

Arup Nuclear Capability



Sectors/ New Build UK



Our capability

- Strategic siting, site selection & evaluation
- Technical and commercial due diligence
- Seismic and flood risk assessment
- Accommodation studies
- Traffic and transport studies
- Marine and marine cooling studies
- Full planning and EIA services
- Funded decommissioning planning
- Discharge consents and permitting
- Regulator support
- Full civil and structural design
- Tunneling and CW Systems Design
- Site-wide infrastructure design

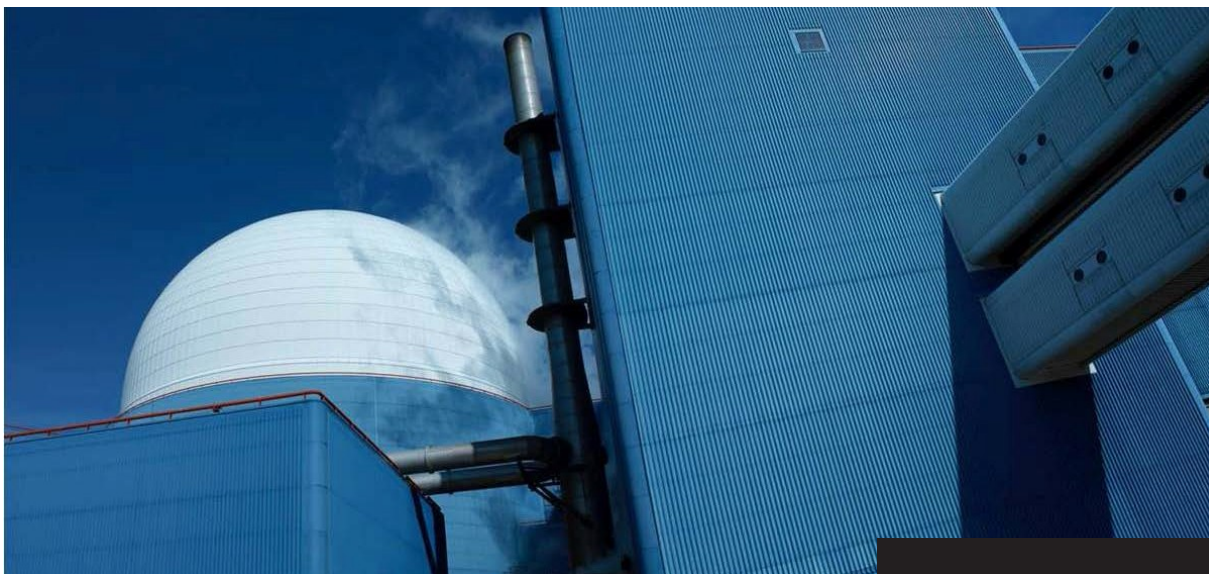
Current activity

- Bouygues/Laing O'Rourke** - Lead civil/ structural designer to Bouygues/Laing O'Rourke (BYLOR) on the £2.2bn Hinkley Point C main civils contract.
- Sedgemoor DC** - Planning support to Sedgemoor DC in assessing EDF Energy's planning application for Hinkley Point C.
- Copeland BC**: Planning support via PPA for Moorside.
- ONR** - Technical support to the UK Nuclear Regulator (ONR) in support of the Generic Design Assessment process.
- Horizon Nuclear Power** – Seismic and tsunami hazard evaluation for Wylfa Newydd, UK.

Track Record

- BNFL Energy Unit**: Site specific siting, marine and environmental studies, site layout and main CW systems design for new nuclear build at North Sellafield and Capenhurst, UK
- BKW**: Strategic siting of 4 reactor technologies at Muhleberg, Switzerland
- NDA**: Technical management of the data room during the UK nominated sites' land auction process.
- Confidential Client**: site layout and main CW concepts for 3x AP1000 deployment in the UK
- NDA/Welsh Government**: Consideration of Trawsfynydd as a strategic site for Small Modular Reactor deployment.
- Office of Nuclear Regulator**: Detailed code evaluation and analysis of seismic and aircraft impact structures of Areva EPR and Westinghouse AP1000.
- NuGen** - Planning, transport and EIA scoping studies for NuGen in their plans to develop up to 3.6GW at North Sellafield in West Cumbria.

Sectors/ Operations UK



Our capability

Civil and structural assessment/design
MEICA assessment/design
Seismic assessment
Utility assessment and design

Asset health and asset management
Masterplanning
Project and programme management

Organisational change and performance improvement .
Nuclear safety culture evaluation and development
Logistics management
Financial advisory

Current activity

Sellafield Infrastructure Strategic Alliance - Morgan Sindall Arup is allied with Sellafield Ltd on the £1.1bn Sellafield Infrastructure Strategic Alliance.

Capenhurst Nuclear Services – Engineering services framework

Sellafield Ltd – Supply Chain Qualification and Improvement Programme (with KPMG).

Sellafield Ltd – Site wide logistics

Confidential Client – financial and lenders technical advisory services on successful project finance for completion of an uranium enrichment facility

Track Record

British Energy: Performance Improvement Programme – Programme Management

Urenco: Amalgamating UK Operations – Change Programme Management

Sellafield Ltd: “Capstone” – Review of Decommissioning Strategies.

Westinghouse UK: Performance Enhancement Programme

Sectors/ Decommissioning



Our capability

Waste transport and storage package design and analysis

Civil and structural design and assessment

Waste storage facility design

Project and programme management

Asset management

Environmental Impact Assessment

R&D services

Land remediation

Track Record

Trawsfynydd: Intermediate Level Waste Store masterplanning, concept, detailed design and owner's engineer services

Berkeley: Intermediate Level Waste Store

NDA: Design and Engineering services for National Nuclear Archive

Current activity

Trawsfynydd – site masterplan and reactor building safe store concept and detailed design.

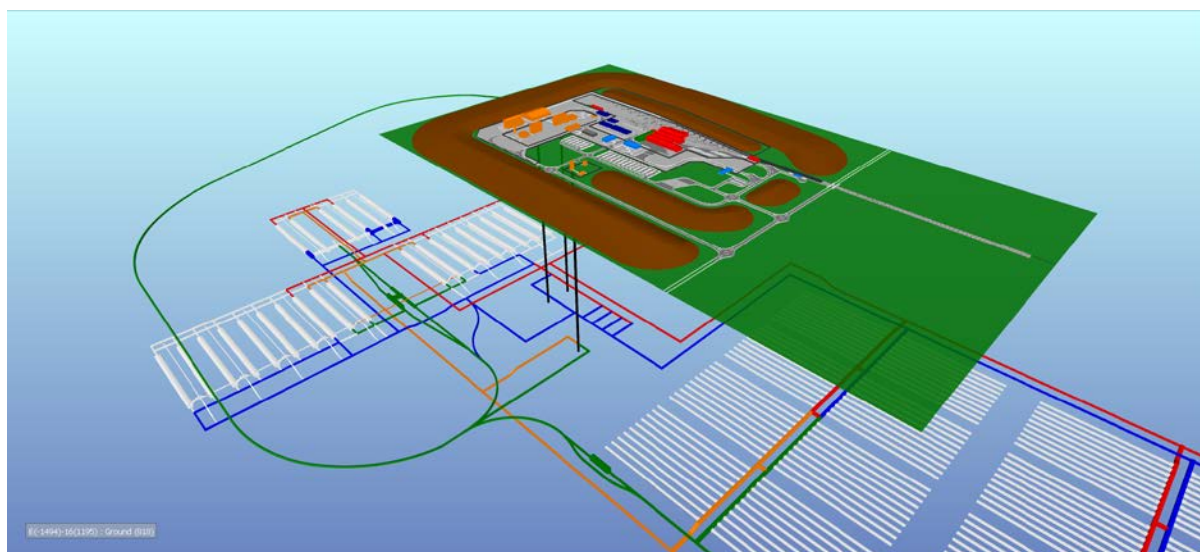
Interserve – Magnox ILW 'ministores'. Design partner on design and build framework

NDA – Direct Research Portfolio R&D and Waste Management Framework providing site restoration services and advice.

NDA – Advisory services on the commercial options for land re-use for NDA owned land around decommissioning nuclear licensed sites.

Eskom - Koeberg spent fuel store extension design

Sectors/ Clean Up



Our capability

Land remediation consultancy

Geology and seismology

Tunnelling and geotechnics

Shaft sinking

Waste transport and storage package design

Civil engineering

Underground transportation

Constructability

Groundwater modelling

Full Planning Services

Environmental Impact Assessment

Disposal System Safety Case

Barrier integrity analysis

Research & development

Track Record

UK Nirex: Development of geological repository concepts

Current activity

CAP Alliance - The CAP Alliance with partner companies is one of the three providers on Lot 5 of the RWMD's framework for the GDF providing geotechnical engineering services during the early (non-site specific) design development phase.

GE-Hitachi - Arup as part of the CAP Alliance is providing support to GE-Hitachi in evaluating the suitability of the PRISM concept for deployment in the UK.

NDA RWM – Development of disposal containers for deep geological disposal of High Level Waste, AGR Spent Fuel and PWR Spent Fuel

NDA RWM – Development of the Multi-Purpose Container for the storage, transport and disposal of High Level Waste and spent reactor fuel.

NDA – concept and detailed design and detailed package analysis for the standard 3m³ box for the storage of Intermediate Level Waste

Case Studies

New Nuclear Support, Hinkley Point C, UK



Client

Sedgemoor District Council and West Somerset Council

Key facts

Over the last 18 months Arup has developed a partnership with Sedgemoor District Council and West Somerset Council to critically evaluate the technical proposals for nuclear new build proposed by EDF at Hinkley Point. This project is driven through an RTPI award winning planning performance agreement (PPA) a mechanism used to draw resource (funding) from the applicant (in this case EDF) to augment capability within the local authorities. This PPA is the first of a kind for nuclear projects. Arup has considerable insight into the mechanics of the PPA and its application to developing work packages underpinning technical evaluation.

Arup was commissioned to provide advice on planning, environmental and infrastructure delivery for the proposed EDF Hinkley Point C Nuclear Power Station.

Arup provided a full peer review of EDF's technical proposal and consultation documents setting out the intended new nuclear build at the Hinkley site as well as a full response to the UK Government's Nuclear National Policy Statement on behalf of Sedgemoor District Council and West Somerset Council. Our experience at Hinkley has included maritime, geotechnics, environmental, planning, transport planning, economic development, water resources and flood risk, archaeology, landscape, acoustics, radioactive waste storage, transport of waste and emergency planning.

No other consultancy group has currently developed such a strong, contemporary nuclear-focused service to the local authorities.

Infrastructure Strategic Alliance, Sellafield, UK



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Client

Sellafield Ltd

Key Collaborator

Morgan Sindall

Key facts

£1.1 billion joint venture for infrastructure asset services

Key services provided

- Master planning
- Project management
- Civil and structural engineering
- MEP engineering
- Fire
- Security
- Environmental
- Sustainability
- Traffic and transport planning
- Rail and signalling
- Systems engineering
- Communications
- Facilities management

The Infrastructure Strategic Alliance (ISA) is designed to augment the current Sellafield Ltd capability with the best the supply chain has to offer.

The ISA is the second in a series of long-term contracts that will establish true alliance-style contracts to undertake the important task of cleaning up and decommissioning Europe's most complex nuclear site. The ISA is designed to augment the current Sellafield Ltd capability to deliver a programme management and project delivery service for all infrastructure assets, primarily targeted at utility assets. Arup in joint venture with Morgan Sindall are bringing best practice from other utilities and infrastructure programmes, with an emphasis on risk reduction and innovation in scheduling and technical processes.

Working collaboratively with major partners, Arup is supporting Sellafield Ltd to deliver greater quality more efficiently – while assuring industry leading safety performance.

British Energy Performance Improvement Programme, UK



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Client

British Energy

Key facts

This major programme of investment was one of the largest and most complex to be undertaken in the global nuclear sector.

The Performance Improvement Programme involved large-scale equipment renewal across eight nuclear stations, whilst ensuring that maximum operational capacity was maintained.

We had project management professionals based at each of the power stations as well as a programme management team based in their offices in Gloucestershire.

Since employing our services, British Energy has enjoyed renewed investor confidence and in January 2006 listed on the FTSE 100.

Key services provided

Operational and organisational management

Our human performance techniques revolutionised working practices, improved corporate profitability, and reduced outages at British Energy stations by over 40%.

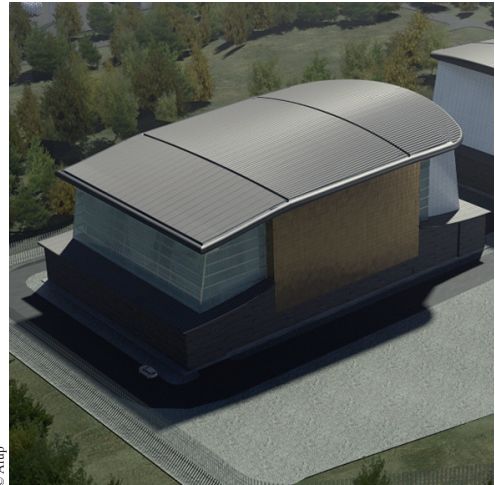
In 2003 Arup was appointed to carry out an assessment of British Energy's existing business operations and the condition of its asset infrastructure to improve overall performance levels across the fleet. We reviewed development of the organisational structure and culture, assessed the state of the technical assets, and developed the approved project and programme management systems and processes to enable mobilisation. This led to Arup being awarded the role of Strategic Programme Manager for the entire investment programme for the next four years.

A unique feature of the contract was that both Arup and British Energy had equal responsibility for delivering the output performance improvements.

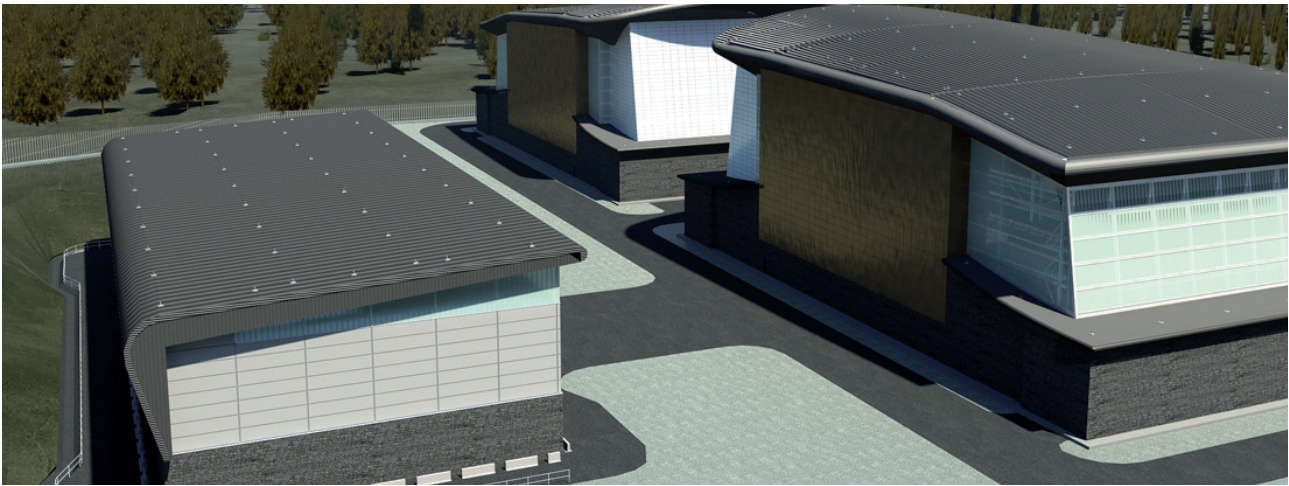
Trawsfynydd Intermediate Level Waste (ILW) Storage, UK



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Client

BNFL Magnox Plc

Key facts:

The store is seismically qualified and designed for a 150 year life. It will accommodate ILW contained in concrete overpacks and liners as well as in 1803 type drums. It has overhead travelling cranes to store and retrieve items for subsequent inspection during the life of the store.

The project scope was developed on the basis of the public inquiry final approval in 2004 and includes; Construction of a new 100m long x 30m wide x 19m high new store building for intermediate level waste (ILW) containers, height reduction and remediation of the former reactor buildings which will be enclosed in weather tight envelope and used as a long term safe store, re clad remaining structures, landscaping and other ancillary works.

The scope of the project was to clear the site and construct a new reinforced concrete shielded Intermediate Level Waste (ILW) facility plus all necessary site infrastructure.

Arup was commissioned as lead consultant and design coordinator for the detailed design and site supervision of a new “passive” ILW Store, which will be used to store residual waste recovered during the decommissioning process.

Arup’s scope of work included the design of the structure and building envelope, infrastructure, external works, building services and geotechnical services as well as the supervision of the construction work, design coordination, civil/structural (including seismic design), geotechnical, building services, building physics and infrastructure engineering design. We also carried out production architecture and quantity surveying services (via our sub-consultants) to produce a full tender package based on the detailed design. The “passive” ILW store is the first of its kind to be constructed in the UK.

Contact

Simon Barber
Director | Head of Nuclear

13 Fitzroy Street
London
W1T 4BQ
United Kingdom

t +44 20 7755 3640
m +44 77 1306 8177
e simon.barber@arup.com