

# New Build

Nuclear Technology  
and Innovation



# The Challenge

With the growing demand for energy and the increasing awareness of the benefits of nuclear power as a key part of a low carbon sustainable economy, the demand for new reactors and supporting nuclear facilities is increasing rapidly. High quality, technically focused support is essential in delivering these major international projects.

From concept design to commissioning, Nuvia provides reliable and cost effective engineering for all nuclear facilities. Nuvia has the nuclear expertise required to ensure that modern plants meet stringent operational safety and environmental requirements whilst being cost-effective over their operational life.

## Our Approach

Nuvia's approach is to deliver tangible benefits to our clients in terms of cost and timescales through both innovation and proven capability. To achieve this we provide:

- Independent advice and support
- High quality and technically focused services
- Complete life-cycle support
- Risk reduction and safety improvement

Our aim is to provide safe and cost-effective technical support to nuclear new build programmes.



## Organisation

Nuvia is organised to deliver to the world-wide nuclear power market by providing integrated teams from across its technical units. Our products and services are designed to support clients through all stages of the nuclear new build cycle. With a resource base of around 1900 qualified professionals to call upon, including internationally recognised experts, Nuvia is able to provide effective simultaneous technical support across a wide range of clients.



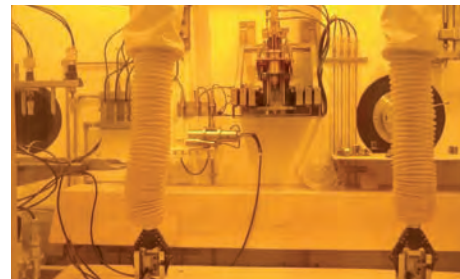
WE EMPLOY **LOW** CARBON CONSULTANTS

*Supporting you through all stages of the nuclear new build cycle*

# Our Solutions

## New Build Products & Services

Nuvia can provide solutions at all stages of design, development and operation of power reactors and other nuclear facilities. From options to improve the design through in-depth understanding of the regulatory regimes, licensing requirements and waste strategies to methods for final dismantling.



### Preconstruction

We provide support to regulators, designers and constructors on the development of the overall design safety review and detailed design assessments, including design substantiation documents, decommissioning strategy and cost estimates, waste management strategy, risk and environmental assessments and resolution of regulatory issues.

Nuvia can develop systems from concept to scheme design, incorporating a safety assessment and risk management approach. Incorporation of our operational experience delivers significant benefits to our clients by driving practical and cost-effective designs.

### EPCC

Nuvia is able to offer a full Engineering, Procurement, Construction & Commissioning (EPCC) service to new build clients. The Group has expertise in high integrity delivery including, project and construction management, design, quality management, inspection and understanding of the nuclear licence site requirements.

Concept, Scheme and Detailed Engineering Design in:

- Civil, Structural & Architectural
- Electrical, Control & Instrumentation
- Mechanical & Process
- Mechanical Fabrications
- Nuclear HVAC & Building Services
- Modular Construction
- High Integrity Pipe-work Systems
- Nuclear Material Handling Systems
- Waste Handling and Effluent Treatment Plants

Procurement

- Supply Chain Management
- Competitive Tendering
- Collaborative Agreements
- Risk Reduction
- Inspection & Expediting

Construction Management

- Management of Subcontractors

Commissioning

- Commissioning Planning
- Setting to Work and Commissioning
- Validation of Plant Operating and Maintenance Instructions

### Operations

Radiation Protection

- Operational Health Physics and Plant Chemistry
- Outage Health Physics
- Dosimetry Services
- Radiological Environmental Assessment/ Survey
- Emergency Preparedness

Support Plant Operations

- Decontamination Facilities
- Waste Management Facilities and Handling
- Crane Operations and Handling

Engineering and Planning Support

- Plant Maintenance Support
- Outage Planning
- Plant Condition Monitoring
- Civil Structures Monitoring and Support

Facilities Management

- Site Infrastructure Support
- Facilities Maintenance

### Special Products

Design, Supply and Installation of specialist systems such as:

- Pre-stressing Systems (cable or tie-rods)
- Seismic Isolation
- Equipment Anchors
- Dampers/Snubbers
- Structure Monitoring Instrumentation
- Fire Barriers and Penetration Seals
- Geotechnical Groundworks

# Key References

## Seismic Protection at Cadarache

Meeting modern seismic requirements has led Nuvia to develop systems for a range of nuclear operators. In this case the design, manufacture and installation of a vessel supporting system for the CEA at Cadarache.



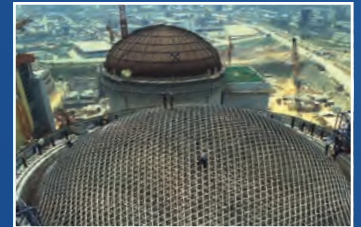
## Fire Protection

Nuvia's fire protection products are used extensively on all the current operating Edf managed fleet of reactors. Specialist passive fire protection materials were designed, developed and installed to satisfy the regulatory and operational requirements of the client.



## State-of-the-Art pre-stressing of Containment Vessels

Nuvia is the world leader in the design and installation of pre-stressed concrete technology for nuclear reactors.



## Installation of Header Sleeve Retention Devices at Heysham 1

(Edf/British Energy)

Design, manufacture, supply and installation of 64 retention devices located on the superheater outlet headers. The system is designed to limit movement of the units under certain fault conditions and provides a further safety enhancement to ensure the long-term structural integrity of this part of the reactor gas circuit.



## Waste Management Facilities - Design and Construction

SDP at Sellafield is the largest new build project in the UK funded by the Nuclear Decommissioning Authority. A facility that when operational will process approximately 40% of the UK's ILW.



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