NUCLEAR

A powerful vision for powering the planet

AtkinsRéalis

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In this brochure you can find out how we are helping the world fulfil the potential of clean, low-carbon nuclear power. So that households, businesses and communities can benefit from safe, reliable and clean nuclear power for generations to come.

We're AtkinsRéalis, a world-leading design, engineering and project management organization. We connect people, data and technology to transform the world's infrastructure and energy systems.

Together, with our industry partners and clients, and our global team of consultants, designers, engineers and project managers, we can change the world.

We are proud of our inclusive, diverse and energized approach and we share an open culture founded on our values: safety, integrity, innovation, collaboration, and excellence.

INTRODUCTION

Net zero. For us, it's more than a target. As world-leaders across the nuclear lifecycle, we're deeply passionate about de-carbonizing the planet. We believe in the lasting potential of nuclear power to provide safe, reliable and affordable clean energy for people the world over.

We also believe it's time to clear up the confusion around nuclear energy. Of all energy sources, nuclear has the smallest carbon footprint – making it the cleanest option available. It's also the most reliable.

And thanks to decades of innovation, today's nuclear power plants are safe and secure. It's true that renewables alone aren't enough to meet global energy demands, whereas nuclear power can create large, predictable and reliable energy supplies.

In the mix together, they offer a low carbon energy system that can replace our reliance on fossil fuels and maintain a net zero future for generations to come.

Solving complex nuclear challenges

We've been designing, implementing, and maintaining nuclear technology for more than seven decades, supported by a deep technical knowledge of global policy and regulatory frameworks. Having seen and touched some of the world's most challenging nuclear projects, we understand the many complexities involved first hand. That's why our tailored offering is solutions-focused and fullservice, never one size fits all. Finding, developing and implementing new solutions is what we've become renowned for.

What's more, the depth and breadth of our organization means we can leverage our global experts locally. Here's to believing in – and playing our part in – the historic shift towards a net zero nuclear future, and beyond.

We are safeguarding the future with strategies and solutions for a net zero carbon future.

atkinsrealis.com/EngineeringNetZero

OUR EXPERTISE

From design to decommissioning and waste management, we're helping our clients throughout the nuclear lifecycle, so that households, businesses and our communities around the world can benefit from safe, reliable and clean nuclear power for generations to come.

New build

We consult and design across all stages of a new build lifecycle, from initial concept to final commissioning.

Operations & maintenance

From helping our clients manage day-to-day operations and providing both on-site and remote outage support, to managing and restoring legacy nuclear facilities, we provide bespoke full-service support.

Decommissioning

When a nuclear site reaches retirement, our specialist teams are uniquely equipped to provide 360 services – from strategic advice to operations and full product delivery.

Waste management

Our global waste management capabilities connect people, data and technology to provide cutting edge tools, robotic solutions and treatment techniques for all types of waste. We routinely manage waste for the UK, US and Canadian Governments.

Design & innovation

Our services begin at the concept stage. We use advanced digital technologies, including computeraided engineering at the design stage. This kind of innovation lies at the heart of all our nuclear projects.

Life extension

Some reactors require a mid-life refurbishment, where the fuel channels are removed, safely disposed of and new components installed. We have patented innovative robotic tooling systems for these extended outages to ensure worker safety and optimize schedule.

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REALITY CAPTURE

Enabling remote site access and capturing data for the project lifecycle.

Laser scanning

Faster than traditional surveying methods and collects more information for complete design and engineering.

Drone and UAV surveys

Used for master-planning across sites, these surveys provide high-quality imagery and help with assessments and regular surveys safely.

CIRRUSinsite (TM)

Our web-based digital twin survey platform where heavy data such as point clouds are hosted, with the capability for the entire project team to access.

360-degree imagery and livestreaming

Hands-free livestreaming from site offers new ways of connecting remote workers to get new perspectives and contribute to rapid decision making.

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DESIGN TRANSFORMATION

Reducing cost of design and construction, providing delivery certainty.

Design program optimization

Our schedule analytics and optimization solution, Lighthouse, pulls together project data to a single source to provide a complete view of a project's status contribute to rapid decision making.

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ROBOTICS

Improving site execution and reducing risk.

Remote monitoring

Our Hazbot™ and Radbot™ solutions make use of mobile robotics to enable virtual site access and data collection.

RrOBO (Risk Reduction of Glovebox Operations)

A remote-controlled robotic system to remove hands from gloveboxes and reduce safety risk.

Spinionic

A patented process using a Rotating Bed Reactor (RBR) to remove radioactive or other undesired elements from wastewater or aqueous solutions.

OUR SOLUTIONS: OPERATIONS AND MAINTENANCE

PREDICTIVE ASSET MAINTENANCE

Reducing plant downtime and improving output.

Machine learning

Using artificial intelligence (AI) to spot trends and predict asset failures, triggering proactive maintenance and asset failure prevention.

Data analytics

Provides engineering insights using data science, artificial intelligence and machine learning to increase asset life and reduce operational costs.

Digital twins

Enables the simulation and evaluation of alternative maintenance and operational strategies, facilitating the identification of the most cost-effective operational policy for the plant.

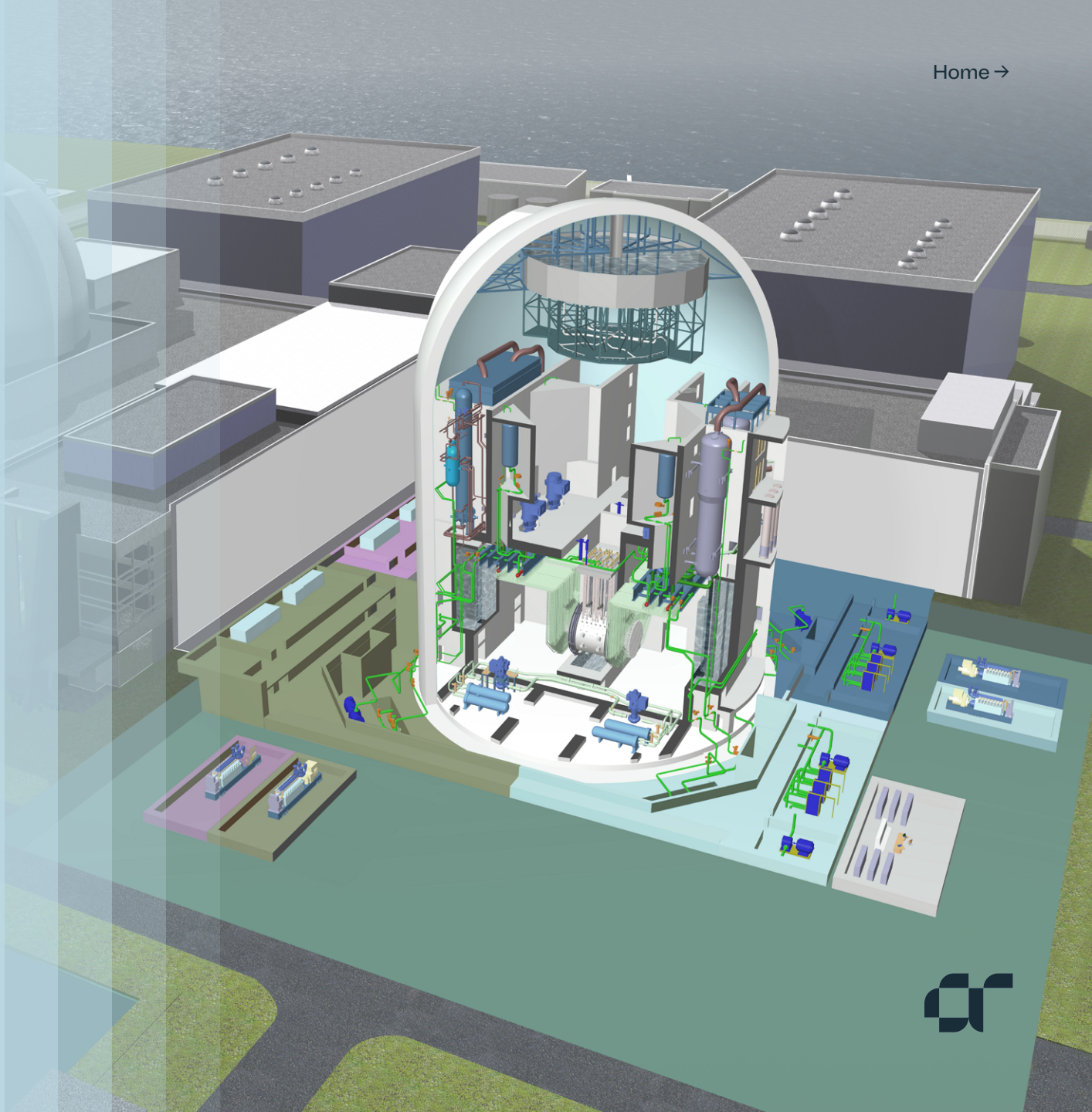
CANDU TECHNOLOGY

Pressurized heavy-water reactor design used to generate electric power.

We are the original equipment manufacturer and steward of CANDU® technology – a pressurized heavy-water reactor that traditionally uses natural uranium as its fuel. It's been used to generate electricity for more than 60 years and is now licensed across the globe.

CANDU reactors are fuel flexible and can use alternate fuels like mixed oxide fuels, recycled uranium, and thorium.

With our deep understanding and knowledge of global policy and regulatory frameworks on the four CANDU continents, we've expanded to new geographies across a wide range of reactor technologies including small modular reactors (SMRs), advanced reactors, boiling water reactors (BWRs), advanced gas-cooled reactors (AGRs), and pressurized water reactors (PWRs).



CANDU MONARK

The next evolution of CANDU is taking flight.

Building on the success of its predecessors, the CANDU MONARK™ a 1,000MW heavy water reactor, is the newest member of the CANDU family. The reactor design offers a product with cost-effectiveness, extended operating life and a commitment to sustainable design principles.

Focusing on safety and simplified construction, CANDU MONARK technology contributes to decarbonizing power production and can be situated on retired fossil fuel plant sites, all while supporting a robust Canadian supply chain.

Candu Monark

OUR EXPERIENCE

We deliver innovative engineering solutions on nuclear projects across the globe.

Sizewell C

United Kingdom

Sizewell C is a new 3.2-gigawatt nuclear power station and one of the first of a new generation of new nuclear plants that could play a major role in decarbonising the UK's energy.

Our involvement has included determining the optimal layout and sequence of construction and enabling works, to help prepare the site for the main civil works and marine works construction.

Isotek U-233

United States

We are working closely with the United States Department of Energy (DOE) to safely and securely oversee the US's inventory of uranium-233 (U-233) and prepare it for removal from the Oak Ridge National Laboratory (ORNL) in Tennessee.

Hinkley Point C

United Kingdom

Hinkley Point C (HPC) is the UK's largest infrastructure project. We're providing engineering and technical services that will play an important part in the UK's transition to a low carbon energy future.

Barakah Nuclear Energy Plant

Abu Dhabi, UAE

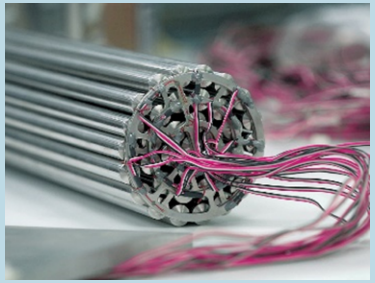
The Barakah Nuclear Energy Plant is the first nuclear power plant in the Arab world, located in Al Dhafra.

We have provided financing, construction, commissioning and operations support in the areas of engineering, training and project management.

Canadian Nuclear Laboratories (CNL)

Canada

We are the majority partner in consortium which manages and operates CNL, which is currently managing its ageing infrastructure and renewing its laboratories. This investment will ensure the organization stays at the top of its field as a world leader in nuclear science and technology, while strengthening Canada's status in the international scientific community.



Darlington Retube & Feeder Replacement Project

Canada

We are working on Canada's largest clean energy project. This life extension project will optimize the operational life of the site and offer significant system benefits for decades to come. These CANDU units supply 20% of Ontario's energy capacity.

WHAT MAKES US DIFFERENT IS THE WAY WE WORK, AND THE WAY WE THINK.

Beyond Engineering is our thought leadership platform. Find out how our experts and thought leaders are addressing some of today's big issues.

atkinsrealis.com/BeyondEngineering

OUR MARKETS AND SERVICES

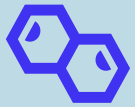
Our markets

From designing entire cities to delivering nuclear power stations and transforming manufacturing systems, we focus our business in the areas that have the most impact on the way we all live and the resources we demand from the planet.

Buildings & places

Defense

Industrial



Minerals & metals

Nuclear

Power & renewables

Transportation

Water

Our services

Our commitment to a whole-life view of major development programmes enables us to lead projects at every stage and ensure that, wherever we are involved, our people have a wider view of the challenge to better guide our clients and partners.

Consulting, strategy & advisory

Engineering & design

Project & program management

Project delivery

Operations & maintenance

Capital

Decommissioning

atkinsrealis.com/MarketandServices

OUR PEOPLE

Our global workforce of over 36,000 speaks over 70 languages, representing 130 nationalities across six continents. These differences are one of our greatest strengths and key to understanding the needs of our clients worldwide.

Every day, we're striving to be more inclusive, more collaborative and more innovative in how we drive change.

To us, different makes a difference.

ENGINEERING A BETTER FUTURE

We care about the big issues facing the planet and are committed to engineering a better future for its people.

atkinsrealis.com/EngineeringABetterFuture

People. Data. Technology.

We are changing our world, to change yours by connecting people, data and technology.

To us, digital is more than just a label. It's fundamental to our way of working. It has the power to transform outcomes, when combined with every element of the engineering process: **our people, our data insights and our technology.**

Engineering Net Zero™

We are safeguarding the future with strategies and solutions for a net zero carbon future.

Our net zero ambitions are not without challenge or risk, but it's up to us to face them head-on. To find the opportunities. To build the future, and safeguard it for generations to come, with sustainable, innovative and resilient projects and processes, and with collective action.

AtkinsRéalis

Engineering a better future
for our planet and its people.

atkinsrealis.com/Nuclear