

NEA-IFNEC Warsaw Conference on Nuclear Financing Leveraging Public and Private Financing for nuclear new build projects

Nuclear Industry Association

8th December 2022



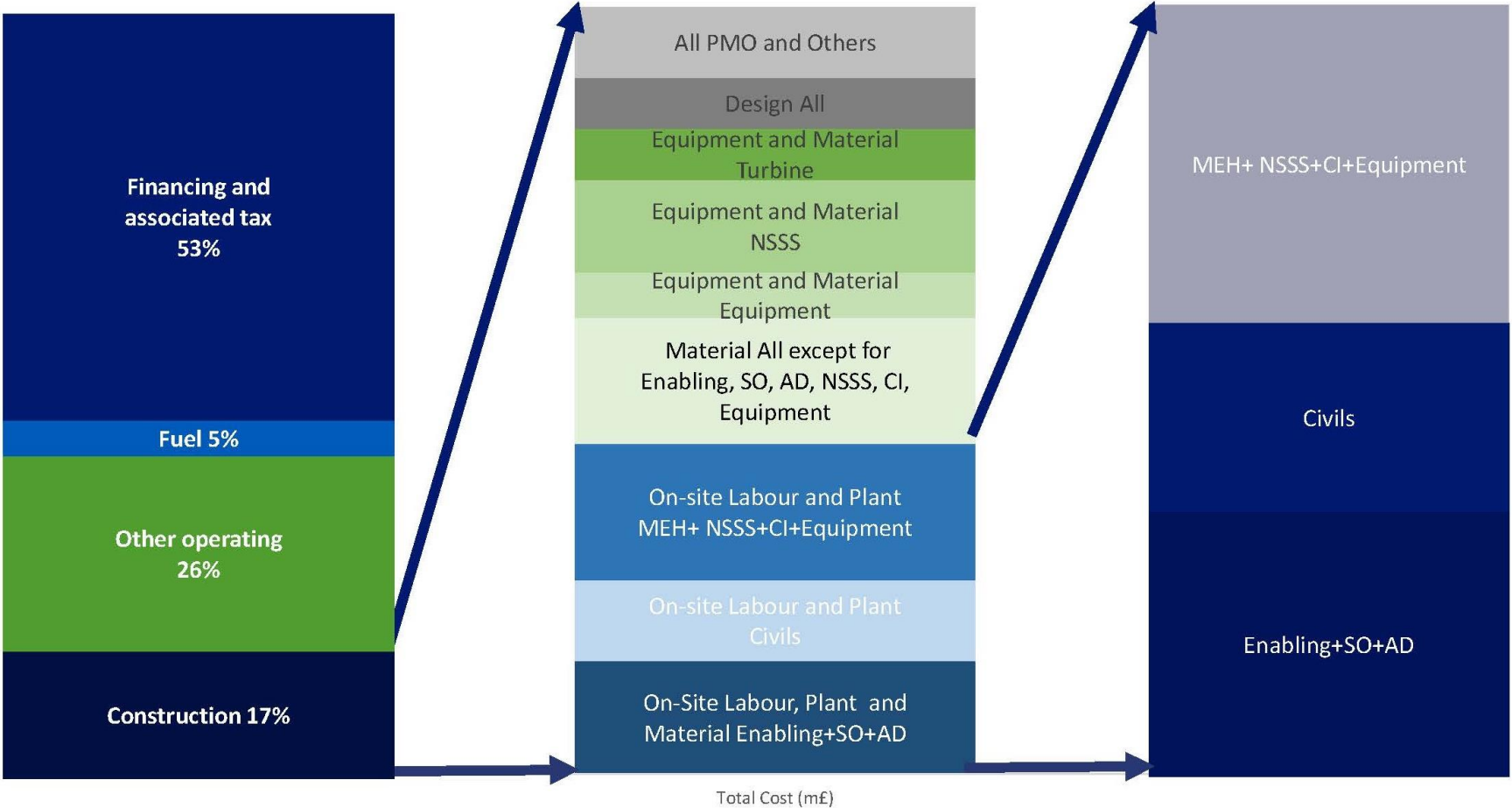
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Agenda

- Cost of capital & consequences
- Great British Nuclear - what is it and the outcomes
- Final Thoughts

Cost of capital – nuclear power

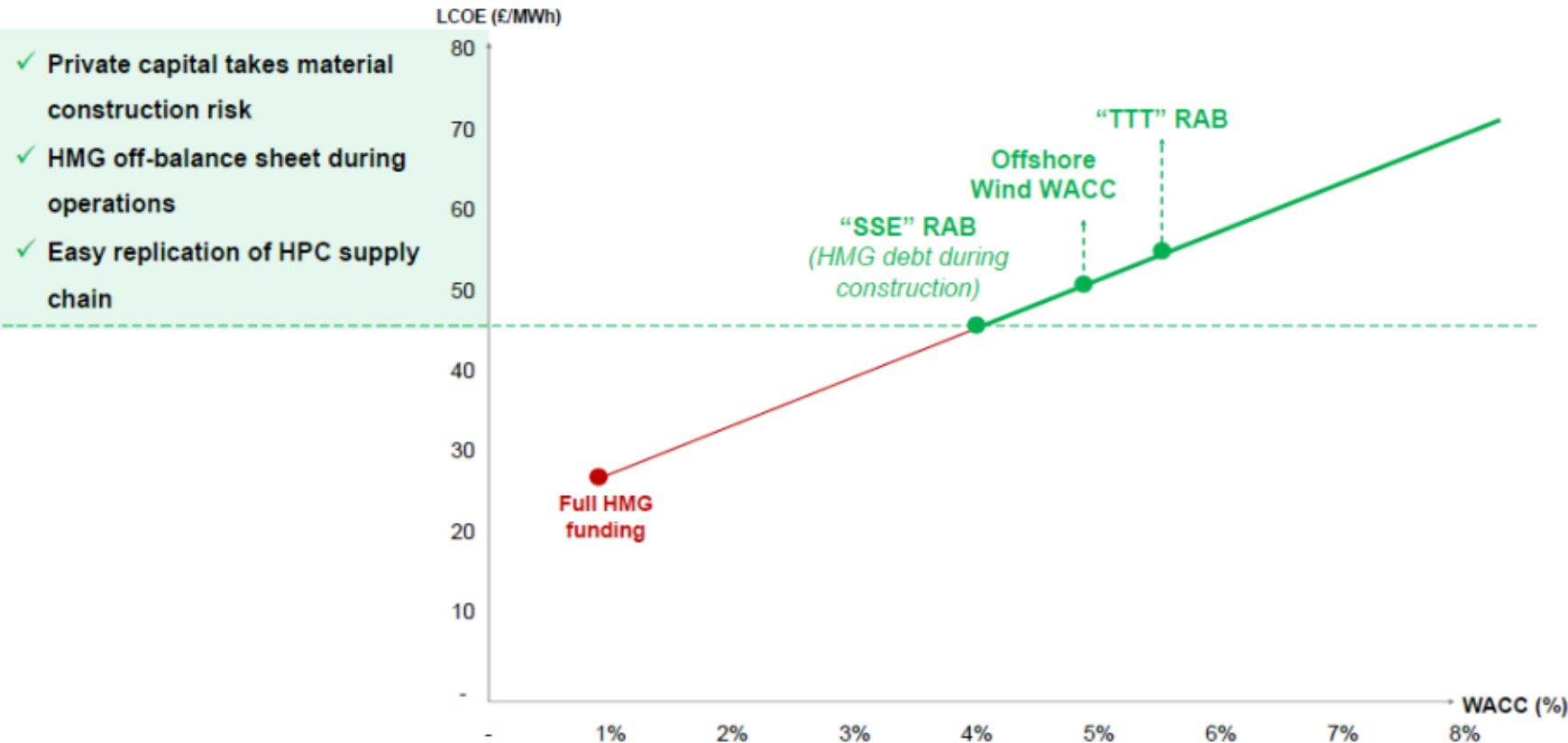
Costs breakdown for the Sizewell C project



Effect of WACC on the Sizewell C project

Sizewell C: £30-60/MWh

LCOE driven by HMG decision on financing model



Cost of capital

- Michels' earlier presentation is spot on and crystal clear
- For GW-scale reactors (long construction period), cost of capital is the biggest single driver of cost of resulting electricity
- Every basis point of additional WACC is simply a needless artificial tax on the energy created and creates long-run damage to national economic competitiveness
- BUT minimising WACC is not a panacea – still requires properly planned and executed projects
- Nuclear can and has been delivered to time and cost – has to become the norm whether GW or SMR

Cost of capital

- See ETI Nuclear Cost Drivers Study – <https://bit.ly/3mNaxQR> and <https://bit.ly/2BaNdE0>
- Risks - manage risk, mitigate risks, share risks but do NOT outsource risk – the project owns them all
- If you want to attract capital under any structure (and why not public finances or RAB?) there is NO alternative but to
 - Complete all engineering drawings before start of project
 - Complete construction planning before start of project
 - Let rational, behaviourally-sensible contracts – not just some “standard”
 - Ensure all labor is properly incentivised based only on project milestones

Simple truths

In nationally significant infrastructure, Governments “own” failure

Irrespective of apparent contractual protections, *force majeure* means ultimate failure **cannot** be outsourced - the “L” in plc

If resilience isn’t at the heart of government policy and planning, it becomes a shorter-odds wager on the health and prosperity of citizens

Great British Nuclear

What is it and what will be the outcomes?

Overview

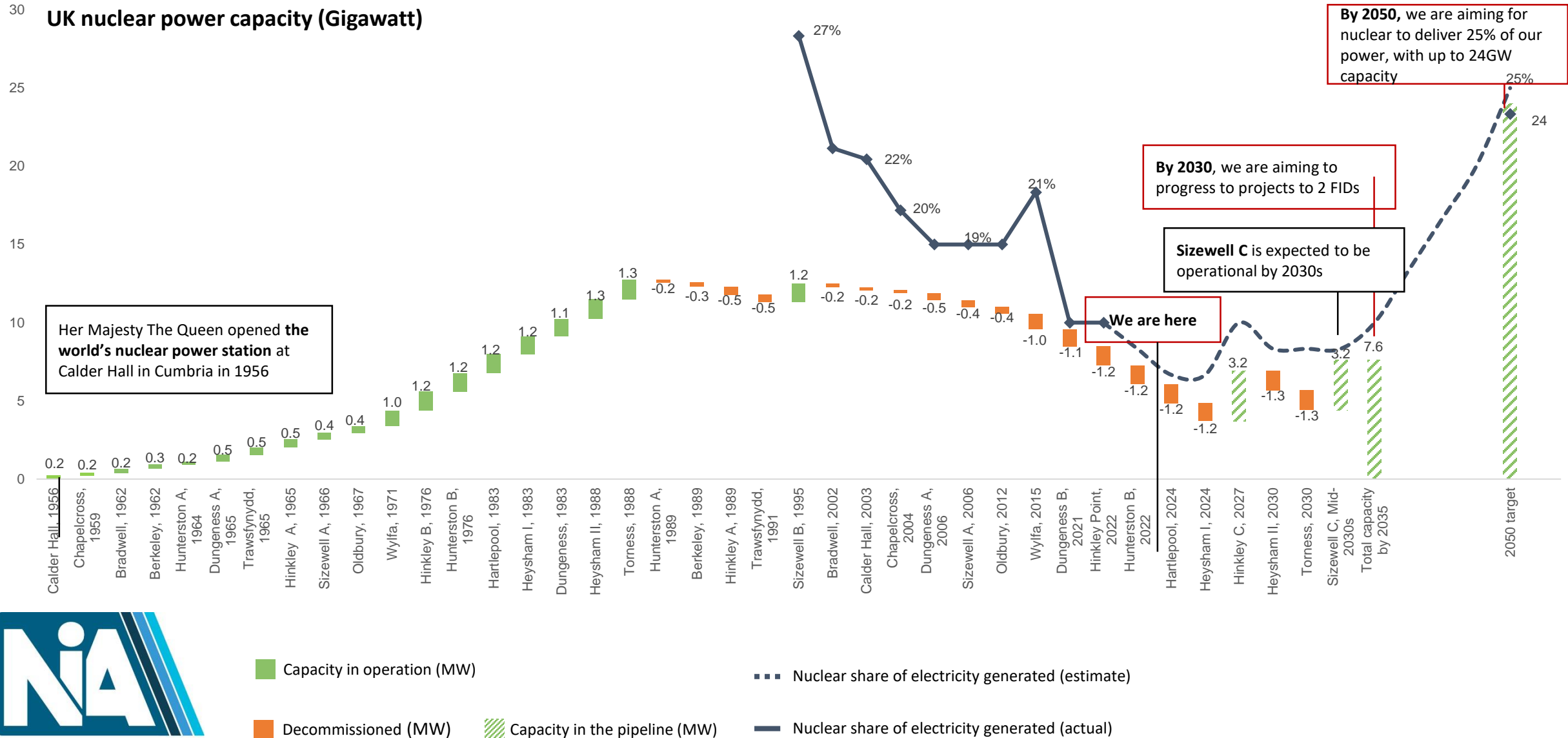
Origins	21st March Roundtable
Recap	Recap our nuclear ambition and purpose of Great British Nuclear
Talk through	Talk through what GBN's functions might be
Set out	Set out next steps to launch in 2023

Roundtable – 21st March 2022

- Energy security critical driver + Net Zero
- Need delivery organization
- Build trust and confidence in UK govt & policy
- Accelerate siting and permitting
- People, supply chain and process



UK Nuclear Capacity – why we need to accelerate!



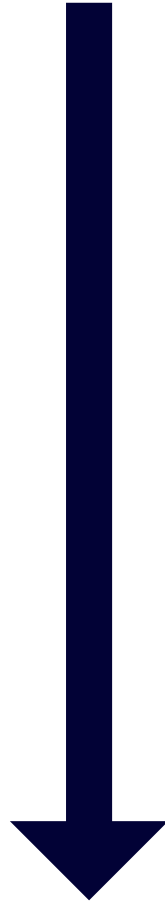
Great progress in a number of areas but still missing some critical elements

Project
initiation

Development

Construction

Operation



- No clear strategy to deliver up to 24GW
- Critical sites not in UK ownership
- No developer* able to deliver a project on their own
- Reduced attractiveness of UK to technology vendors and investors alike
- Limited development funding available to support private sector
- First Of A Kind risks will be present for chosen technology*
- Lengthy and costly regulatory and licencing process
- Lack of investment in UK skills
- Long term uncertainty resulted in weak UK supply chain
- All UK operations expertise held by EDF



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(*other than EdF/EPR)

Possible solutions for GBN and Government



Commit

HMG & GBN

- Long-term **policy** for new nuclear with capacity **targets** (and off-ramps)
- A clear and compelling **vision**
- A **programme** of new nuclear projects
- Change in **regulatory pace/simplicity**
- **Select technologies** (GW & SMR)



Fund

HMG

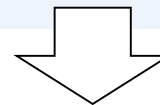
- Provide some funding for **pre-FID** activity
- Agree parliamentary windows for investment decisions
- Provide **appropriate financial models** for return on investment (e.g. RAB)



Own

GBN

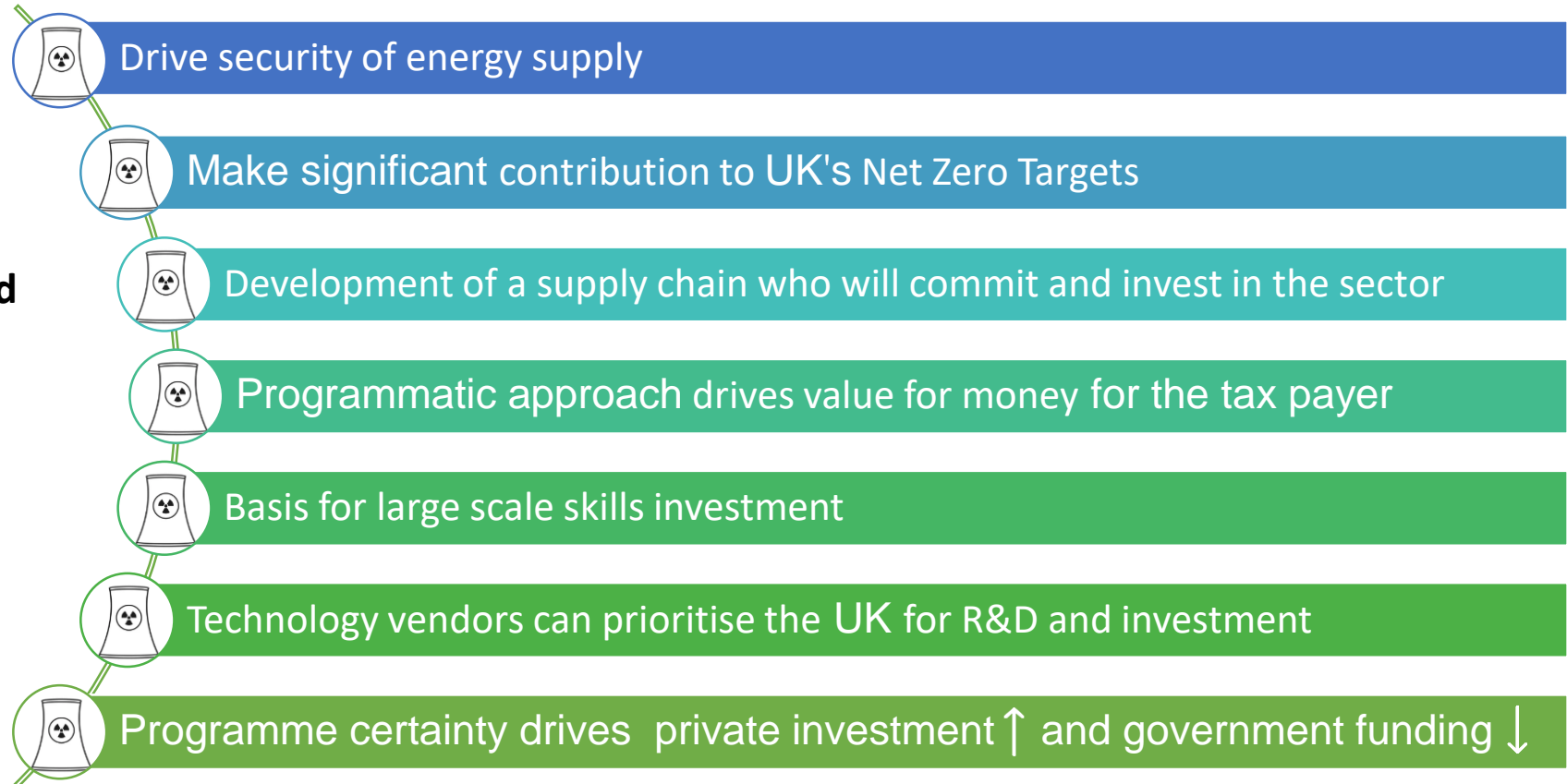
- **Secure** access to **sites**
- Technology selection process
- **Oversight** of project delivery with authority to **intervene**
- Accountable for the **programme**



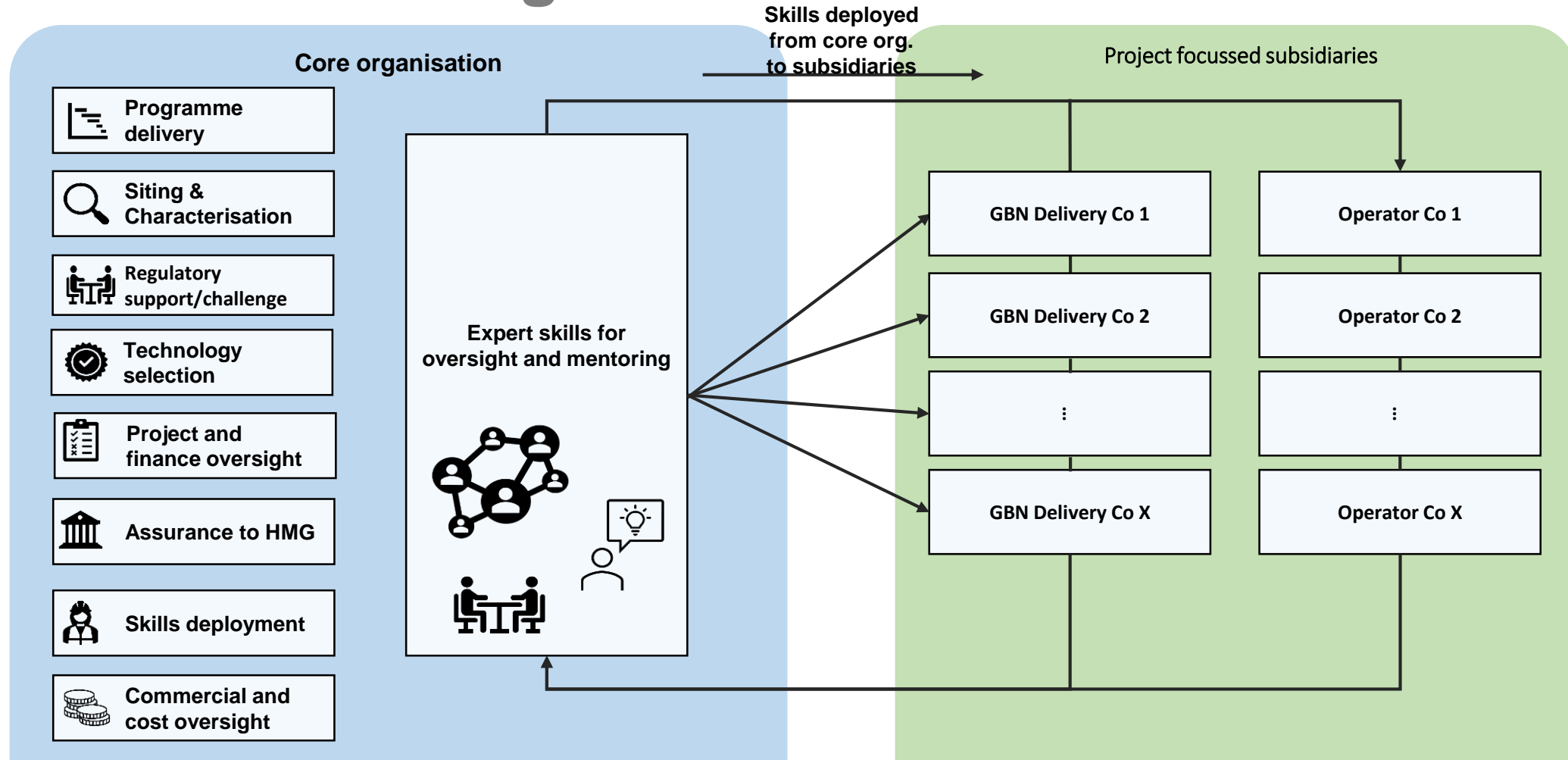
Creates certainty, catalysing investment, skills development, programme acceleration and reduced cost

A programme of nuclear projects is required

**A programme of GW and
SMR projects driven by
GBN**



GBN – Overarching structure



International Nuclear Programmes



Canada



UAE



France



UK

HMG
commitment

+

GBN

Majority state funding?



Strong government support?



*Strategic vision in place and
widely supported?*



*Commitment to multiple
units/sites?*



*Public Body owns and drives the
programme?*



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Next steps...

Waiting on Ministerial approval & announcement...

Shadow team established and growing

Prepare announcement on GBN, GW-scale and SMRs,
including legally establishing GBN, interim recruitment

Full launch in March 2023.

Final Thoughts

Biggest change in a generation

- Net Zero provided the backdrop
- Really, triggered by Ukraine and realisation that UK does not have energy security (and hasn't, truthfully, for more than a couple of decades)
- Many countries have to replace almost all their primary energy
- MASSIVE demand for capital and people – but large, potentially stable long-run rewards
- Capital will flow to the best (prepared) projects where governments recognise the sovereign nature of nationally significant infrastructure and face up to their inescapable consequences.



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