands,* 2019.

114. **Suggestion 7:** We welcome confirmation that a new leadership programme for more senior grades is planned for development in 2023. However, given lead times to develop and launch programmes such as this, ONR should consider if delivery can be brought forward, sending a strong signal of support to those planning the next stage of their career.

115. To complement these activities ONR must ensure it has an effective performance review process.

116. ONR recognise the current process as inefficient, with lengthy documentation that lacks an adequate focus on personal wellbeing, development, and continuous improvement in line with ONR's values. We welcome the work already underway with a new process expected to be rolled out from June 2022.

Diversity and Inclusion

117. ONR is committed to creating a culture of equality and inclusion from the top, tackling diversity challenges head on, both within ONR and wider industry. A recent Government Internal Audit Agency (GIAA) audit gave ONR a moderate assurance rating for diversity and inclusion.[29]

118. ONR's diversity and inclusion action plan identifies a range of programmes, training, actions, and milestones to increase representation and create a supportive, inclusive culture to improve the effectiveness and

29 Office for Nuclear Regulation, *ONR Annual Report and Accounts 2020/21*, 2021.

efficiency of staff by respecting their unique needs and perspectives as well as valuing the importance of diversity of thought.

119. As a public body it is also important ONR reflect the people and communities it protects and works with, demonstrating high standards of behaviour, integrity, and values in how it discharges its duty.

Bullying and Harassment

120. Bullying and harassment is an area that ONR continue to prioritise for action, in light of feedback through staff surveys.[30] In 2018 (the last full staff survey)[31] 12% reported they had personally experienced bullying or harassment at work[32], this includes both internal and external situations.

121. ONR's 2021 *Wellbeing at Work* survey[33] provides further clarity on the extent of individual experiences and their regularity with less than 2% 'often' or 'always' subject to personal harassment in the form of unkind words or behaviours and/or bullying at work.

---

30 15% of respondees in 2016 reported experiencing bullying, discrimination, or harassment at work. In 2017 this increased slightly to 16%.

31 Full staff surveys were deferred during COVID-19 with focus instead on supporting staff through insights gained using pulse surveys. The next full staff survey is planned for 2022 and expected to be conducted every 18 months thereafter.

32 Office for Nuclear Regulation, *Office for Nuclear Regulation Annual Report and Accounts 2017/18 HC 1078*, 2018.

33 This survey used the Health and Safety Executive's Stress Indicator Tool (SIT), an online survey designed to gather data anonymously from employees to help identify areas to improve to prevent and manage work-related stress.

Question	Never	Seldom	Sometimes	Often	Always
I am subject to personal harassment in the form of unkind words or behaviours	68.2%	22.2%	8.2%	0.9%	0.4%
I am subject to bullying at work	78.1%	17.2%	4.1%	0.0%	0.4%

122. ONR is reporting lower levels of instances of bullying and harassment than the HSE national benchmark (a comparative sample of respondents from 26 UK private sector organisations). This is measured in any (i.e., not 'never') experiences of harassment or bullying (ONR 31.1% compared to HSE Benchmark 38.6% and ONR 21.7% compared to HSE Benchmark 23.6% respectively).

123. ONR has made clear that any instances of bullying or harassment are unacceptable and represent a need for improvement, regardless of their source or how often they occur.

124. Since 2016, ONR has committed to a programme of activity that has included staff focus groups to understand issues and why they are occurring, creating guidance for external stakeholders on expected behaviours, prioritising respect for ONR colleagues and their work, as well as awareness programmes and events, sometimes drawing from lived experiences of staff.

125. In 2020, ONR updated its bullying and harassment complaints procedure. This was supplemented by a *Bullying and Harassment Toolkit* which provides practical steps staff can take to build a healthy culture of inclusion and excellence, ensuring people treat each other with dignity and respect. The toolkit was commended by the GIAA in January 2021.

126. ONR has focused on further reducing the levels of bullying and harassment experienced by staff by adopting a strong internal culture of respect, as well as ensuring external stakeholders are mindful of ONR values and the importance of treating staff in a professional manner, with dignity, courtesy and mutual respect, as detailed in ONR's *Unreasonable Behaviour Policy.*[34]

Gender pay gap

127. ONR's annual gender pay gap reports identify an ongoing challenge in addressing the gender balance across the whole workforce, with the mean and median gaps decreasing only slightly in the last three years.

128. As of its most recent report, the median wage gap is 36.6% and the mean wage gap is 25.3%.[35] Relevant comparisons to other public sector organisations, the Civil Service, and industry are made in the table below.[36]

---

34 Office for Nuclear Regulation, *ONR Unreasonable Behaviour Policy*, 2021.

35 Office for Nuclear Regulation, *Office for Nuclear Regulation Gender Pay Report 2021*, 2021.

36 Government Equalities Office, *Gender pay gap service*, 2022, https://gender-pay-gap.service.gov.uk/, (accessed 18 February 2022).

Pay Gap (2020/ 2021 unless stated)	ONR (2021/ 2022)	ONR	CS	HSE	NDA	NNL	EDF	Magnox	Sellafield
Median	36.6%	37.9%	8.1%	22.6%	34.2%	16.9%	15.6%	8.7%	11.5%
Mean	25.3%	27.6%	7.8%	22.4%	38.4%	10.9%	15.6%	6.0%	13.6%

129. At director level and above (SCS1 and 2) there are three women and nine men, whilst the Board is made up of five women and five men. Below this, men dominate the upper grades, with only 25% of ONR Bands 1, 2, and 3 being occupied by women, but making up 61% of ONR Bands 4, 5, and 6.

130. Achieving gender balance is an industry wide challenge and pay gap issues continue due to low numbers of women in technical and senior positions, which are higher paid. Shrinking the pay gap requires action to secure better female representation generally and grow the availability of suitable female candidates.

131. ONR has taken several actions to attract more women, including changing the perception of industry through accessible communications content showing women in nuclear roles,[37] implementing 'name/gender-anonymous' selection processes and ensuring diverse interview panels. These measures have contributed to a higher proportion of female applicants for regulatory roles – 7.9% in 2016 to 19.1% in 2020.[38]

132. ONR has committed to the *Nuclear Sector Deal* goal of 40% women in nuclear by 2030.[39] With 34.6% of the workforce being female it is on track to meet this. However, particular focus should be placed on improving the number of women in technical roles, which despite

37 ONR in conjunction with the BBC's 50:50 campaign aims to have 50% female representation across all corporate media content and publications.

38 Office for Nuclear Regulation, *ONR reports positive progress made on reducing gender pay gap*, 2021, https://news.onr.org.uk/2021/11/onr-reports-positive-progress-made-on-reducing-gender-pay-gap/, (accessed 7 December 2021).

39 Department for Business, Energy & Industrial Strategy, *Nuclear Sector Deal, 2018.*

seeing a 79% increase since 2014 still only accounts for 18.5%. In the past four years, 26.4% of new starters in technical roles have been women. Sustained progress as new starters increase post-pandemic will enable ONR to achieve greater gender pay balance.

133. Whilst there has been some progress in recruiting more women into the organisation, more can be done to support and develop the women already there, providing them with the skills they need to thrive and progress. Previously, ONR has supported women with access to two external leadership programmes the Glass Lift Women in Leadership Programme (now discontinued) and the PwC New World New Skills Leadership Programme.[40]

134. **Suggestion 8:** To build on this and continue to create a structured, and supportive, environment where women can excel, we suggest ONR:

- works with the newly launched staff Gender Equality Network to monitor the success of current initiatives[41] and identify further female specific learning and development needs
- notes research[42] from the Government Equalities Office that examines barriers to women's progression in the workplace, and successful government

---

40 To note this programme is focused more generally on improving diversity and inclusion rather than specifically targeting the challenges women can face in the workplace.

41 Examples of current initiatives include working with POWERful Women and Women in Nuclear UK (WiN UK) to promote coaching and mentoring opportunities.

42 Government Equalities Office, *Women's Progression in the Workplace*, 2019.

programmes such as Positive Action Pathways and Crossing Thresholds

135. **Suggestion 9:** We also suggest ONR adopts and reports on gender diversity KPIs to drive forward diversity targets and ensure accountability at all levels.

Ethnic diversity

136. ONR acknowledges a need to do more to support and empower staff from ethnic minority groups and to increase representation at all levels.[43]

137. In its *Diversity & Inclusion Action Plan* ONR commits to several actions such as removing bias from recruitment and performance management, and further examination of obstacles faced by their staff who self-identify as belonging to ethnic minority groups (currently around 4% of ONR).

138. Internally in 2021 ONR launched a race toolkit supporting colleagues to understand the lived experiences of others by having open conversations about experiences of discrimination. Externally ONR has engaged with the Lord Mayor of Liverpool's Office and the British Chamber of Commerce to drive recruitment outreach and attract a more ethnically diverse set of candidates from communities surrounding ONR's main office in Bootle.

139. **Suggestion 10:** ONR recognises the challenges faced in improving ethnic diversity within their

43 Office for Nuclear Regulation, *ONR Annual Report and Accounts 2020/21*, 2021, p. 28.

organisation and the wider sector. Continued, more ambitious action could include:

- increasing ethnic diversity in their public communications, utilising lessons learnt from the BBC's 50:50 campaign
- specific references to actions on ethnic diversity in published materials, as it does with gender and disability
- analysing the pay balance between racial and ethnic groups, using findings to formulate an action plan and measurable milestones for its improvement[44]
- committing to a public target to increase the number of staff from ethnic minority groups by 2030 in line with similar commitments made for female representation

Disability and Mental Health Inclusion

140. ONR is a Level 3 Disability Confident Leader[45], recognising its commitment to supporting staff with a disability and aiming to change attitudes outside ONR by encouraging and supporting stakeholders to behave similarly.

---

44 In line with findings from the Commission on Race and Ethnic Disparities, ethnicity pay gaps are published voluntarily, and can be a potentially useful tool in investigating what causes existing ethnic pay disparities. Noting ONR's *Release of information 202106008* under *Freedom of Information Act 2000.* (https://www.onr.org.uk/foi/2021/202106008.htm), we believe that ONR is capable of producing and publishing such metrics.

45 Office for Nuclear Regulation, *ONR achieves Disability Confident Leader status*, 2020. https://news.onr.org.uk/2020/01/onr-disability-confident-status/, (accessed 7 December 2021).

141. ONR regularly showcases the success of its work externally, including through DWP's Arm's Length Body HR Director Forum, and internally to champion how the impacts of work done on disability inclusion can be applied elsewhere to drive change.

142. During recruitment ONR offers a range of measures to ensure access to applications, as well as interviews. Existing staff are supported through workplace adjustments, occupational health, employee assistance programmes, and membership to the Business Disability Forum.

143. **Suggestion 11:** To further strengthen ONR's commitment to disability inclusion, we suggest ONR reviews its current management information identifying improvements that will provide additional insights during recruitment and progression,[46] as well as adopting a more evaluative approach that will better inform, and evidence, ongoing actions.

144. In addition, ONR is committed to building a mental health positive culture. Alongside ONR's wellbeing and pulse surveys which support a better understanding of staff's relationship with stress at work ONR has developed a *Mental Health Strategy*, establishing a Mental Health Ambassadors programme and Mental Health Awareness training.

---

46 For example, number of disabled applicants, disabled applicants interviewed, disabled applicants receiving a job offer, disabled staff leaving the ONR, as well as the positions, pay, and progression of staff with disabilities.

Social Mobility

145. ONR does not currently discuss social mobility in its published documents nor its *Diversity and Inclusion Action Plan*. ONR plans to gain further insights by first establishing a baseline for socio-economic diversity across the organisation. From April 2022 ONR intends to drive up the voluntary recording of data, adopting approaches to internal communications that have been successful for other types of diversity reporting.

146. **Suggestion 12:** Currently, reporting of social mobility characteristics stands at 75%. To reinforce its commitment to promote social mobility within its workforce ONR should adopt a target to increase completion rates to at least 90% by the end of the current strategy period (2025), aligning to the completion rates of other characteristics such as sexual orientation, religious belief, disability, and ethnic origin which all have a declaration rate of 90% or higher.

147. ONR is already promoting socio-economic diversity of applicants through their schools and recruitment outreach projects, as well as the previously noted engagement with the Lord Mayor of Liverpool's Office and the British Chamber of Commerce.

Improving diversity & inclusion within industry

148. **Suggestion 13:** Given its status, ONR is in a good position to drive leadership across the

sector and should continue to use its position to improve diversity and inclusion outcomes, unlocking opportunities for a more diverse workforce across all underrepresented characteristics.

149. Already ONR works closely with groups such as the NSSG, Women in Nuclear UK (WiN UK), and the Nuclear Institute Young Generation Network (YGN), to inform planning and actions needed to secure the long-term skills requirements of the sector.[47] This includes not only looking towards skills gaps but also ensuring a more diverse and representative workforce.

150. Since 2019, building on its participation in the Nuclear Graduates programme, ONR has recruited under the Nuclear Degree Apprenticeship Scheme providing alternative entry routes to careers across the sector.[48]

151. ONR has also developed a STEM strategy supporting the Nuclear Energy Agency (NEA) on 'Mentoring a Future Generation of Female Leaders in Science and Engineering', and continues to work with external community stakeholders and schools to promote STEM careers to girls and those from more economically deprived and ethnically diverse areas.

---

47 Office for Nuclear Regulation, *HR Director features in Nuclear Institute's journal*, 2019. https://news.onr.org.uk/2019/02/hr-director-features-in-nuclear-institutes-journal/, (accessed 9 March 2022).

48 Office for Nuclear Regulation, *Nuclear Degree Apprentices to join ONR*, 2019.https://news.onr.org.uk/2019/01/nuclear-degree-apprentices-to-join-onr/, (accessed 9 March 2022).

Organisational Behaviour

152. The *2021 Stakeholder Survey*[49] reflected ONR's ability to champion independence and clarity of purpose, all of which were echoed throughout interviews. However, we also received comments that ONR can at times come across as defensive and averse to outside criticism.

153. **Suggestion 14:** To combat this, ONR should continue to evidence and communicate how it is taking clear and meaningful action against areas of concern highlighted in stakeholder surveys (e.g., Responsivity to Change, Consistency, Proportionality, Efficient Ways of Working, Enabling Innovation, Engagement on Plans and Priorities) including the results from its *2022 Stakeholder Survey* which are due shortly.

154. 2021 results also highlighted that whilst licensees and duty holders praised an effective professional working relationship with ONR, this score was lower when surveying government and public bodies. Increasing transparency around how ONR makes decisions and early engagement on issues could help to improve these perceptions, enabling relevant partners to better understand where its support is needed.

155. Examples of effective joint working include the recent implementation of new safeguards regulations and a UK SSAC, and the Sellafield G6[50] which facilitates a

49 YouGov, *ONR Stakeholder Survey 2021 Report of findings*, 2021.

50 The group incorporates six key organisations: BEIS, NDA, Sellafield Limited, Environment Agency, UK Government Investments (UKGI) and ONR.

coordinated approach to complex issues, where input is required from a broad range of decision makers.

156. ONR's vision is to be a transparent regulator.[51] This is reinforced by its commitment to publish an *Openness and Transparency Framework* by March 2023, setting out its current approach to public disclosure and external engagement, and how it will enhance its approach in future.

157. However, ONR must ensure it also embeds a culture of transparency in behaviours and ways of working with internal and external stakeholders. This includes being candid about its weaknesses as well as its strengths and being open minded and responsive to feedback, so it can identify improvements and benefit from external support and expertise.

158. **Suggestion 15:** In particular, ONR should more frequently draw upon government support and prioritise early engagement on issues to work collaboratively towards a timely solution. For example, working closely with government to ensure more efficient financial administration processes, specifically in relation to loans and invoicing (see Financial Administration chapter).

159. ONR's willingness to admit and learn from the mistakes of the WIReD project (see Changing & Improving chapter) is an example of positive behaviour that should be promulgated throughout the wider organisation.

---

51 Office for Nuclear Regulation, *Strategy 2020-25,* 2020.

Financial Administration

160. ONR's financial accounting responsibilities are guided by the *DWP/ONR Framework Document* which clearly defines accounting responsibilities between ONR and DWP. The DWP Permanent Secretary, as Principal Accounting Officer, has designated the Chief Executive of ONR as ONR's Accounting Officer equivalent. The responsibilities of both positions are guided by the HM Treasury's *Managing Public Money* guidance.[52]

161. The annual report and financial statements are prepared in accordance with the government *Financial Reporting Manual*,[53] with the accounting policies applied adapted for the public sector context. The financial statements and accountability report contained in the *Annual Report and Accounts* are independently audited, certified, and reported on by the Comptroller and Auditor General, at the National Audit Office, and laid before Parliament on an annual basis.

Financial planning

162. Within the annual financial statements, ONR reviews and compares its budget and actual spend for each year. The table below highlights key financial data over the previous five years.

52 HM Treasury, *Managing Public Money*, 2021.

53 HM Treasury, *The Government Financial Reporting Manual: 2020-21*, 2020.

	Budget	Total Revenue[54]	Total Spend	Staff Cost	Capital Spend	Overspend/Underspend (Budget vs Total Spend)
2020/21	£91.9m	£93.2m	£96.5m	£60.9m	£3.2m	£4.6m overspend
2019/20	£98.1m	£86.9m	£92.3m	£57.3m	£5.4m	£5.8m underspend
2018/19	£84.6m	£76.1m	£78.3m	£51.9m	£2.2m	£6.3m underspend
2017/18	£81.1m	£70.3m	£70.3m	£47.9m	£0.1m	£10.7m underspend
2016/17	£68.8m	£70.7m	£70.7m	£43m	£0.1m	£2.0m overspend

54 Includes all income generated from duty holders and government.

163. The majority – 66% in 2020/21 – of ONR's budget relates to staff costs. This is to be expected and is proportionate in comparison to other regulators such as HSE where 62.8% of the 2020/21 spend was on staff.[55]

164. Yearly accounts show good financial planning and management of the overall budget, with identified variances largely out of ONR's control. For example in 2017/18[56] changes in the strategic environment led to a reduction in regulatory activity on new reactors and in 2020/21[57] additional investment in IT was required to accommodate requirements for remote working due to COVID-19.

165. In 2020/21, GIAA reported a substantial level of assurance in ONR's processes for Budgeting and Forecasting, confirming the quality of ONR's financial controls.

Funding and charging approach

166. As the tables below illustrate, ONR recovers approximately 95% of its costs through charges to duty holders with the remaining 5% of funding coming from government. This includes 3% in the form of grants and loans from DWP, and 2% in charges direct to BEIS for specific commissioned activities (also known as Priority Projects).

---

55 Health and Safety Executive, *Health and Safety Executive Annual Report and Accounts 2020/21 HC 403*, 2021, p. 56.

56 Office for Nuclear Regulation, *Office for Nuclear Regulation Annual Report and Accounts 2017/18 HC 1078*, 2018, p. 20.

57 Office for Nuclear Regulation, *Annual Report and Accounts 2020/21 HC 463*, 2021.

Breakdown of revenue from duty-holders	2020/21		
	Income £'000	**Cost £'000**	**Surplus/ (deficit) £'000**
Licensing of nuclear installations	50,840	50,872	(32)
Civil Nuclear Security	14,483	14,483	–
Generic Design Assessment	15,467	15,467	–
Radioactive Materials Transport	737	737	–
Advanced Nuclear Technologies	1,719	1,719	–
Sub Total	**83,246**	**83,278**	**(32)**
Other Fees and Charges	189	189	–
Total fees and charges	**83,435**	**83,467**	(32)

Overall Income 2020/21[58]	£'000
Revenue from contracts with customers	83,435
Grant from DWP	1,849
Grant from DWP – Prosecution related	1
Prosecution Costs Awarded	22
UK SSAC (BEIS funded)	7,689
Grant from Apprenticeship Fund	48
Grant from HMRC – Furlough	25
Other sales/income	226
Total income	**93,295**

58 Office for Nuclear Regulation, *Annual Report and Accounts 2020/21 HC* 463, 2021, p. 104.

Duty holder fees

167. ONR's regime aims to recover costs fairly, equitably and promptly across all duty holders.

168. However, despite publishing its charging principles and methodology online, we received several comments from duty holders about the transparency and predictability of costs. These arise from concerns about how charges are forecast but also from inefficiencies in the current invoice and billing system, which has an over-reliance on legacy systems and manual intervention to ensure compliance with legislation. This is resource intensive and requires specialist capability.

169. In 2019, ONR undertook an analysis of alternative charging models, considering the approaches of other publicly funded organisations. This work emphasised that "the current finance and charging mechanisms enforce a complex and cumbersome burden on ONR and the duty holders it serves". It was concluded that a new model would be required to meet the specific needs of the ONR regime, requiring not only an overhaul of ONR's internal processes but also, potentially, legislative change of current Fees Regulations.

170. A particular aspect is that expenditure of a capital nature can only be charged to duty holders once the asset is in use and over the period of its useful economic life. This creates a need for working capital finance, provided by DWP, to support cash flow.

171. ONR has committed[59] to review and update its charging strategy and associated model by 2025, with the aim of increasing the predictability of charges and income.

172. IT infrastructure upgrades are already underway which will automate and streamline a number of financial processes. However, these will not completely remove the requirement for manual intervention. An example of this is prosecution costs, where ONR receive funding cover from DWP in advance and then refund DWP any costs awarded if successful. However, it should be noted that prosecutions are relatively rare.

173. In addition to functional process improvements, ONR is continuing to scope options for alternative charging arrangements.

174. **Recommendation 8:** We recommend by March 2023 that BEIS, DWP, and ONR explore the scope for alternative charging arrangements, identifying what can be improved within the current legal framework, and what will require legislative change to current Fees Regulations to realise benefits for ONR and duty holders. This should be considered alongside the recommended assessment of financing arrangements in **Recommendation 7**.

Grants

175. ONR is partly financed by a grant from DWP (approximately £2 million), which covers funding for regulatory activities that are not recoverable under ONR

59 Office for Nuclear Regulation, *Strategy 2020-25,* 2020, p. 23.

charging powers and fees regulations. A small amount of funding is also made available to cover prosecution costs on a case-by-case basis (see para 172172).

176. The capital costs of running the UK SSAC are primarily funded by BEIS, though this is set to change from 2022/23 onwards. From 1 April 2022 costs of the regime will be charged to industry however government will still be charged for certain UK SSAC costs including related policy development and international obligations.

177. We have not identified any issues with how the grant funding mechanism operates under current fee regulations.

Loans

178. ONR has the legal authority to recover the full economic cost of its regulatory activities and does so on a net nil basis. ONR's current funding arrangements preclude it from generating a surplus or advance payment. As such it has minimal working capital. ONR therefore relies on working capital loans from DWP to finance capital expenditure and support operational cash flow, up to a maximum of £35 million.[60]

179. At the time of the review, ONR has three active loans:

- an interest-bearing working capital loan of £2m to support cash flow

60 *The Energy Act 2013*, Schedule 7, Paragraph 26.

- a not yet utilised, interest-bearing ‘call off’ loan of £3.5m to finance short term cash flow issues such as a duty holder’s failure to meet a payment deadline
- an interest-bearing capital loan of £9.8m to support the capital expenditure requirements of major projects such as WIReD, IT Separation and other modernisation activities to develop and enhance ONR’s infrastructure (including improvements to IT, furniture, and estate upgrades)

180. ONR’s budget (and capital requirement) is fixed annually so it is required to submit new applications each year to draw down on the loans. The application process requires the development of individual business cases and multiple signs-offs across DWP and HMT, which we understand are viewed as disproportionately resource intensive by ONR and DWP.

181. *Managing Public Money61* principles and HMT guidance require ONR to secure capital financing from DWP, instead of through private sector sources. During the review, we noted that some challenges have arisen between ONR and DWP due in part to the complexity, timeliness, and inflexibility of securing working capital loan financing with DWP and HMT.

182. The lack of flexibility with capital expenditure financing loans, stems from them being set in advance, based on government Spending Review cycles. This makes it difficult to amend loans to accommodate

61 HM Treasury, *Managing Public Money*, 2021.

evolving business needs in year; this has been a particular challenge given recent and ongoing uncertainty due to the pandemic and its impact on ONR's capital requirements and cashflow.

183. ONR has additionally flagged it's concerns that all of its financing (loans) and funding (grants) is being considered in a similar way, creating delays, budget constraints and affordability issues. ONR is concerned that loans are not appropriately considered within the context of ONR's business, or how funding is used and how repayments will be made.

184. DWP has commented that because it is subject to *Managing Public Money62* as a government department, it must abide by those requirements when providing loans. DWP states that it considers the financing requirements of all its public corporations in accordance with its obligations under legislation, and within the constraints of the delegated financial authorities provided by HM Treasury.

185. To help address issues, the DWP Partnership Team have increased resource dedicated to ONR relationship management and have worked closely with ONR and DWP finance colleagues to clarify processes and requirements. In addition, exploiting what is possible under current legislation, DWP has created and implemented an innovative type of loan allowing ONR to draw down variable amounts over the next three years (to 2025), made ad hoc payments in respect of non-

62 HM Treasury, *Managing Public Money*, 2021.

business-as-usual expenses and amended an existing loan to address ONR cashflow issues over the last year.

186. Whilst we make no specific recommendation to overhaul current loan financing arrangements, there are a number of actions which ONR and DWP could take forward to make the loan generation process more efficient.

187. **Recommendation 7**: We recommend DWP and ONR ensure lessons learnt from the past year are embedded at all levels, with a continued focus on efficient and effective ways of working. This should include:

- development of additional guidance alongside the *DWP/ONR Framework Document* during its 2022 review, to provide a consistent framework within which ONR can prepare and submit business cases and DWP can support approvals, in line with HM Treasury requirements and public funding procedures. This should clearly describe the nature of financing required, how it impacts ONR's operational delivery, the type of funding available, and the requirements, processes, and timescales for loan approvals
- an assessment of current financing arrangements by March 2023, alongside the consideration of charging arrangements in **Recommendation 8,** confirming the 'art of the possible' within the current framework and any unintended impacts and relevant solutions including legislative change if necessary.

Priority projects

188. Funding provided by BEIS is determined on an individual project basis, with the BEIS policy team requiring support being responsible for securing budget. We have not identified any significant issues with this process however, it is noted that improvements could be made to invoices to improve transparency.

189. **Suggestion 16:** We suggest that ONR reviews and updates the current structure of its invoices, adopting an itemised description of services and their costs and implementing a new template by March 2023.

Value for Money

190. ONR is a well-regarded regulator and meets its responsibilities in nuclear regulation across the UK, which in itself provides value. However, in delivering its purposes under TEA13, it is important that ONR is mindful of financial efficiency and the economic impacts of its activities.

191. Whilst ONR is subject to the statutory Growth Duty[63] and government guidance on *Managing Public Money*[64] it does not have the same direct incentives or pressure as some other public bodies, or private companies, to assess value for money and optimise costs. This has led to perceptions from some that ONR is not delivering maximum value for money.

192. The National Audit Office (NAO) uses three principles[65] to assess value for money:

- economy – minimising the cost of resources used or required (inputs) – spending less
- efficiency – the relationship between the output from goods or services and the resources to produce them – spending well

63 Department for Business, Energy & Industrial Strategy, *Growth Duty: Statutory Guidance, Statutory Guidance under Section 110(6) of The Deregulation Act 2015,* 2017.

64 HM Treasury, *Managing Public Money*, 2021.

65 National Audit Office, *Successful Commissioning Toolkit, Assessing value for money,* https://www.nao.org.uk/successful-commissioning/general-principles/value-for-money/assessing-value-for-money/, (accessed 18 January 2022).

- effectiveness – the relationship between the intended and actual results of spending (outcomes) – spending wisely

193. ONR has agreed efficiency savings in its budget over the next spending review period. Areas for generating potential savings include:

- staff costs resulting from a decreased reliance on external contractors and consultants
- estate costs due to an increase in remote working
- operational efficiencies realised through the implementation of WIReD, which is expected to provide significant annual savings

194. Whilst ONR has made its best efforts to forecast savings over the next three years, if government ambitions for nuclear are accelerated, requiring ONR to rapidly increase capacity (to meet materialising regulatory demands), it may impact any savings achieved. In particular if additional contingent labour is required to meet demand.

195. Whilst we welcome comments from the Chair of ARAC that delivering value for money is a key focus, and that work is already underway to develop in-house capability ensuring cost benefit analyses and impact assessments are prepared effectively, it will be important ONR embeds efficiency as part of its core culture.

196. **Recommendation 3** is relevant here. See para 95.

Costs to industry

197. In considering value for money, it is important to also explore the indirect costs incurred by industry, in meeting actual or perceived requirements of ONR. These costs can be significantly greater than the direct charges on duty-holders, as they encompass the cost of all actions duty holders perceive as necessary to satisfy ONR requirements.

198. Principles-based regulation can create a tendency for duty holders to 'gold-plate' solutions by overestimating what is required to reach compliance, resulting in increased time and costs.

199. Although we have not been presented with evidence that this is happening significantly, and indeed have seen several examples of where ONR intervention has created better value for money such as the development of alternative engineering solutions at Sellafield and fit for purpose solutions for 10-dock at Devonport, 'gold-plating' was nonetheless raised as a potential risk by several stakeholders. This generally relates to junior staff, who have less experience and confidence in challenging the status quo.

200. ONR is continuing to improve its communication of regulatory expectations and is reaching out to duty holders directly at all decision-making levels to facilitate an open conversation and provide support, with the specific aim of increasing duty holder understanding of where boundaries lie within compliance.

201. In line with the 'Growth Duty' under the *Deregulation Act 2015*[66] ONR is required to consider the economic impacts of activities on individual duty holders and the sector more widely. This includes minimising unnecessary burdens and costs of compliance whilst maximising the benefits of interventions by ensuring efficiency and proportionality of the regulatory regime.

202. In 2017 ONR commissioned an external independent report *The economic impact of ONR safety regulation: Final Report.*[67] The report, known as the '*NERA report*', concluded that inspectors need to be more aware of the economic impact of their decisions, and the power dynamics which mean a duty holder may not always feel comfortable raising a challenge around efficiency and proportionality.

203. These findings were echoed during several stakeholder interviews where we heard that ONR could do more to consider cost visibly and consistently as a driver for improvement.

204. The *NERA report* identified a number of actions, which ONR is making progress on:

- encouraging more external comment and comparisons
- more effective promotion and monitoring of the Enabling Regulation initiative

---

66 *Deregulation Act 2015,* Section 108.

67 NERA Economic Consulting, *The economic impact of ONR safety regulation: Final Report, The Office for Nuclear Regulation*, 2017.

- improving ONR's knowledge of the costs imposed by regulatory decisions
- the use of economic advice in the framing and assessment of some issues
- refinement of its current guidance on 'So Far As Is Reasonably Practicable' (SFAIRP) and gross disproportion

205. In line with 'Growth Duty' requirements ONR has also developed guidance to support inspectors in actively considering the cost and economic impact of regulatory asks. This guidance is currently being piloted in preparation for full implementation by the end of 2022 in areas where 'As Low As Reasonably Practicable' (ALARP) applies and encourages inspectors and duty holders to work collaboratively on regulatory solutions, particularly during the writing of safety cases.

206. **Recommendation 1:** We recommend ONR continues to complete all identified actions in the 2017 *NERA report*, with an urgent focus on embedding new processes and behaviours as business-as-usual, given the 'Growth Duty' came into effect in 2017.

Risk Management

208. As the regulator tasked with the protection of society from nuclear hazards, ONR requires a strong organisational focus on risk. How ONR manages risk has an impact on all parts of the organisation driving both internal and external behaviours. This includes a willingness to embrace organisational change and enabling innovation which are considered in detail in other parts of this report.

209. In this chapter we focus on the appropriateness of ONR's risk management framework in supporting its organisational objectives.

Governance and leadership

210. ONR's *Risk Management Framework* was initially developed in 2017/18 but was revised in June 2021, following the implementation of an automated risk management system.

211. Following the classic three lines of defence model, ONR delegates and manages risks throughout the whole organisation with clear lines of accountability up to the Senior Leadership Team, Board, and ARAC. In defining the responsibilities at each level, ONR aligns to HMT *Orange Book*[68] principles.

68 HM Government, *The Orange Book, Management of Risk – Principles and Concepts*, 2020.

212. It is clear senior leaders, and the Board, are on a journey to improve their understanding and articulation of risk, ensuring that actions reflect the needs of a maturing ONR.

213. As noted by the Chair of ARAC, steps have already been taken to improve Board capability and processes. One example given was the overhaul of ARAC papers to provide more efficient discussion of issues, including shorter, sharper papers and a simpler articulation of risks through a new 'risk on a page' template.

214. **Suggestion 17:** Initial reception of the *Risk Management Framework* and 'risk on a page' template has been positive, however, as already acknowledged by ONR, it should continue to be refined as part of ongoing work to improve risk management and reporting.

215. The Board's relationship with ARAC is strong and a recent independent review of Board/ARAC effectiveness[69] noted that the committee is well run, hardworking, well chaired, and engaged in its work. This affords value to the Board as it develops its risk intelligence. However, it is important that the Board does not over-rely on ARAC and focuses on building its own expertise.

216. **Suggestion 18:** As a part of its ongoing work on risk management, and as recognised by a recent board effectiveness review, we suggest that the Board prioritise consideration of how the level of responsibility between

69 Office for Nuclear Regulation, *Annual Report and Accounts 2020/21 HC 463*, 2021.

ARAC and the Board can be rebalanced to ensure resilience, continuity, and Board ownership of risk.

Risk Appetite

217. In reviewing the risk management framework, we identified a disconnect in ONR's risk appetite statement and messaging around wider organisational priorities, specifically its enabling approach and commitment to continuous improvement. According to that statement ONR had an overly cautious approach in areas which appeared less important to its overall statutory objective.

218. Whilst risk can be managed it cannot be completely removed, a fact acknowledged by senior leaders and Board, but not reflected in documentation.

219. As part of their planned annual review process, ONR has reworked its draft risk appetite which has been considered by the Board and is to be finalised shortly. We welcome the Board's work to review the current risk appetite statement to ensure it better reflects organisational priorities. However, updating the risk appetite will not in itself embed active risk behaviours.

220. **Recommendation 6:** We recommend ONR reviews and revises current risk management training by March 2023 to ensure staff understand how to improve risk taking through the implementation of effective risk management techniques.

221. A clear description of an organisation's risk appetite can be a very effective management tool to describe "what really matters around here" and drive changes to risk culture when embedded fully at all levels.

222. **Recommendation 6:** To embed new behaviours at all levels, we recommend ONR discusses with the Board, by July 2022, how it currently communicates its risk appetite within the organisation, identifying opportunities to improve messaging and highlight how risk will be built into decision making.

Improving Risk Management

223. Following discussions with their internal auditors, the GIAA, ONR have identified several actions to improve their risk management framework and increase compliance with the previously mentioned HMT *Orange Book* principles.[70] ONR will take these forward over the next 18 months.

224. **Recommendation 6:** To further support ONR in embedding improvements, we recommend ONR commissions a risk maturity analysis by its internal auditors or other external specialists to review risk at a strategic level by March 2023.

70 HM Government, *The Orange Book, Management of Risk – Principles and Concepts*, 2020.

Changing & Improving

225. ONR is currently engaged in an extensive change programme ranging from large scale IT projects to organisational culture initiatives and projects aimed at overhauling internal processes such as charging.

226. The evidence given by various leads from within the organisation and from external stakeholders point to an organisation that is continuing to develop and improve its approach to change and project management.

227. An example of success is ONR's delivery of a new domestic safeguards regime as part of the UK SSAC. Working to very short timescales ONR:

- successfully implemented a new regulatory purpose
- recruited and trained new safeguards specialists
- embedded a new supporting IT system
- worked with BEIS to bring in new domestic safeguards legislation
- generally made the transition from Euratom to ONR regulation as smooth as possible – this gained wider recognition through the public sector 'Project of the Year' award at the 2020 Project Management Institute Awards[71]

71 Office for Nuclear Regulation, *Nuclear safeguards project named Project of the Year*, 2021. https://news.onr.org.uk/2021/07/nuclear-safeguards-project-named-project-of-the-year/, (accessed 24 January 2022).

228. However, whilst there were several other examples of smaller scale projects being delivered successfully, we also identified a number of projects which were proving challenging for ONR, particularly IT and digital projects. We additionally identified specific aspects of culture and project delivery that could be further strengthened.

Responsiveness to change

229. The *2021 Stakeholder Survey*[72] indicated that only 50% of stakeholders thought that ONR operates in a way that is responsive to change. Comments made during interviews with internal and external stakeholders further reinforced this view, referencing a lack of agility, in some instances, to identifying issues and responding to change; unnecessary bureaucracy; overly complex systems; hierarchy in decision making; and a tendency to avoid situations where there is uncertainty.

230. ONR is already aware of these issues and is taking steps to improve behaviours and processes at all levels, ensuring an appetite and environment for change that is reflective of its strategy both internally and externally. We welcome this and encourage ONR to keep learning and improving as it undertakes new activities.

72 YouGov, *ONR Stakeholder Survey 2021, Report of findings,* 2021.

Programme and project management

231. As discussed previously, culturally ONR has a cautious approach to risk. Within projects this has led to a tendency to over manage which is evident from the sheer number of projects being tabled by different parts of the organisation. This ultimately creates unnecessary process and adds cost and time to the delivery of activities which, in some instances, could be better managed as business-as-usual.

232. ONR has acknowledged this issue and at the last Board Strategy Day in October 2021, with a focus of 'doing fewer things well', clarified the purpose of its change portfolio. As a result, ONR undertook an exercise to re-prioritise activities, focusing on what could be delivered as core business and what was additional and necessary to deliver its 2020-25 Strategy successfully.

233. We welcome this activity, noting ONR's reflection on what further changes may be needed if other organisational priorities come forward, as well as the reminder to staff that projects should have a "clear purpose, defined end point and add demonstrable value (efficiency/effectiveness) or mitigate a strategic risk with a clear indication of duration, cost, quality and scope."

234. Since vesting, significant progress has been made to build internal capability including the creation of a Project Management Office (PMO) and recruitment of project management professionals. However, there are

still a number of issues with the application of processes across the project life cycle.

235. In 2020 the GIAA provided ONR's PMO with a limited assurance rating and 13 recommendations for improvement which largely aligned to self-identified gaps. A follow-up review by GIAA in 2021 commented that good progress is being made, with ONR committing to address most recommendations by the end of the 2021/22 financial year.

236. The ONR benefits management process needs to be improved to enable benefits of projects to be better articulated in a way that can be measured to provide clear, objective evidence as to return on investment and contribution to Organisational Effectiveness Indicator (OEI) outcomes.

237. A review of several project mandates identified an inconsistent approach to articulating benefits at initiation with varying levels of detail and cost-benefit analysis. Furthermore, there is no options analysis of delivery methods or consideration of potential methods for monitoring and evaluation at the project mandate stage. Whilst full details of these should be included in business cases, it is important some consideration is given at the start of the process to create a culture where options are considered in the context of cost and benefits and ultimately efficiency.

238. **Recommendation 5:** To improve the efficiency and efficacy of change management and project delivery going forward, we recommend that ONR, by March 2023:

- updates the project mandate template to include a high-level initial analysis of alternative delivery options and articulation of monetised and non-monetised benefits, noting further detail to be included in business cases
- finalises and implements updates to benefits management processes, embedding them throughout the project lifecycle to drive positive behaviours and consistency

Upgrading IT systems

239. Like many comparable organisations, ONR is continuing to upgrade its IT and information systems. This includes targeted technology projects, upgrading core IT infrastructure and ensuring cyber resilience.

240. In its 2020/21 internal audit[73] the GIAA gave ONR limited assurance ratings[74] for IT projects identifying several known challenges around IT contract management, supplier delivery, and a need for better controls and stronger commercial management. Limited ratings were also given for cyber security governance and

73 Office for Nuclear Regulation, *Annual Report and Accounts 2020/21 HC 463*, 2021, p.55-56.

74 A 'Limited' assurance rating is defined by the GIAA as having 'significant weaknesses in the framework of governance, risk management and control such that it could be or could become inadequate and ineffective.

information governance, although in both instances it was noted that action plans are in place for improvements.

241. Recently ONR has significantly increased internal capability and resource recruiting appropriately skilled people including the appointment of a permanent CIO and a CISO as of the end of 2021, following on from temporary arrangements.

WIReD (Well Informed Regulatory Decisions)

242. WIReD is a major digital project that seeks to modernise and improve the systems ONR use to regulate. Its delivery is a named action in the *ONR 2021/22 Corporate Plan*[75] and it is essential to delivering 'Strategic Theme 4: Modernising how we work' under the *ONR Strategy 2020-25*.[76]

243. The new platform is wide ranging, with 15 capabilities that will modernise information and data flows, reduce and simplify processes, and ensure consistent approaches to recording, storing, and accessing regulatory information for all parts of ONR and duty holders.

244. The project has been in train for four years and has faced numerous issues related to project planning, governance, and skills that have led to an 18-month delivery delay to November 2022. In May 2021, the project was reset following an internal review and team

75 Office for Nuclear Regulation, *Corporate Plan 2021/22*, 2021.

76 Office for Nuclear Regulation, *Strategy 2020-25,* 2020.

restructure, including the appointment of a new project manager and senior responsible owner.

245. The project is now back on track with the core architecture for hosting processes built and data transfers in progress. At the time of the review three regulatory capabilities were live, with others due to follow in a phased approach.

246. Successful implementation is critical to the efficiency and effectiveness of ONR's future operations, enabling greater consistency, proportionality, and transparency of regulation. Progress is closely monitored by the Board and ONR's ARAC.

247. **Recommendation 9:** Building on the successful changes made following an internal project management focused review of WIReD, we recommend that a very brief initial ('fatal flaw') review be carried out by an external IT delivery specialist by September 2022. By April 2023 the same specialist should be invited to carry out a lessons learnt review. The terms of reference should be focussed on a high-level confirmation of key drivers such as go live, user testing and training procedures and be designed to confirm overall confidence on quality and value for money.

Digital and IT projects

248. ONR inherited several legacy processes and IT systems from HSE upon vesting and has taken several years to develop its own IT capability, formally separating its IT infrastructure from HSE in 2020.

249. Historically, issues have arisen with ONR's management of digital and IT projects, largely because of a skills shortfall and an overreliance on external consultancy resource. Internal audits regularly identify risks, which ONR is actively taking steps to mitigate. Whilst actions can take longer than expected to deliver, ONR appear to be on a stronger footing which we expect to be reflected in the timelines and success of future projects.

250. Through the WIReD project, ONR has developed skills and familiarity with Agile delivery and developed in-house technical skills including knowledge of Microsoft Power Apps which can be used for future projects.

251. Whilst ONR is not bound by *Government Design Principles*[77], the service manuals[78] developed by the Central Digital & Data Office provide a baseline of good practice to support the execution of digital transformation programmes.

252. **Suggestion 19:** In addition to using lessons learnt from the WIReD project we suggest ONR engages with these resources to sense check future projects. These documents have the added benefit of being accessible to technical and non-technical professionals, ensuring everyone involved in project delivery has the knowledge needed for success.

---

77 Central Digital and Data Office, *Government Design Principles*, 2019, https://www.gov.uk/guidance/government-design-principles, (accessed 18 January 2022).

78 Central Digital and Data Office, *Government Design Principles*, 2022, https://www.gov.uk/service-manual, (accessed 18 January 2022).

253. **Suggestion 20:** Both DWP and BEIS have significant IT resources and experience. ONR should ensure continued engagement with these to provide expert support as part of project development, ensuring the efficiency and efficacy of forthcoming IT projects.

Cyber

254. Like many other organisations ONR has several actions underway to improve and formalise their response to cyber security risks, which we support. Whilst the recently completed IT separation project has provided the foundation for a modern IT system and improved cyber resilience both internal audits[79] and ARAC[80] note that cybersecurity and related infrastructure remain a strategic risk.

255. The review team welcomes ONR's strong focus on ensuring systems continue to be robust and protected from cyber-attack, demonstrated by the *Corporate Security Strategy.*

256. ONR actively engages with relevant stakeholders including the National Cyber Security Centre and relevant government departments, providing assurance on corporate security protocols and management of risks in addition to gaining independent, authoritative advice on specific aspects of good practice. ONR is held accountable for progress against identified organisational risks by its ARAC.

---

79 Office for Nuclear Regulation, *Annual Report and Accounts 2020/21 HC 463*, 2021, p.55.

80 Office for Nuclear Regulation, *Annual Report and Accounts 2020/21 HC 463*, 2021, p.48.

257. To ensure effective regulation under the Security Assessment Principles (SyAPs), and high levels of security within industry, ONR actively works to understand cyber security vulnerabilities and how to mitigate them. It also supports the sector through several ONR-sponsored industry forums that encourage cyber/information security improvements by duty holders (such as those at EDF-NGL and Dounreay).[81]

258. ONR is held accountable by its Security Committee[82], which is responsible for providing independent assurance that ONR is providing efficient and effective security regulation of the nuclear industry. The Committee has recently been reinvigorated with proposals to increase the frequency of meetings from one to three a year, and the introduction of 'deep dive' agenda items on priority topics.

259. Attendees include the CNI and Deputy Chief Inspector for Civil Nuclear Security and Safeguards, in addition to representatives from BEIS, the Civil Nuclear Constabulary, the National Cyber Security Centre, MOD, and the Centre for the Protection of National Infrastructure who contribute expert perspectives on relevant issues.

81 Office for Nuclear Regulation, *Chief Nuclear Inspector's annual report on Great Britain's nuclear industry*, 2021.

82 Office for Nuclear Regulation, *Scheme of Delegation*, 2021, p. 14.

Stakeholder Engagement & Working with Others

260. ONR works with a diverse range of stakeholders from government departments and agencies to industry, other domestic and international regulators, non-governmental organisations (NGOs) and the public. These relationships and their interactions underpin the role ONR plays in delivering nuclear safety, security, and safeguards.

261. The *ONR Stakeholder Engagement Strategy 2020-25*[83] sets out five distinct goals for inspiring stakeholder confidence:

- collaborate with, and learn from, UK and international organisations and regulators to improve our work, the outcomes we influence and seek to ensure no unnecessary regulatory burden
- retain public trust by seeking to be an exemplar of transparency through activities such as local and national engagement, proactive publication of clear information and considering accessibility requirements from the outset
- engage industry bodies, supply chain and potential investors to promote consistent awareness and understanding of our enabling approach and regulatory innovation

83 Office for Nuclear Regulation, *Stakeholder Engagement Strategy 2020-25*, 2020.

- inform nuclear policy with the UK government at the earliest stages
- strengthen our relationships with academia to inform our capability, research, and decisions

Stakeholder Engagement Strategy

262. ONR's ability to successfully communicate and cascade information extensively to stakeholder groups in part relies on their online and digital channels including its website, newsletter, and social media. In 2020/21 ONR published 30 project assessment reports (PAR),[84] 92 site stakeholder group (SSG) reports[85] and 272 intervention records[86] on the website. The newsletter reached over 9,000 stakeholders, and their website was visited by more than 137,000 users across 178 countries.[87]

263. These updates inform stakeholders of ONR's activities, meeting stated objectives of being transparent and accessible and allowing stakeholders to understand its work.

264. Stakeholder engagement also extends to meetings and conferences which ONR attends and often hosts. These vary in frequency depending on purpose but include events such as annual industry conferences,

---

84 Project assessment reports outline ONR's regulatory decisions.

85 Site Stakeholder Group and Local Liaison Committee reports provide updates to the public on ONR's regulatory activities and inspections at individual sites. Reports are distributed to members of the groups and are also available on the ONR website.

86 Intervention records state inspector findings from site visits.

87 Office for Nuclear Regulation, *Stakeholder engagement*, https://www.onr.org.uk/stakeholders/, (accessed 18 January 2022).

an ONR-NGO Forum, the Chief Nuclear Inspector's Independent Advisory Panel, site specific stakeholder meetings, and focused webinars on priority topics. These provide the opportunity for a broad range of stakeholders to raise issues directly with ONR and its inspectors, as well as obtain relevant information, aimed at building trust between ONR and the wider public.

External Identity

265. Launched in 2017, ONR conducts an annual survey to monitor trends and patterns in stakeholder perceptions over time. The *2021 Stakeholder Survey*[88] reports a positive view of ONR as professional (93%), independent (88%), based on evidence (86%), and trusted (84%). All views that were reinforced during stakeholder interviews for this review.

266. Stakeholders did however identify concerns around how proportionate (67%), consistent (64%), and responsive to change (50%) ONR is. With only 38% agreeing ONR has efficient ways of working and a quarter (28%) agreeing that ONR promotes/ enables innovation. These perceptions have remained statistically similar over the past five years (within +/-7%) confirming ONR's position as a well-respected regulator, albeit with areas for improvement.

267. ONR is taking a number of actions to address these areas of concern, as set out in its *Stakeholder*

88 YouGov, *ONR Stakeholder Survey 2021, Report of findings,* 2021.

Engagement Strategy 2020-2025.[89] These include regular feedback discussions with duty holders to identify and understand issues, as well as actions to improve external communications to build greater awareness and trust. These actions include making more information available about its decision-making processes, describing the input it receives from expert groups and panels to inform its regulation, and growing its digital presence and accessibility to external audiences.

268. Whilst ONR's approach is wide reaching, it is important that all within the organisation see issues not only as perception issues but as behavioural issues too, proactively taking steps to embed a culture that is open and transparent. Nevertheless, despite the above concerns, we have concluded that ONR has a strong external identity and stakeholders are confident in the ability of ONR to effectively deliver its mission "to protect society by securing safe nuclear operations."[90]

Engaging NGOs and communities

269. ONR engages with NGOs, campaign groups and the public through events and community led discussions. Each major licensed nuclear site has a Local Liaison Committee (LLC), Local Community Liaison Councils (LCLC) or Site Stakeholder Group (SSG), supported by the licensee and the local community including local authorities, trade unions, interested local groups and members of the public. ONR issue regular site reports to

89 Office for Nuclear Regulation, *Stakeholder Engagement Strategy 2020-25*, 2020.

90 88% of responders felt confident in the ONR's ability to deliver its mission.

each group capturing updates on inspections, regulatory activities, and general ONR news.

270. In addition, ONR hosts the 'ONR NGO Forum', a meeting committed to discussing key matters related to ONR's regulation. The forum seeks to encourage transparency from ONR through engagement on a variety of topics, which are outlined in their Terms of Reference.[91] NGOs are also encouraged to challenge ONR, in the interest of facilitating open and inclusive dialogue, which serves to improve its regulatory and nuclear performance.

271. The forums are chaired jointly by a member of ONR's Senior Leadership Team and a representative from the NGO community, who agree topics pre-discussion and invite agenda items from NGO members. The minutes and agenda papers of the NGO Forum meetings are archived online and often convey a balanced and constructive dialogue between ONR and NGO groups, where concerns are acknowledged, and commitments made to improving.[92]

272. The primary concern reflected in conversations with NGOs is the independence of ONR in the face of government and industry pressures to support new nuclear.

273. **Suggestion 21:** As such, ONR should continue to share examples of when it has challenged government

---

91 Office for Nuclear Regulation, *Terms of Reference (July 2021) ONR NGO Forum*, 2021.

92 Office for Nuclear Regulation, *ONR-NGO Forum meetings*, https://www.onr.org.uk/events.htm, (accessed 18 January 2022).

and industry requests or has driven up safety standards at sites, particularly those under enhanced attention, as set out in ONR's *Corporate Plan* and the *Chief Nuclear Inspectors Annual Report.*

274. **Suggestion 22:** Sizewell C has faced strong opposition from NGOs and whilst the decision to fund the development rests with government, ONR will need to ensure open and clear communications around safety and delivery concerns, using the experiences from Hinkley Point C which this site seeks to replicate.

275. **Suggestion 23:** To increase NGO confidence in ONR as a champion of safe nuclear operations, ONR should enhance the type of information it already shares with NGOs. Providing further detail on the evidence underpinning decisions will support an improved understanding of how their safety and security concerns are being appropriately addressed. In addition, ONR should continue to engage in discussions around GDA and climate change, which are issues many NGOs are concerned about.

276. In terms of how information is shared, NGOs noted that engagement can function more as an 'information giving' exercise than a constructive discussion around issues and concerns. ONR has already committed to enhance its levels of two-way engagement[93] and will publish an *Openness and Transparency Framework* by March 2023, setting out its current approach for public disclosure and how it will enhance its approach in the

93 Office for Nuclear Regulation, *Stakeholder Engagement Strategy 2020-25*, 2020.

future in line with its *Strategy 2020-25* ambition to be more transparent and accessible.

277. We welcome these actions and encourage ONR to continue to develop its approach to NGO and community engagement, further creating space for interested parties to challenge regulators, and influence improvements to the UK and global nuclear safety landscape.

Working with industry

278. ONR utilises various channels to engage with industry. At a working level this includes routine inspections and meetings with duty holders and licensees. At a strategic level this includes engaging with industry through conferences, the Safety Director's Forum (SDF) and working groups that support the SDF. These provide effective communication on strategic regulatory issues and act as a tool for gathering regulatory intelligence and responding to industry views. ONR is also a signatory to the *Regulatory Nuclear Interface Protocol* (RNIP)[94] which encourages positive behaviours during engagements with duty holders.

279. Our interviews indicated that a large majority of industry found ONR to be an effective and competent organisation with whom they hold a positive relationship. It was also stated that recently there had been a noticeable improvement in ONR's outward-facing manner, with ONR showing greater willingness to be

94 Office for Nuclear Regulation, *Regulatory Nuclear Interface Protocol (RNIP)*,https://www.onr.org.uk/rnip/index.htm, (accessed 18 January 2022).

involved in early discussions around issues and new innovative solutions, and actively seeking feedback.

280. To address negative perception issues, ONR seeks to work collaboratively with duty holders both at working and senior levels. See the Regulatory Approach chapter for further discussion.

Working with government

Department for Work and Pensions (DWP) and Department for Business, Energy and Industrial Strategy (BEIS)

281. As discussed in the Form, Function, Vires chapter, sponsorship of ONR is managed by DWP. This ensures ONR has independence from BEIS who holds responsibility for the UK's nuclear policy and regulatory framework.

282. The Arm's Length Body Partnership Division is DWP's main point of contact for ONR and is responsible for oversight of ONR's performance and governance practices, ensuring ONR is appropriately aligned with government policies and priorities, and is effective in its role. The relationship between DWP and ONR is governed by a Framework Document,[95] which sets out the responsibilities and governance requirements of both parties.

95 Office for Nuclear Regulation, Department for Work & Pensions, *Framework Document Between Department for Work and Pensions and Office for Nuclear Regulation*, 2018.

283. BEIS' Nuclear Safety Resilience and Regulation Team is the primary BEIS contact for ONR, with a Sponsorship Team working closely to monitor progress and developments in civil nuclear safety, security and safeguards related policy areas.

284. The relationship between BEIS and DWP is governed by a Memorandum of Understanding (MoU) which sets out the responsibilities of each department in supporting ONR to deliver its work. This agreement is jointly reviewed every three years, with the next review expected to begin in 2022. The MoU is viewed as comprehensive supporting both departments in meeting their obligations, with relations cemented through regular contact between relevant departmental leads.

285. Whilst ONR has regular engagement with each department on specific issues, formal engagement is managed through Quarterly Accountability Review (QAR) meetings. These meetings enable BEIS and DWP to scrutinise and discuss ONR's strategic and operational delivery and performance. These engagements are generally viewed as positive with any concerns being related to specific situations where ONR and officials have not worked effectively to achieve outcomes. Most recently these have related to issues with funding.

286. The departments and ONR have shown a willingness to learn from these situations and should continue to be open with each other about how ways of working can be improved, continuously improving the efficiency of interactions for all parties.

Ministry of Defence (MOD) and the Defence Nuclear Safety Regulator (DNSR)

287. ONR regulates nuclear safety at sites operated wholly or mainly for defence purposes, and that fall within ONR's statutory vires as defined by Parliament in *TEA13*. Where the MOD has disapplications, exemptions, or derogations from law due to its unique focus, it maintains arrangements which produce outcomes that are, so far as reasonably practicable, at least as good as those required by UK legislation. These arrangements are regulated by the Defence Nuclear Safety Regulator (DNSR). The MOD is also responsible for regulating security at all defence nuclear sites.

288. MOD works predominantly, but not exclusively, with ONR's Operating Facilities Division. The relationship and division of regulatory responsibilities between MOD and ONR is set out in a General Agreement.[96] This is underpinned by a letter of understanding between DNSR and ONR, which provides further clarity on working-level relationships between both parties, describing intervention plans, strategies and liaison arrangements to achieve ''coherent, complete and seamless regulation''.[97]

289. Whilst we have found that the experiences of the ONR and Defence regulators working together at a site

---

96 Ministry of Defence, Office for Nuclear Regulation*, General Agreement between Ministry of Defence and Office for Nuclear Regulation for Regulation of the Defence Nuclear Programme,* 2015.

97 Ministry of Defence, Office for Nuclear Regulation, *Letter of Understanding between the Office for Nuclear Regulation and the Defence Nuclear Safety Regulator setting out their intentions for coherent, complete and seamless regulation of the Defence Nuclear Programme,* 2015.

level have been, and continue to be, positive the launch of a review of vires in late 2018 did result in some friction between MOD and ONR at the strategic level.[98] Both organisations have acknowledged this and over the last few months have worked hard to learn from this and improve strategic engagement. The benefits of this are already being seen, for example, from March 2022, MOD will also be attending the QAR meetings alongside BEIS and DWP.

290. **Suggestion 24:** With a much stronger relationship in place and agreement to update the *MOD/ONR General Agreement*, ONR should prioritise the detailed implementation of any subsequent changes to provide certainty on any new working level processes (including to duty holders) within 12 months of the revised MoU being issued.

Other Departments

291. In delivering its purposes under *TEA13*, ONR additionally engages with a range of other government departments including the Department for Health and Social Care (DHSC) and the Department for Transport (DfT).

292. This review has not identified any specific concerns with these relationships.

98 Details of what the vires review included can be found in Office for Nuclear Regulation, *Minutes of the Board 4 June 2019*, 2019.

Working with Devolved Administrations

293. ONR also works well with Scottish and Welsh governments, engaging on matters concerning their respective nuclear sites and supporting their regulators, Scottish Environmental Protection Agency (SEPA) and Natural Resources Wales (NRW), in delivering effective and efficient regulation.

294. Officials from the Resilience Division within the Scottish Government commented that ONR is very open to, and informative on, Scottish interests, which speaks to its professional relationship.

295. Officials from the Radioactivity Policy team within the Welsh Government were equally positive citing examples of ONR's professionalism, expertise, and collaborative attitude, which has meant Welsh officials are engaged early and effectively ensuring devolved matters are captured accurately.

296. The review has not identified any issues with regard to ONR's engagement with Devolved Administrations.

Working with other UK regulators and agencies

297. ONR has a strong track record of working with other regulators domestically. This includes for example active membership of the industry-wide UK Health and Safety Regulators' Network. These engagements allow ONR to

collaborate with other regulators from various industries, both influencing and learning to inform their policy and regulatory activities.

298. In delivering regulation, ONR frequently interacts with the EA, HSE, SEPA, NRW, DNSR, Public Health England (PHE), and the Nuclear Decommissioning Authority (NDA).

299. Generally, these relationships are highly efficient, and organisations work together to maximise regulatory clarity and effectiveness for duty holders, avoiding duplication. We received very positive comments from other regulators, particularly the EA, about the technical strength and professionalism of ONR.

300. *TEA13*[99] had previously outlined a cooperation between ONR and HSE, in the form of a reciprocal Board membership arrangement, that stipulated the exchange of information between both parties. Further to a recommendation from the *HSE Tailored Review Report 2018*[100], it was agreed that the communication channels were so well established between both parties that HSE were content to suspend this arrangement.

301. The interviews provided a great deal of insight into the relationships between ONR and other regulators and the impacts they had on duty holders. The multi-regulator system is generally seen as a strength, creating a robust regulatory landscape where each regulator can focus on

---

99 *The Energy Act 2013*, Part 3, Section 96.

100 Department for Work & Pensions, *Tailored Review of the Health and Safety Executive*, 2018.

what it does best, whilst ensuring the effective application of the wide range of relevant regulations at a site level.

302. An example of effective co-working is the Generic Design Assessment process, which is a joint undertaking by ONR and EA. Interviewees also commented on the success of groups such as the Sellafield G6, which brings together all relevant regulators to tackle key cross-cutting issues on site in a more consistent and efficient way.

303. However, there is a need to continue to focus on joined up working between regulators, ensuring the needs and requirements of independent regulatory bodies is balanced.

International Engagement & Co-operation

304. ONR's reputation for international engagement and co-operation is positive, with stakeholders praising the professional and authoritative presence of representatives who are driving forward the UK's nuclear priorities and improving the effectiveness of nuclear regulation under the purposes defined in *TEA13*.

305. The remit for ONR's international work is set out in the *Strategic Framework for International Engagement 2025 ('SFIE')*.[101] The purpose of ONR's international work is to influence the development of international standards and guidance for safety, security and safeguards that directly inform the UK regulatory system to:

- promote and sustain high standards
- enhance its reputation as a world-leading regulator
- collaborate and learn from others
- support other countries to reach for the same high standards in nuclear safety, security, and safeguards

This is reinforced by its work with a range of international organisations to influence and inform how nuclear sectors are regulated both in the UK and abroad.

101 Office for Nuclear Regulation, *Strategic Framework for International Engagement To 2025*, 2021.

306. The *2019 OECD Review of International Regulatory Cooperation of the United Kingdom*[102] praised the *SFIE* as an example of positive international regulatory co-operation strategy that is well adapted to the global context, which this review agrees with.

307. ONR's international work can be categorised into the three categories:

- IAEA and international conventions
- multilateral engagements
- bilateral engagements

IAEA and international conventions

308. The UK is bound by various international treaties and conventions which place legally binding obligations on the UK to demonstrate compliance. These include the *Convention on Nuclear Safety, Joint Convention on Safety of Spent Fuel and Safety of Radioactive Waste (JOC),* and *Convention on the Physical Protection of Nuclear Material*. ONR participates in these conventions at the request of the UK government (BEIS).

309. On behalf of the UK, ONR provides relevant technical expertise and resource to enable international cooperation, industry compliance, and ensure effective accountability, giving other Contracting Parties confidence that the UK is meeting its obligations.

---

102 Organisation for Economic Co-operation and Development, *Review of International Regulatory Co-operation of the United Kingdom*, 2020.

Multilateral engagements

310. ONR engages with a range of international organisations including the IAEA, NEA, Euratom and key regulator groups[103] to promote good practice and influence global standards for nuclear safety, security, and safeguards. Representation and engagement provide ONR with the opportunity to receive valuable insights that inform the effectiveness and efficiency of UK regulation.

311. In particular, ONR collaborated successfully with the *IAEA Integrated Regulatory Review Service (IRRS) Mission to The United Kingdom*, an independent team of experts, who led a mission to review the UK's nuclear and radiological safety framework.[104] The review took place in October 2019 and identified 24 recommendations and 19 suggestions across the UK's 16 regulatory bodies and government departments to help further strengthen the UK's nuclear and radiological and safety framework. It also highlighted two Good Practices, both in relation to ONR. ONR has taken this review and the 11 recommendations and suggestions applicable into consideration during its business planning and strategy.

312. In addition, on behalf of the UK, ONR contributes successfully to the development of international standards and guidance, influencing strategic direction

---

103 Such as WENRA (Western European Regulations Association), ENSRA (European Nuclear Security Regulators Association), ESARDA (European Safeguards Research and Development), ENSREG (European Nuclear Safety Regulators Group).

104 IAEA Integrated Regulatory Review Service, *Report of the Integrated Regulatory Review Service (IRRS) Mission to The United Kingdom of Great Britain and Northern Ireland*, 2020.

through the promotion of UK good practice and ensuring negotiations consider the UK context. For example, as part of the IAEA's Small Modular Reactor Regulators' Forum.

Bilateral Engagements

313. With the aim of reducing regulatory burdens and improving effectiveness, ONR proactively engages with other countries and nuclear authorities on a bilateral basis to:

- co-ordinate positions
- benchmark approaches
- exchange regulatory and technical information, experience, and expertise
- harmonise regulatory approaches to new nuclear technology

We noted several success stories including co-operation with Canadian, French, and Japanese regulatory authorities to improve inspection practices.

314. In addition to engagements focused on improving regulatory outcomes, ONR helps to improve international understanding of UK regulation and standards.

315. In the *Nuclear Sector Deal,*[105] industry and government committed to maximising benefits of the UK

105 Department for Business, Energy & Industrial Strategy, *Nuclear Sector Deal,* 2018.

nuclear sector both domestically and internationally. ONR engages in this agenda by:

- growing its capacity and capability to be ready to regulate new technologies
- supporting interested parties in understanding the UK regulatory framework
- exporting regulatory expertise and experience to support aspirant nuclear nations (e.g., providing experts for IRRS missions)
- representing the UK in global dialogues around nuclear

Governance

316. Corporate oversight of ONR's international workstreams is managed by its International Steering Group (ISG), co-chaired by the Technical and Policy and Communications directors. The ISG sets the strategic direction for all international engagements, with the directors accountable to the Senior Leadership Team and Board.

317. Generally meeting every six weeks, the ISG monitors and facilitates progress against the Strategic Framework, measuring the effectiveness and continued alignment to ONR's *Strategy 2020-25*.[106]

318. We note that ONR have a well-established cost justification process for all international travel and

106 Office for Nuclear Regulation, *Strategy 2020-25*, 2020, p. 18-19.

subsistence, which is continually refined to ensure value for money and reconciliation against the budget. However, ONR does acknowledge a lack of clear data measuring the impact of international activities for the costs incurred. A point which was also reflected in stakeholder interviews.

319. Ensuring the efficiency and effectiveness of spend is an important aspect of value for money, providing challenge that ONR is spending well and spending wisely.[107]

320. ONR already share information with BEIS, on whose behalf it often engages and collaborates well with, however it could be improved to include more detailed articulation of outputs and outcomes, and cost-benefits analysis.

321. **Suggestion 25:** ONR already creates quarterly internal reports which we suggest are shared with BEIS, as appropriate. This will further support informed decisions about how ONR engages internationally and enable BEIS to better understand the value add of different activities, and where they can work with ONR to make efficiencies whilst maximising impact.

107 National Audit Office, *Successful Commissioning Toolkit, Assessing value for money,* https://www.nao.org.uk/successful-commissioning/general-principles/value-for-money/assessing-value-for-money/, (accessed 09 March 2022).

Regulatory Approach

Regulatory Performance

322. The ONR has recorded zero fatalities due to nuclear incidents in the UK, either at licensed sites (including fatalities during operation, construction, decommissioning) or because of any incidents affecting local populations. In terms of nuclear safety incidents, between April 2015[108] and September 2021[109] there have been no serious incidents (INES rating 3) or higher-rated INES events[110] in the UK, and over the past six years only seven incidents (INES rating 2) have been recorded. The number of incidents reported remains consistent year to year.

323. The robust regulatory performance of ONR in preventing any serious nuclear incidents was confirmed during stakeholder interviews, where it was noted that ONR is effective at securing the protection of people and society from the hazards of the nuclear industry.

---

108 Office for Nuclear Regulation, *Nuclear Safety and Radiological Safety Events Reported to ONR April 2015 to December 2017*, 2019.

109 Office for Nuclear Regulation*, Quarterly statement of civil incidents reported to ONR*, https://www.onr.org.uk/quarterly-stat/2021-3.htm, accessed 26 January 2022.

110 The IAEA's International Nuclear and Radiological Event Scale (INES) denotes the severity of nuclear incidents from 0 (Deviation Below scale – no safety significance) to 7 (Major Accident such as Fukushima, Chernobyl) – International Atomic Energy Agency, *International Nuclear and Radiological Event Scale (INES),* https://www.iaea.org/resources/databases/international-nuclear-and-radiological-event-scale, accessed 26 January 2022.

324. Strong recent examples of work by ONR to drive up the quality of regulatory outcomes are detailed in the *CNI Annual Report 2021*.[111]

325. In maintaining the UK's nuclear safety, nuclear security, and conventional health and safety records, ONR works closely and proactively with industry to drive up standards and avoid issues of noncompliance arising. Where such issues do occur, ONR has employed its *Enforcement Management Model (EMM)* to hold duty holders appropriately, and proportionally, to account and secure compliance.

326. In 2020/21, this included the issuing of six Improvement Notices, two Prosecutions (both resulting in guilty pleas), three Directions and 42 Enforcement Letters out of 857 inspections. ONR used these interventions to not only address issues of immediate regulatory concern but also support an improvement of overall performance by duty holders.

327. ONR is taking steps to enhance its Regulatory Intelligence using modern tools for deep data analysis, including the automation of manual search operations and application of algorithms to extract useful information (e.g., safety trends, recurring inspection observations, similar regulatory issues etc.) to obtain more meaningful insights.

328. Additionally, ONR continues to successfully perform across its integrated functions. For example,

---

111 Office for Nuclear Regulation, *Chief Nuclear Inspector's annual report on Great Britain's nuclear industry*, 2021, p. 39.

it worked collaboratively with local authorities on the implementation of the *Radiation (Emergency Preparedness and Public Information) Regulations 2019*,[112] using its enabling approach to support full duty holder compliance by legislative deadlines.

ONR's approach to regulation

329. ONR adopts an enabling approach to regulation across its five purposes, which include a mixture of rules-based and principles-based regulation.

330. Adopting an outcome focused approach allows greater flexibility and innovation, whilst securing effective and robust civil nuclear safety and security in harmony with the processes of individual businesses and situation specific requirements.

331. The concept underpinning ONR's non-prescriptive goal setting approach to nuclear regulation is a risk informed framework that demonstrates risks are reduced ''So Far As Is Reasonably Practicable" (SFAIRP), in line with legal requirements, expressed in terms of reducing risks to "As Low As Reasonably Practicable" (ALARP) in ONR guidance. This means for a measure not to be implemented it would be grossly disproportionate to reduce risks further (though noting that there are still

112 REPPIR19 transferred the legal requirement for the determination of detailed emergency planning zones from ONR to the local authority responsible for the off-site nuclear emergency arrangements for each nuclear licensed site. This means the ONR no longer make determinations, although they remain responsible for their regulation.

absolute limits for radiological protection in line with international standards).[113]

332. Inspectors guide their regulatory judgement using explicitly defined standards specified by Acts, Regulations, Orders and Approved Codes of Practice (ACoPs) where they exist. Where such standards are not applicable, ONR uses established standards to demonstrate legal compliance. Where a range of standards are relevant, the standard used is that which best aligns to the unique circumstances of each regulatory ask, varying across ONR's purposes and measures of compliance (e.g., site inspections, safety cases required under Licence Condition 23[114], health and safety risk assessments, security plans, etc.). [115]

333. Established standards include Safety Assessment Principles (SAPs)[116] and Security Assessment Principles (SyAPs)[117] together with supporting Technical Inspection Guides (TIGs)[118] and Technical Assessment Guides (TAGs)[119], which are produced internally by ONR, and

---

113 Office for Nuclear Regulation, *Guidance on the Demonstration of ALARP (As Low As Reasonably Practicable),* 2020.

114 Office for Nuclear Regulation, *LC 23: Operating Rules*, 2021.

115 Office for Nuclear Regulation, *Enforcement,* 2021.

116 *SAPs* provide inspectors with a framework for making consistent regulatory judgements on the safety of activities, guiding regulatory decision making in the nuclear permissioning process.

117 *SyAPs* guide regulatory judgements and recommendations when undertaking assessments of duty holders' security submissions, such as site security plans and transport security statements.

118 *TIGs* facilitate a consistent approach to ONR's site Licence Condition compliance inspection by providing guidance to inspectors on what licensee's arrangements should include to meet the requirements of the Licence Conditions.

119 *TAGs* provide guidance to ONR inspectors on the interpretation and application of the *SAPs* and *SyAPs.* However, some also contain guidance relevant to principles underlining the enforcement of licence condition compliance.

capture established Relevant Good Practice (RGP).[120] These are used by inspectors to guide regulatory judgements and recommendations when undertaking assessments of duty holder regulatory submissions.

334. Additionally, established standards and examples of RGP draw from external sources such as national and international standard-setting bodies, industry bodies and professional institutes (such as the SDF). Guidance is benchmarked against IAEA's international standards. The extent to which ONR practices meet IAEA requirements is periodically reviewed by an IAEA-led team of experts.

335. ONR's enabling approach to regulation sees it work constructively with duty holders to ensure delivery against identified outcomes, with formal and informal engagements in place to promote early and open conversations around priorities, advice and ultimately compliance.

336. This approach is highly regarded domestically and internationally, with clear examples of success that reinforce its efficacy and efficiency in ensuring ONR meet its purposes defined under *TEA13*. For example, extensive progress has been made in recent years to reduce hazards and risks at Sellafield through more innovative and strategic approaches to challenges at the site, which has accelerated the remediation of its legacy facilities.

120 *RGPs* are standards for controlling risk which have been judged and recognised by as satisfying the law when applied to a particular relevant case in an appropriate manner.

337. In addition, the flexibility of this approach enables ONR to be more efficient in adapting to new demands, such as the regulation of Advanced Nuclear Technologies (ANTs), within existing regulatory frameworks.

338. By providing a stable, technology neutral framework, that does not seek to prescribe design solutions, industry is able to realise the value of new technologies or novel approaches, whilst ONR is still able to ensure safety and security standards. Whilst this does not negate the need for specialist expertise within the regulator to deal with these new demands, it could reduce the initial costs and timelines for implementation. This is particularly relevant given UK ambitions for Small Modular Reactors (SMRs), Advanced Modular Reactors (AMRs) and a Geological Disposal Facility (GDF).

Consistency and proportionality

339. Annual stakeholder surveys indicate concerns around the consistency and proportionality of regulation. In 2021[121] 64% and 67% of stakeholders agreed that ONR operates in a way that is 'consistent' or 'proportionate' respectively. In interviews stakeholders commented that the autonomy of inspectors, combined with an organisational, but also individual, cautious approach to risk, can lead to differences in how compliance is monitored and enforced. Examples were given of similar issues on the same site receiving

121 YouGov, *ONR Stakeholder Survey 2021, Report of findings,* 2021.

different advice, and conflicts between advice on issues that cut across different purposes.

340. Whilst specific examples of this behaviour were not widespread, general comments regarding inconsistency and disproportionality were heard in a significant number of interviews. This has, on occasion, reduced stakeholder confidence that frontline interactions will reflect the strategic objectives of ONR and not instead be based on the attitudes and experiences of individual inspectors.

341. Addressing duty holder concerns around consistency and proportionality, whether actual or perceived, is important as it affects ONR's ability to regulate effectively. Consistency and proportionality ensure that ONR's enabling approach has the required level of trust and predictability between inspectors and duty holders around how a principle will be applied in a given situation. It is also important to ensuring all duty holders are meeting the appropriate standards of safety and security, in a cost-effective way. (See Value for Money chapter).

342. ONR works collaboratively with duty holders to ensure proportionality in its judgements, favouring informal resolution of issues at the point/time at which they arise. ONR also utilise technical peer reviews, reviews by professional specialism leads, and (in some challenging and/or complex regulatory cases) regulatory oversight reviews for additional assurance of proportionality, where required.

343. ONR recognises a particular proportionality issue associated with newer inspectors sometimes approaching ONR guidance as akin to a checklist, rather than a set of principles to be applied to the unique circumstance. To address this ONR has enhanced initial inspector training to emphasise the role of providing advice, not just regulation, to duty holders with junior inspectors working alongside more experienced staff for supervision and mentorship.

344. In its *Strategy 2020-25,* ONR has set out a strong commitment to improve the consistency and proportionality of its regulation, noting a specific commitment to support inspectors (of all levels of experience) to work in a more joined-up way across all its functions and regulatory purposes.[122]

345. We welcome ONR's existing actions such as development of new guidance and training on SFAIRP/ ALARP, new tools such as WIReD and the NIM3.

346. **Recommendation 1:** we recommend ONR consider how to addresses concerns around consistency and proportionality in three ways:

- ensure a culture of constructive challenge by addressing real and perceived issues around power dynamics between inspectors and duty holders, and organisational hierarchy and decision making (see para 350)

122 Office for Nuclear Regulation, *Strategy 2020-25*, 2020, p.21.

- review assurance processes to ensure they are robust in resolving consistency issues
- improve the presentation of case studies and guidance to inform how regulation works in practice and ONR's role in realising outcomes and success

347. ONR is currently completing its annual stakeholder survey which will be considered by the Board shortly, to understand where stakeholder concerns persist.

348. **Recommendation 2:** Using these insights we recommend the Executive Director of Operations presents to the ONR Board and relevant government departments, by December 2022, on how ONR is ensuring significant improvements in consistency, proportionality, and value for money, across regulatory purposes. Assurance should be provided that planned work is sufficient to drive at least a 10 percentage point increase in stakeholder survey consistency and proportionality ratings by 2025 in line with ONR's *Stakeholder Engagement Strategy 2020-25*[123] commitments.

Environment of Constructive Challenge

349. ONR's regime requires inspectors to exercise a significant amount of judgement and have a good level of understanding of the regulations and wider good practice. They should also have an understanding of the duty holder and their reasons for identifying a particular approach to compliance. This naturally leads

123 Office for Nuclear Regulation, *Stakeholder Engagement Strategy 2020-25*, 2020.

to differences in opinion which should be fostered as a check against ‘groupthink’ and as a driver of challenge. But, as noted above, this needs to be balanced against the risk of inconsistency. In addition, ONR divisional directors regularly meet with senior members of duty holder organisations, actively seeking feedback on their regulatory approach, specifically any examples of issues with consistency and proportionality.

350. **Recommendation 1 (specific action):** Attention should be given to how inspectors engage with duty holders to ensure that the power dynamics between parties do not act as a barrier to open conversations around compliance at all levels, allowing an environment of challenge. In addition, ONR should continue to prioritise actions that address real and perceived issues around hierarchy and decision making. Much of ONR’s governance is built around hierarchy which can lead to more junior staff or subject matter experts feeling less confident raising challenge and feedback to seniors, especially if they feel there is less trust in their capability because of their position within the organisation.

351. In fostering a more inclusive and open culture, ONR is rightly focusing on human factors and behaviour change, noting that these are not issues that can be solved through the adoption of a new process but are about self-awareness and a greater understanding of unintended consequences.

Assurance Processes

352. ONR has taken steps to ensure processes are in place to monitor decisions, ensuring consistency in approach if not specifics. This includes:

- a three-tier *Integrated Audit and Assurance Framework* which drives internal regulatory feedback
- improvements to regulatory intelligence processes including the development of WIReD
- joint planning across statutory purposes
- extensive and continuous training for inspectors to empower them to make knowledgeable judgements and avoid subjectivity in decision making
- inspectors undergoing a re-warranting exercise every five years to refresh and reinforce their understanding of their obligations

These are all positive actions which have evolved based on need and feedback from stakeholders.

Case Studies and Guidance

353. Whilst it is important not to overly codify processes in a principles-based regime it is important to ensure parties understand what is expected of them. ONR acknowledges this and makes a range of resources, such as guidance and case studies, available to inspectors and duty holders via its website and publications including the *Chief Nuclear Inspector's annual report on*

Great Britain's nuclear industry and targeted reports such as *Approach to Regulating Innovation.*

354. We consider this to be a proportionate action that maintains inspector autonomy and responsibility of duty holders to tailor solutions to their site, whilst also providing further instruction on what can and cannot be done. We note however that accessibility can be an issue for those unfamiliar with ONR's existing document suite.

Compliance and enforcement processes

355. In line with its enabling approach ONR uses a range of enforcement mechanisms, which enable a proportionate response based on an assessment of the risk considering actual or potential consequences of the non-compliance. This includes informal methods such as giving advice (either in person or in written communication) and formal methods such as Enforcement Letters, Directions, Improvement Notices, and Prosecution. The associated processes are described in the *Enforcement Management Model (EMM)*[124] and the *Enforcement Policy Statement (EPS).*[125]

356. This approach to enforcement requires a sophisticated dialogue between inspectors and duty holders, who must work together to identify and address issues at the appropriate level.

---

124 Office for Nuclear Regulation, *Enforcement*, 2021.

125 Office for Nuclear Regulation, *ONR Enforcement Policy Statement*, 2020.

357. ONR's approach favours informal resolution of issues, encouraging a closer working relationship based on trust, in which duty holders feel they can be open and honest with the regulator about issues. This means exploring solutions without the immediate threat of formal enforcement.

358. Any disagreements between inspectors and duty holders are mostly resolved at inspector-level and at the point at which they occur, with appropriate checks and balances to ensure day-to-day accountability and escalation routes up to the CNI if necessary. Much of the advice given is informal/verbal so it must be recorded accurately to gain benefit from sharing with both the wider ONR and its external regulatory partners.

359. ONR publishes regulatory reports and intervention records on its website, aiding transparency and openness, and helping stakeholders to understand actions. However, we have noted that there is inconsistency in how information is reported making it difficult to track action taken and get a clear picture of ONR's approach to certain issues. For example, the improvement notice[126], notice extension[127], and compliance confirmation[128] for an incident at Heysham 2 in April 2020 are all stored in different places on ONR's

126 Office for Nuclear Regulation, *Improvement Notice served on Heysham 2 Power Station,* 2020, https://news.onr.org.uk/2020/09/improvement-notice-served-on-heysham-2-power-station/, (accessed 18 January 2022).

127 Office for Nuclear Regulation, *Improvement Notice extended, 2021,* https://news.onr.org.uk/2021/05/improvement-notice-extended/, (accessed 18 January 2022).

128 Office for Nuclear Regulation, *Licence Condition 24 and 26 compliance inspection,* 2021. https://www.onr.org.uk/intervention-records/2122/heysham-2-21-047.htm, (accessed 18 January 2022).

website, with the Enforcement Action log only showing one of these stages.

360. Whilst the *Chief Nuclear Inspector's annual report on Great Britain's nuclear indusrty* provides a helpful summary of actions across sites each year, it can be difficult to interrogate the detail. The planned development of a new website by 2024 will provide an opportunity for ONR to improve how regulatory information is organised and presented.

361. The implementation of WIReD will improve regulatory processes, as well as other services such as online, real-time project and portfolio information, to help monitor and report change activity more effectively. This should see the implementation of the necessary changes required to increase consistency across inspectors and their assessments, as well as the digital recording and sharing of all findings.

The Regulators' Code

362. *The Regulators' Code*[129] came into statutory effect on 6 April 2014 under the *Legislative and Regulatory Reform Act 2006* and provides a clear, flexible, and principles-based framework for how regulators should engage with those they regulate.

363. The code aims to support a positive shift in how regulation is delivered by setting clear expectations

129 Better Regulation Delivery Office, *Regulators' Code*, 2014.

and open communication, giving duty holders greater confidence to operate, invest, and grow.

364. The code states that regulators, like ONR, should:

- carry out their activities in a way that supports those they regulate to comply and grow
- provide simple and straightforward ways to engage with those they regulate and hear their views
- base their regulatory activities on risk
- share information about compliance and risk
- ensure clear information, guidance and advice is available to help those they regulate meet their responsibilities to comply
- ensure that their approach to their regulatory activities is transparent

365. ONR regularly[130] undertakes self-assessments against these six themes drawing out areas of best practice and improvement, as well as detailing actions to improve performance against requirements. These are made publicly available via ONR's website.

366. In the latest report[131] ONR noted outstanding actions under the sixth theme, including publishing a clear set of service standards and framework for measuring performance against such standards. Steps are already being taken to progress these and ONR

130 The ONR has undertaken three self-assessments against the Regulators Code to date (2015, 2017, and 2020).

131 Office for Nuclear Regulation, *Regulators' Code Self-Assessment 2020*, 2020.

expects to comply by utilising its new Organisational Effectiveness Indicators and publishing its new service standards by Spring 2022.

367. Considering the actions already in train we make no recommendations in relation to the *Regulators' Code*.

Approach to public consultations

368. ONR is not required by legislation to consult on its regulatory decisions and guidance, however up to December 2021 it has run ten public consultations[132] – seven related to regulation and three to strategy.

369. The *2019 IRRS Mission Report*[133] and ONR's *2020 Regulators' Code Self-Assessment*[134] both note public consultations as an area for improvement. In response, ONR has committed to addressing the IRRS recommendation to establish provisions for interested parties and the public to be appropriately consulted in its process for making significant regulatory decisions, establishing regulatory guidance or when updating licence conditions, aligned to Cabinet Office public consultation principles where appropriate. This will be reflected in the upcoming *Openness and Transparency Framework* due for publication by March 2023.

---

132 Office for Nuclear Regulation, Public consultations and discussions, https://www.onr.org.uk/consultations/, (accessed 09 March 2022).

133 IAEA Integrated Regulatory Review Service, *Report of the Integrated Regulatory Review Service (IRRS) Mission to The United Kingdom of Great Britain and Northern Ireland*, 2020, p. 42.

134 Office for Nuclear Regulation, Regulators' Code Self-Assessment 2020, 2020, p. 42.

Better Regulation

370. In 2021, BEIS published a consultation on *Reforming the Framework for Better Regulation*, with the aim to redesign the UK's approach to regulation following the UK's exit from the EU. The consultation outlined proposals to ensure regulation prioritises innovation, growth, and inward investment.[135] Proposals included:

- the adoption of a less-codified, common law approach to regulation
- a review of the role of regulators, especially around competition and innovation
- delegation of more discretion to regulators to achieve regulatory objectives in a more agile and flexible way counterbalanced by increased accountability and scrutiny
- streamlining the process of assessment of impacts
- moving to earlier scrutiny of impact assessments and evaluation of existing regulation
- consideration of options on measuring the impact of regulation
- re-introduction of regulatory offsetting
- baselining the UK's regulatory burden

371. ONR is already largely in line with proposals particularly in reducing reliance on legislation whilst

135 Department for Business, Energy & Industrial Strategy, *Reforming the Framework for Better Regulation, A consultation,* 2021.

maintaining quality outcomes and promoting innovation and growth. In addition, ONR is actively improving regulatory efficiency through digital means such as WIReD.

372. **Suggestion 26:** ONR should continue to engage in the Better Regulation agenda, continually improving its processes and showcasing what good practice looks like as an example to other regulators.

Enabling Innovation & Future Nuclear Developments

373. Building on the recent *Energy White Paper*[136] and *Ten Point Plan for a Green Industrial Revolution*[137] the *UK Net Zero Strategy*[138] sets out government's vision for new nuclear, including the role existing technologies and new ANTs[139] will play in reaching net-zero carbon emissions by 2050.

374. As a regulator ONR has an important role in minimising regulatory uncertainty and burden around innovation. Enabling industry and government to create and sustain the conditions where innovation can flourish.

Approach to regulating innovation

375. Outlined in its 2020 *Approach to Regulating Innovation*[140] publication ONR identifies several actions it will take to promote greater innovation. Setting out a Plan for Innovation to help enable ambitions of the *Nuclear*

136 Department for Business, Energy & Industrial Strategy, *Energy white paper: Powering our net zero future*, 2020.

137 Department for Business, Energy & Industrial Strategy, *The ten point plan for a green industrial revolution*, 2020.

138 Department for Business, Energy & Industrial Strategy, *Net Zero Strategy: Build Back Greener*, 2021.

139 *Advanced Nuclear Technologies,* 2021, https://www.gov.uk/government/publications/advanced-nuclear-technologies/advanced-nuclear-technologies, (accessed 18 January 2022).

140 Office for Nuclear Regulation, *Approach to regulating innovation*, 2020.

Sector Deal[141] and meet challenges set out in *Regulation for the Fourth Industrial Revolution*.[142] These include:

- ensuring the regulatory system is flexible and outcome-focused
- enabling greater experimentation, testing, and trialling of innovations under regulatory supervision
- supporting innovators to navigate the regulatory landscape and comply with regulation

376. ONR has made strong progress against these actions implementing programmes to:

- develop ONR's capability and capacity to regulate SMRs and AMRs
- review ONR's guidance and processes, including the GDA, to ensure they are fully compatible with the regulation of ANTs
- advise BEIS on its AMR feasibility and development programme
- improve engagement with stakeholders internationally to drive forward coordinated approaches to novel technologies/processes including SMRs

377. ONR has also enhanced expertise within the New Reactors division by appointing a Head of Advanced Nuclear Technologies and Innovation in 2021.

---

141 Department for Business, Energy & Industrial Strategy, *Nuclear Sector Deal, 2018.*

142 Department for Business, Energy & Industrial Strategy, *Regulation for the Fourth Industrial Revolution, 2019.*

378. ONR has committed to the creation of an Innovation Hub to unlock internal and external opportunities for innovation as part of a renewed ‘Approach to Innovation’ workstream. This is an important step in translating actions into results.

379. The intention is to make it easier for ONR to generate, centralise, and promote regulation for innovation internally, ensuring lessons learnt are shared across divisions as well as making it easier for innovators to access ONR expertise, increasing understanding of regulatory challenges that solutions can address.

380. **Recommendation 11:** The realisation of ONR’s planned Innovation Hub is critical to unlocking internal and external opportunities for innovation and should continue to be prioritised for launch by March 2023. This could build on models used by other regulators such as Ofgem’s ‘fast, frank, feedback’ and the Civil Aviation Authority’s ‘sandbox’, to create an environment where innovation can flourish in line with ONR’s principles and the needs of the nuclear industry.

Fostering a culture of innovation

381. As detailed in the Regulatory Approach chapter, the principles-based system is appropriate for the formulation and execution of innovative approaches. Speaking to stakeholders, the review team have been given many examples of a thorough approach to handling of the inherent risks of innovation in the nuclear industry.

382. **Suggestion 27**: Whilst this cautious approach is appropriate, ONR should continue to be receptive to ideas that could generate a "high degree of reward and value for money"[143], in line with Treasury risk appetite definitions.

383. Though some stakeholders noted that, at times, ONR's approach to risk management could stifle innovation, others highlighted that work done in altering the approach at Sellafield, through the G6 group, proved that balancing robust risk management whilst enabling innovation was possible. Collaborative approaches taken by ONR, and duty holders have led to a number of successes and proves the capability of both parties to work together successfully to foster innovation, while still ensuring the high standards of safety and security required in the UK.

384. Examples include the use of robotics and autonomous systems in nuclear safety applications at Sellafield, specialist divers to clear radioactive waste from spent fuel storage at Sizewell A, and structural integrity remote inspections using mobile and fixed cameras at Hinkley Point C.

385. Despite this track record, several stakeholders expressed frustration that at times the status quo did not seem open to challenge. A commentary reinforced in the *2021 Stakeholder Survey*[144] where only 28% agreed that ONR enables innovation, down from 33% in 2019.

---

143 Office for Nuclear Regulation, *Corporate Plan 2021/22*, 2021, p.42.

144 YouGov, *ONR Stakeholder Survey 2021, Report of findings,* 2021

386. ONR acknowledges that ‘flexibility and risk aversion’ are potential challenges of its organisational culture, especially at a time of transition where its operating environment is constantly evolving. To be as effective as possible, industry must be willing to engage with ONR and perceive it as open to new ideas. ONR has highlighted the lack of stakeholder confidence that it enables innovation as an area for improvement.

387. Some stakeholders noted that incorrect external perceptions of ONR’s approach to risk could stifle innovation by making duty holders believe the status quo was not open to challenge or enabling of innovation. This also included a number of duty-holders admitting that they have developed their own set of beliefs about what ONR will and will not consider as safety, security and safeguards solutions, which was responsible for stopping innovative conversations before they even begin.

388. In reviewing the evidence, we conclude that for the most part ONR is open to innovation and works to encourage a culture where new ideas can be put forward. However, there is inconsistency where behaviours and processes aimed at unlocking opportunities are still to be universally adopted.

389. In addition, current approaches to communicating ONR’s approach to innovation are not as effective as they could be leading to ongoing stakeholder concerns, which in a number of instances appear to be perception more than reality.

390. **Recommendation 12:** To address the latter issue, we recommend ONR continues to improve its external communications on innovation, continuing to champion existing relationships with industry groups and academia, and directly sharing real world examples of ONR's role in supporting innovative approaches, technologies, and applications through easily accessible means such as a new area of the website dedicated to case studies. This is an ongoing action with any updates to the website to be completed as part of current plans to refresh the website by March 2024.

Engaging with Innovators

391. ONR actively engages with a range of organisations leading the innovation agenda including the Nuclear Advanced Manufacturing Research Centre (NAMRC), Nuclear Innovation and Research Advisory Board (NIRAB), National Nuclear Laboratory (NNL), Nuclear Sector Deal Innovation Group and Nuclear Innovation and Research Office (NIRO).

392. Through these organisations ONR participates in research and forums to better understand sector developments as well as communicates regulatory expectations and explores what may need to evolve to support new technologies and approaches.

393. ONR recently seconded an experienced inspector to the NIRO to act as a Senior Regulatory Advisor. This has allowed ONR to have greater links to, and experience of, nuclear safety, security, and safeguard

aspects of new nuclear and has allowed ONR to build good working relationships with innovators and government. Upon return the inspector was appointed as ONR's Head of Innovation.

394. **Recommendation 14:** We recommend ONR explores additional opportunities for secondments by considering exchanges with government and other stakeholders (such as the NAMRC), enabling knowledge and expertise to be shared in a way that develops skills holistically. This must be done in a way which maintains ONR's integrity and impartiality, including through careful consideration of outside interests. ONR should report to the Board by March 2023 on secondment opportunities and how they will be operated.

Readiness to Support Future Nuclear Projects

395. With the exception of Sizewell B and Hinkley Point C, which is under construction, all existing nuclear power plants are due to cease generation within the next decade.

396. With nuclear seen as a key component of a decarbonised power system government has committed to bring at least one further large-scale nuclear projects to the point of financial investment decision by the end of this Parliament and develop an ANT demonstrator by the early 2030s.[145]

145 Nuclear Innovation and Research Office , *Advanced modular reactors (AMRs): technical assessment*, 2021.

397. To further these ambitions government is in negotiations with the developer of the Sizewell C project in Suffolk, and in May 2021 opened the GDA process to advanced nuclear technologies. In November 2021 Rolls-Royce SMR Ltd submitted a GDA Entry application, which BEIS are assessing in accordance with the *GDA Entry Guidance*.[146]

398. ONR continues to work closely with the developer of Sizewell C, NNB GenCo (SZC) Ltd, regarding plans for the development and their license application. In replicating, as far as possible, the design of Hinkley Point C, the developer is seeking to ensure efficiencies that will reduce project risk, ensure improved certainty over schedule and cost, and provide a level of assurance in standards of safety and security. ONR is assessing the nuclear site licence for this.

399. The Rolls-Royce SMR, whilst based around existing pressurised water reactor technology, has several innovations in the design of a common foundation and engineering methodology that are novel and which ONR should consider in processing SMR approval through design and build. ONR recognises, and is already working on, its need to evolve and adapt its knowledge, expertise and potentially regulations to ensure they are not overly burdensome and limit the opportunities of SMRs, while still ensuring the high standards of safety and security required in the UK.

---

146 Rolls-Royce SMR, *Rolls-Royce SMR milestone as first regulatory step initiated*, 2021, https://www.rolls-royce-smr.com/press/rolls-royce-smr-milestone-as-first-regulatory-step-initiated, (accessed 8 January 2022).

400. In addition to these specific projects, there are other projected and potential demands on ONR such as new AMR technologies, the decommissioning of Advanced Gas-cooled Reactors, geological disposal, and other ongoing decommissioning projects. The availability of skilled and experienced resource may be a constraint on ONR and industry more generally. This is especially the case for SMRs where there are several innovations in the design of a common foundation and engineering methodology, as well as build and operational processes which are novel within nuclear.

401. Future industry demands are by their nature uncertain and will at times place significant demands on staff resource planning. ONR has considered various operational scenarios and resource projections for the next five years. These show that there may be excessive demands placed on resources, caused by the pace of activities, such as multiple GDAs running in parallel, new site licensing requests and potential impacts of the AUKUS deal.

402. **Suggestion 28:** Resource gaps may be addressed by actions arising from the efficiency improvements recommended and/or from recruitment. This includes contingent capability to meet short-term constraints and to mitigate against the impact of an ageing inspectorate profile. This should continue to be an area of focus and ONR should work closely with government to understand evolving ambitions and any resource implications if demand accelerates.

Generic Design Assessment

403. One of the key drivers of ONR's formation, according to the *'Stone Review'*[147], was to ensure appropriate resource to enable the efficient operation and management of the GDA process.[148] Independence has afforded ONR greater control over its resources however the GDA has been criticised for being costly and onerous, typically taking up to five years to complete.

404. Considering criticisms ONR refreshed the process in 2020 to take account of lessons learnt from previous GDAs and flexibilities needed to enable the assessment of innovative ANTs. It introduced a three-step approach, envisaged to be completed in four years or less.[149]

405. During the review we heard criticism that this was still too slow for industry and continued to carry risks that the unique requirements of new nuclear technologies would not be understood increasing costs as a result. Conversely ONR argued that industry would not be able to complete the process any quicker. ONR has proactively considered how it could do better and we welcome ONR's engagement with the MHRA on the

147 T. Stone, *Nuclear Regulatory Review Private Advice and Reasoning, Observations by Tim Stone for the Secretary of State for Energy and Climate Change,* 2008.

148 The GDA is an upfront, non-site-specific assessment of a generic Nuclear Power Plant (NPP) design. It is a joint process between ONR and the EA who work together to assess NPP designs to ensure that they are safe, secure, and environmentally acceptable. The objective for GDA is to provide confidence that the proposed design is capable of being constructed, operated, and decommissioned in Great Britain in accordance with the standards of safety, security and environmental protection required.

149 Department for Business, Energy & Industrial Strategy. *Entry to Generic Design Assessment for Advanced Nuclear Technologies, Instructions and Guidance for Requesting Parties*, 2021.

regulation of the COVID-19 vaccine, integrating lessons learnt into the new GDA process and activities of the wider regulatory directorate.

406. The pace of the GDA process in part relies on the maturity of requesting parties and their design as well as quality documentation. Where quality submissions are made at the start of each GDA step there are opportunities for efficiency gains, shortening the amount of time it takes to complete the process.

407. ONR seeks further opportunities for efficiency through bilateral engagement with other international nuclear safety regulators and cooperation via the NEA's Multinational Design Evaluation Programme. In addition, ONR is actively, considering, as part of the IAEA's Nuclear Harmonisation and Standardisation Initiative, how it can better cooperate, and harmonise, its processes with other international regulators to avoid duplication and enhance its knowledge of similar designs.

408. **Recommendation 13:** To find further efficiencies, we recommend ONR completes a benchmarking exercise against comparable international regulators by March 2024 at the latest to ensure processes and timescales are commensurate. ONR should continue to support agile learning to ensure it can reflect and learn early, applying improvements to GDAs that may be running in parallel.

Other Considerations

Reacting to COVID-19

409. We have been impressed by ONR's swift realignment to remote working at an early stage of the COVID-19 pandemic, enabled by the early and extensive use of Microsoft Teams. We have benefitted from its approach in completing our review.

410. In terms of the inspection programme ONR switched to carrying out certain routine inspections and tasks remotely, ensuring critical regulatory work continues without putting individuals' health at risk. Stakeholders spoke positively of ONR's approach, commenting that the balance between on site and virtual working has been effective and efficient.

411. Industry also valued ONR's pragmatic and supportive approach in allowing them the time and space to make their own COVID-19 adjustments.

412. The GIAA audit in 2020/21 provided a "substantial" rating for ONR's "incident management of COVID-19".

413. Remote working has led to significant savings with a £2.2 million underspend reported in 2020/21 due to reduced ability to attend sites, training courses and conferences etc. in person. During interviews, questions were raised about how economical certain ONR activities are, including inspections and attendance at international events, and whether there were lessons that could

be learnt from the process adopted in response to COVID-19.

414. We welcome ONR already embedding the successes of its COVID-19 response into ongoing ways of working for all parts of the organisation. This will secure efficiency gains, further support the needs of the industry, and establish more proportionate and innovative ways of collaborating with third parties engaged in forthcoming industry projects.

Sustainable Development

415. The government's *Net Zero Strategy* acknowledges that "the UK's regulators will play a role in facilitating delivery of the infrastructure, technologies and activities that will deliver the net zero transition"[150] and that they should lead by example ensuring we are on track to reach net zero by reporting and monitoring emissions.[151]

416. The *ONR's Strategy 2020-25*[152] notes a commitment to "reduce [ONR's] environmental and carbon impact in line with broader government objectives for net zero." In November 2021 ONR published a *Statement of Intent for an Environmental Policy*.[153] It highlights a range of areas for immediate and longer-term focus including:

---

150 Department for Business, Energy & Industrial Strategy, *Net Zero Strategy: Build Back Greener*, 2021, p. 252.

151 Department for Business, Energy & Industrial Strategy, *Net Zero Strategy: Build Back Greener*, 2021, p. 256.

152 Office for Nuclear Regulation, *Strategy 2020-25,* 2020, p. 22.

153 Office for Nuclear Regulation, *ONR's Statement of intent for an environmental policy,* 2021.

- the implementation of environmentally aware travel practices (e.g., cycle to work schemes and environment-friendly car hire arrangements)
- balancing office and home-based work (including reducing the number of trips by car, public transport and flights)
- a future focus on greenhouse gas emissions, sustainable procurement, waste minimisation, and general resource consumption

ONR has committed to start work on its *Environmental Strategy* from 2022/23.

417. We welcome the push for greater focus and acknowledge ONR's intent to build upon the Statement of Intent, making sustainability more of a priority within a more mature framework, which will not only identify actions but have baseline data to monitor success against.

418. **Suggestion 29:** Given the UK's increased focus on public sector sustainability, notably the government's target to reduce public sector building direct emissions by 50% by 2032, and by 75% by 2037[154], we suggest ONR sets a more advanced and specific set of proposals for how it will target emissions reductions and encourage positive staff behaviours, in particular noting the new *Greening Government Commitments 2021 to 2025.*[155]

---

154 Department for Business, Energy & Industrial Strategy, *Net Zero Strategy: Build Back Greener*, 2021.

155 Department for Environment Food & Rural Affairs, *Greening Government Commitments 2021 to 2025*, 2021.

Note of Clarification regarding ONR's Vires in Defence

419. This note is to provide further explanation of the ONR's vires in defence, with reference to relevant paragraphs/footnotes from the PIR reports.

420. Full Report (33) and Summary Report (7) – To note that the Reports state that ONR's regulatory work *"has been directed towards maintaining the existing fleet of operating nuclear reactors, fuel cycle facilities, decommissioning, and the safe handling and storage of hazardous waste materials at licensed civil and authorised defence sites"*. However, this is only true of licensed civil sites. As referenced in Full Report Footnote 3, on authorised defence sites, ONR regulate the Health and Safety at Work Act 1974, including Radiation (Emergency Preparedness and Public Information) Regulations 2019 and Ionising Radiation Regulations 2017. References throughout to ONR's work at authorised defence sites should be interpreted with this in mind.

421. Full Report (36) – To note that the Report states that ONR has *"five sets of purposes"*. It should be clarified that these are their purposes for the civil sector. ONR do not regulate nuclear security, nuclear safeguards or the transport of radioactive materials for defence purposes. These are covered instead by defence regulators.

ONR also do not regulate nuclear safety at authorised defence sites; this is regulated by the Defence Nuclear Safety Regulator. References throughout to ONR's five purposes should be interpreted with this in mind.

422. Full Report (41) – To note that the Report states that *"ONR's safeguards purposes were expanded, with ONR becoming the UK's nuclear safeguards regulator"*. As above, this statement only applies to civil nuclear sites and not defence sites. References throughout to ONR's safeguards purposes should be interpreted with this in mind.

423. Full Report (Footnote 99) - To note that the Report referenced ONR minutes of the Board from 2019 to provide *"details of what the vires review included."* It should be clarified that the joint review was undertaken sometime later in 2020 – 2021, with the scope having been developed and refined during the intervening period.

E02764197
978-1-5286-3526-4