

Nuclear Skills Strategy Group (NSSG)

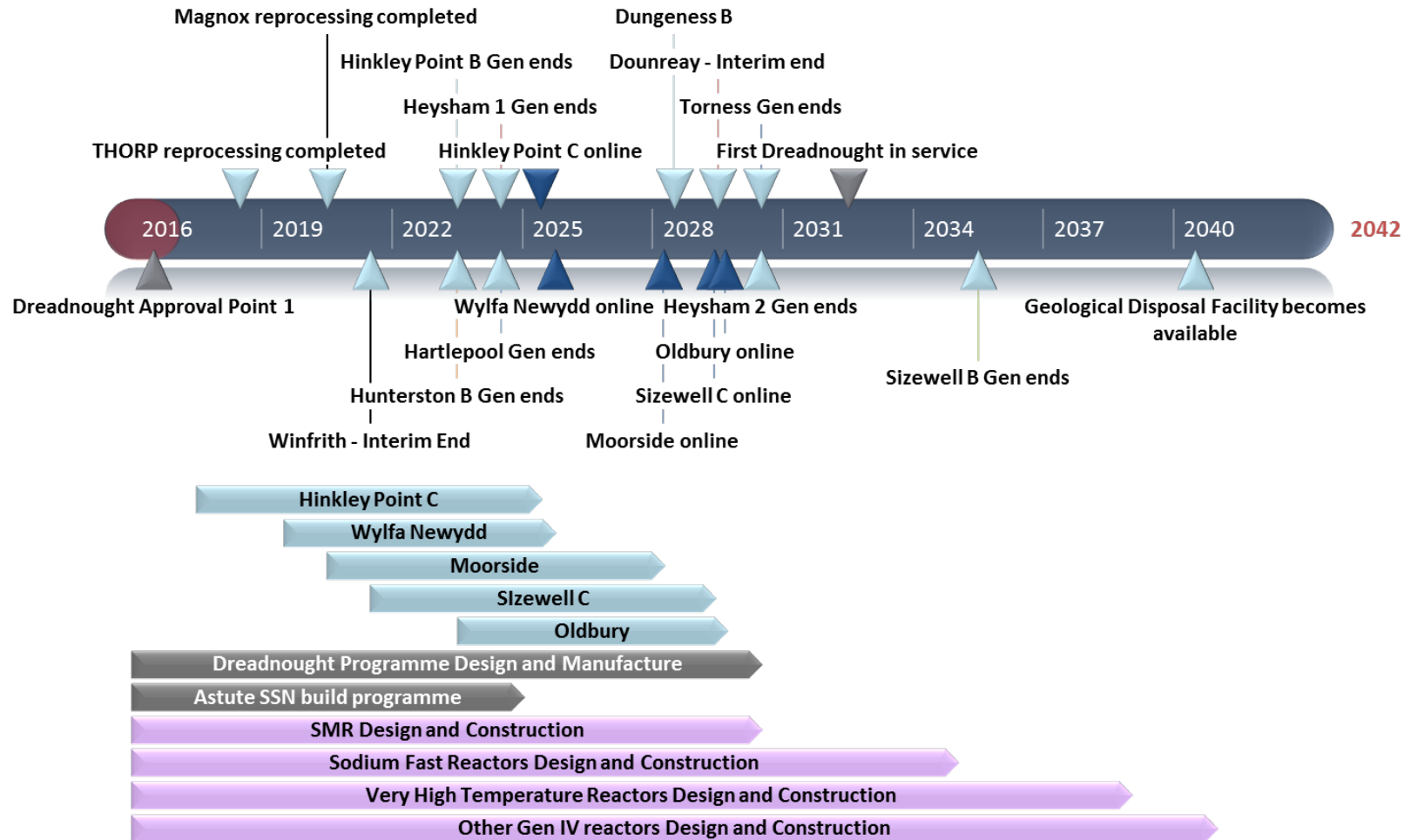
UK Nuclear Academics Meeting

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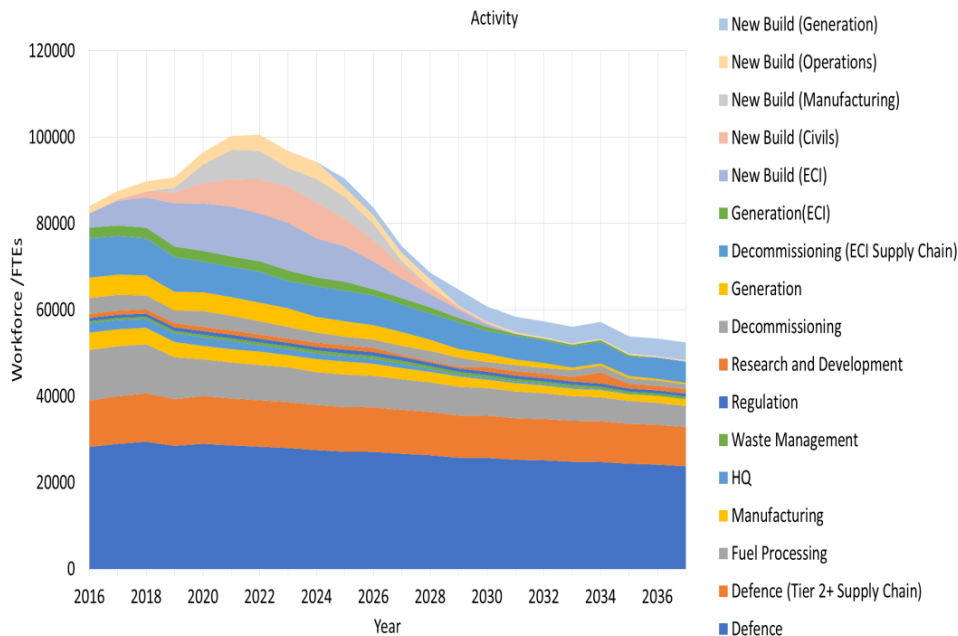
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Nuclear Timeline - 2017



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Overall workforce demand - 2017



- Total workforce demand is expected to grow from ~88,000 in 2017 to ~101,000 in 2021
- Average “inflow” is ~7,000 FTEs per annum
- 22% of the workforce is female (28% in civil, 12% in defence)
- 81% generic skills, 18% nuclear skills, 1% subject matter experts
- 3300 trainees total in SLCs and Defence Enterprise (16% graduate trainees)
- At peak demand on Civils Construction, over 4,000 workers will be required on each nuclear new build site
- Manufacturing workforce is expected to rise from around 4,000 in 2014 to 8,500 at the peak of onsite activity in 2025

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Nuclear Skills – Within the Next Decade

- AGR extensions
- AGR Closure Programme
- LWR New Build - 18GWe
 - Mixture of EPR, ABWR and AP-1000
- SMR development
- Geo Disposal Facility
- Pu Disposition
- Moving from recycling fuels to storage and disposal
- Storage of new types of used fuel
- Beyond 18GWe - further nuclear expansion?

At a time of an ageing nuclear workforce with the challenge of transferability to the next generation.

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Nuclear Innovation Research Advisory Board - Recommendations for research in 5 areas

- **Future Fuels** - Making more efficient, safer fuels of the future.
- **21st Century Nuclear Manufacture** - Advanced materials and manufacturing - modular build in nuclear factories of the future.
- **Reactor design** - Delivering the people, processes and tools to make the UK the partner of choice as the world designs SMRs and 4th generation nuclear power plants.
- **Recycling Fuel for Future Reactors** - Cost effective technologies to deliver a secure and sustainable low carbon fuel supply.
- **The UK's Strategic Toolkit** – Informing and underpinning decisions on which emerging nuclear technologies could be brought to market to give the best economic return for the UK.

Maintenance and creation of specific high level skills, together with the acceleration to competence of these skills will play a significant future role

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Meeting the needs - Strategic Action Plan

Enabling Themes

- **A clearly defined and NSSG endorsed skills operating model** - for simplicity, completeness and clarity
- **An agreed nuclear timeline and clarity of demand requirements** - providing clarity of the current nuclear programmes and resource demands

Key strategic themes

- **Meeting the demand** - attracting and recruiting a diverse range of people into the sector and retaining them with the appropriate level of knowledge transfer in order to minimise the number of fragile skills
- **Training infrastructure and provision** - enabling the best nuclear training provision at required regions
- **Training standards and qualifications** - including an appropriate and consistent approach across the UK



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Sector Deal for Nuclear

- NIA are leading this on behalf of the NIC and Lord Hutton
- Working group comprises of NIA, NAMRC, NIRO and NSSG

- **Deal will comprise:**
 - Top Level Document supported by detail tables, articulating:
 - Current state of industry,
 - Presents a long term vision
 - Top-level requirements

- **Deal consists of six sections**
 - New Build
 - Decommissioning and Waste Management
 - Future Technology and Programmes
 - Regulation
 - Maximising Economic Benefit for the UK (Supply Chain)
 - Skills and Training



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.. And a few extracts

➤ **Future Technology**

- Regaining ownership of significant aspects of reactor technology
- SMR development
- Targeting specific research to develop the next generation of experts

➤ **Maximising Economic Benefit**

- Focus on technology development and manufacturing innovation
- Cost reduction (New Build, Construction techniques and Modulation)
- National method of equipment qualification for safety-critical components

➤ **Skills and Training**

- Increased employer involvement in education and training (tutors and facilities)
- Improved collaboration between Civil and Defence sectors
- National data-base of experts capable of lecturing to be explored