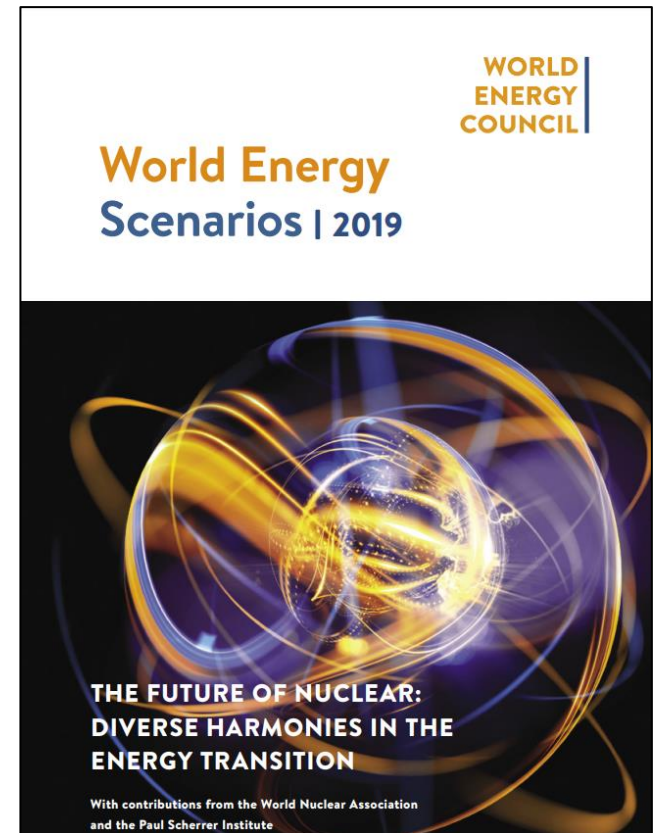


Content overview

- Meaning, purpose and scope of scenario planning
- Scenarios and decision making
- Scenario development methods
- Scenario practice in the world of energy
- Fundamental driving forces/key uncertainties
- **World Energy Scenarios – The future of nuclear (2019)**

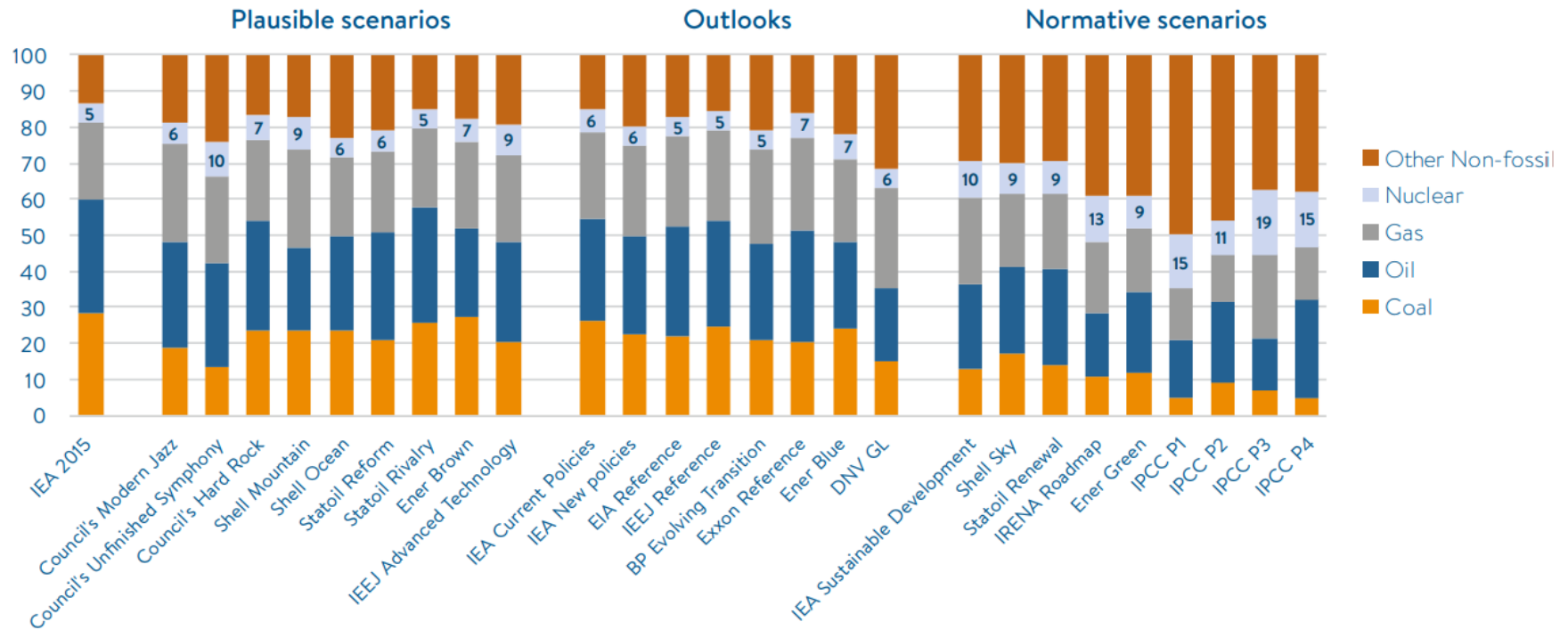
World Energy Scenarios

https://www.worldenergy.org/assets/downloads/Nuclear_Scenarios_Report_FINAL.pdf



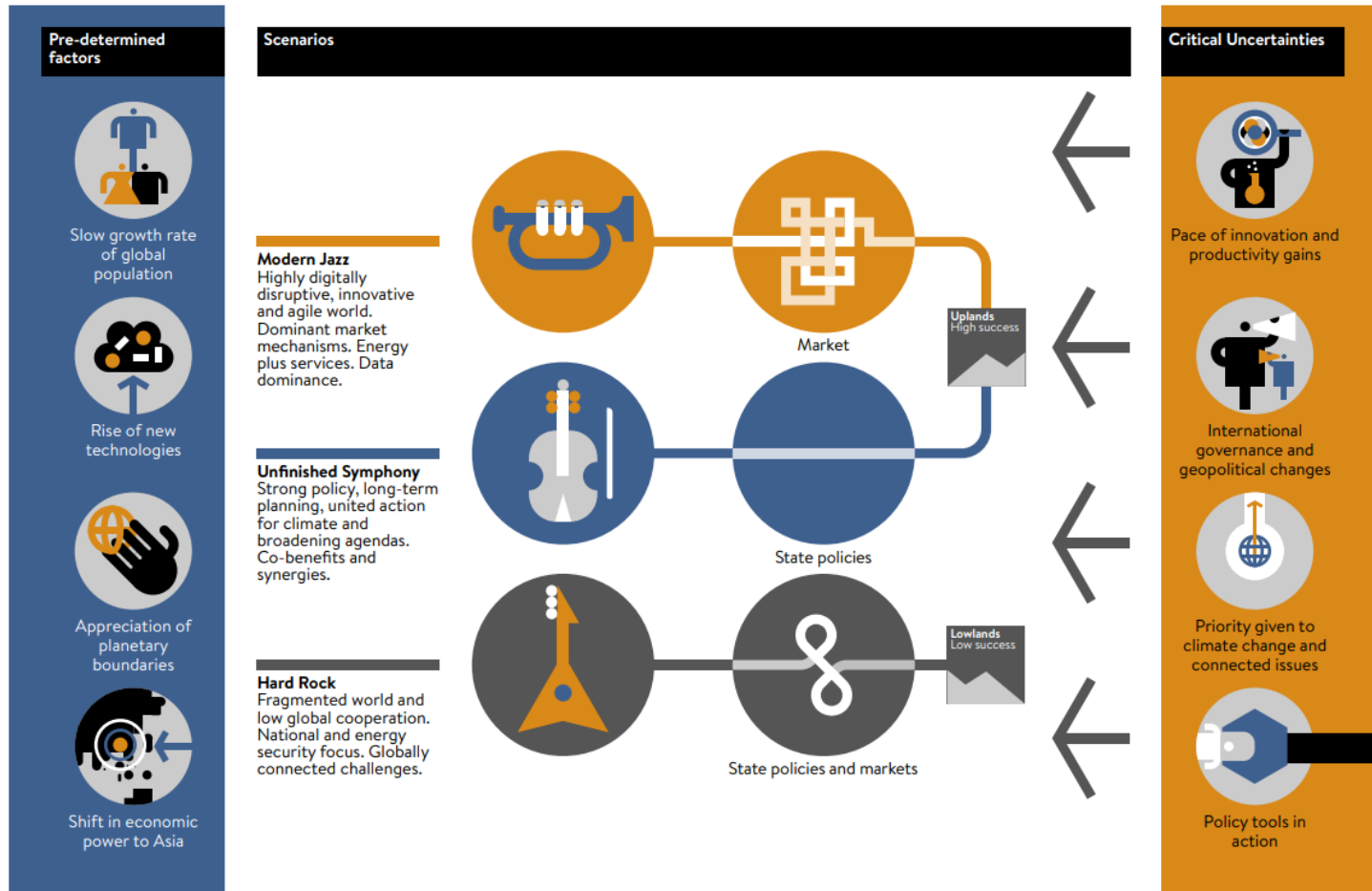
Comparison across scenario sets

Figure 1: Primary Energy Mix by 2040 and Share of Nuclear (%)



Snapshot of the scenarios

THE COUNCIL'S WORLD ENERGY SCENARIOS FRAMEWORK



Critical uncertainties / Fundamental driving forces

What will be the pace of **technological innovation** and what will be the implications for productivity growth in an era of increasing automation and low labour force growth?

How will **international governance and geopolitics** evolve?

What priority will the public and governments assign to **climate change** and a wider range of environmental and sustainability issues?

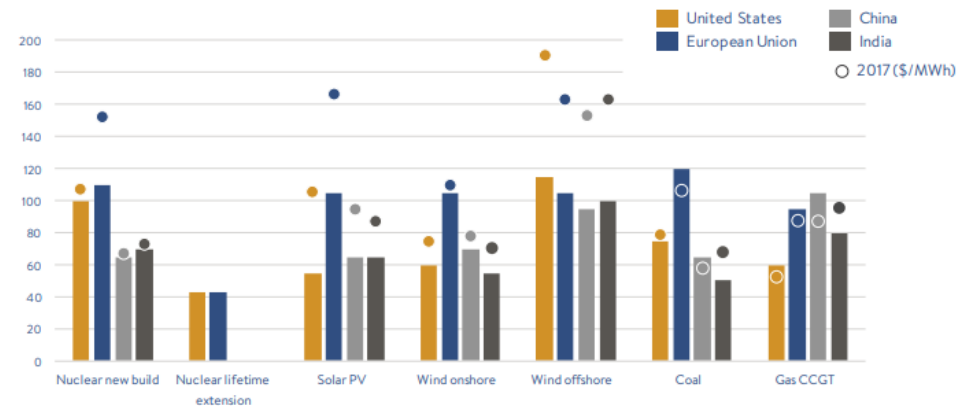
What will be the **preferred mode of managing the energy sector**: state control, markets or a mixture?

Nuclear specific uncertainties

Public acceptance, position in 'green taxonomy'

Relative LCOE
(levelized cost of electricity)

Projected LCOE by technology, 2040



Source: IEA 2019

Future nuclear technological developments
(in particular small and medium reactors – SMRs)

Some key take aways

(‘Unfinished Symphony’ not discussed)



Modern Jazz

- Minor role nuclear due to consumer-empowerment and highly decentralized and distributed power grids
- High productivity gains, also in nuclear industry, due to digitalization
- ‘Islands’ of nuclear success stories in a few countries
- Overall share in electricity generation 8.5% in 2060



Hard Rock

- Climate change concerns are less of a driver (limited collaboration) but energy security is..
- Trade limits are a barrier for technological progress, also for nuclear
- Split in OECD countries due to differences in social acceptance of nuclear technology
- Overall share in electricity generation 12% in 2060

Pierre Wack about Scenario Planning (1986)

A stone of jade



Source: Youtube, Oxford Futures Library