

Nuclear Energy Skills Alliance Delivery Plan



Version 2.0

September 2014



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Introduction

Meeting the skills demand for the New Nuclear Programme (16 GW) will be a significant challenge, particularly with the on-going need to operate, maintain and decommission existing nuclear power stations and the age profile within the sector. However, the potential for job creation and economic growth is substantial – current estimates anticipate 5,000 - 6000 construction jobs during the build phase at each site, and over 900 jobs at each plant once they become operational.

The Nuclear Energy Skills Alliance (Skills Alliance)¹, brings together the expert skills bodies relevant to nuclear, alongside Government and the academic community, to meet the current and future skills needs of the Nuclear New Build Programme and the UK civil nuclear programme more broadly. This includes the NDA estate.

In the Government's Nuclear Supply Chain Action Plan², published on 5 December 2012, the members of the Skills Alliance were tasked with addressing key skills shortages across the Nuclear Programme through targeted skills interventions.

In the first edition of the Skills Alliance Delivery Plan, the members of the Skills Alliance set out the current plans to achieve this aim. The Plan is a live document and this Version 2 is the outcome of a comprehensive review of the plan and its structure in the first half of 2014. It reflects the evolving industry priorities over the course of the programme (in part demonstrated through detailed analysis of labour market intelligence as this becomes available) and the developing programme of initiatives being led by Alliance members to mitigate the issues identified. The plan is based on the best data available as at October 2013 and has been created against the current NNB timelines (the NIA assumed dates). The Plan will be updated again in late 2014 against available refreshed data.

The Nuclear Industry Council (NIC) was established in 2013 and its strapline is: 'Delivering a successful and sustainable nuclear industry'. To achieve this the NIC has six separate workstreams, one of these is skills. The work of the Skills Alliance forms an integral part of the Skills Workstream ensuring that skills delivery across the partnership is meeting the capability and capacity requirements identified to achieve the NICs shared vision of the nuclear industry. This Delivery Plan provides the collective overview of activity and progress in addressing the skills

¹ The current membership of NESA is: National Skills Academy for Nuclear (chair), Cogent SSC, CITB, Engineering Construction Industry Training Board, Semta, the Dalton Nuclear Institute, Department for Business, Innovation and Skills, Department of Energy and Climate Change and the Welsh Government (the Welsh Government is represented on the Nuclear Energy Skills Alliance Board to ensure that devolved Welsh education and skills matters are fully reflected in discussions and actions).

² <http://www.decc.gov.uk/assets/decc/11/meeting-energy-demand/nuclear/7176-nuclear-supply-chain-action-plan.pdf>

challenges and issues identified by the NIC and will form the basis for progress reports to the NIC. The Plan will be reviewed in November 2014 at the Annual Employer Event and an updated Plan will be available shortly afterwards.

Development of the Delivery Plan

Identifying skills needs and deliverables

Skills Alliance members identified the key skills needs to support safe and effective delivery of new nuclear build and the wider nuclear programme. This was done through active and regular engagement with the employers, stakeholders and organisations that they represent. These skills needs were then shared with all Skills Alliance members to identify areas for effective collaboration and to prevent any duplication of effort amongst the skills bodies. Through this process Skills Alliance members, in conjunction with nuclear employers, agreed a list of skills needs for the nuclear industry and a list of deliverables to meet these needs.

A skills workshop was held by Skills Alliance members on the 19th September 2012 at which senior industry representatives were asked to comment on the list of skills needs and the actions to address them. Comments made on the day were reflected in the Delivery Plan (V1) and a further workshop held on 8 October 2013 reviewed progress and re-assessed the skills needs.

At the Programme Management Board of 12 February 2014, it was agreed to review the proposed restructuring of the Delivery Plan against the Nuclear Industry Council (NIC) Skills Workstream proposal. The benefits of this approach are to streamline the plan, ensure greater coherence and make for effective and efficient updating and reporting by and to all stakeholders as required.

The NIC Skills Workstream breakdown structure is as follows:

Labour Intelligence	Market	Recruitment/Capacity	Quality of Resource/Capability	Transferability	Sustainability	Leadership
The Nuclear Workforce Model and all supporting labour market research. This element helps to define the skills' problem.		Attracting resources and talent into the nuclear industry, including apprentices, graduates, and transferees from other industries. Also included is the	This element encompasses up-skilling, nuclear inductions and awareness, personal development and succession plans.	Ease of movement of resources across sites, civil / military, industrial sectors and operations / decommissioning / New Build	This element captures the activities needed to maintain the required skills base through the New Build, operations, and decommissioning	Development of leadership capabilities for defining and deployment of appropriate behaviours in safety, security, environment

	STEM agenda and diversity of resources.	Also includes setting training standards and SQEP'ness		cycles of resource demand. Including the potential international markets	and nuclear culture and professionalism
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All skills needs in the Delivery Plan have now been cross-referenced to these workstreams.

The Delivery Plan is a 'live' document and continues to be updated regularly to reflect progress against actions and changing priorities over the course of the New Nuclear Programme.

Labour Market Intelligence

In support of the work outlined in the Delivery Plan, a project is ongoing to gather labour market intelligence for the Nuclear Industry through the creation of the Nuclear Workforce Model and other relevant supporting data. The development of robust labour market intelligence is vital to identify gaps between the supply and demand of specific jobs across the New Nuclear Programme.

This project is being led by Cogent SSC and all Skills Alliance members are playing an active role in the development of the model, in particular through sourcing relevant data and providing their expertise to trace the supply of labour over the course of the existing New Nuclear Build Programme.

The outputs from the model will act as the evidence base for skills interventions in the nuclear sector. They will also help the industry better prepare for the different new build scenarios and the resulting demand on labour. This current Delivery Plan is based on the collective labour market intelligence of the Skills Alliance partners in early 2013 and will be updated as new data becomes available.

Progress against the Delivery Plan

The Skills Alliance has been successful in bringing the skills bodies together to work collaboratively to address the identified skills needs. Progress to date has included:

- Holding key events to bring employers, Government and the Skills Bodies together to discuss skills issues and develop and review the progress of the plan and identify new/changing priority areas.

- **LMI (key enabler)** - the development of a process for the collation and analysis of data and information to support the understanding and prioritisation of the nuclear sector skills requirements. The next stage is the analysis of the data based on the updated nuclear programme timeline which will serve to validate the current skills needs and identify any new priority areas to enable the appropriate skills interventions to be taken forward by the appropriate bodies or organisations.
- **Steelfixing (Skills Need 3)** – the development and implementation of a formally recognised Steelfixing Apprenticeship.
- **Higher Level Skills (Skills Need No 6)** – a common view of career paths to higher level skills has been developed, leading to greater understanding of how these skills can be developed (<http://www.nuclearinst.com/nuclearfuture>)
- **Nuclearisation (key enabler, Skills Needs 7 and 22 relate)** – this includes the development and implementation of:
 - A series of nuclearisation programmes for all levels of personnel working in the nuclear sector e.g.:
 - Triple Bar Suite (existing sites, nuclear new build, manufacturing and security)
 - Human Performance Suite of Programmes
 - Site Safety Plus, Advanced Behaviours for Construction Supervisors

These serve to support a reduction in cost and time for supply chain mobilisation whilst embedding the right nuclear cultures.

“Triple Bar is a great asset for us – it makes our workers more sellable and speeds up how quickly they can demonstrate competence and start working on sites.”

Colin Myers, Human Resources Manager, Studsvik (27th May 2014)

- **Nuclear Regulators (Skills Need 16)** – was removed in October 2013 following confirmation that each regulator has appropriate development programmes and ONR are undertaking recruitment to address resourcing requirements.
- **Health Physics Personnel (Skills Need 17)** – job contexts have been developed and a suite of National Occupational Standards are in place, together with L2 and L3 NVQs for Monitors/Surveyors and an L3 for Health Physicists.
- **Geotechnical Engineers (Skills Need 18)** – was removed following feedback from the sector stakeholder that this is no longer a priority.

- **Environmental Engineers (Skills Need 19)** – was removed following a review in October 2013, which concluded that this area was not a key priority to be addressed by the Development Plan.
- **Careers Information, Advice and Guidance (Skills Need 26)** – All Sector Skills Bodies have developed a careers portal relevant to their element of the nuclear programme. The next stage is to ensure that these are fully coordinated across the skills bodies.

There has been progress made against individual elements of the skills needs within the plan – skills priority owners can be contacted for further detail as required.

Skills Needs

The Nuclear Industry Council (NIC) Skills Workstream has identified a work-breakdown structure (WBS) with 6 key areas: Labour Market Intelligence; Recruitment/Capacity; Quality of Resource/Capability; Transferability; Sustainability and Leadership. All of these areas are interlinked and need to be addressed to ensure a workforce with the capacity and capability to meet the needs of the current and future UK nuclear programme.

The skills issues identified via the NESAs Labour Market Intelligence are detailed in this Plan as the problem statements with critical success factors and proposed interventions mapped against them. These skills issues have also been mapped against the 6 strands of the WBS and where they align to the WBS is shown in the table below.

Skills Needs mapped to the NIC Skills Workstream breakdown structure matrix:

			Labour Market Intelligence	Recruitment/ Capacity	Quality of resource/ Capability	Transferability	Sustainability	Leadership
	Skills Need	Progress Level						
1	Project and Programme Managers	2	●	●	●	●	●	●
2	Construction Project Management	2	●	●	●	○	●	●
3	Steelfixing	4	●	●	●	○	●	○
4	High Integrity Welding	2	●	●	●	○	●	○
5	Safety Case Authors	1	●	●	●	○	●	●
6	High Level Skills	1	●	●	●	○	●	●
7	Basic Requirements for Working on Nuclear Sites	5 and elements incorporated into 22						
8	The Flexibility and Mobility of the Workforce and the Supply Chain and the ability to demonstrate Supply Chain Competence	4	●	●	●	●	○	○
9	Site/Construction Supervisors	2	●	●	●	●	●	●
10	Trained and Qualified Craft and Technician Personnel	2	○	●	○	●	○	○
11	Design Engineers/Technicians (a and b)	2	○	●	●	●	○	○
12	Quality Assurance	3	○	●	●	○	○	○
13	Control and Instrumentation Engineers/Technicians	2	○	○	●	●	●	○
14	Non-Destructive Testing Engineers/Technicians	2	○	○	●	○	○	○
15	Security and Safeguards	2	○	●	●	●	●	●
16	Nuclear Regulators (removed 10/13)	-						
17	Health Physics Personnel	5						

18	Geotechnical Engineers (removed 7/14)	-						
19	Environmental Engineers (removed 10/14)	-						
20	Core Construction Skills – Craft, Operative, and Technical Occupations: Concreters, Scaffolders, Crane Operators and Wood Trades (Form Workers)	2	●	●	●	●	●	○
21	Manufacturing Engineers	2	●	●	●	●	●	●
22	Adequate/Relevant Capability and Experience of the Sector	2	●	●	●	●	●	○
23	Waste Management Operations	3	●	○	●	○	●	○
24	Reactor Physicists and Reactor Chemists	<1	●	○	○	○	○	○
25	Human Factor Specialists	<1	●	○	○	○	○	○
26	Career Information and Guidance	1	●	●	●	●	●	●
27	Construction Site Engineers	1	●	●	●	○	●	○
28	Major Projects LMI	2	●	●	●	●	●	●

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Delivery Plan for the Skills Needs and Critical Success Factors

Problem Statement Progress Level Key	
Identified	1
Development of intervention	2
Development Complete and Available	3
Partial Implementation	4
Full Implementation	5

(please see Appendix 1 for detailed descriptor of Progress Level)

Skills Need: 1. Project & Programme Managers (includes Project Controls, all disciplines)

ECITB Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
<p>LMI & NESAs Project Management Workshop highlighted a general shortage across the PM occupations spectrum for all nuclear related industry sectors.</p> <p>Employers need to recruit, develop and retain good quality Project Management staff. This includes Project Control disciplines.</p>	<p>Employers report that PM recruitment and experience is no longer a key issue.</p>	<p>Promote Career activities in STEM education. Develop and implement relevant activities. Link to Delivery Plan item 26 (<i>ECITB school's curriculum materials launched Aug 14</i>).</p> <p>Promote industry to other sectors:</p> <ol style="list-style-type: none"> 1. Support PM as a suitable career pathway through relevant channels 2. Promote relevant nuclear qualifications & entry routes (PCont apprenticeship, CoNP) <p>Ensure routes are available to:</p> <ul style="list-style-type: none"> • Develop existing staff towards PM • Transfer staff from declining sectors (e.g. military) <p>Encourage/facilitate employer learning and knowledge transfer programmes. Develop nuclear PM mentoring programme.</p> <p>Nuclearise existing relevant qualifications and competencies (<i>Nuclear PM competence framework developed</i>).</p> <p>Ensure Nuclear is represented in relevant qualification reviews (Magnox, EDF & Sellafield on Project Controls Working Group).</p> <p>Investigate Project Controls Apprenticeship Trailblazer/ Nuclear focus (Jacobs-led bid submitted for Trailblazer round 3)</p>	<p>2</p>

Skills Need: 2 Construction Project Management

CITB Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
LMI highlights a general shortage of Construction Project Managers. Employers need to recruit, develop and retain good quality Project Management staff.	Sufficient capability and capacity across the PM occupations spectrum to deliver the UK Nuclear Programme.	<p>Promote Career activities in STEM education – schools, colleges, universities etc.</p> <p>Promote industry to other sectors:</p> <ol style="list-style-type: none"> 1. Support Construction PM as a suitable career pathway through relevant channels. 2. Work with Sector Employers to support and work up skills priorities <p>Ensure routes are available to:</p> <ul style="list-style-type: none"> • Develop existing staff towards PM • Transfer staff from declining sectors (e.g. military) <p>Encourage/facilitate employer learning and knowledge transfer programmes</p> <p>Promote and develop existing relevant qualifications and competencies</p> <p>Ensure Nuclear Safety Culture is represented in relevant qualification reviews</p>	2

Skills Need: 3 Steelfixing CITB Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
Steelfixing had no formal apprenticeship route to qualification and the number of steelfixers defined as competent (NVQ level 2) is low. There is an assumption that the demands of NNB in terms of quality, design and specification exceed the current standard	A 'fit for purpose' qualified steelfixing workforce that meets the demands of NNB in terms of standard and capacity.	<p>Promote Career activities in STEM education – schools, colleges, etc.</p> <p>Promote industry to other sectors:</p> <ol style="list-style-type: none"> 1. Support Steelfixing as a suitable career pathway through relevant channels. 	

<p>demand by the NOS.</p>		<p>2. Work with Tier 1 stakeholders to support development of new entrants.</p> <p>Ensure NOS and Qual frameworks are fit for purpose.</p> <ol style="list-style-type: none"> 1. Work with providers to support pre-employment/apprenticeship training. 2. MOU between NCC and HPTA for apprenticeship. 3. Develop mechanism for profiling experienced workers against the competence requirements. <p>Steelfixing Apprenticeship now developed and being implemented</p> <p>Ensure Nuclear Safety Cultures are represented in relevant frameworks.</p>	<p>4</p>
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Skills Need: 4. High Integrity Welding ECITB & SEMTA Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
<p>Insufficient national supply of good high integrity welders to meet future demands of the UK nuclear programme as new build projects come onstream in both ECI and manufacturing.</p> <p>Employers need to recruit, develop and retain UK-sourced high integrity welders.</p>	<p>Sufficient HIW capability and capacity to deliver the UK Nuclear Programme.</p>	<p>Promote welding in STEM events to schools and colleges with emphasis on future growth to coded and high integrity welding skills. Link to Delivery Plan item 26.</p> <p>Create & promote suitable transferable standards and development programmes for:</p> <ul style="list-style-type: none"> • General ECI and manufacturing welders 	

		<ul style="list-style-type: none"> • Coded welders • High integrity welders • Welding supervisors <p>Ensure additional training meets the nuclear behavioural requirements</p> <p>Develop training capacity by exploring overlaps between EC and manufacturing frameworks</p> <p>Model welding-specific LMI to underpin investment in training and recruitment.</p> <p>Encourage development of consistent, transferable training & qualifications</p> <p>Engage with clients to promote transferability & recognition</p>	2
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Skills Need: 5 Safety Case Authors Cogent Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
Perceived lack of safety case authors but lack of agreement amongst employers on scale of problem or action required. Safety Case authorship is not a base discipline and requires a high degree of engineering/scientific experience before conversion to a safety case author discipline. Discussions at the DECC facilitated	Agreement on actions required to ensure capacity and capability to deliver safety cases to support nuclear programmes and regulatory requirements.	Further action once the NIC Skills Workstream have debated this issue	1

Employer event in October 2013 suggests that sufficient training standards and training courses exist, the challenge is for employers to recruit and retain sufficient safety case practitioners within their direct employ and within their supply chain.			
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Skills Need: 6 High Level Skills			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
It is difficult to identify, recruit, develop and retain staff on the HLS career pathway. Where staff are not retained and/or they retire, knowledge management arrangements are unclear and need to be better coordinated.	<p>Understanding of higher level skills career paths, improved recruitment and retention, accelerated development leading to sufficient capability and capacity in HLS to deliver the UK Nuclear Programme.</p> <p>Clear understanding of what information is available and ready access to it. Specific focus on knowledge management (KM) activities/tools that enhance knowledge transfer between existing and developing experts.</p>	<p>Ensure recruitment is publicised to potential entrants of the right calibre</p> <p>Produce Case Studies for use on NESAs member/career websites and as standalone documents</p> <p>Build a network of university academic staff ('nuclear ambassadors') who can promulgate the nuclear careers message within each relevant dept.</p> <p>Sustainable teaching activities aimed at undergraduates, postgraduates and CPD for industry specialists involving collaboration between academia and industry</p> <p>Provide feedback on needs to Higher Education Institutions</p> <p>Examine best practice in other sectors</p> <p>Explore alternative entry routes</p> <p>Identify current activities across the sector</p>	1

		Assess gaps and potential for sharing Effective implementation of Subject Matter Experts work strand of the Nuclear Industrial Partnership	
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7 – Basic Requirements for Working on Nuclear Sites in the UK - Removed October 13 – covered under 22.

Skills Need 8. The flexibility and mobility of the workforce and supply chain and the ability to demonstrate supply chain competence NSAN Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
<p>The lack of nationally agreed training standards and expectations leads to the supply chain wasting time and money on repeat and duplicate training, slowing down time to mobilisation.</p> <p>The lack of clarity of SLCs' and Operators' expectations of the supply chain hinders supply chain workforce development, also when standards are agreed and achieved the supply chain need a secure system to be able to demonstrate this.</p>	<p>Improved confidence by employers in meeting sector need (Capacity) by having in place and utilising their own in-company, or industry wide, secure and high integrity Competency Management System.</p> <p>Increased Competence of supply chain workers via improved uptake of standards and nationally agreed programmes observed via NS⁴P or own in-house recording systems.</p> <p>Evidence of increased investment in skills development and quality of CPD undertaken by learners in the nuclear industry and its supply chain.</p>	<p>Implementing the Capability Model via the Maturity Assessment Tool (where required), enabling companies to assess their capability and capacity to work in, and in support of, the nuclear programme and to identify and access appropriate skills solutions to tackle the gaps identified. The supply chain can use this Maturity Assessment Tool as a vehicle to demonstrate competence to both the Regulator and the Nuclear Owners.</p> <p>Implementing the NS⁴P in companies where the company has identified the need for a vehicle/model for recording and evidencing both skills development undertaken to nationally agreed standards and to demonstrate and evidence the levels of in house competence in specific disciplines.</p> <p>Continued implementation of the Triple Bar suite of industry wide induction programmes .</p> <p>Increased uptake of Workforce Development and CPD programmes with funding from the Nuclear Industrial Partnership and Give2Gain.</p>	4

Skills Need: 9 Site/Construction Supervisors CITB/ECITB Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
<p>General shortage of good supervisors at all levels for all ECI & Construction industry sectors including Nuclear.</p> <p>Employers need to recruit, develop and retain good quality Supervisory staff.</p>	<p>Sufficient supervisory capability and capacity to deliver the UK Nuclear Programme.</p>	<p>Promote the Supervisory Career Pathways to colleges – investigate if/how supervisors are recruited from education and/potential for transfers from other industries. Link to Delivery Plan item 26.</p> <p>Create & promote suitable development programmes for:</p> <ul style="list-style-type: none"> • Working supervisor/chargehand/ganger • Staff supervisor/foreman • Senior supervisor/superintendent <p>ECITB programmes launched Sept 14</p> <p>Ensure additional training meets the nuclear behavioural requirements</p> <p>Develop training capacity</p> <p>Encourage development of consistent, transferable training & qualifications. Training to be mapped to wider standards (CMI/ILM) where possible.</p> <p>Engage with clients to promote transferability & recognition</p>	<p>2</p>

Skills Need: 10. Craft/technicians ECITB Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
<p>General shortage of craft specialists and technicians at all levels for all ECI industry sectors including Nuclear.</p>	<p>Sufficient craft and technical capability and capacity to deliver the UK Nuclear Programme.</p>	<p>Implement STEM events with craft/tech focus. Engage with UTCs and schools. Link to delivery plan item 26.</p>	

Employers need to recruit, develop and retain good quality craft and technician staff.		<p>Current training programmes are believed to provide suitable capability but the following additions are required:</p> <p>Ensure additional training meets the nuclear behavioural requirements</p> <p>Develop training capacity</p> <p>Encourage development of consistent, transferable training & qualifications</p> <p>Engage with clients to promote transferability & recognition</p>	2
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Skills Need: 11. Design Engineers/Technicians 11a) Design Engineers for ECI (ECITB Lead)			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
<p>General shortage of suitably experienced designers for ECI and manufacturing sectors.</p> <p>Employers need to recruit, develop and retain good quality design staff.</p>	Sufficient design capability and capacity to deliver the UK Nuclear Programme.	<p>Promote design Career Pathways at STEM events. Link to Delivery Plan item 26.</p> <p>Create & promote suitable development programmes for:</p> <ul style="list-style-type: none"> • ECI designers • Design technicians <p>Ensure additional training meets the nuclear behavioural requirements</p> <p>Develop training capacity</p> <p>Encourage development of consistent, transferable training & qualifications</p>	2

		Engage with clients to promote transferability & recognition across sectors (e.g. manufacturing across nuclear and aerospace)	
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Skills Need: 11. Design Engineers/Technicians			
11b) Design Engineers for Manufacturing (Semta Lead)			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
<p>The shortage of engineering graduates nationally, plus fierce competition from other manufacturing sectors are the primary reasons given for recruitment difficulties, especially amongst small and medium-sized enterprises.</p> <p>In terms of capability, nuclear manufacturing members of NSAN have reported the following key knowledge gaps and behaviour requirements:</p> <ul style="list-style-type: none"> • Design for manufacture. • packing and shipping and on-site storage and installation in relation to nuclear industry expectations (e.g. to avoid contamination). • knowledge of working to nuclear design codes (e.g. RCC-M/E and ASME III). • commercial acumen. • constant rigour and integrity. 	<p>Evidence of a sufficient decrease in hard to fill vacancies at nuclear manufacturing companies for design engineers, who are equipped to work in nuclear manufacturing for both the decommissioning and new build markets.</p>	<p>Ensure the availability of a range of fit-for purpose courses and qualifications, delivered by approved providers (some examples are given below) to address the design for manufacturing skills gaps and shortages. For example:</p> <p>Apprenticeships in design for manufacturing, leading to higher apprenticeships/HE as appropriate.</p> <p>Bite-sized chunks of hands-on training to provide graduate design engineers with practical manufacturing skills, such as the manual and CNC machining courses provided by the AMRC-TC. http://www.amrctraining.co.uk/</p> <p>RCC-M, RCC-E and ASME III Fundamentals courses, as well as more advanced training. https://www.nsan.co.uk/course/rcc-e-fundamentals-nuclear-manufacturers</p> <p>Courses in nuclear safety culture and industry expectations, including commercial awareness,</p>	<p>2</p>

<ul style="list-style-type: none"> compliant but also flexible and able to challenge assumptions where necessary; being open and non-adversarial. 		<p>quality and supply chain working. As evidenced by the increasing take-up of the Triple Bar Nuclear Manufacturing.</p> <p>https://www.nsan.co.uk/products-services/triple-bar-nuclear-manufacturing</p>	
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Skills Need 12. Quality Assurance NSAN Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
<p>The Quality Control/Quality Assurance skills and processes to maintain the highest standards of quality and safety across the sector are not satisfactorily strong.</p>	<p>All nuclear companies and their supply chains capable of demonstrating the quality and capability of their workforce</p> <p>High Quality Provider Network (HQPN) in place and utilised by industry providing the level and quality of skills and training development programmes required</p> <p>Access to relevant training and development opportunities</p>	<p>High Quality Provider Network (HQPN)</p> <p>Master classes provided to HQPN</p> <p>Development and implementation of Training Programme Guidelines and Standards</p> <p>NS⁴P implemented (where required in the sector) to enable recording and demonstration of industry agreed quality training standards and achievement of agreed competency statements</p> <p>Delivery of Human Performance Practitioner standards via NSAN endorsed providers from the HQPN.</p> <p>Standards Advisory Group agree and articulate skills standards, expectations and requirements across the sector</p> <p>Systematic Approach to Training (SAT) being adopted across the industry and its supply chain supported via NSAN where required.</p> <p>Implementing Capability Model via Maturity Assessment Tool (where required) as a vehicle to</p>	<p>3</p>

		evidence and demonstrate quality Continued development and use of the industry's On Line Learning Portal: www.nucleartrainingnetwork.com	
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Skills Need: 13. Control & Instrumentation Engineers/Technicians			
ECITB Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
<p>General shortage of control & instrumentation engineers and technicians at all levels for all ECI industry sectors including Nuclear.</p> <p>Employers need to recruit, develop and retain good quality C&I staff.</p>	Sufficient C&I capability and capacity to deliver the UK Nuclear Programme.	<p>Promote C&I Career Pathways in schools, UTCs, FE and HE. Link to Delivery Plan item 26.</p> <p>Create & promote suitable development programmes for:</p> <ul style="list-style-type: none"> • C&I engineers • C&I technicians <p>Ensure additional training meets the nuclear behavioural requirements</p> <p>Develop training capacity</p> <p>Encourage development of consistent, transferable training & qualifications</p> <p>Engage with clients to promote transferability & recognition</p>	2

Skills Need: 14. NDT Engineers/Technicians			
ECITB Lead with SEMTA			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level

<p>General shortage of NDT specialists, particularly those with advanced techniques required for nuclear work.</p> <p>Employers need to recruit, develop and retain good quality NDT personnel.</p>	<p>Sufficient NDT capability and capacity to deliver the UK Nuclear Programme.</p>	<p>Promote NDT Career Pathways. Link to Delivery Plan item 26.</p> <p>Create & promote suitable development programmes for:</p> <ul style="list-style-type: none"> • NDT engineers • NDT technicians <p>Ensure additional training meets the nuclear behavioural requirements</p> <p>Develop training capacity</p> <p>Encourage development of consistent, transferable training & qualifications</p> <p>Engage with clients to promote transferability & recognition</p>	<p>2</p>
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Skills Need 15. Security and Safeguards NSAN Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
<p>There are no nationally agreed competency requirements for security and there is a lack of focus and priority.</p> <p>Safety is a core SLC requirement under the Site Licensed Conditions (conditions 13 & 14) whereas security and safeguards do not fall under the same licensing arrangements</p>	<p>Suitable programmes to agreed national or international standards in security developed, accessible and utilised by industry.</p> <p>Competency standards for security agreed and being utilised.</p>	<p>Development and implementation of Triple Bar Nuclear Security (TBNS) in association with IAEA. TBNS available via www.nucleartrainingnetwork.com</p> <p>Joint work with DECC and the Safety Directors Forum to develop and agree Security Competence Standards embedded within the Industry Competency Framework</p>	<p>2</p>

16. Nuclear Regulators – removed Oct 13 as being addressed by ONR recruitment and confirmation that each regulator has appropriate development programmes.

17. Health Physics – removed Oct 13, see progress against Delivery Plan

18. Geotechnical Engineers – Removed July 14 – feedback from Sector Stakeholder that this is no longer a priority area

19. Environmental Engineers – Removed Oct 13 as identified as not being a current priority area at the Annual Event

Skills Need: 20 Core Construction Skills			
CITB			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
Skills shortage for key construction trades and occupations. Also that there is a need to ensure that current qualification structures and training are robust enough to support delivery of NNB.	Sufficient capability and capacity to deliver the UK Nuclear Programme.	<p>Promote Career activities in STEM education – schools, colleges, etc.</p> <p>Promote industry to other sectors:</p> <ol style="list-style-type: none"> Support Construction Occupations as a suitable career pathway through relevant channels. <p>Ensure NOS and Qual frameworks are fit for purpose:</p> <ol style="list-style-type: none"> Work with providers to support pre-employment/apprenticeship training. MOU between NCC and HPTA for apprenticeship. Develop mechanism for profiling experienced workers against the competence requirements. <p>Promote and develop existing relevant qualifications and competencies</p> <p>Ensure Nuclear Safety Cultures are represented in relevant frameworks.</p>	2

Skills Need 21. Manufacturing Engineers Semta/NSAN-M Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
<p>General shortage of qualified manufacturing engineers across the UK, which may have an impact on the nuclear programme in the future. In particular, nuclear manufacturers are concerned about the supply of:</p> <ul style="list-style-type: none"> • Mechanical and electrical engineers • Pressure vessel engineers • Welding and fabrication engineers • Inspectors • NDT specialists • Estimators 	<p>Employers report reduced problems recruiting and retaining competent engineers.</p>	<p>NSAN-M, Semta, Nuclear AMRC and stakeholders including training providers to continue to collaborate to ensure the availability of training and qualifications covering skills such as:</p> <ul style="list-style-type: none"> • Inspection – dimensional and metrology techniques • Engineers knowledge of modern machining methods (e.g. near net shape manufacturing) • Engineering management and leadership • Estimating and winning nuclear contracts • Supplier approvals, control and flow-down • Materials cleanliness and segregation 	2

Skills Need 22. Adequate/relevant capability and experience of the sector NSAN Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
<p>Due to the length of time since the last new build nuclear power station in the UK there is a lack of adequate and relevant Capability/Experience of the sector</p>	<p>Experience challenge/issue identified, discussed and recognised by the NIC and NIC Skills Workstream.</p> <p>Evidence of increased opportunities and programmes for Apprentices, graduates,</p>	<p>Raise awareness of the challenge with industry leaders via NIC, NSAN Board, etc.</p> <p>Supply Chain Apprentices for Nuclear (SCAN) programme being effectively implemented, providing apprenticeship places for young people in</p>	2

	etc. to gain suitable work experience.	a real working situation.	
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Skills Need: 23. Waste Management Operations Cogent Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
LMI shows some gaps in this occupation, with most gaps within the Professional grades. There are examples of waste management problems which could be due to capability rather than capacity.	Sufficient capability and capacity to deal with current and future nuclear site waste management issues, enabled by Training Standards and Guidelines that facilitate progression within the occupational area.	<p>A suite of 6 job contexts and a suite of Training Programme Guidelines (General Awareness and occupation specific) have been developed</p> <p>Implement the Waste Management Training Programme Guidelines in the context of the organisations' use of the Capability Model for the UK Nuclear Industry.</p> <p>Conduct LMI to scope demand and supply of competent staff for these specialisms.</p> <p>A suite of 6 job contexts and a suite of Training Programme Guidelines (General Awareness and occupation specific) have been developed.</p> <p>Develop and agree Competency Statement frameworks for Waste Management.</p>	3

Skills Need: 24 Reactor Physicists and Reactor Chemists Cogent and Dalton Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
Reactor physicists are a reported niche occupation with a long lead time, the general requirement being an MSc. Chemists are generally available but niche areas of expertise in reactor or water gas	Sufficient capability and capacity to deal with current and future Reactor Physics and Reactor Chemistry requirements.	<p>Perceived shortage to be confirmed with Standards Advisory Group.</p> <p>If confirmed, Cogent, in conjunction with NESAs Higher Level Skills Group, will conduct follow up labour market intelligence to review the scale of the</p>	<1

chemistry are perceived to be a problem area.		shortage.	
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Skills Need: 25 Human Factor Specialists Cogent and Dalton Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
Human factor specialists can be recruited from other high hazard sectors e.g. Aviation but this is perceived to be a problem due to lack of nuclear industry experience and the general requirement is for an MSc.	Sufficient capability and capacity to deal with current and future nuclear industry HF requirements	Perceived shortage to be confirmed with Standards Advisory Group. If confirmed, Cogent, in conjunction with NESAs Higher Level Skills Group, will conduct follow up labour market intelligence to review the scale of the shortage.	<1

26. Career IAG operational mobilisation – Pre-engagement, pre-employment, de-skilling, re-skilling NSAN Lead			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
All SSBs are undertaking some work into career pathway advice or STEM activities. There is a need to ensure that all routes for potential promotion are demonstrated, including SMEs. Career pathway advice should be a cross cutting activity to ensure that duplication is eliminated and that best practice is shared. The lead on this would be a co-ordinating function rather than solution development.	Clarity and awareness across industry and with individuals of the various relevant Careers and IAG resources available Careers and IAG resources being utilised by schools, colleges, universities etc.	Capturing an understanding of SSBs Nuclear related STEM Activities to inform the development of a plan to identify coordination opportunities. Undertake a gap analysis to understand what further interactions are required to provide clear IAG for nuclear.	1

<p>There is a general lack of knowledge of the opportunities that will be created by and the capability requirement and scale of NNB. The duration of the programme will require a sustainable workforce over a significant period.</p>	<p>An informed and engaged public and workforce.</p>	<p>Regular updates at the NESA PMB to ensure all NESA members are coordinating their approach to Careers IAG</p>	
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Skills Need: 27 Construction Site Engineers CITB			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
<p>Capacity issue relating to non-graduate site engineers.</p>	<p>Sufficient capability and capacity to deliver the UK Nuclear Programme.</p>	<p>Promote Career activities in STEM education – schools, colleges, etc.</p> <p>Promote industry to other sectors:</p> <ol style="list-style-type: none"> 1. Support Construction occupations as a suitable career pathway through relevant channels. <p>Ensure NOS and Qualification frameworks are fit for purpose:</p> <ol style="list-style-type: none"> 1. Work with providers to support pre-employment/apprenticeship training. 2. MOU between NCC and HPTA for apprenticeship. 3. Develop mechanism for profiling experienced workers against the competence requirements. 	<p style="text-align: center;">1</p>

		Promote and develop existing relevant qualifications and competencies Ensure Nuclear Safety Cultures are represented in relevant frameworks.	
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Skills Need: 28 Major Projects LMI CITB			
Problem Statement	Critical Success Factor	Proposed Interventions	Progress Level
Identified need for specific Construction LMI research outside of 'NWM' to support transient workforce factors.	Client and contractor support LMI that provides data that is useful in support of other Skills Needs.	Review and refresh the CITB NNB Scenarios report. Include impact of other major infrastructure construction projects in projections for LMI	2

Appendix 1

Problem Statement Progress Level Key	
Identified – skills need intervention in embryonic stages of identification, researching/reviewing existing and potential interventions	1
Development of intervention – proposed interventions in development stages	2
Development Complete and Available – proposed development of interventions completed and underway/available	3
Partial Implementation – intervention implemented e.g. Apprenticeship programme developed and new apprentices recruited on to it	4
Full Implementation – intervention fully in place and evidence available of critical success against problem statement e.g. qualified apprentices impact in addressing particular skills need	5

For an explanation of many of the acronyms used in this Plan please visit: <https://www.nsan.co.uk/news/nuclear-glossary>