

Are you fit for nuclear?

Opportunities in the nuclear sector

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NUCLEAR SECTOR IN THE UK

Nuclear plays an increasing role in meeting UK's future energy needs:

- To offset **climate change** and cut down greenhouse emissions
- To address the future **gap in the supply of energy**

Nuclear power, along with renewable energy, is part of the solution because it is low carbon, affordable, dependable and offers a secure supply.



NUCLEAR SECTOR IN THE UK

- The sector is rapidly growing and must expand its supply chain
 - Industry plans to construct 16GW of new power stations in the UK by 2030 (investment of £60bn) through the delivery of **12 reactors on five sites**
 - potential of supporting **30,000 new jobs**



Purpose of Enhanced Fit For Nuclear

A partnership between MAS and Nuclear AMRC
Goal is to increase UK Content & Capability

- 500 companies
- 300 on site diagnostics + gap analysis + action plans
- 125 Business Excellence Programs
- 20 Intensive R&D projects
- November 2014 to December 2015

WHAT CAN F4N DO FOR YOU?

Develop a stronger
position in the
nuclear sector

Establish potential
routes to market

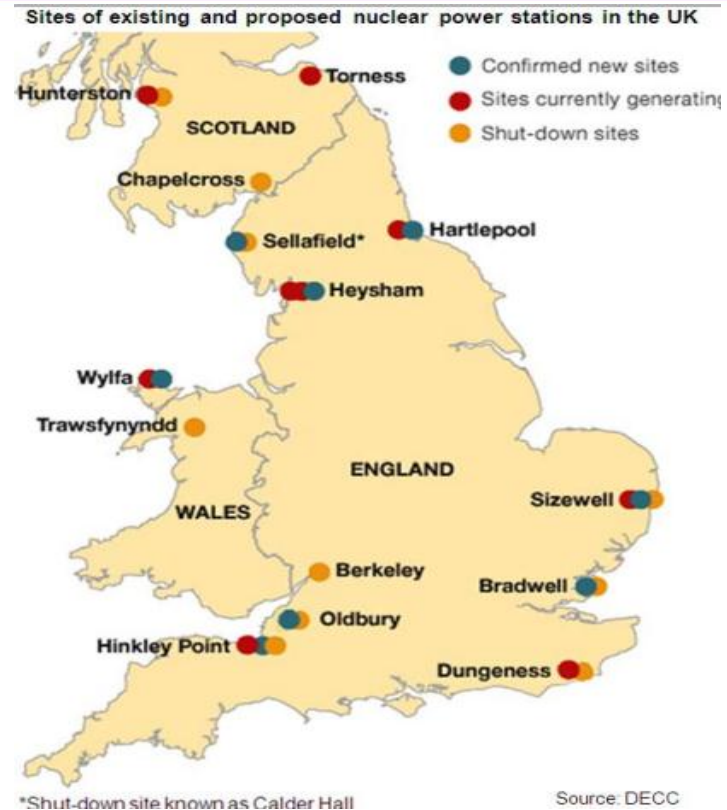
Identify gaps
between your
current capabilities
and nuclear client
demands

Address and close
any gaps

Become more
attractive to nuclear
sector buyers

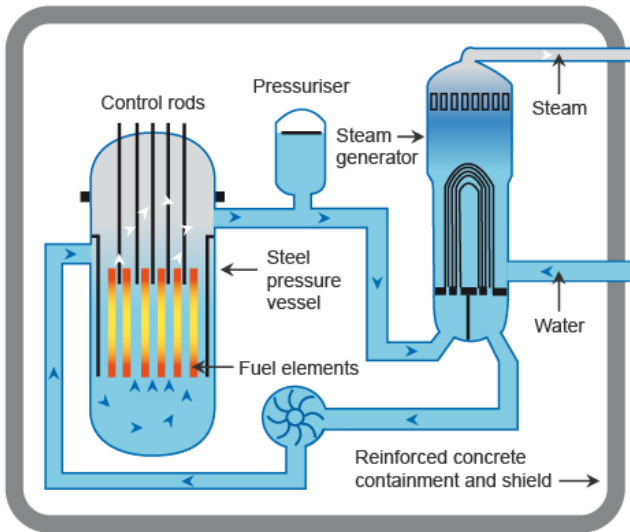
EXISTING AND PROPOSED POWER PLANTS - UK

1. Decommissioning
2. New Build
3. Maintenance

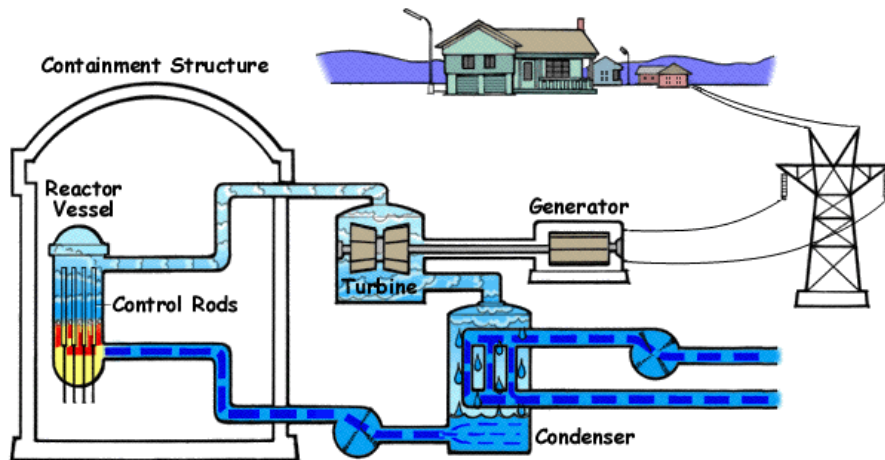


Typical Gen III reactor.

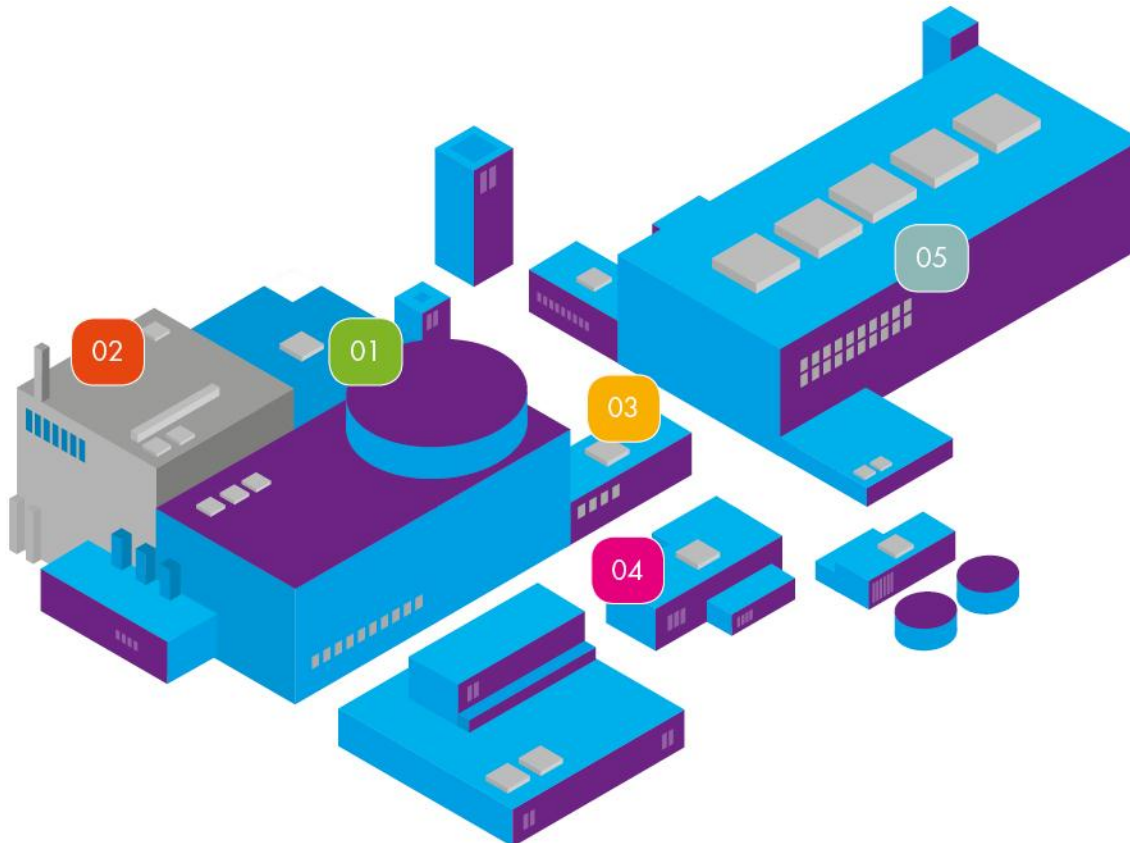
A Typical Pressurized Water Reactor (PWR)



EDF design of Pressurised Water Reactor.
Control rods drop in failure mode.
Most of the active water contained in vessel in primary loop.



Boiling Water Reactor,
AP1000,
Control rods have to be
powered up in to place.
Active water comes out of the
vessel in the primary loop.

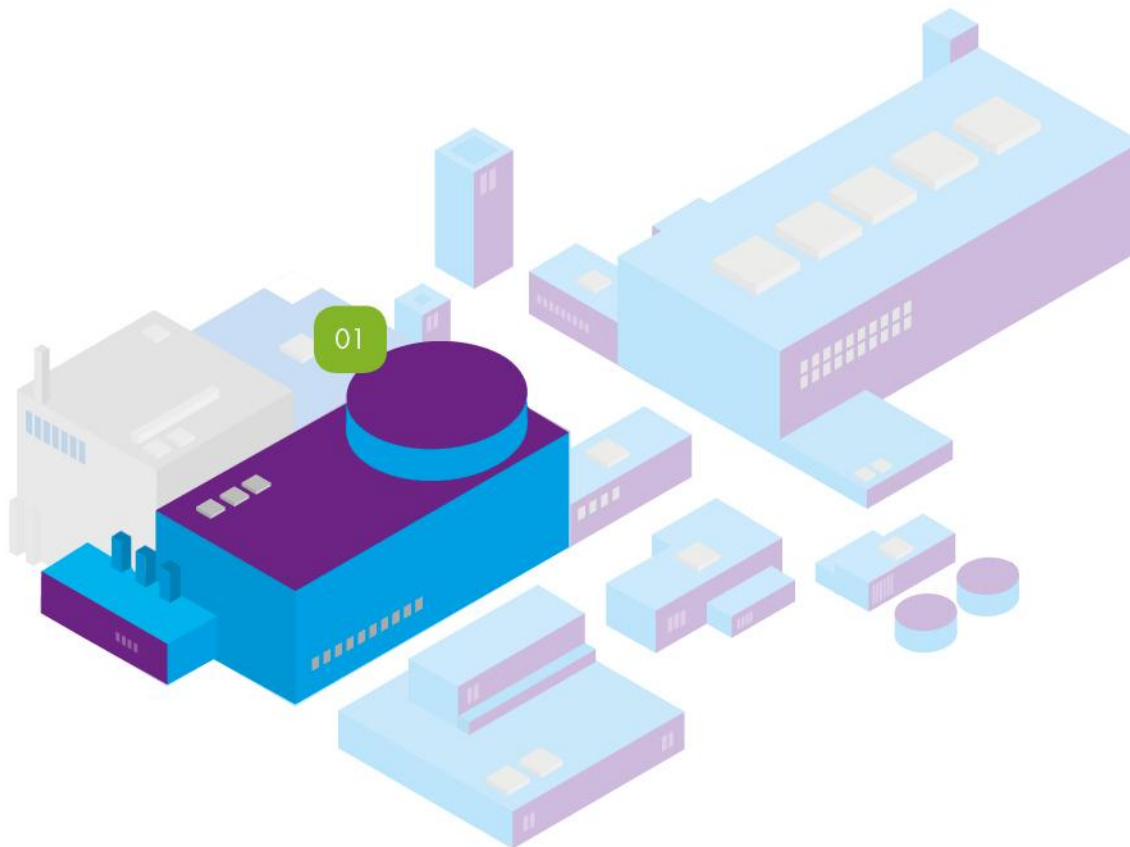


Real market opportunities for manufacturing businesses

Take a brief tour of a generic power plant and discover some of the supply chain requirements involved in building it. Find out where your business might best fit in the supply chain and let us help get your business ready to expand into Nuclear & make the right industry connections.

- 01 Reactor Building
- 02 Fuel Building and Waste Buildings
- 03 Safeguard and Auxiliary Buildings
- 04 Diesel Building
- 05 Turbine Building

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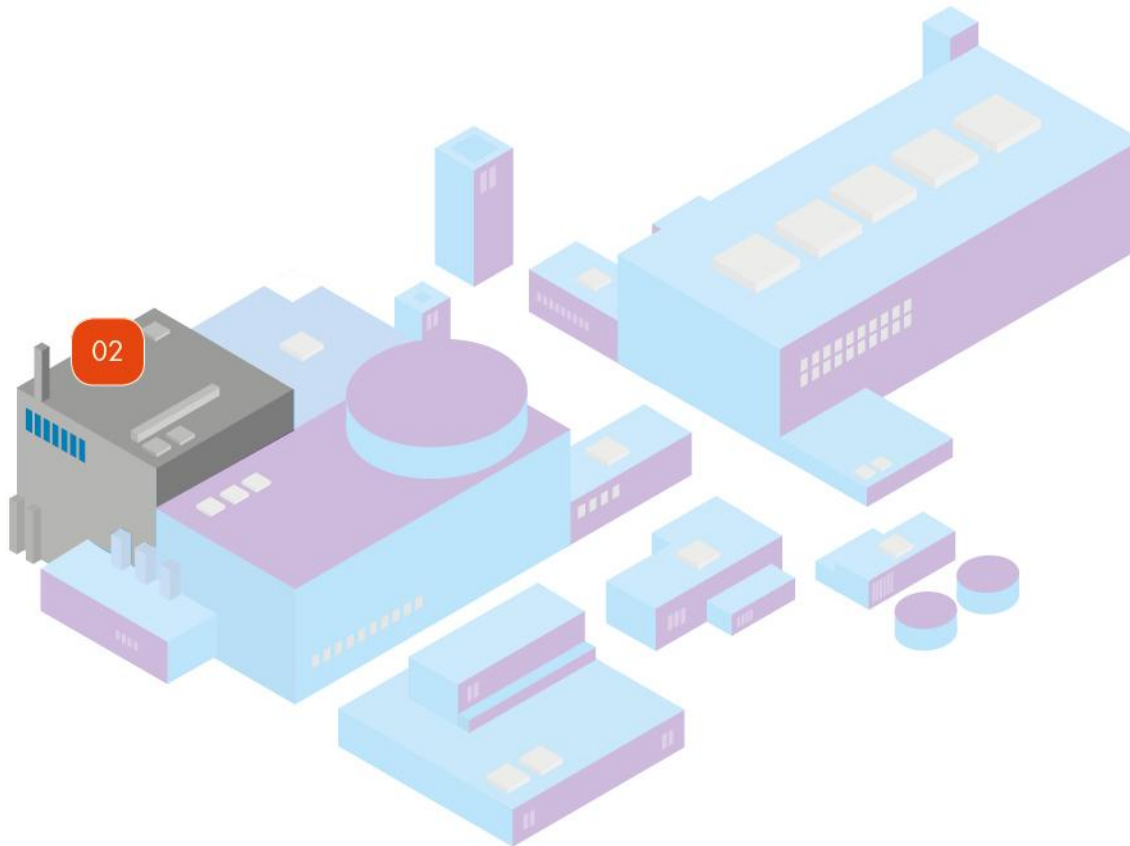
REACTOR BUILDING

There are very limited UK manufacturing opportunities within this Building. Classification requirements, relating to high-risk components could make supplying into area prohibitive to UK companies.

- Shielding and Shielded Structures
- Pipework Systems and Penetrations, other than Main Steam
- Support Structures and Fabrications
- Detection Systems (Leaks)
- Insulation & Lagging Systems
- Pipe Support Systems

The majority of the equipment will come from overseas and pre-existing Reactor Vendor qualified Supply Chains, certainly for early plant construction programmes.

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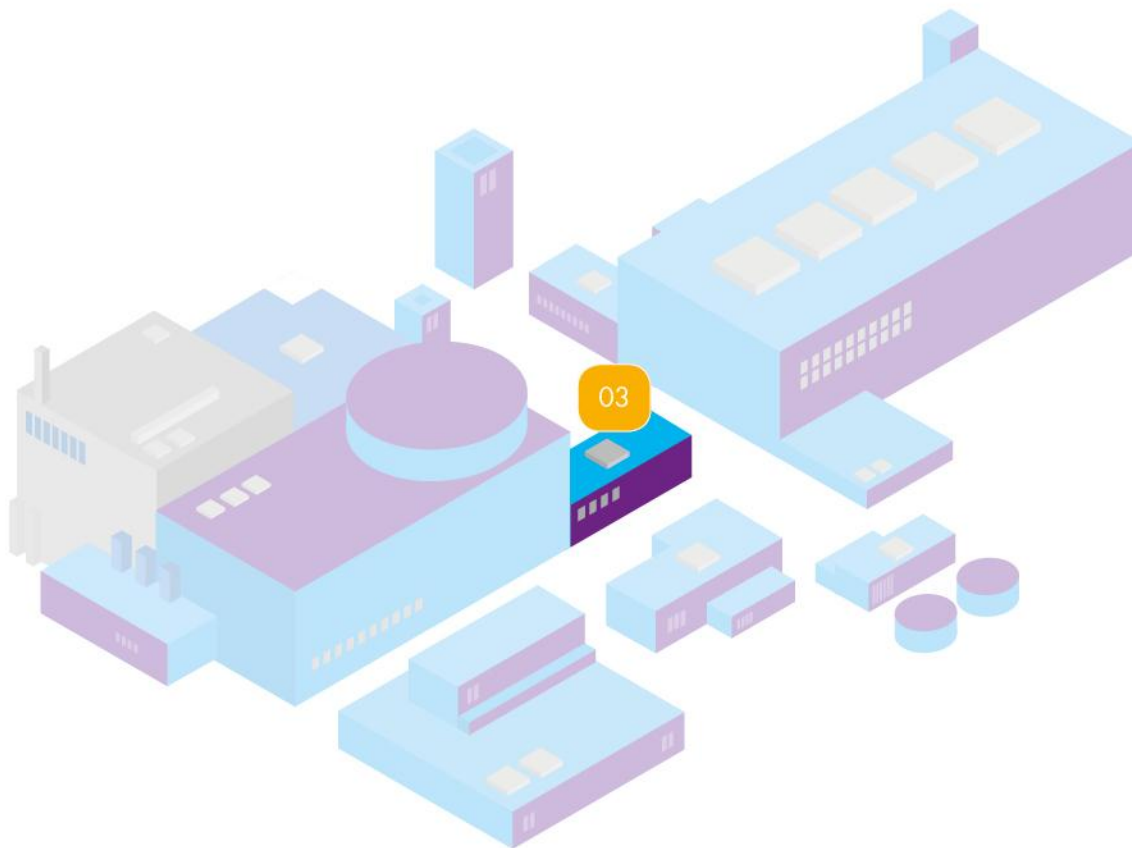


FUEL BUILDING AND WASTE BUILDINGS

- Controls and Electrics relating to (Instrumentation & Control)
- Fuel Handling Components, including Cranes and Mechanical Equipment
- Sensors and Monitoring Equipment
- Fuel Storage Pond and Fuel Pool Cooling Systems
- Borating, Chemical & Volume Control Systems
- Core Component Handling Equipment
- Fuel Transfer Systems and Transportation Systems
- Fuel Storage Racks and other Pond Furniture Components
- Refuelling and Spent Cask Transfer Systems & Machines
- Storage Containers and Drums
- Coding and Identifying Systems
- Radiological Control Systems
- Ventilation & Filtration & Cooling Systems
- Access Structures & Fabrications
- Waste Collection Systems (Various, Solid through to Gaseous)
- Pipe Support Systems

The above consist of very complex and safety critical fabrications assemblies and components. Typical components could include Tanks, Heat Exchangers, Separators, Filters and Filtration Equipment along with various Pipework Systems.

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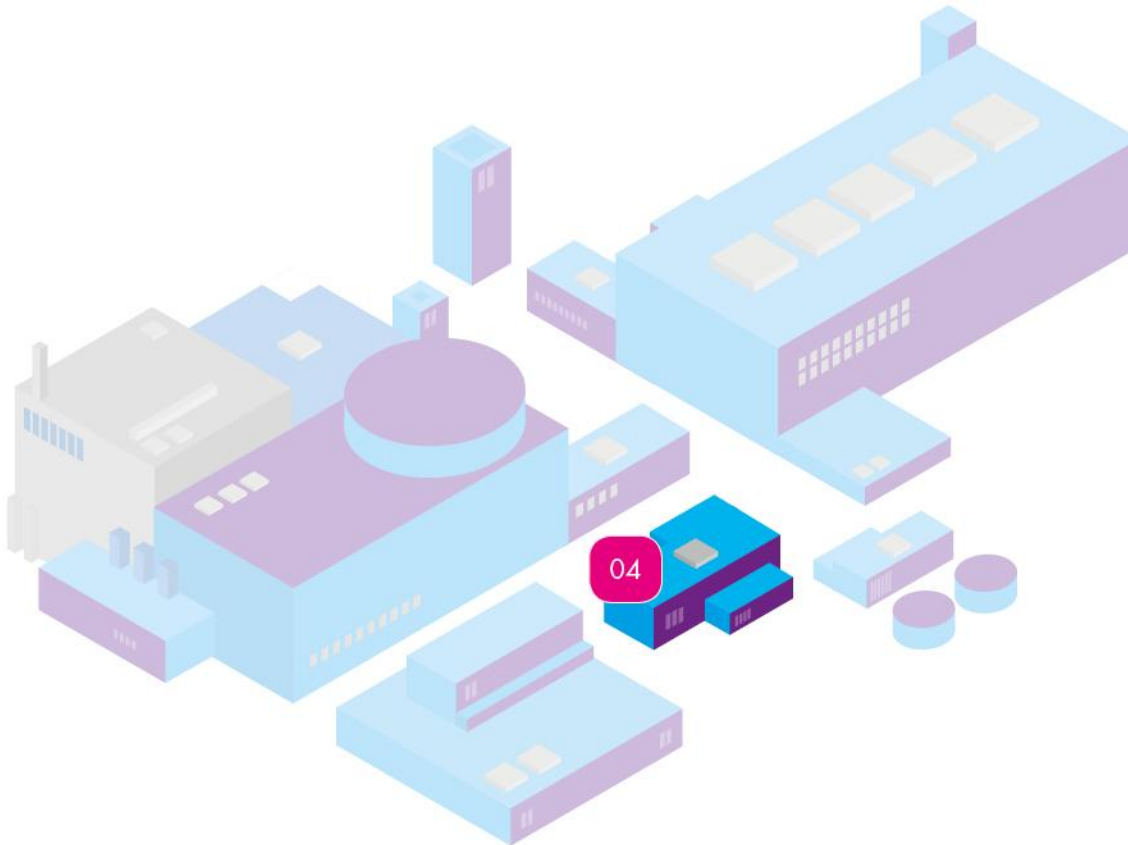
SAFEGUARD AND AUXILIARY BUILDINGS

There are numerous systems across the 3-designs, for the UK, with typical systems being as follows.

- Chemical and Volume Control Systems.
- Safety Injection/Residual Heat Removal Systems
- Emergency Feedwater Systems
- Condensate and Emergency Core-cooling Systems
- Spent Fuel Cooling Systems
- Cooling Water Systems, which include Pipework Systems and Support Structures
- Pipe Support Systems & Cabling

Within the Buildings are a range of varying classifications of components. Typical components being Pressure Vessels, Accumulators, Tanks (incl. for Storage), Heat Exchangers, Valves, Pumps, Modules, Supports, Pipe Systems, Fans & Filtration equipment etc.

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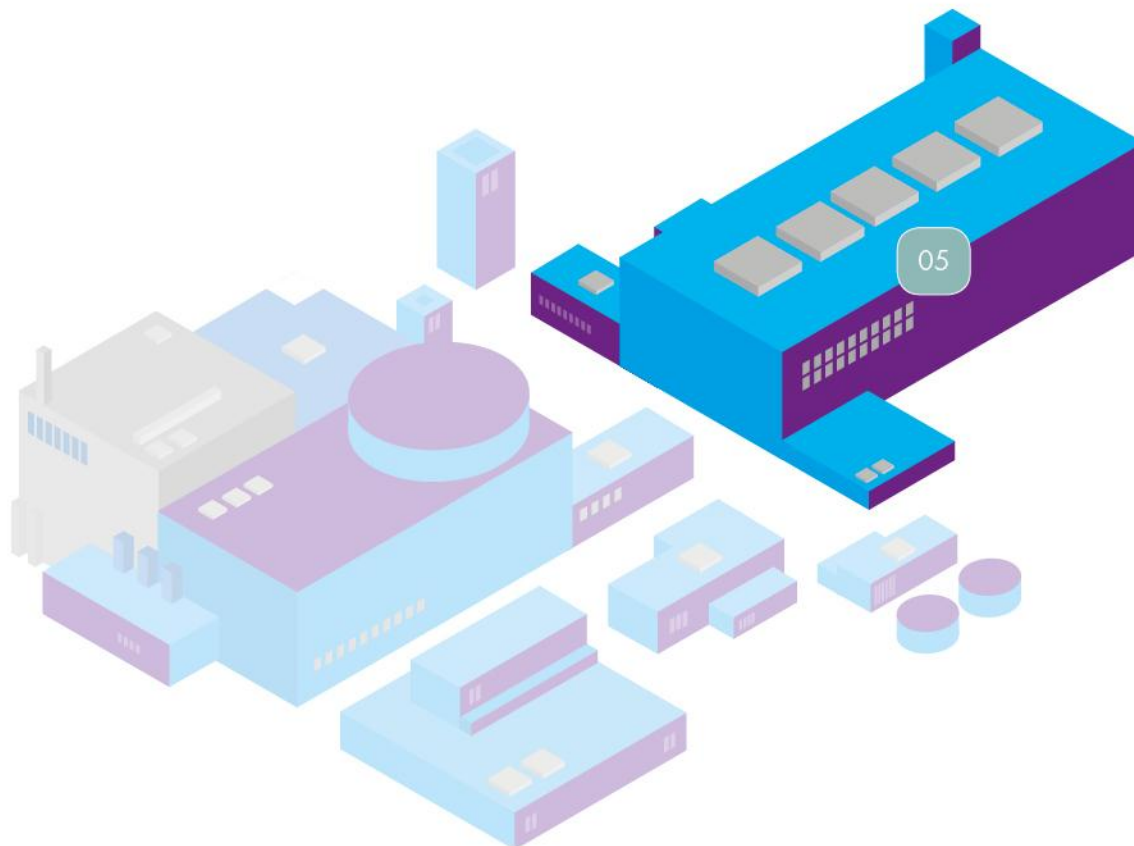
DIESEL BUILDING

Within Diesel Building area there would be:

- Emergency Diesel Engines (& Sets)
- Back-up & Redundant Diesel Systems
- Cooling Systems and Ventilation & Ducting for the Diesel Engines
- Pipework Systems (Various)
- Maintenance Systems (Various)
- Electrical and Electronics, including Cabling & Support Systems/Structures, including Ancillary
- Pipe Support Systems & Cabling

Opportunities will be in the areas of fabrications and assemblies, with Diesel Generators expected to be from overseas suppliers.

NEXT »



TURBINE BUILDING

- Main Steam Turbines (likely to be overseas supplied into the UK)
- Cranes and Handling equipment(s)
- Fire Preventive Systems
- Heating Ventilation and Air-conditioning HVAC (Systems)
- Various other Systems such as Lube Oil, Purification etc.
- Electronic Control Systems related to generation of electricity
- Compressors & Dryers
- Pumps and Water Management Systems with Valves, Steam Return Systems to Heat Exchangers
- Power Distribution Systems
- Pipework and Pipework Systems
- Building support Fabrication and Metalwork
- Pipe Support Systems & Cabling

Typical components within the Building are: Welded structures, Pressure Vessels, Tanks, Condensers, Heat Exchangers, Pumps, Compressors, Piping Structures and Modules Fabrications.

If you'd like to find out more about the potential supply chain opportunities for your business in the civil nuclear industry, get in touch now.

 **0207 728 3026**
 **fitfornuclear@mymas.org**
 **www.fitfornuclear.co.uk**

WHAT IS THE OPPORTUNITY FOR UK SUPPLIERS?

Controls & Electrics,
Cranes & Mechanical
Equipment, Sensors
& Monitoring
Equipment, Water
systems

Electronics, cooling
systems &
ventilation, large
manufacturing

Turbines, Electricity
Transfer Systems,
Engineering,
Building Support
Fabrication, &
Metalwork

Construction for
office buildings,
washing systems,
fencing & gates,
catering
equipment



Storage &
transportation
systems, radiology
systems, drums &
container

Fabrication &
engineering, desks &
office equipment,
management
facilities



TYPICAL MACHINED NUCLEAR COMPONENTS





NUCLEAR COMPONENTS & FABRICATIONS



Supplied by



Decommissioning - NDA 2015 to 2018

Draft Business Plan

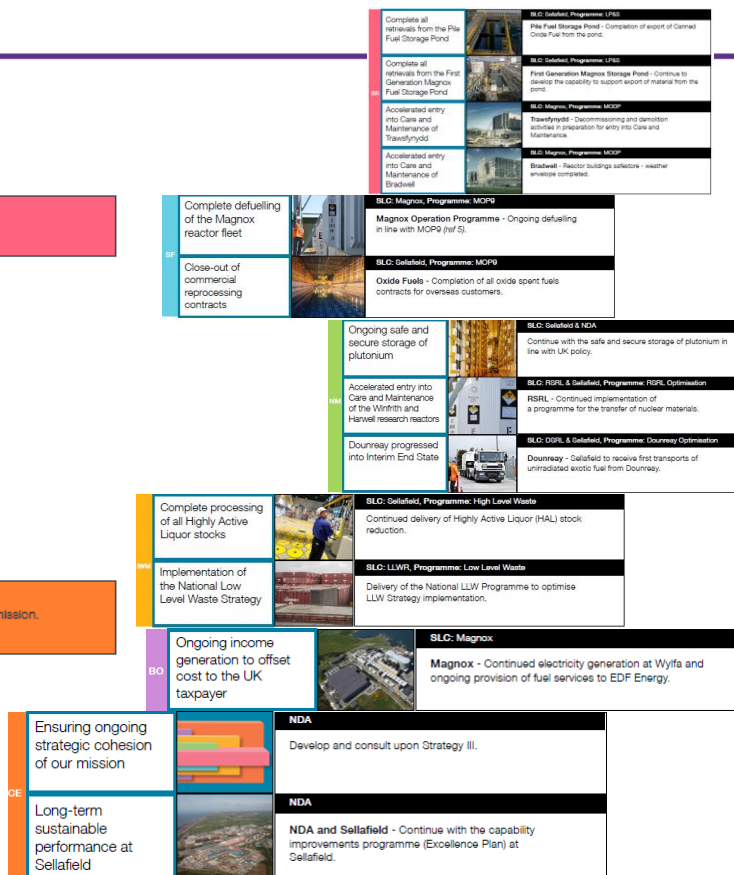
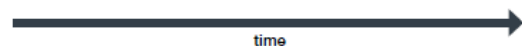
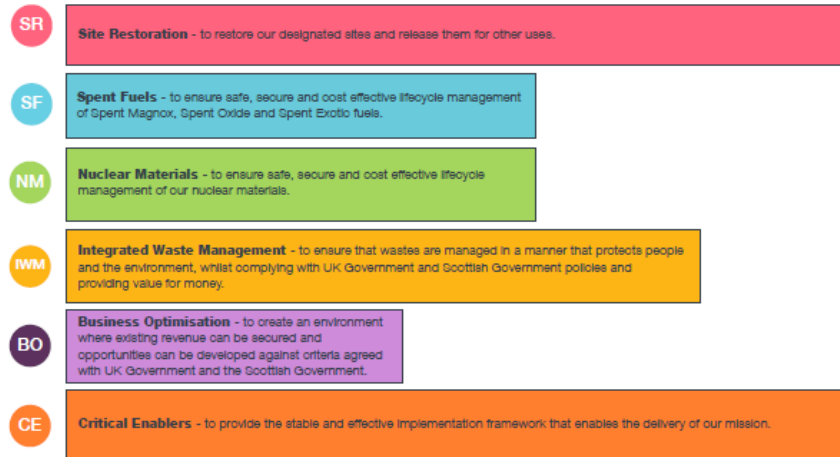
Financial year beginning April 2015
to financial year ending March 2018



NDA Business Plan

Our strategy

We group our work under the following six strategic and delivery themes; each have their own objectives:





How to Access Opportunities – information online



Nuclear Primes

Nuclear Decommissioning Authority	http://www.nda.gov.uk/sites
EDF Energy	http://www.hinkleysupplychain.co.uk/ & http://www.edfenergy.com/energy/nuclear-new-build-projects/suppliers
Areva	http://suppliers.areva.com/EN/home-199/welcome-on-areva-group-suppliers-portal.html
Horizon	http://www.horizonnuclearpower.com/supplier-registration
Hitachi	http://www.hitachi-hgne-uk-abwr.co.uk/index.html
NuGen	http://www.nugeneration.com
Westinghouse	https://supply.westinghousenuclear.com



Portals – Registration Sites and Opportunities

Sellafield Ltd	http://www.sellafieldsites.com/
Magnox	http://www.magnoxsites.co.uk/suppliers/opportunities/
Energy Solutions	http://www.energysolutions.com/
Dounreay Site Restorations	http://www.dounreay.com/suppliers
LLW Repository Ltd	http://llwrsite.com/
Research Sites Restoration Ltd	http://www.research-sites.com/
Welsh Government	http://www.cewales.org.uk/2013/03/supply-chain-opportunities-in-the-nuclear-sector-llandudno/
Nuclear AMRC	http://namrc.co.uk/
National Skills Academy	https://www.nsan.co.uk/
Fin Nuclear Association	http://english.finnuclear.fi
PNB - Pôle de l'Industrie Nucléaire	http://www.polenucleairebourgogne.fr/en
French Trade Commission	http://www.ubifrance.com/uk/
UK Trade & Investment	http://www.nuclearenergysummit.ukti.gov.uk/content/public/main/Registration.aspx
EIC	http://procurementguide.the-eic.com
Nuclear Connect	http://www.nuclearconnect.co.uk/
Achilles	http://www.achilles.com/
Nuclear Market	http://www.nuclearmarket.com/index6.cfm



Market Intelligence and news

Nuclear Matters:	http://nuclearmatters.co.uk/
World Nuclear Association	http://www.world-nuclear.org
World Nuclear News	http://www.world-nuclear-news.org/
Nuclear Engineering International	http://www.neimagazine.com
Nuclear Industry Association (NIA)	http://www.nuclearsupplychain.com/
NIA Essential Guide (Nuclear)	http://www.niauk.org/supply-chain-guide
NIA Capability Report (2012)	http://issuu.com/nuclear_industry_association/docs/nia_capability_2012
NIA Capability Report Appendices:	http://issuu.com/nuclear_industry_association/docs/nia_capability_apendices
Nuclear Industry Council	https://www.gov.uk/government/policy-advisory-groups/nuclear-industry-council
Department of Energy & Climate Change	https://www.gov.uk/government/policies/increasing-the-use-of-low-carbon-technologies
Business Innovation & Skills	https://www.gov.uk/government/organisations/department-for-business-innovation-skills
NEI Supply Chain Map:	http://www.nuclearsupplychain.com/images/stories/pdfs/supply_chain_map_v2.pdf
PFME [France Worldwide Electricity Ass'n]	http://aifen.fr/site/en/members/pfme-france-worldwide-electricity-association



WHAT CAN F4N PROVIDE?

- **Clear understanding** of supplier expectations in the Nuclear industry
- **Benchmark** (Gap analysis) your capability and readiness
- **Insight** into supply chain opportunities and routes to market
- **Clarity** to focus efforts to drive improvements and staff engagement
- **Access to wider resources** and capabilities of the Nuclear AMRC and its network of industry partners
- **Substantial funding** for companies committing to making necessary improvements
- **Recognised as being “Fit for Nuclear”** (Not a formal qualification)



IS MY COMPANY ELIGIBLE?

- ✓ **Advanced Manufacturers** with a desire to grow
- ✓ Ability to work to stringent **Quality and Safety standards**
- ✓ Companies with something **Innovative or Unique** to offer?
- ✓ SME's and LE's (State aid rules apply)
- ✓ Only Micro's (<£1.6m Turnover) by exception with niche / desirable Nuclear offer.

Manufacturers with experience in the following sectors are in an advantageous position: **aerospace, construction, oil & gas, electronics and defence & rail.**

Prior experience in the sector is not required

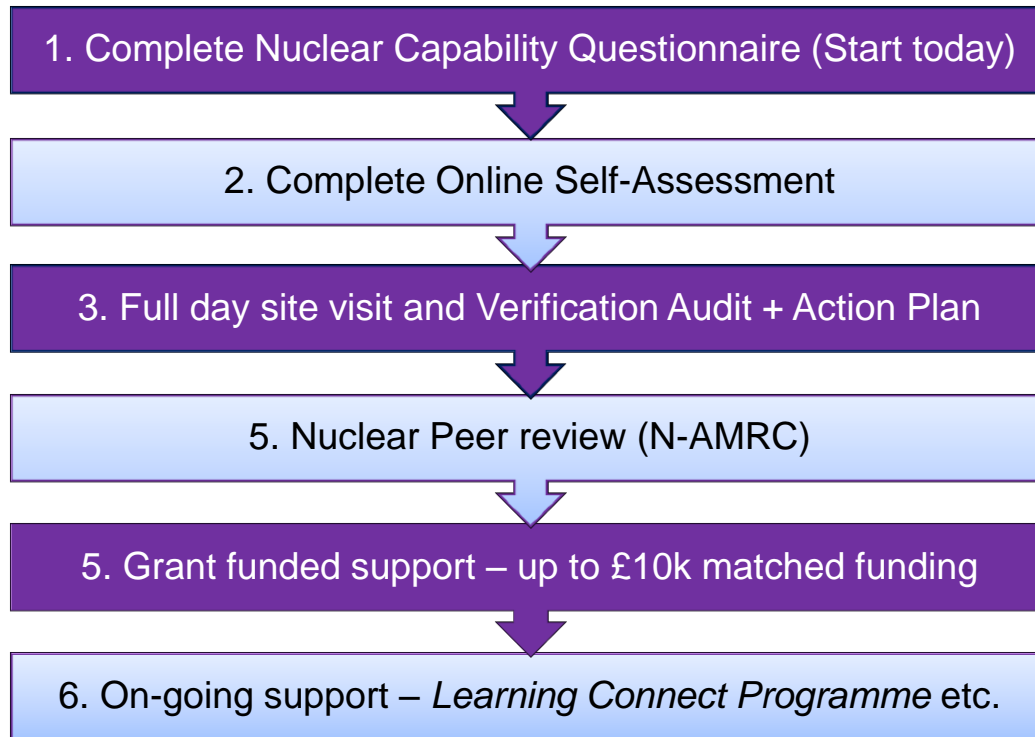


MATCH FUNDED IMPROVEMENT PROJECTS

- Consultancy costs for compliance ISO:18001, ISO:14001,ISO:9001
- Intellectual Property
- Developing Strategy and Marketing engagement plans
- Bespoke in house training
- Operational Improvement, Lean, Six Sigma.
- Product Development - external design costs
- Prototype development
- New Product Development Tooling, jigs or fixtures
- Product Testing etc.

Plus – R & D grants delivered by N-AMRC (Sheffield facility)

THE F4N PROCESS





THANK YOU

Questions?