

Nuclear - Investable Asset Class?

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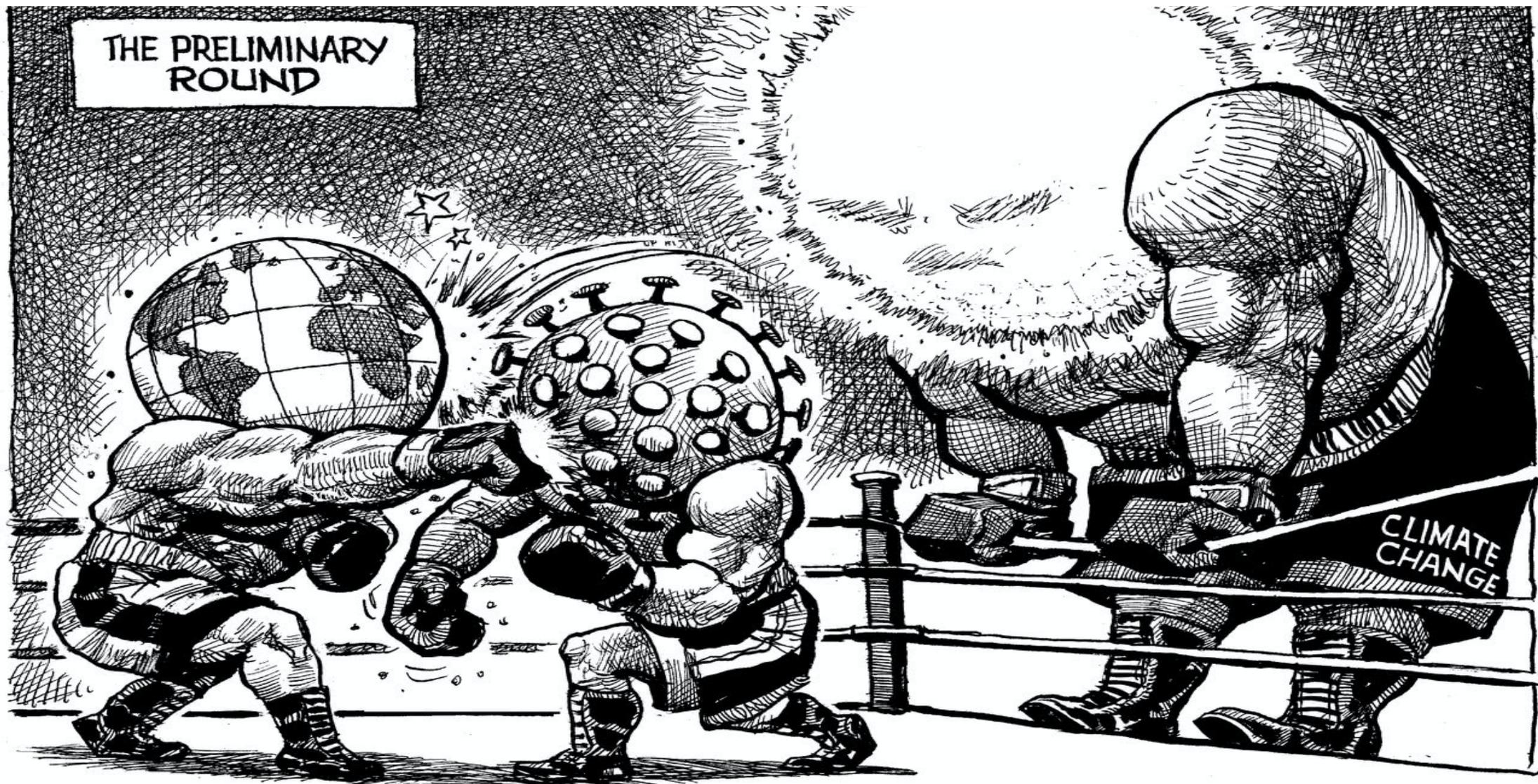
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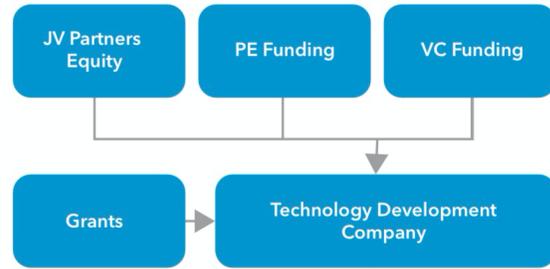




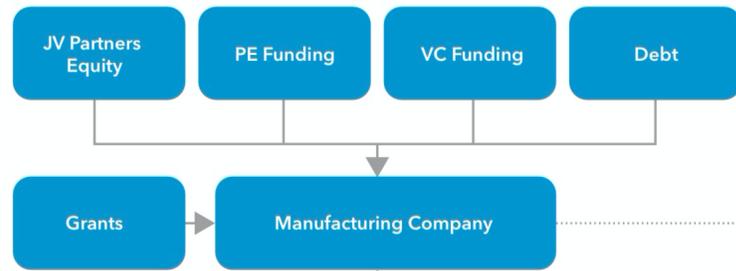
Economist.com

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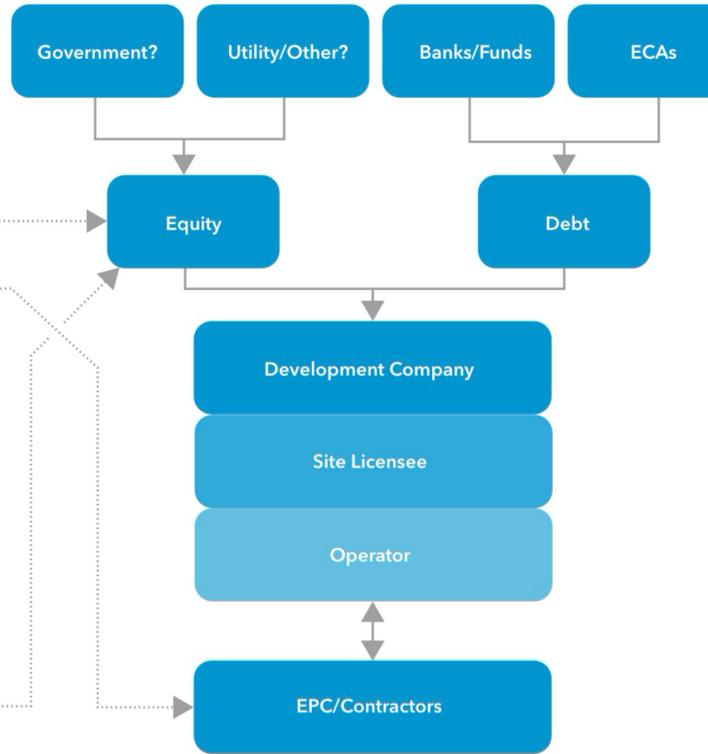
Technology Development Project



Manufacturing Capability Development Project



NPP Development Project



Tech Dev Co/
Manufacturing Co
Equity in NPP

Sale to EPC Consortium or directly to Dev Co

Stages of Development

Reactor Applications - Markets

Size	On grid/ off grid	Applications
Micro Reactors 1MW - 20MW	Off grid	Industrial Mining Reservations/remote communities Oil and gas platforms Off grid agriculture
Small Reactor 20MW - 300MW	On or off grid	Non-developed grids Desalination Industrial processing e.g data centres Off grid agriculture Hydrogen Ships
Large Reactors >300MW	On grid	Developed grids Desalination Hydrogen

Technology Development

- Government Development:
 - R&D grants
 - Sweat equity
 - Often slow

and/ or

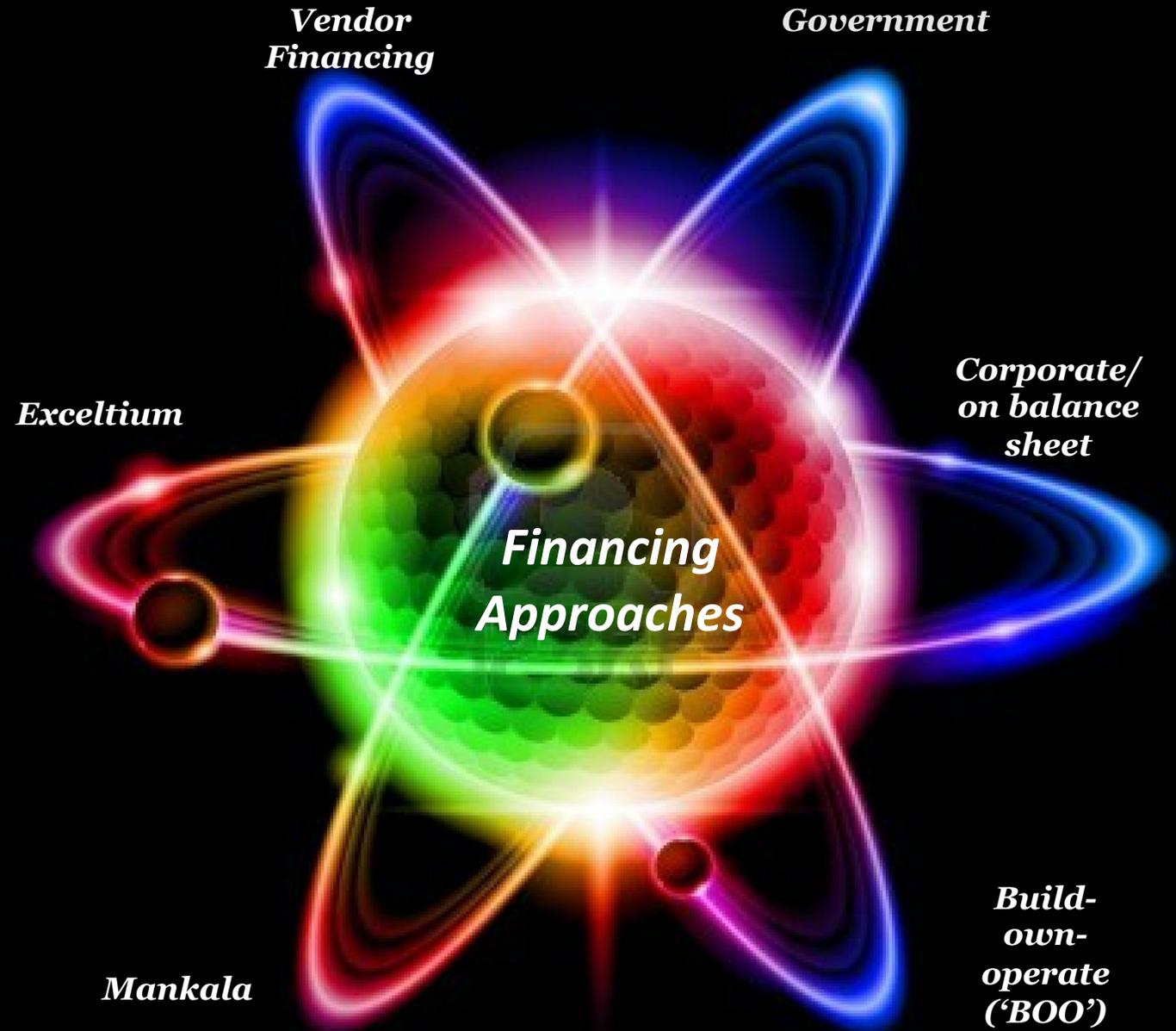
- Private Finance:
 - VC/PE
 - HNW
 - Fusion - c. £1.5bn of private finance into fusion in the last couple of years; Majority HNW individuals and Silicon Valley – e.g. Bill Gates/ Jeff Bezos ...
 - Don't want Government involvement as too slow
 - Collaborations
 - Sweat equity

NPP Development Project = Capital Project

- long-term project to build or develop a capital asset
- a capital project is a huge project that costs a lot of money, lasts a long time, and is generally extremely complex

Financing methods for nuclear projects

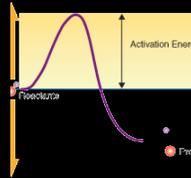
- Nuclear never been “project financed” – no recourse or limited recourse
- Government role remains paramount – host government or exporting government



Risks

- Government's role:
 - Policy maker – trust and confidence
 - Insurer of last resort
- Design not set early in the project & over-engineering
- Big issues resolved with regulator early on
- Over-engineered operating models & processes – Licensee Company

Governments & Industry



Reactive not Strategic



= Not sustainable



Long term strategic policy
support and system design =
trust and confidence

WACC & LCOE



More perceived risk = higher
WACC = higher LCOE

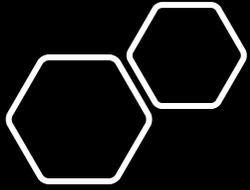


Not commercially viable

Environment, Social and Governance



- Investment/ financial accounting criterion
- Lack of Common Metrics
- Taxonomies
- Green Bonds
- Nuclear often not included as asset class



Level playing field – “green” “sustainable” finance

- Stop green-washing
- Create level playing field
- WEF – suggested common metrics
 - Governance:
 - Processes & procedures etc.
 - Planet:
 - GHG, Waste etc.
 - People:
 - Culture, pay, health and safety etc.
 - Prosperity:
 - Jobs, R&D, GVA etc.

Conclusions

- Trust and confidence in the market
- Level playing field for low carbon tech through taxonomies, GBP and ESG
- Support for green financing and making nuclear and investable asset class



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Strategic Advisory Board Member of the Nuclear Industry Association
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Fiona is an Energy & Infrastructure specialist with over 25 years of experience encompassing nuclear, oil & gas, renewables and thermal power. She is often involved in large-scale energy and infrastructure projects particularly the development, structuring, international regulatory development and compliance, licensing and financing.

Fiona is described as having a unique blend of skills having worked on global nuclear projects for over 20 years. Her skill include strategic and policy advice and regulatory expertise, deal structuring and financing, project and asset management, claims and disputes. She is recognised as an expert in the development and financing of nuclear projects by the International Atomic Energy Agency (IAEA) (and IFNEC) and has served as a designated expert for the IAEA and chaired technical meetings: on the financing, development and structuring of nuclear projects; and on decommissioning and waste management issues.

In January 2018 she was appointed Chair of the Expert Finance Working Group on Small Reactors by BEIS and produced the [Market Framework for Financing Small Nuclear](#) in September 2018. She continues to work on low carbon projects around the globe, including the deployment of large and small reactors.

Fiona is Managing Director of consulting firm – FiRe Energy.

She is also a Non-executive Director of the Nuclear Industry Association and Ansaldo Nuclear. She is also a UK representative and Co-Chair of the EMWG for the GIF.

Previously, Fiona was Partner and Global Head of Nuclear Services at law firm Norton Rose Fulbright before moving away from the law to join PriceWaterhouse Coopers (PwC) as the Global Nuclear Lead for Capital Projects and Infrastructure.

Following PwC Fiona became an Executive Partner and Board Director in Atlantic SuperConnection, a Non Executive Director and then a Strategic Advisory Board Member at the Nuclear Industry Association and Chaired the Expert Finance Working Group on Small Reactors before establishing FiRe Energy Limited.

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