



SMR

Rolls-Royce SMR

Clean Energy For All

Nuclear Innovation Conference

June 2022





SMR

Rolls-Royce is one of the world's **leading** industrial technology companies pioneering cutting-edge technologies that deliver **clean, safe and competitive** solutions

Rolls-Royce's Nuclear Heritage

Strong nuclear heritage with roots in defence and civil development

Designing, manufacturing and supporting small reactors for over 60 years

Rolls-Royce is a globally recognised and trusted partner

Civil Aerospace



Power Systems



Defence



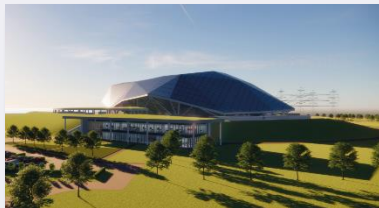
Strong nuclear heritage with roots in defence and civil development

Nuclear Business Experience

Civil Nuclear

Defence Nuclear

Rolls-Royce SMR



Innovation & Future Programs



Submarines





SMR

Rolls-Royce SMR Ltd is a technology vendor offering a complete SMR power plant on a turnkey basis.

Our development programme is fully funded with £490m through commercial equity and UK Government grant funding

Rolls-Royce SMR Ltd Shareholders



Rolls-Royce Group

60 years designing, manufacturing, supporting and operating nuclear technology



Constellation Energy

Operates the largest U.S. fleet of zero-carbon nuclear plants with over 18.7GW from 21 reactors at 12 facilities



BNF Resources UK Ltd

Extensive investments in the energy space and represented and advised by BNF Capital Limited, an FCA regulated UK-based investment advisory



Qatar Investment Authority

Invests in the energy transition and funds technologies that enable low carbon electricity generation

UK Government Grant Funding



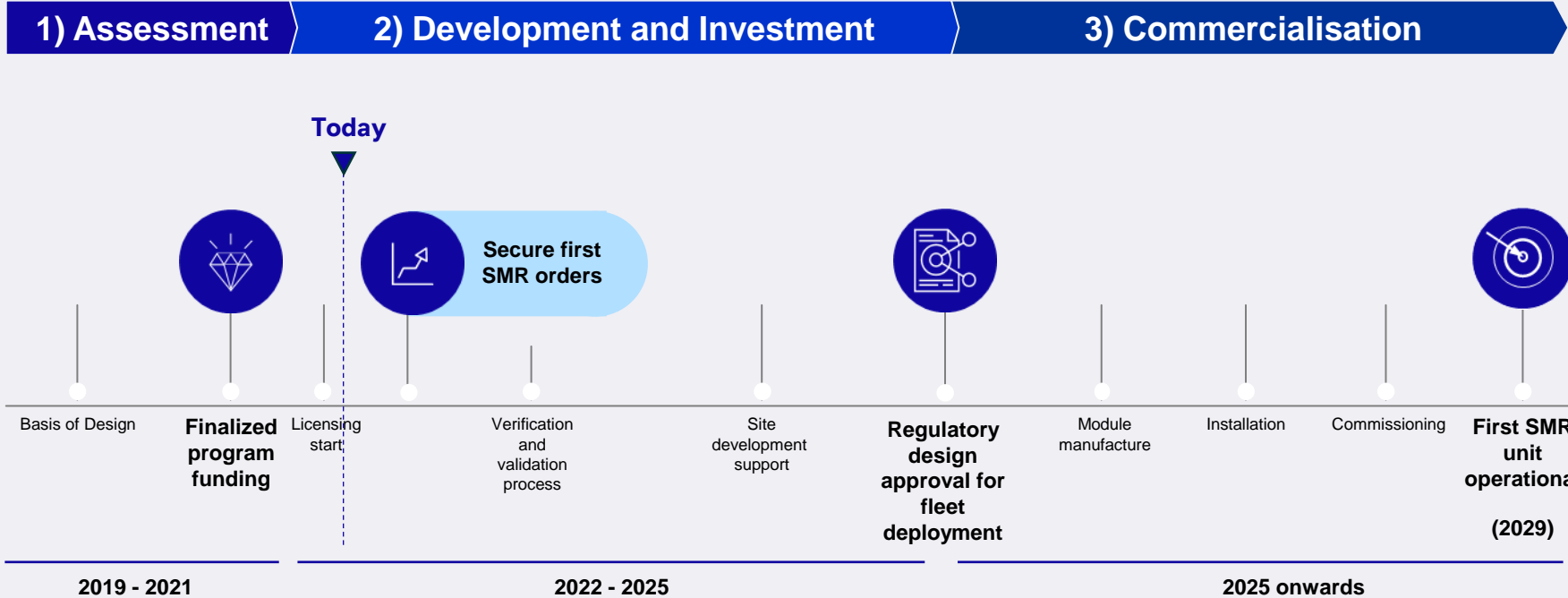
UK department of Business Energy and Industrial Strategy

Rolls-Royce SMR Ltd received the Low-cost nuclear (LCN) grant award by UK Research and Investment (UKRI)



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SMR Program - Timeline and Key Milestones





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Rolls-Royce SMR is a new way of building nuclear to meet the needs of **Net Zero**

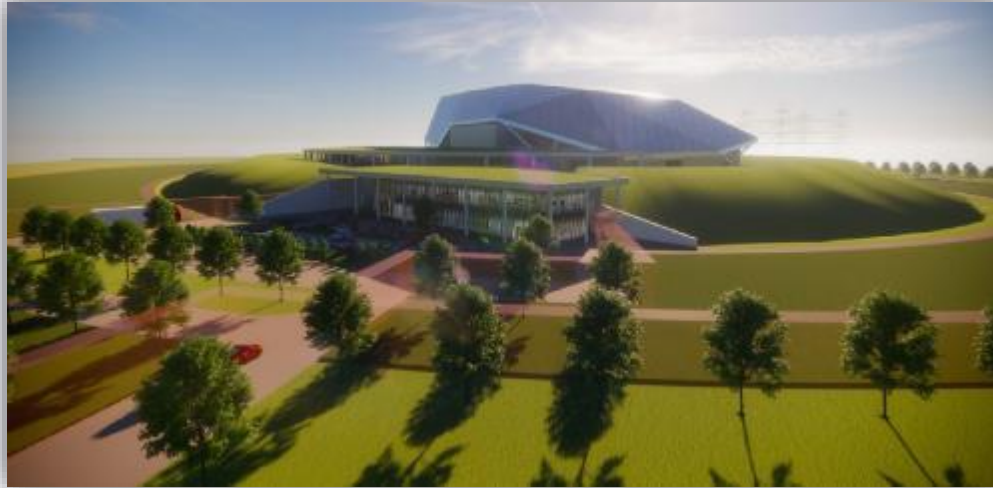
~470 MWe net output

60-year life @95% availability

Proven PWR Technology & Standard Fuel

Power station turnkey delivery

4 yr on-site Construction (Fleet unit)



Enhanced safety and security

1st unit on grid 2029

Adaptable, multi-use power & heat output

Capital cost under €2bn*

LCOE range €41- €58 per MWh**



* 2021 economics, fleet unit; costs based on UK labour rates ** 2021 economics, 2 unit plant, range dependent on financing mechanism





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Industrial Decarbonisation

There are many solutions to decarbonize

But most need clean electricity at a vast scale





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Our SMR value proposition has 4 key elements for SMR success into the global market place



Deliverable & Low Cost; Rolls-Royce SMR is a factory fabricated product Modularisation of the whole power station, not just the nuclear island

Module Factories

Site Assembly



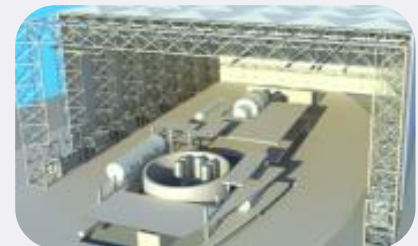
Primary Plant Modules



Mechanical, Electrical & Plumbing Modules



Civil Modules



Site Assembly Factory

Modularisation drives down cost

Improves reliability

Improves economies of scale

Reduces build time

Creates stable long term jobs

Provides schedule certainty





SMR

Investable; Designed to provide competitive clean power using a low risk factory build product for a long-term market demand

value proposition



Solution to long-term demand

Addressable clean energy market size of **2,000-4,000 SMR units** by 2050 globally



Low costs and continuous power

Highly competitive **45-65 USD/MWh** LCOE with >95% of availability



De-risked and fast delivery model

90% of module fabrication and site-assembly done in factory conditions with a short **4-5 years** built period



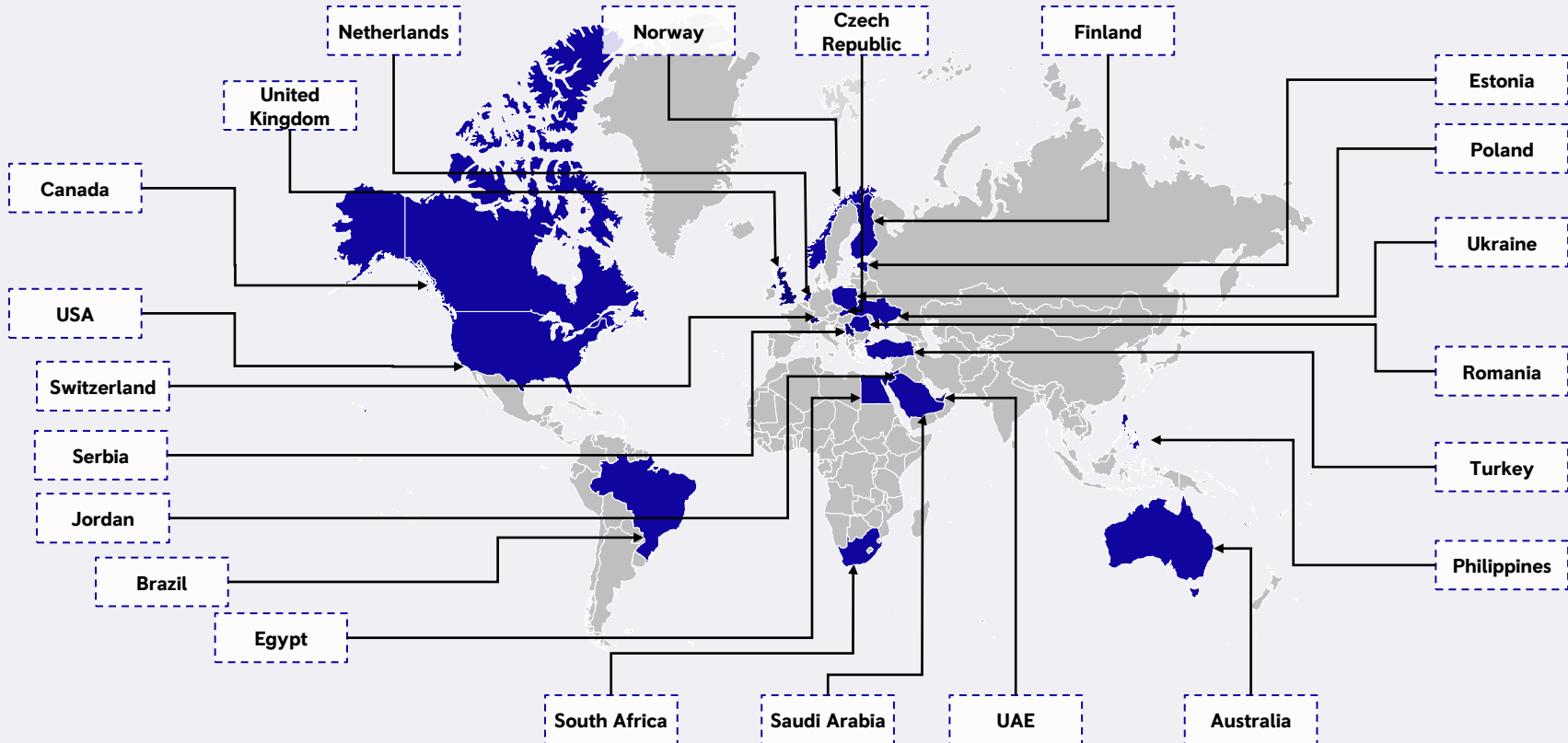
Proven technology and experience

Pressurized Water Reactor (PWR) by Rolls-Royce design and manufacturing combined with **60+ years** of experience



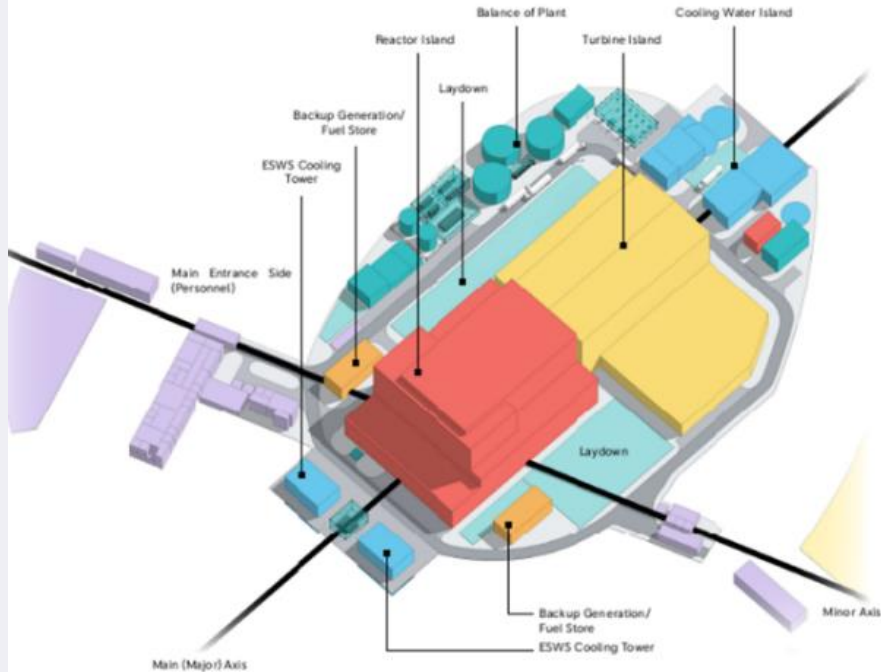
The Rolls-Royce SMR is a holistic near-term solution for a vast expanding global market in clean power

Global and Scaleable; Regional hub & localisation model for rapid deployment in a wider range of regions globally across both 50 and 60Hz markets





SMR The Rolls-Royce SMR delivers 470MWe (net) in a compact site footprint



Standardized design

Full Power Station area: 0.165km²

Nr of modules: ~1600 (all road transportable)

Largest module: Reactor pressure vessel

Highly energy dense solution: ~3000MW/km²*

(Generated Power: Offshore Wind: ~2.25MW/km²; Solar:~9MW/ km²**)

* Assumes RR SMR operational plant @ 95% utilisation

** Assumes 50% wind utilisation rate & 20% solar utilisation rate



✗ EPC (mega project)

Conventional EPC (e.g. Large nuclear)

- Mega project GBP10bn+
- Reactor only, *not* whole plant
- Government driven
- Commercially complex



Designed for LCOE and simplicity of deployment



Factory Product



Standardization



Schedule certainty



Commercial simplification



✓ EMA (factory product)

Engineering
Manufacturing
Assembly

- Much lower risk
- Reduced Capital
- Shorter Time to Build

= Reduced financing cost

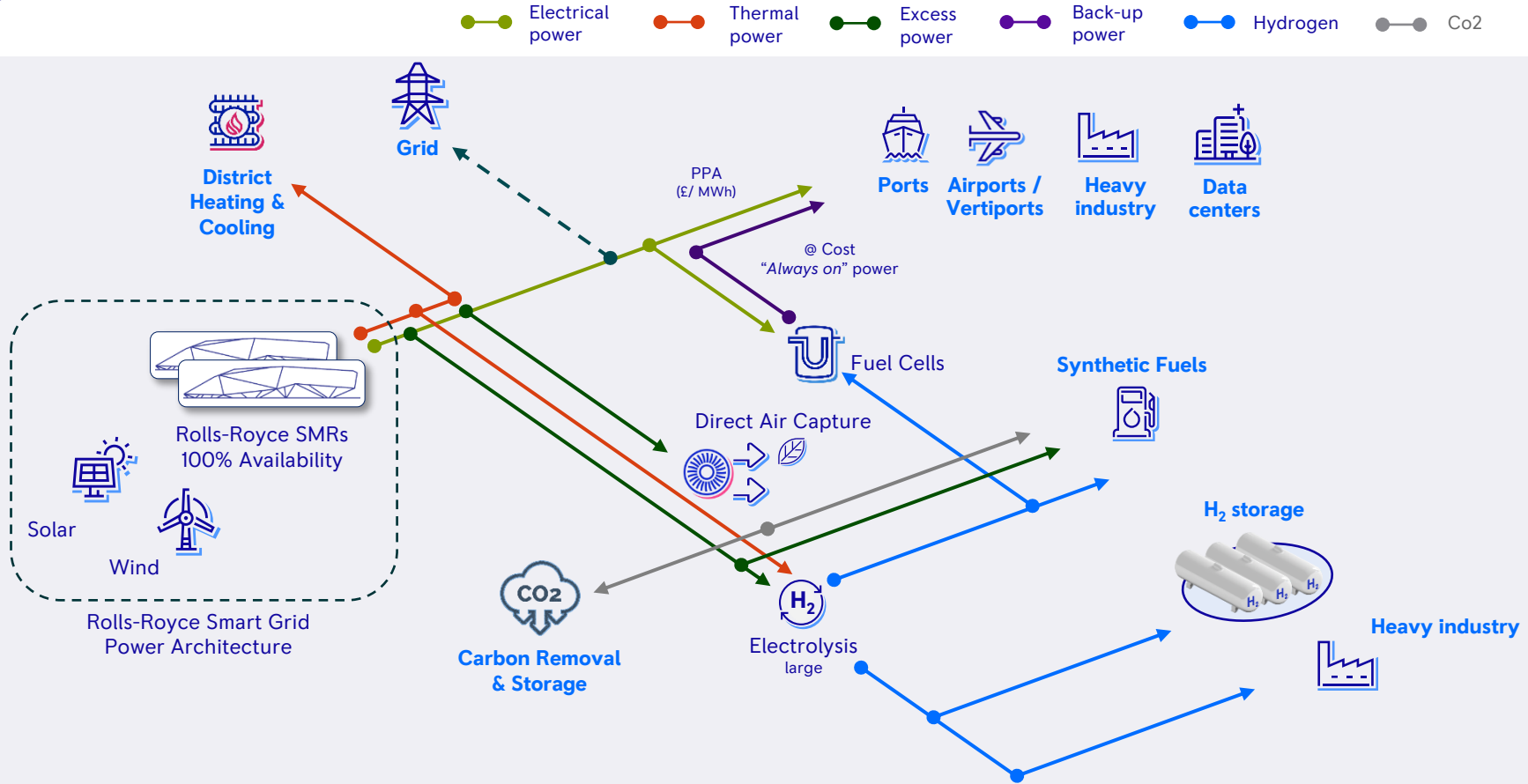
Reducing Project Risk





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A Low-Carbon Integrated Technology and Industrial Offering optimizing Group level Capabilities and Scalable to Regional Demand and Applications





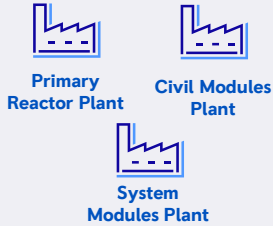
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The Rolls-Royce SMR is a holistic solution designed to deliver Sustainable power and Socio-economic impact

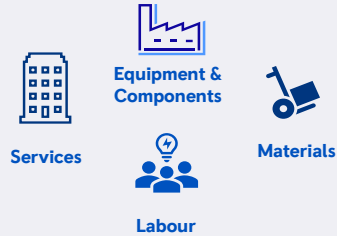
Research & Development



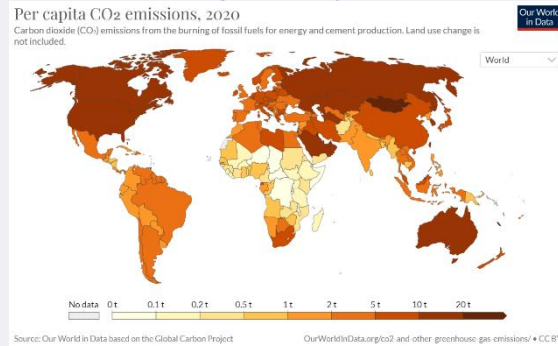
Module Factories



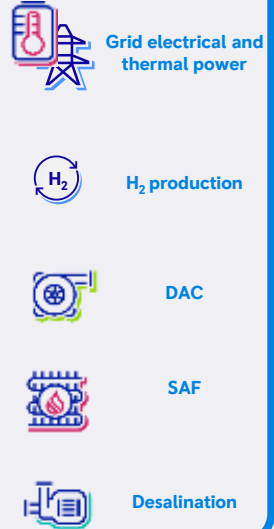
Supply Chain



We need a significant fleet with regional hubs to deliver low-carbon energy globally



Reliable, affordable, secure, flexible low carbon power



UK Export Finance

€ £

SMR Operations Centre





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