



SMR

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UK Research
and Innovation



Department for
Business, Energy
& Industrial Strategy

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Rolls-Royce SMR

15th November 2021

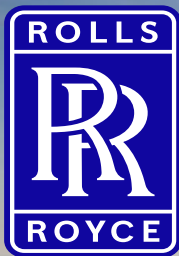
Rich Everett – Group Head of Supply Chain



SM
R

Who we are: Technology vendor: design, manufacture, supply and assembly/ commissioning of total SMR power plant on a turnkey basis

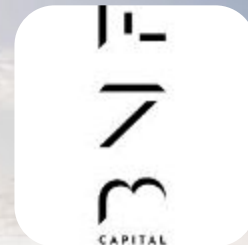
Rolls-Royce SMR Shareholders



Rolls-Royce – 60 years designing, manufacturing, supporting and operating PWR plants for the UK Royal Navy



Exelon Generation - Exelon Generation operates the largest U.S. fleet of zero-carbon nuclear plants with more than 18,700 megawatts from 21 reactors at 12 facilities.



BNF Resources - extensive investments in the energy space. The company is represented and advised by BNF Capital Limited, an FCA regulated investment advisory business based in the UK.



SM
R

Rolls-Royce SMR is a completely different way of building nuclear;
factory fabricated, road transported and site assembled.

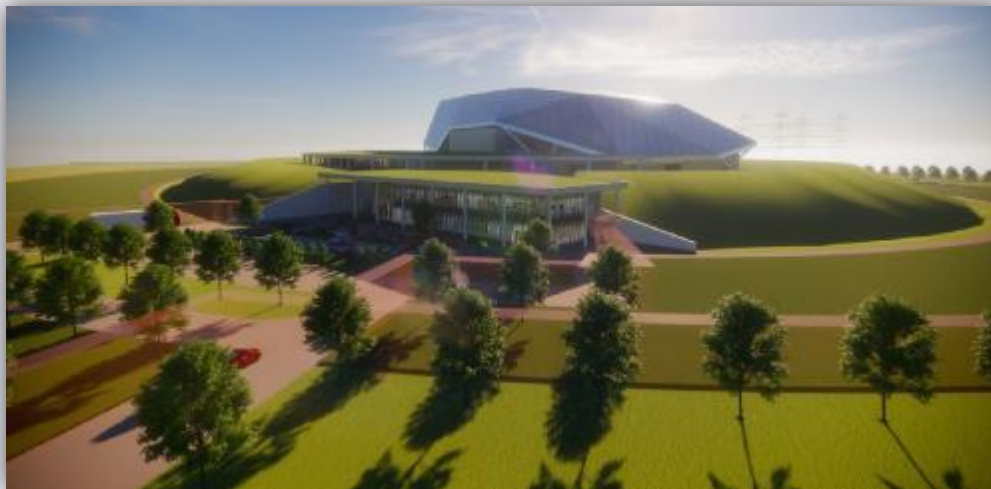
~470 MWe output

50 Hz design

Proven PWR Technology
& Standard Fuel

Power station delivery as
a turnkey project

4 yr Construction
(Nth unit)



Enhanced Gen III+ levels
of safety and security

1st unit on grid early
2030s

Capital cost under €2 Bn*

Adaptable, multi-use
power & heat output

LCOE €50 per MWh*

Rolls Royce SMRs – Low cost, Deliverable, Investable Low Carbon Power

*2019 economics

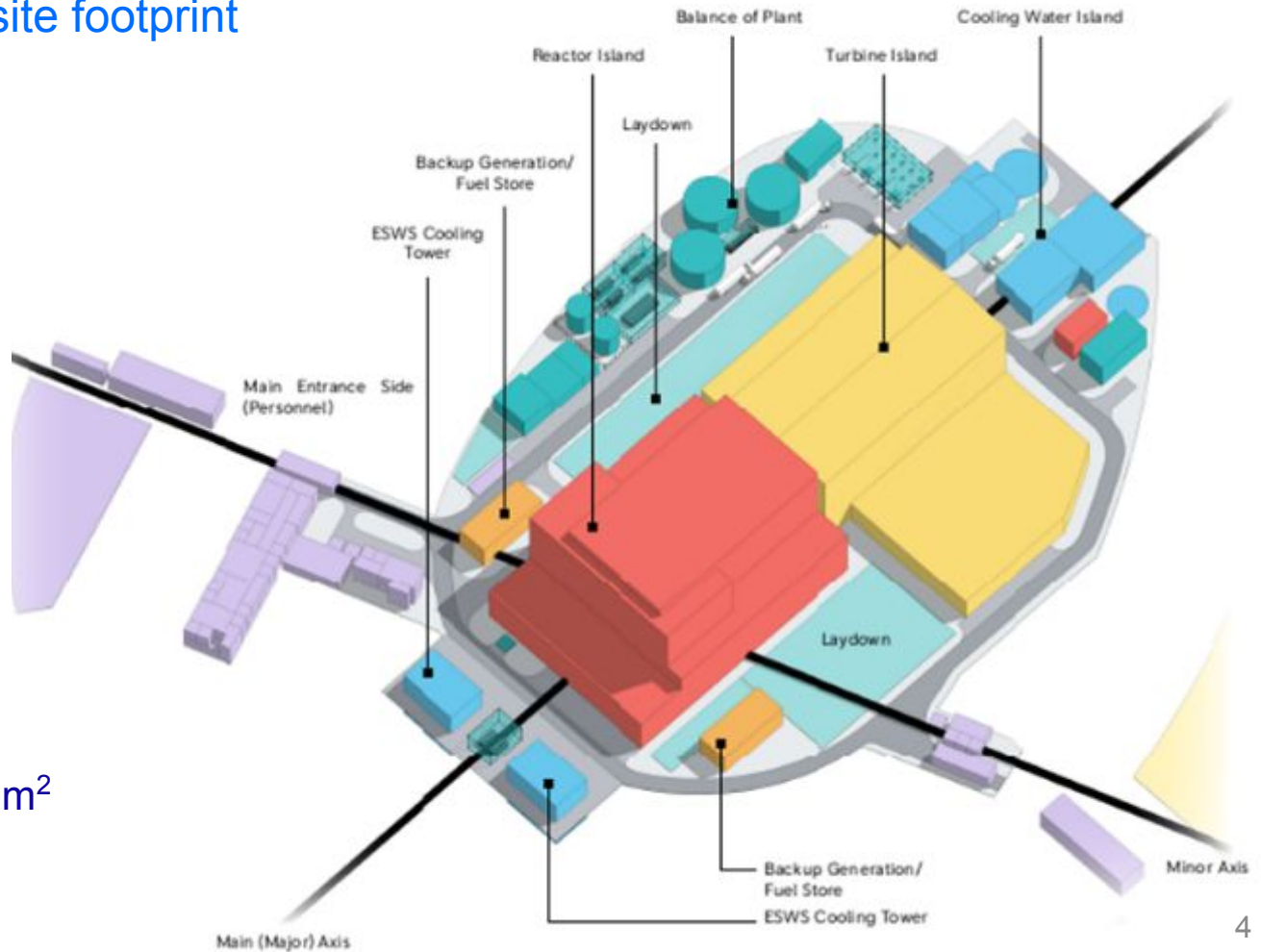
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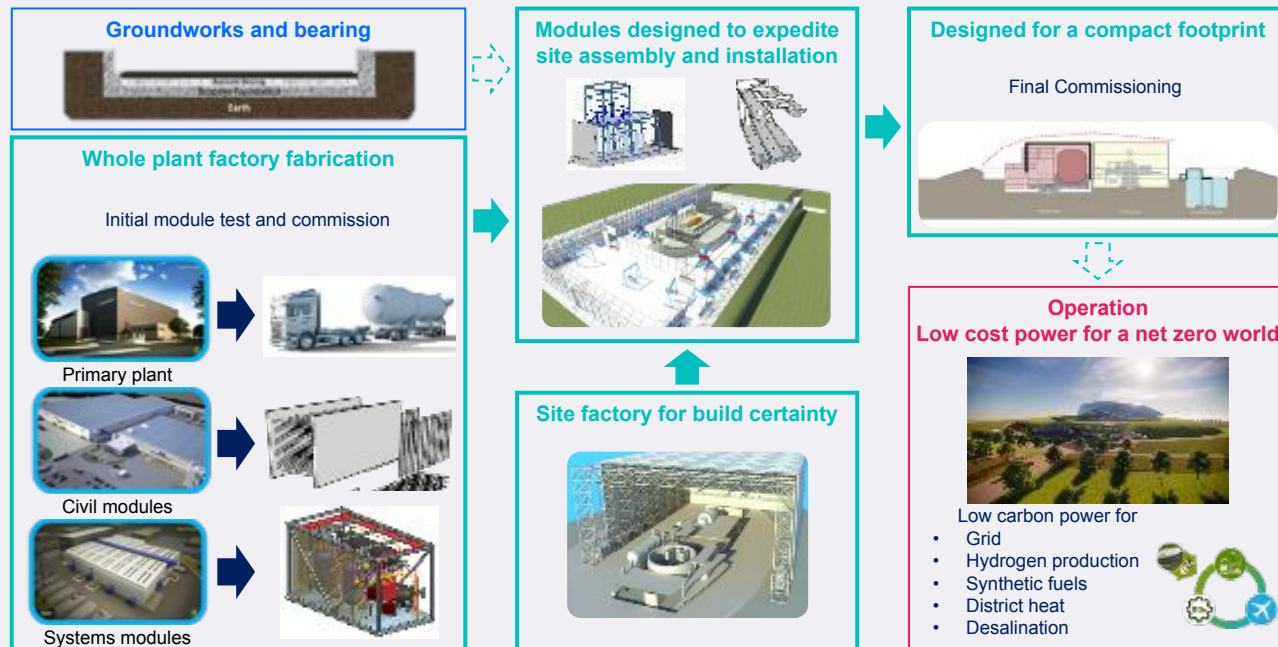
Small site footprint



Plant area: 49,000m²

Our product approach represents a completely different way of building new nuclear power plants

- ✓ SPV will provide a full turnkey solution to the market
- ✓ Aseismic isolation
- ✓ Road transportable modules
- ✓ 90% of the plant is factory fabricated
- ✓ Site factory to reduce risk



Turning nuclear into a product not a one-off mega infrastructure project



□ EPC (mega project)

Conventional EPC
(e.g. Large nuclear)

- Mega project GBP10bn+
- High probability of interface failure
- High impact across multiple parties with cross-dependency
- Long build duration

Designed for the market

- LCOE drivers set design requirements
- Avoidance of technology for technology's sake



SMR – Risk Reduction
(probability and impact)

Factory Product

- Lower Capex
- Repeatable product



Site standardization

- Much smaller footprint
- Seismic Isolation



Schedule certainty

- Site assembly factory



Commercial simplification

- RR SMR turnkey supply



EMA (factory product)

Engineering
Manufacturing
Assembly





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Rolls-Royce SMR is a factory fabricated product requiring regional capacity and capability is a requirement



Research & Development



Universities



Nuclear
Institutes



Training
Centres



Advanced
Manufacturing

Regulators



Module Factories



Primary
Reactor Plant



Civil Modules
Plant



System
Modules Plant

Supply Chain



Services



Equipment &
Components



Labour



Materials

We need a significant fleet with regional hubs to decarbonise total energy



UK Export
Finance



SMR Operations Centre



Plant
Development



Operational
Optimisation



Data Analytics



Refuel &
Maintenance

Reliable, affordable,
secure, flexible low
carbon power



Grid electrical and
thermal power



H₂ production



DAC



SAF



Desalination



NUCLEAR AMRC

ADVANCED MANUFACTURING RESEARCH CENTRE

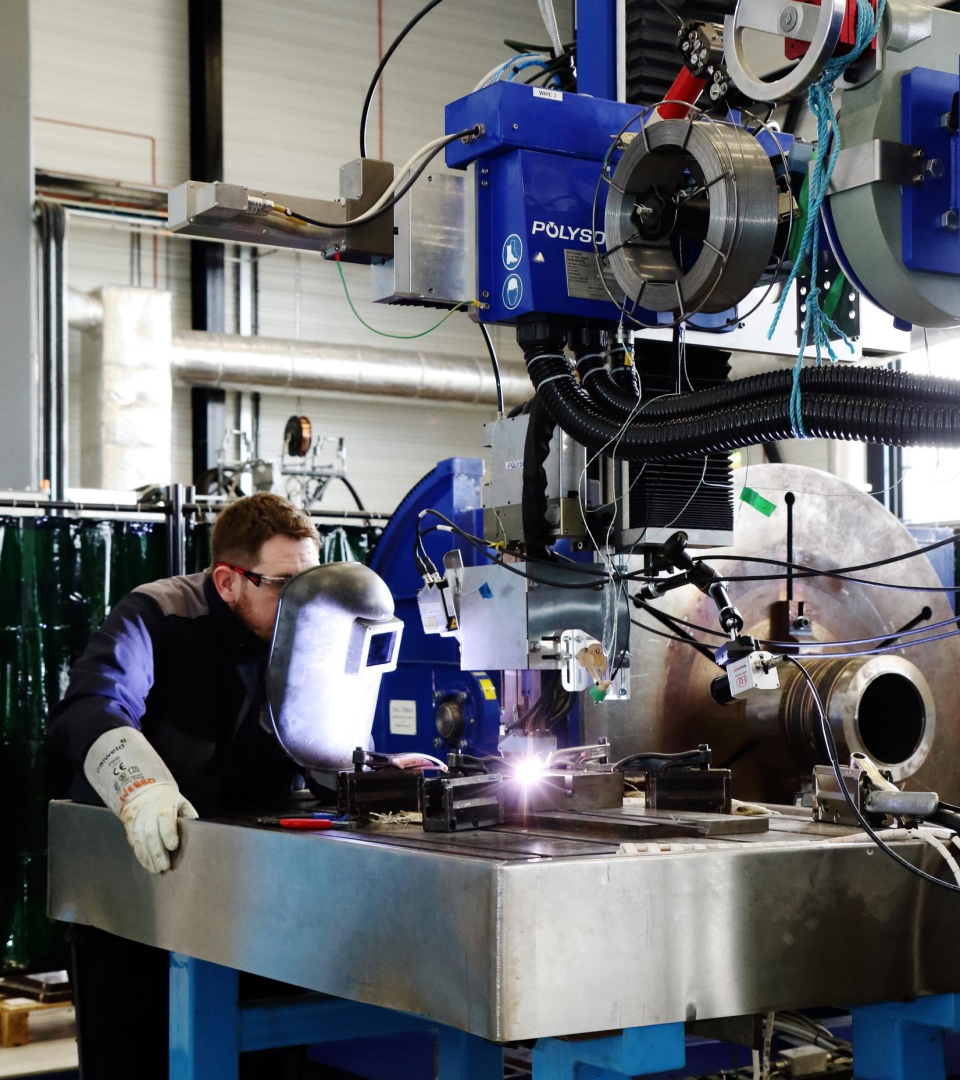
Advancing UK manufacturing



The
University
Of
Sheffield.



Innovate
UK



Raising your capabilities

Manufacturing innovation

- Improving cycle time and quality.
- Reducing lead time, cost and risk.
- Developing innovative techniques and technologies.

Supply chain development

- Raising quality, capability and cost competitiveness.
- Helping companies meet nuclear industry requirements and expectations.



Supply chain development

Targeted support for manufacturers

Helping manufacturers raise quality and develop capabilities to meet nuclear needs.

Building links between manufacturers and the nuclear top tier.

- Fit For Nuclear.
- F4OR and other sectors.
- Nuclear Sector Deal delivery.
- Demand modelling.



F4N
Fit For Nuclear

F4OR
Fit For Offshore
Renewables



Fit For Nuclear

Test and develop your nuclear readiness

- Free online self-assessment.
- Site visit.
- Expert analysis and action plan.
- Ongoing support.

Assessment categories

- Strategy & leadership
- Design & project management
- People excellence
- Process excellence
- Health & safety culture



namrc.co.uk/services/f4n





More than £1.4 billion of new business
reported by granted companies as a result of F4N improvements



SMR

Thank you

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