

Nuclear Energy Skills Alliance

NESA Plan
Version 4 Close Out
March 2017



“Sustaining our nuclear Skills”

This is the final version of the NESA plan to detail and demonstrate the excellent progress made in skills interventions and actions up until end 2016. Future actions will be managed by the NSSG and presented in the form of their detail delivery plan supporting the NSSG’s Nuclear Skills Strategic Plan.

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1. Introduction

NESA is the collective body that brought together the key skills bodies* and Governments to work collaboratively in support of the Nuclear Industry. The primary focus was on articulating the skill demands and coordinating the skills bodies’ response to the pinch points and challenges identified.

The Nuclear Industry Council (NIC) was established in 2013. The NIC had six separate workstreams, one of which is skills. The work of the Nuclear Energy Skills Alliance formed an integral part of the Skills workstream aligning the skills agenda across the partnership to meet the capability and capacity requirements identified to achieve the NIC’s shared vision of the nuclear industry.

The members of the Nuclear Energy Skills Alliance each represented an important aspect of that programme: from construction to research and development, operations to manufacturing. The Skills Alliance was initially chaired by the CEO of National Skills Academy for Nuclear

(NSAN) and more recently by Alan Coley (Nuclear skills lead for the NSSG), working with employers to identify skills demand and take action to ensure that the UK workforce is in the right place, at the right time with the right skills to meet this demand.

NESA members included representatives from the following organisations:

- DECC
- BIS
- Welsh Government
- ECITB
- CITB
- SEMTA
- NSAN
- NI
- Cogent Skills
- Dalton Nuclear Institute (on behalf of Higher Education)

* Skills bodies are organisations that are owned and led by industry and who work for employers across their sector. They help employers set skills standards, set benchmarks for excellence in training and work with employers to develop and implement skills solutions to address priority issues.

With the recently formed Nuclear Skills Strategy Group (NSSG) and the future direction for nuclear skills being set by the NIC as an integral part of the Industrial Strategy, the forward plan is for the necessary actions in the future to be developed by individual organisations and skills bodies. The NSSG issued a Strategic Plan for skills in December 2016, and the detail actions developed from this will be coordinated by a Programme Manager on behalf of the NSSG. Consequently, the role of NESA to manage the programme is no longer needed.

2. NESA Plan

This Plan provided the collective overview of activity and progress by the NESA partners in addressing the skills challenges. This version of the Plan has evolved and has taken into account the [Nuclear Workforce Assessment 2014](#) and input from the 2014 NESA Employer Consultation Event.

This version of the plan is a formal close out of the actions prior to the development of the detail delivery plan of the NSSG.

4. Nuclear Workforce Assessment (NWA)

A key element of the work of NESAs was the development of the Nuclear Workforce Assessment Report. This report is an on-going exercise to gather labour market intelligence from the Nuclear Industry through the creation of the Nuclear Workforce Model (NWM) and other relevant supporting data. The development of robust Labour Market Intelligence (LMI) is vital to providing a single version of the truth, and acting as the evidence base in identifying gaps between the supply and demand of specific jobs across the New Nuclear Programme.

All NESAs members played an active role in the development of the NWA, in particular through sourcing relevant data and providing their expertise to trace the supply of labour over the course of the existing and New Nuclear Build Programme, inclusive of the latest data from the Ministry of Defence (MoD). This data is utilised by Cogent Skills, via their NWM, to produce a comprehensive assessment of the skill demands of the nuclear industry which is the most comprehensive to date.

The output of the report generated an understanding of the skills demand, key priorities and the appropriate skills interventions to be developed and implemented by industry, the appropriate skills bodies and Government.

Key findings from the NWA 2014 included:

- A peak in the overall workforce demand (excluding construction) is likely to occur in 2021, onsite activity will reach a maximum in 2025
- The total workforce is expected to grow from 70,000 in 2014 to 98,000 in 2021; an expansion in demand of about 4,700 per year from the current figures
- Over the same seven year period, the fraction of workers involved in new build will grow from 3% of the total to 35% - an additional 28,000 Full Time Equivalent (FTE) employment
- At the same time, existing resources will decline by 7% from 68,000 to 63,000 FTEs
- Demand / Supply pinch points identified.

The following improvement activities are in process for this year:

- Produce regional reports; Northwest, Southwest, Southeast and Wales
- Data refreshment to incorporate the new reactor workforce profiles
- Develop a process to map supply side data; mapping FE and HE training provision to industry demand.

5. NESAs Interventions & Activities

The following is a summary of interventions and activities which the NESAs Members (skills bodies) took to support the industry in addressing the challenges and skills gaps identified above.

5.1 Themes

This section has been organised into key themes from the Nuclear Lifecycle (see page 4) which are:

1. Sector Attraction
2. Recruitment and Retention
3. Professional Development
4. Knowledge Management and Transferability
5. *Funding

*Note: Funding has been added to the lifecycle themes in order to articulate some of the funding opportunities that exist to support this plan.

Theme 1: Sector Attraction				
Objectives:				
<ul style="list-style-type: none"> - Increase attractiveness of the sector - Increase diversity - Raise awareness of opportunities - Providing the right educational base 				
Existing Interventions		Specific Actions for 2015/6		
<ol style="list-style-type: none"> 1. STEM Ambassadors Programme – A network of over 29,000 volunteers raise awareness amongst school children of careers in science and technology. 2. Your Life Campaign instigated to ensure the UK has the maths and science skills required. 3. Nuclear Island Big Rig – a programme which immerses students in the simulated conditions of a nuclear licensed site. 4. Energy Foresight Programme – Interactive teaching resources to support the 21st Century science curriculum. 5. Energy Mix Challenge – Enables people to act as the Energy Minister for a day. 6. Programme of STEM Workshops developed. 7. Centres for Doctoral Training (CDTs) 	Action	Date (2015)	Update	Lead Skills Body
	<ol style="list-style-type: none"> 1. <u>Nuclear IP</u> <ul style="list-style-type: none"> • Programme of STEM workshops via the. Target 360 students participating. • Undergraduate Summer Schools. Target 30 Participants for summer 2015. • Give2Gain –target 1,050 	September	Total STEM learners = 779/360 target exceeded Summer Schools cancelled due to lack of employer interest G2G 1,657/1,050 learners target exceeded	NSAN / ECITB NSAN/ ECITB NSAN
	<ol style="list-style-type: none"> 2. UK Nuclear Skills Awards (Award categories to be reconfigured for 2016) 	March	8 th annual UK Nuclear Skills Awards delivered, 9 th currently in planning for 16 th March 2017	NSAN
	<ol style="list-style-type: none"> 3. Up-date Energy Foresight (EF) materials and made web based 	September	All EF materials fully updated and now available via NTN - Completed	NSAN

<p>established.</p> <p>8. Relationship developed with APM to promote PM & PC Careers. This has resulted in an illustrated Career Progression Route Map.</p> <p>9. Comprehensive programme of Young Generation Network (YGN) careers and STEM events established.</p> <p>10. Careers information for undergraduates and school age children for the nuclear sector developed in support of the Arkwright Scholarships for high performing 6th form students who are interested in a career in the sector.</p> <p>11. R&D, Subject Matter Experts (SME): increased pool of STEM personnel; early intervention- schools' events; continued advocacy for nuclear throughout education; 'teach the teachers'.</p> <p>12. The STEM Alliance, commissioned by the Education & Training Foundation, run a programme which brings together further education and industry to develop a higher level of competence, confidence and collaboration in STEM teaching and learning.</p>	<p>4. Big Bang Careers event: ECITB and NI have a combined exhibition stand at The Big Bang to promote careers in the industry.</p>	September	Completed	NI/ECITB
	<p>5. Use CDTs as a platform for activities, e.g. STEM Ambassadors, 'Meet the Nuclear Scientists', Small piece Summer School</p>	December	<p>Students trained as STEM Ambassadors and programme of student-led Outreach activities in place.</p> <p>Small piece school discontinued in 2015 and replaced by participation in St Paul's Science School, London, which is now being extended to NW England</p> <p>All these activities are ongoing</p>	Dalton
	<p>6. Graduate careers leaflet currently being produced.</p>	April	Delayed due to changes at NI - Ongoing	ECITB & NI
	<p>7. ECITB Theatre in Education Roadshow. 100 schools and 15,000 attendees</p>	December	Ongoing – Being completed by Smallpiece	ECITB
	<p>8. ECI Experience residential workshops</p>	July	Planning to run 2week workshops through Pre-Apprenticeship programme with 70 students	ECITB

Theme 2: Recruitment and Retention

Objectives:

- Increase the number of people choosing careers in the sector at all levels and career stages
- Retain workforce in the sector for the length of their careers
- Increase diversity

Existing Interventions	Specific Actions for 2015/6			
	Action	Date (2015)	Update	Lead Skills Body
<ol style="list-style-type: none"> 1. The Nuclear Delta™ which provides a definition of nuclear professionalism for the sector – http://www.nuclearinst.com/About/Nuclear-DELTA has been defined and agreed. 2. Construction standards of competence, pre-employment schemes, entry level qualification and apprenticeship frameworks for construction occupations agreed. 3. Funding (£100k) secured from industry to support the “Supply Chain Apprentices for Nuclear Manufacturing” initiative to increase the number of apprentices recruited into this field. 4. Job contexts (50) developed across the sector to ensure consistency and support retention. 5. Nuclear Skills Passport updated to include comprehensive competency framework and re-launched as NS⁴P. 6. Established relationship with the 	1. Develop programmes of joint membership and registration with IChemE to encourage professionals and technicians from other industries to join the nuclear sector.	August	Joint NI/NSA/IChemE formed and progressing detailed arrangements for Joint membership - roll out in 2017	NI / NSAN
	2. Further roll out of the joint NSAN/NI Apprenticeship approvals scheme to approve 18 programmes in total.	August	Target exceeded: 28 programmes approved	NI / NSAN
	3. Explore and develop SME career paths to allow flexibility in recruitment rather than the traditional ‘degree-PhD-industry’ path.	December	Action plan developed and will be taken up by successor to NESA HLS Group	Dalton
	4. Develop a Degree Apprenticeship in nuclear science and engineering.	September	Complete - The Standard and Assessment Plan are now both completed and approved by SFA and are available for employers on the portal. Candidates now enrolled and on the programme by Sellafield, Jacobs, BAE Systems, Westinghouse & MoD 89	NSAN

Talent Retention Solution (TRS). 7. Certificate of Nuclear Professionalism (CoNP) and the Award for Nuclear Awareness developed and offered by lead providers. 8. Triple Bar Programme			enrolments	
	5. Develop a nuclear mini-site on TRS and promote within the nuclear sector.	August	Complete – mini site now live on TRS	NSAN
	6. Nuclear IP <ul style="list-style-type: none"> Additional 25 apprentices (including providing a trained resource for the smaller supply chain companies). 40 traineeships (targets reduced due to early close of IPs) 	September	31 Apprentices via the Nuclear IP 33 Traineeships	NSAN NSAN
	7. Increase uptake in the CoNP by revisiting the structure and funding model.	August	Completed - CoNP being converted into a PGCert led by Aston University	NSAN
	8. The implementation of the Women in Work programme to improve the career progression prospects of women across the manufacturing sector through training, coaching and mentoring activities.	December	Ongoing	Semta
	9. Recruitment and development of approximately 750 apprentices a year	December	679 apprentices in 2015 and 335 in 2016	ECITB
	10. Continued development of the existing workforce and the development of mature individuals from allied industries, to maintain and increases the skills pool.	December	Ongoing	ECITB

Theme 3: Professional Development

Objectives:

- To develop a suitably skilled workforce trained to common industry standards
- To develop a workforce with the required levels of nuclear professionalism
- Address the lack of adequate and relevant experience in the sector

Existing Interventions	Specific Actions for 2015/6			
	Action	Date (2015)	Update	Lead Skills Body
<ol style="list-style-type: none"> 1. The formation of the Nuclear Institute to support development of the nuclear workforce at all levels demonstrating nuclear professionalism. 2. Development of a range of targeted short courses, apprenticeships and qualifications aimed at increasing competence via vocational learning and development. 3. Development of the Capability Model for the UK Nuclear Industry – Good Practice Approach to Training, Accreditation and Nuclear Professionalism, which incorporates the Competency Framework. 4. Comprehensive Nuclear Industry Training Framework (NITF) developed incorporating training standards, national occupational standards, qualifications, job contexts and training programme guidelines. 5. Development of (C)ILM award for construction based supervisors. 	1. Working with RSci and RSciTech to enhance entry routes and professional recognition for technicians.	December		NI
	2. The Competency Framework to be extended to incorporate an additional 5 Competency Sets.	August	Completed , 7 additional Competency Sets developed and agreed with industry experts	NSAN
	3. Pilot roll out of the Capability Model with 4 companies	September	Pilot complete. Rolling out to all members	NSAN
	4. Standards Advisory Group to review content of NITF, update as appropriate and gain wider industry adoption.	August	Ongoing activity under SAG	NSAN / Cogent Skills
	5. Implementation of (C)ILM award	December	Completed – for HPC	CITB
	6. Hold 2 workshops with employers to agree an approach to facilitate the development of nuclear experience for the supply chain and new entrants.	September	Replaced with discussions with NSAN Employer Advisory Board	NSAN

6. Site Safety Plus, Advanced Behaviours for Construction Supervisors				
	7. SCAN Target 22 additional apprentices Investment secured from the NDA, Sellafield Ltd, LLWR, AREVA and Magnox.	December	Target exceeded – additional 51 apprentices appointed via SCAN	NSAN
	8. Increase speed to competence towards specialist level. Through Nuclear Industrial Partnership, deliver 50 postgraduate training experiences within university setting and 10 industry secondments.	December	Target exceeded – 119 subject matter expert learning and development opportunities	NSAN/NNL/ Dalton
	9. Development of Project Management Conference and Mentoring Programme	December	Complete - Conference and RPP programme completed in September 2016	ECITB

Theme 4: Knowledge Management & Transferability

- Objectives:
- Expertise and knowledge to be retained for future generations
 - Ensure routes are available to transfer staff from other sectors and between sites
 - Encourage/facilitate employer learning and knowledge transfer programmes

Existing Interventions	Specific Actions for 2015/6			
	Action	Date (2015)	Update	Lead Skills Body
1) Nuclear Industry On-Line Learning Portal www.nucleartrainingnetwork.com (NTN) developed to provide industry wide access to key learning materials and information 2) To increase flexibility and mobility a suite of common Triple Bar induction programmes developed: <ul style="list-style-type: none"> • Existing Sites • Nuclear new Build Sites • Manufacturing • Security (with IAEA) 	1. Develop awareness of, and share, good practice on the management of knowledge of senior specialists	December	Ongoing	HLS Group Members
	2. To develop the Subject Matter Experts of the future to retain and develop the UK's nuclear expertise by pilot activity via the Nuclear Industrial partnership to appoint 10 Research Fellows and 50 specialist learners in priority disciplines, with the aim for further roll out in the future.	December	Target exceeded – 119 subject matter expert learning and development opportunities	NSAN/NNL/Dalton
	3. Increased use of the NTN to 15,000 users (cumulative total) and 10 additional courses/learner material added	December	Target exceeded – 18,000 registered learners on NTN & 12 additional programmes added	NSAN
	4. Take up of Triple Bar programmes 10,000 (cumulative total)	December	Target exceeded total = 15,992 Current Registrations= TBES 7,654; NNBS 7,328; NS 148; TBNM 862	NSAN
	5. Continue to work with TRS to ensure	December	Action Complete. TRS	ECITB

	that, as far as possible, engineering skills from other industries are not lost but transferred into engineering construction via reskilling programmes.		workshops held and forward plan is in progress.	
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Theme 5: Funding				
Objective:				
<ul style="list-style-type: none"> - To assist in addressing the skills issues and challenges identified access to funding is fundamental to the success of this Plan, detailed below are some avenues for securing funding. 				
Existing Interventions	Specific Actions for 2015/6			
<ol style="list-style-type: none"> 1. Where NESA outputs align with the NI's charitable objectives, funding for specific activities may be available. 2. Construction based businesses/employers can access funding and support services for skills and training via CITB. 3. Engineering Construction based businesses/employers can access funding and support services for skills and training via ECITB. 4. £4m accessed for the Nuclear Industrial Partnership to support attraction, recruitment and skills development across the sector in 2015 & 16. 5. Apprenticeship funding available via Supply Chain Apprentices for Nuclear 6. CNSiG funding of up to £1 million to support nuclear specific training development in 10 approved companies, plus Fit for Nuclear/MAS grants to help support business and skills development for the wider manufacturing supply chain. 7. Funding is available via Employer Ownership of Skills and MAS grants. 	Action	Date (2015)	Update	Lead Skills Body
	1. Align funding with UK strategic needs (e.g. as identified in R&D Roadmap); ensure funding mechanisms are appropriate for the long timescale required to develop specialised skills	December	Ongoing	Dalton/NNL /NSAN
	2. Further develop the NSAN funding paper to include all NESA available funding routes.	October	NSAN have completed, printed and widely distributed a paper on funding via NSAN. Details of other funding sources haven't been provided	All NESA Members
3. ECITB funding of nuclear specific programmes	December	Guide to Grants now include an extensive list of Nuclear programmes Action Ongoing through Regional Discretionary Grants and Learning and Development Projects.	ECITB	

1.2 Pinch Points

Each of the following skills shortages have been identified by the Nuclear Workforce Assessment Report 2014 and the Employer Engagement Workshops:

	Skill Pinch Point	Lead Skills Body
1	Project and Programme Management	ECITB
2	Quality Assurance and Quality Control	NSAN / NSAN-M
3	Manufacturing Engineers	Semta / Nuclear AMRC / NSAN-M
4	Design Engineers	NSAN-M
5	R&D, Subject Matter Experts	Dalton
6	Steelfixing	CITB
7	Construction Engineers	CITB
8	Concretors	CITB
9	Scaffolding	CITB
10	Civil Engineering Operatives	CITB
11	Construction Supervisors	ECITB
12	High Integrity Welders	ECITB
13	Control and Instrumentation	CITB
14	Human Performance and Human Factors	NSAN
15	Safety Case Specialists	NSAN
16	ONR Regulators	NSAN
17	Reactor Chemists and Reactor Physicists	Dalton
18	Non Destructive Testing	ECITB / Semta

The Nuclear Workforce Assessment also identified resource vulnerabilities in Commissioning Engineers and Heavy Electrical Engineers. These skill pinch points are absent from this Plan as the relevant interventions are currently being further explored and developed.

Pinch Point 1: Project and Programme Management

Objectives:

- General shortage of PMs of the right level and breadth of experience across the nuclear programme
- Lack of large construction PM experience
- Lack of experienced project control planners and risk managers
- No clearly defined career path for PM
- Transferability of staff from declining sectors

Existing Interventions	Specific Actions for 2015			
	Action	Date (2015)	Update	Lead Skills Body
1. Wide range of training programmes available e.g. APMP; CoNP modules; Foundation Degree PM; 2. Competency set for Project Management and Controls	1. Develop Project Controls Apprenticeship Trailblazer standard with nuclear focus.	November	Apprenticeship Level 3 Ready for Delivery , now working on possible higher level. Approx half of 43 employers are Nuclear/work in Nuclear sector.	ECITB
	2. Work with APM to promote PM & PC Careers.	December	MoU under development with APM due to be signed next year.	ECITB
	3. Encourage/facilitate employer learning and knowledge transfer programmes.	December	ECITB presented with Costain on careers at ICEAA Symposium & PC Expo 2016. Articles in ACostE Journal x 6 in 2015	ECITB

	4. Develop specific guidance documents focused on the complexity and types of work expected in the career development of a nuclear project manager.	December	In planning - Working Group in planning for 2017.	ECITB
	5. Development of nuclear PM conference and mentoring programme	December	Planning programme based on APM project complexity matrix, Working Group to be implemented as above.	ECITB
	6. Deliver ECITB/City and Guilds Project Controls Certificate. 60 learners	December	Completed Sept 16 including awarding RPP to successful candidates Project approved to develop nuclear contextualisation on course, in development for 2017 starts.	ECITB

Pinch Point 2: Quality Assurance and Quality

Objectives:

- Increase the number of people understanding the required nuclear quality codes and standards e.g. RCCM/E.
- Provide opportunities to develop UK experience of using these codes.
- Increase knowledge and understanding of the importance of quality across the sector at all levels

Existing Interventions	Specific Actions for 2015/6			
	Action	Date (2015)	Update	Lead Skills Body
1. Masterclass in Quality Management processes and documentation for leader and practitioners have been developed. 2. Awareness & Practitioner courses in RCCM/E have been developed.	1. Apprenticeship standard for Nuclear Welding Inspection Technician to be developed	Delivery to begin September	ACTION COMPLETED. The Standard and Assessment Plan for the NWIT Apprenticeship have been successfully developed and approved and published by SFA. 22 enrolments to date.	NSAN
	2. Quality Competence set developed – agreement to work with the Chartered Institute of Quality	August	Completed, now available via NS ⁴ P	NSAN
	2. Delivery of Masterclasses in Quality Management processes and documentation for leader and practitioners (c. 100 learners)	September	Target exceeded: 75 on Quality Management and 161 on new programme People and Process Excellence, Total = 236	NSAN-M

	3. Delivery of Awareness & Practitioner courses in RCCM/E (two courses of c. 10 learners each).	September	Target exceeded 209 completions of RCCM/E	NSAN-M
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Pinch Point 3: Manufacturing Engineers

Objectives:

Employers report a general shortage of suitably qualified and experienced 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:

- Increase the supply of:
 - Mechanical and electrical engineers
 - Pressure vessel engineers
 - Welding and fabrication engineers
 - Inspectors
 - NDT specialists
 - Estimators

Existing Interventions	Specific Actions for 2015/6			
	Action	Date (2015)	Update	Lead Skills Body
1. Programmes developed in: <ul style="list-style-type: none"> • Inspection – dimensional and metrology techniques • Engineers knowledge of CNC and advanced machining and welding • Engineering management and leadership • Estimating for and winning nuclear contracts • Supplier approvals, control and flow-down • Materials cleanliness and segregation 	1. Design, with employers, and launch suite of short and medium length courses combining practical skills training for graduate engineers with nuclear awareness, safety and quality culture learning – 2 cohorts of 10 leaners.	September	Action complete: Pilots took place in July 2015 – 4 courses developed in conventional machining, advanced machining, measurement & inspection and additive manufacture – awareness courses for nuclear manufacturing engineers delivered by AMRC/NAMRC experts 4 cohorts.	Semta, Nuclear AMRC and NSAN-M

Pinch Point 4: Design Engineers

Objectives:

- Address the shortage of the full range of design engineers including:
 - 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).

Existing Interventions	Specific Actions for 2015/6			
	Action	Date (2015)		Lead Skills Body
1. Training developed in all the above topics e.g. practical CNC machining techniques for design graduates and the link between quality and safety (QRAs) 2. Apprenticeship framework for Design Engineers developed	1. Recruit 35 Design apprentices	September	Action complete NW/NE ~ 36	NSAN
	2. Pilot the design for manufacture course at the AMRC-Training Centre (12 learners)	October	Target exceeded Developed into Manufacturing Controls course – 356 learners	NSAN-M

Pinch Point 5: R&D Skills; Subject Matter Experts

Objectives:

- Improve the visibility of the requirement of highly specialised personnel
- Improve the succession planning and knowledge management to address the age profile of existing population

Existing Interventions	Specific Actions for 2015/6			
	Action	Date (2015)	Updates	Lead Skills Body
1. Doctoral training (including organised programmes CDTs, RCUK consortia, Sellafield Centres of Expertise, NDA bursaries) in place.	1. Compare organisational programmes and succession planning, and share good practice	December	Completed. Accelerated experience' working group convened June 2016; position paper produced for development by successor to HLS Group	Dalton
	2. Strengthen evidence base by publishing case studies	October	Not completed. The purpose of these was questioned, so it will be discussed with the NESAs HLS Group successor.	Dalton
	3. Analysis of supply vs demand	December	Ongoing. Carried forward to HLS Group successor	Dalton
	4. Identify measures to integrate 'speed to competence' into doctoral training	December	Completed. Covered by 'Accelerated experience' - see 1 above	Dalton
	5. Develop the Subject Matter Experts of the future to retain and develop the UK's nuclear expertise by pilot activity via	September	Target exceeded – 119 subject matter	NSAN

	the Nuclear Industrial partnership appoint 10 Research Fellows and 50 specialist learners in priority disciplines, with the aim for further roll out in the future.		expert learning and development opportunities	
	6. Work with NNL & Dalton to review the Higher-Level Skills group strategy and develop an implementation plan.	September	Completed	NSAN/Dalton/NNL

Pinch Point 6: Steelfixing

Objective:

- Increase the number of steelfixing apprentices in order to satisfying the future market demand.
- Mitigate consequences of delay to Hinkley Pont C projects impacting employment and skills agenda.
- Address the challenges caused by major infrastructure programme on capacity and recruitment for construction engineers.
- Address the continuity of employment of apprentices as the supply chain does not have the capacity to keep them employed in the lead up to major projects.

Existing Interventions	Specific Actions for 2015/6			
1. Identified as priority occupation – Nuclear Scenarios Report (CITB 2012). 2. Development of Level 2 Steelfixing training qualification 3. Approval of apprenticeship framework	Action	Date (2015)	Updates	Lead Skills Body
	1. Investment funding review – consult with sector employers, federations and associations in order to ensure CITB’s funding meets needs of industry needs and priorities. Introduce phased programme of improvements from early 2016.	November	Complete. Details can be found at this link . Over £1.3m awarded to 150+ projects so far.	CITB
	2. Develop collaborative tier 1 and JV project to support the attraction, selection, recruitment, training, employment of apprentices for pinch point occupations for major projects.	December	Work ongoing through Go Construct and engagement with HPC Education team. Also see update 3	CITB
	3. Fund pilot project to test methodology for Major Project pinch point occupations.	September	Awaiting funding application from contractors after support given to develop	CITB

	4. Update occupational LMI for occupation.	October	Not complete for NNB alone but CSN data available nationally and for regions. Click here. the bid.	CITB
	5. Promote NNB and steel fixer CIAG in phase 1 of 'Go Construct' launch (including earning profiles, qualification and training pathways, trends and forecasts and progression opportunities).	October	Complete. See this link.	CITB

Pinch Point 7: Construction Engineers

Objectives:

- Mitigate consequences of delay to Hinkley Pont C projects impacting employment and skills agenda.
- Address the challenges caused by major infrastructure programme on capacity and recruitment for construction engineers.
- Address the continuity of employment of apprentices as the supply chain does not have the capacity to keep them employed in the lead up to major projects.

Existing Interventions	Specific Actions for 2015/6			
	Action	Date (2015)	Updates	Lead Skills Body
1. Developed Careers Information Advice and Guidance (CIAG) highlighting engineering careers pathways 2. Promotion of sector careers at careers events 3. Publication of Build Britain's Energy Future CIAG	1. Investment funding review – consult with sector employers, federations and associations in order to ensure CITB's funding meets needs of industry needs and priorities. Introduce phased programme of improvements from early 2016.	November	Complete. Details can be found at this link . Over £1.3m awarded to 150+ projects so far.	CITB
	2. Support development of Laing O'Rourke 'Digital Engineering' training framework as progression pathway into Construction Engineering.	November	Standard approved at level 3	CITB
	3. Update occupational LMI for occupation.	October	Not complete for NNB alone but CSN data available nationally and for regions. Click here.	CITB
	4. Promote NNB and construction engineering occupations CIAG in phase 1 of 'Go Construct' launch (including earning profiles, qualification and training pathways, trends and forecasts and progression opportunities).	October	Complete for <i>civil engineer</i> . See this link.	CITB

Pinch Point 8: Concretors

Objectives:

- Address the shortfall of concretors to support the workforce projections for the NNB programme that indicates that concretors are likely to make up 5% of total civils trade requirement.
- To ensure the qualification frameworks and training delivery meet the needs of the NNB within the context of a broader infrastructure programme.

Existing Interventions	Specific Actions for 2015/6			
	Action	Date (2015)	Update	Lead Skills Body
1. Publication of Build Britain's Energy Future CIAG	1. Investment funding review – consult with sector employers, federations and associations in order to ensure CITB's funding meets needs of industry needs and priorities. Introduce phased programme of improvements from early 2016	December	Complete. Details can be found at this link . Over £1.3m awarded to 150+ projects so far.	CITB
	1.a) <i>Work with providers and FE – develop capacity for delivery of concretor training. (HPTA, TUCA and NCC)</i> 2.	December	Complete NCC have further developed our reinforced concrete 3 day training course aimed at supervisors. ¹	CITB
	1.b) <i>Pump prime 200 infrastructure apprenticeship opportunities with tier 1 contractors supporting UK major projects. Support apprenticeship opportunities – develop 'placement' opportunities for apprentices for tier 1 and supply chain partners through pilots and NSAfC.</i>	December	Awaiting funding application from contractors after support given to develop the bid.	CITB

	2. Develop collaborative tier 1 and JV project to support the attraction, selection, recruitment, training, employment of apprentices for pinch point occupations for major projects.	November	Work ongoing through Go Construct and engagement with HPC Education team. Also see update 3.	CITB
	3. Fund pilot project to test methodology for Major Project pinch point occupations.	December	Awaiting funding application from contractors after support given to develop the bid.	CITB
	4. Update occupational LMI for occupation.	October	Not complete for NNB alone but CSN data available nationally and for regions. Click here.	CITB
	5. Promote NNB and concrete occupations CIAG in phase 1 of 'Go Construct' launch (including earning profiles, qualification and training pathways, trends and forecasts and progression opportunities).	October	Not complete.	CITB

Pinch Point 9: Scaffolding

Objective:

- Address the shortages of Scaffolders although the number required will be impacted by the build methodologies as they become defined across the NNB programme.

Existing Interventions	Specific Actions for 2015/6			
	Action	Date (2015)	Update	Lead Skills Body
	1. Further investigate impact of scaffolding as a pinch point for HPC –anecdotal feedback queries the need for immediate intervention.	March	NASC and CISRS feel that supporting HPC does not need to be an immediate intervention.	CITB
	2. Investment funding review – consult with sector employers, federations and associations in order to ensure CITB’s funding meets needs of industry needs and priorities. Introduce phased programme of improvements from early 2016	March	Complete. Details can be found at this link . Over £1.3m awarded to 150+ projects so far.	CITB
	3. Support and promote apprenticeship opportunities – develop ‘placement’ opportunities for apprentices for tier 1 and supply chain partners through pilots and NSAfC.	September	Work is ongoing with Apprenticeship team and local CITB Advisers.	CITB

Pinch Point 10: Civil Engineering Operatives

Objective:

- Increase the number of Civil Engineering Operatives to meet the peak demand over a number of years with overlapping NNB projects and the broader national infrastructure programme. This will impact the sector ability to resource these occupations nationally.

Existing Interventions	Specific Actions for 2015/6			
<ol style="list-style-type: none"> 1. Developed CIAG civil engineering pathways 2. Promotion of Civil Engineering sector careers at careers events in partnership with CECA 3. Promotion of Civil Engineering sector careers at careers events 4. Publication of Build Britain's Energy Future CIAG 	Action	Date (2015)	Update	Lead Skills Body
	<ol style="list-style-type: none"> a) Reinstatement Level 2 competence qualifications for Civil Engineering Operations b) Ensure clear progress pathway to Level 3 competence qualifications. c) Pump prime 200 infrastructure apprenticeship opportunities with tier 1 contractors supporting UK major projects. Support apprenticeship opportunities – develop 'placement' opportunities for apprentices for tier 1 and supply chain partners through pilots and NSAfC. 	March	General Construction Ops is being headed up by BamNuttal and consultant Nick Gooderson it is in the process of EOI after a challenge to government about the occupation	CITB
	<ol style="list-style-type: none"> 1. Investment funding review – consult with sector employers, federations and associations in order to ensure CITB's funding meets needs of industry needs and priorities. Introduce phased programme of improvements from early 2016. 	December	Complete. Details can be found at this link . Over £1.3m awarded to 150+ projects so far.	CITB
	<ol style="list-style-type: none"> 2. Level 2 competence qualifications for Civil Engineering Operations to provide clear entry level pathway. 	September	General Construction Ops TB is being headed up by BamNuttal. No other action completed	CITB
	<ol style="list-style-type: none"> 3. Develop collaborative tier 1 and JV project to support the 	November	Awaiting funding	CITB

	attraction, selection, recruitment, training, employment of apprentices for pinch point occupations for major projects.		application from contractors after support given to develop the bid.	
	4. Fund pilot project to test methodology for Major Project pinch point occupations.	December	Not complete for NNB alone but CSN data available nationally and for regions. Click here.	CITB
	5. Update occupational LMI for occupation.	October	Complete	CITB
	6. Promote NNB CIAG in phase 1 of 'Go Construct' launch (including earning profiles, qualification and training pathways, trends and forecasts and progression opportunities).	October	Complete for <i>Civil Engineer</i> . See this link.	CITB

Pinch Point 11: Construction Supervisors

Objectives:

- Mitigate consequences of delay to Hinkley Pont C projects impacting employment and skills agenda.
- Address the challenges caused by major infrastructure programme on capacity and recruitment for construction engineers.
- Address general shortage of supervisors at all levels for all ECI & Construction.
- Employers to recruit, develop and retain good quality Supervisory staff.

Existing Interventions	Specific Actions for 2015/6			
1. Programmes launched for all three levels. Supervisory programmes available 2. Nuclear training included in ILM Nuclear unit. 3. Cross sector human performance training standard aligned with the INPO standard but appropriate for use in the wider power generation sector and other allied sectors developed. 4. Team of Training Provider Account Managers to work with TPs to do this. 5. Existing programmes mapped to CILM	Action	Date (2015)	Update	Lead Skills Body
	1. Create & promote suitable development programmes for: <ul style="list-style-type: none"> • Working supervisor/ chargehand /ganger. 400 learners • Staff supervisor/foreman. 1600 learners • Senior supervisor/superintendent. 250 learners 	October	Complete	ECITB
	2. Develop training capacity and increase number of providers by two.	October	Target Exceeded 6 companies added	ECITB
	3. Development of consistent, transferable training & qualifications. Training to be mapped to wider standards (CMI/ILM) where possible. Numbers of learners, see 1 above	October	Complete - mapped to CILM L3, CMI+ILM L2,3,5	ECITB
	4. Engage with clients to promote transferability & recognition. Throughout the year at 18 Regional Forums and at CPCG	October	Promoted in all R&D Forum presentations, also some Ops	ECITB

Pinch Point 12 – High Integrity Welders

Objectives:

- Develop sufficient supply of good high integrity welders to meet future demands of the UK nuclear programme as new build projects come on stream in both ECI and manufacturing.
- Employers to recruit, develop and retain UK-sourced high integrity welders.

Existing Interventions	Specific Actions for 2015/6			
	Action	Date (2015)	Update	Lead Skills Body
<p>1. Suites of Training Standards specifically targeted at the NNB & ECI power generation supply chain for High Integrity Welding (HIW).</p> <p>2. Two new qualifications for HIW:</p> <p>1. L4 Diploma in High Integrity Welding in Engineering Construction.</p> <p>2. L4 Diploma in Managing Welding Operations.</p> <p>3. 93 individuals have completed HIW training units with funding support from an EOS project. Development of the specification for a new qualification - the Level 3 Diploma in High Integrity Welding (QCF). This is aimed at addressing the skills gap in manufacturing for high integrity welders</p>	1. Promote welding in STEM events to schools and colleges with emphasis on future growth to coded and high integrity welding skills. See Sector Attraction Theme	December	Ongoing promotion through Smallpiece Trust	ECITB
	2. Engagement between employers, Professional Bodies and Awarding Organisations to ensure that all strategies align and provide a coherent training and employment strategy with clear progression routes.	November	Involved TWI, SEMTA in order to develop coherent product and service to industry	ECITB
	3. A further 35 HIW to undergo the training	November	26 complete since 2013 to March 2015	ECITB
	4. Finalise development of new Trailblazer Apprenticeship Standard in Welding and develop Assessment Strategy and implementation plan.	December	Apprenticeships for level 2 and 3 welders complete - ready for delivery	ECITB
	5. Continue with Welding Apprenticeship Framework. 70 apprentices.	September	Target Exceeded Level 2 - 96 Level 3 - 77	Trailblazer Group

Pinch Point 13: Control and Instrumentation

Objectives:

- Address the general shortage of control & instrumentation engineers and technicians at all levels for all ECI industry sectors including Nuclear.
- Employers to recruit, develop and retain good quality C&I staff.
- Sufficient C&I capability and capacity to deliver the UK Nuclear Programme.

Existing Interventions	Specific Actions for 2015/6			
	Action	Date (2015)	Update	Lead Skills Body
1. Currently there are 135 apprentices undergoing I&C apprenticeships in the EC industry and many of these are within companies that make up the nuclear new build supply chain. 2. Training provider account management team in place to support development of the provider network.	1. Continue to promote I&C apprentices to increase intake - Number of apprentices 35.	September	Complete including 21 registered on ECITB programme	ECITB
	2. Engage with clients to promote transferability & recognition. Throughout the year at 18 Regional Forums and at CPCG.	December	Complete – presented at all regional forums	ECITB

Pinch Point 14: Human Performance and Human Factors

Objective:

- To support the development of the appropriate nuclear specific behaviours and attitudes that need to be embraced across the nuclear sector to ensure safe working practices, addressing the lack of consistency in standards and the shortage of available training provision

Existing Interventions	Specific Actions for 2015/6			
1. A set of 3 Human Performance Standards developed and agreed with INPO and the HuP Forum 2. Training programmes developed aligned to the HuP standards 3. Lead providers appointed to deliver the HuP programmes 4. Funding accessed to support the uptake of HuP provision across the supply chain 5. Human Factors awareness included in the Human Performance Practitioner standards and training	Action	Date (2015)	Update	Lead Skills Body
	1. Ongoing delivery of the HuP programmes 440 courses delivered	July	Target exceeded 487 learners	NSAN
	2. Funding accessed and provided to the supply chain to support up-take of delivery	September	Completed: All courses delivered via Give2Gain of CNCIG funding	NSAN
	3. Review of HuP provision to see if additional providers are required	September	Complete	NSAN
	4. Quantify the Human Factors issues and challenges and plan interventions as required.	September	Completed: The areas to be improved are: <ul style="list-style-type: none"> • Increasing the number of people taking HF based degree courses • Creation of conversion courses to help reskill and upskill people • Creation of HF courses for Design Engineers 	NSAN

Pinch Point 15: Safety Case Specialists (see appendix 1 for data sheet)

Objectives:

- Reduce the impact of cost increases that can be the outcome of a skills shortage as companies poach scarce resource from one another
- Mitigate the delays to the nuclear programme due to a shortage of safety case specialists

Existing Interventions	Specific Actions for 2015/6			
<p>Significant work has been undertaken to explore the challenge however due to the competitive nature of this discipline there has been no significant appetite to date to work together on joint solutions with the exception of:</p> <p>a) The development of a suite of Job Context’s and Industry Training Standards which could be used as a guide to those organisations to “grow their own” expertise</p> <p>b) The development of a competence set for the discipline of safety case within the NS⁴P enabling organisations to review and plan their capability.</p> <p>c) The development of a safety case module on the Certificate of Nuclear Professionalism.</p>	Action	Date (2015)	Updates	Lead Skills Body
	1. Establish clarity as to the real scale and nature of the challenge.	September	Work underway to explore the potential for a Safety Case apprenticeship	NSAN
	2. Seek to engage industry leaders in agreeing further collaborative solution’s if required. 3.	September	New programme developed and offered by NHC	NSAN
	4. Gain traction in the implementation of existing developments. 5.	September	To be developed in future	NSAN
	6. Series of mentoring, career support and networking events on Safety Case.	November	Complete. Although new standard to be developed for safety case under the management of SAG.	NI

Pinch Point 16: ONR Regulators

ONR is currently facing a significant challenge to meet the regulatory demand if it is to continue to meet its mission of securing the protection of people and society from the hazards of the nuclear industry. ONR already know that they need to meet the growing demands from:

- Generic Design Assessment (GDA) – it is crucial that ONR is able to provide a timely and responsive approach to support the programme of work on GDA as this progresses
- New Build – need to plan to be able to support the expected programme for New Build as part of delivering the Government’s longer term energy strategy for the UK
- Decommissioning – there is a drive to significantly reduce the timescales for decommissioning and ONR will need to be able to respond to additional demands that will facilitate this
- Existing fleet - there will remain a need to be able to increase support for the existing fleet of civil nuclear reactors as they look to extend beyond previous life spans, and the issues this will raise, while also maintaining effective support for any military need

As a consequence of insufficient numbers ONR is trying a number of approaches in the external recruitment of Nuclear Safety Inspectors, to mitigate against this risk.

Existing Interventions	Specific Actions for 2015/6			
	Action	Date (2015)	Updates	Lead Skills Body
1. Introduced ONR to nuclear graduates which they are now using 2. Development of industry On Line Learning Portal - Nuclear Training Network as a resource to share learning materials – helps with knowledge retention 3. Equivalence - for candidates with a sound technical knowledge of their discipline area but with inadequate nuclear/high hazard experience. Successful candidates are appointed on a non-nuclear pay range and	1. Work with ONR and SDF to develop a Competency Set for Nuclear Security	August	Completed	NSAN
	2. Raise awareness with ONR of potential recruitment solutions such as TRS	December	Completed	NSAN
	3. Engage ONR in the development of other Competency Sets to ensure alignment and suitability.	September	Completed	NSAN
	4. Advertising roles at a higher level (Band 2 Nuclear Specialist Inspectors)	September	Completed	NSAN
	5. Equivalence – work with ONR to continue this recruitment	August	On-going	NSAN

<p>undertake a period of equivalence, which involves their attendance on technical and legal courses, the gathering of a portfolio of evidence against agreed competency areas and eventual sign off by an equivalence panel from within ONR.</p> <p>4. Secondments to ensuring the widest possible talent pool, have successfully recruited four from six female nuclear graduates for the 2015 cohort.</p>	<p>route which to date has brought particular success in out very scarce skill areas and is an approach we will continue to explore.</p>			
	<p>6. Work with ONR to continue their part in the industry wide nuclear graduates programme.</p>	<p>December</p>	<p>Completed, ONR now actively participating in programme and are also now looking at the graduate apprentice option</p>	<p>NSAN</p>

Pinch Point 17: Reactor Chemists & Reactor Physics

Objectives:

- Only limited numbers required, hence can lack visibility
- Age profile of existing population
- Changes in scope of role and numbers required due to new reactor types and new generations of reactors
- Long lead time to development of next generation
- Limited capacity to develop skill set in the UK

Existing Interventions	Specific Actions for 2015/6			
	Action	Date (2015)	Update	Lead Skills Body
1. Individual organisational development programmes	1. Compare organisational programmes and succession planning, and share good practice	December	Not Progressed due to other priorities	N/A
	2. Analysis of supply vs demand.	December	Not Progressed due to other priorities	N/A

Pinch Point 18: Non Destructive Testing Engineers (see appendix 1 for data sheet)

Objective:

- Address the general shortage of NDT specialists, in particular those with advance techniques required for nuclear work.

Existing Interventions	Specific Actions for 2015/6			
1. NDT apprenticeship standard Trailblazer has been established 2. A cross sector human performance training standard has been developed that is aligned with the INPO standard. This is appropriate for use in the wider power generation sector and other allied sectors.	Action	Date (2015)	Update	Lead Skills Body
	1. Continued implementation of NDT apprenticeship	December	Continuing with promotion - 13 started this year	ECITB/ Semta/
	2. Create a suitable development programmes for both NDT Engineers and Technicians.	December	Triple Bar Nuclear Manufacturing course developed – 862 learners	NSAN-M
	3. Development of the training provider network.	September	Development ongoing Aplus and Fife College added to network – network now well established	ECITB

6. The way forward

This close our report details all of the excellent actions and interventions completed by the NESA members up until December 2016. This was a superb effort and has been instrumental in laying down the frameworks and infrastructure to allow employers to invest in recruitment and training of its staff in order to meet the future challenges of the industry.

This good work will be taken forward under the direction of the newly formed NSSG and its detail delivery plan. Further details of its membership, operating model and Strategic plan can be found at:

<http://www.cogentskills.com/nssg>