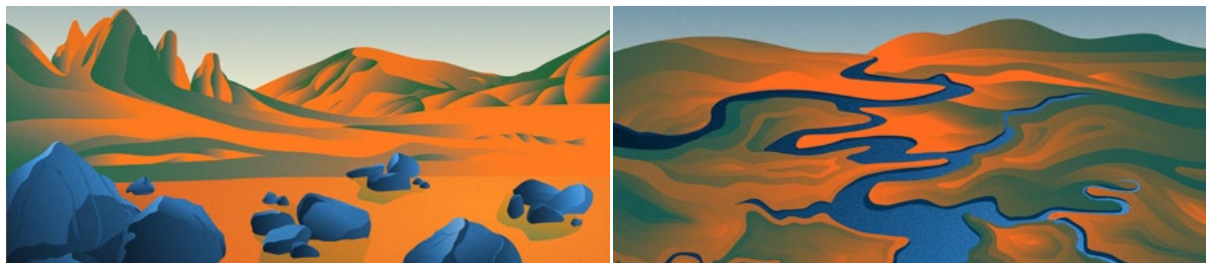


SCENARIO FOUNDATIONS

ROCKS AND RIVERS



The recent Covid-19 pandemic, the war in Ukraine, the conflict in Gaza, geopolitical realignments, the rise of AI, and the consequences of severe, climate-change-related weather events have all profoundly affected the global economy and global energy system. An in-depth project to build new scenarios to 2050 is needed. The Council is offering reflections on what a new set of scenarios might look like. This summary offers a glimpse of the foundations on which a new scenario set might be built, including specific views on designing for the future to realise significant opportunities.

In **ROCKS**, the global hopes and national promises associated with the Paris Climate Accord are threatened by intense pressures for energy security, industrial competitiveness, and other aspects of national self-interest—a “new tribalism.” In many parts of the world, plans for the phasing out of fossil fuel have been moderated or delayed, and NDCs are barely being met. Energy subsidies are the most direct way to meet increasingly powerful populist demands in a world where leaders emphasize national strength rather than international agreement or responsibility. Energy-related transitions continue where they are established and support security-related goals, but the idea of the whole world succeeding in meeting UN sustainable development goals seems to belong to a long-ago, simpler time.

In **RIVERS**, digital advances and market dynamics significantly re-shape energy supply and demand. Economic growth moves in sporadic yet dramatic bursts, rewarding companies that adopt new technologies and supply-chain alignments ahead of demand surges. As the old system of international collaboration comes under strain, new forms of cooperation at many different levels emerge, sometimes unexpectedly: sustainability projects within shared value chains, sharing of best practice among citizen groups, new efficiencies resulting from technology innovation, and ‘carbon clubs’ and other incentive-based mechanisms. Increased digital transparency allows connected energy actors to make strategic choices in their domains rather than respond to policy edicts from above.

	ROCKS	RIVERS
GEOPOLITICS	Blocs	Shifting alliances
TRADE	Blocs with leaky barriers	International in principle, but with security carve-outs
ENERGY SYSTEMS	A long tail of fossil fuel use with deep electrification and decarbonization in some blocs	Turbulent but swift fossil fuel substitution (electricity, hydrogen, biofuels) and cross-border connections enabled by technology
AGENTS OF CHANGE	Mission-oriented government leaders collaborating to design policy for national interests	Entrepreneurs, CEOs, policymakers, and consumers with aligned emerging interests
MODES OF COOPERATION	Policy convergence and deliberate collaborations among like-minded powerful actors with common interests; community collaborations at multiple levels	Emerging alignments driven by common pressures, market opportunities, and innovation

COMMONALITIES

Driven by both national policy and business interests, in both scenarios there will be deeper electrification of many economies, with an increasing proportion of power supplied from renewable resources. In heavy-duty applications, where molecular fuels will still be required, there will be increasing substitution of fossil fuels by bio-fuels, hydrogen derivatives, and eventually synthetic fuels. And there will be growth in carbon capture and removal through natural or technological means.

In both scenarios, the first new approaches to become established in any given arena will generally continue to be dominant as long-duration infrastructures are established and commercial competition drives down costs through learning curves and economies of scale. Competitive forces will drive explosive and disruptive paces of change once conditions are attractive enough to kick this off.

DIFFERENCES

The big strategic uncertainty is whether these opportunities occur “sooner” or “later” and where they will occur, and the big strategic question for individual energy-system actors is whether it is better to risk being “too soon” or “too late” in changing. This strategic uncertainty raises additional questions for the different actors:

INDUSTRY AND ENERGY LEADERS

- What strategic choices are growing in significance as the result of geopolitical disruptions and energy transitions?
- What are the implications of value-creation shifts from being commodity-centric to customer-centric? In what ways can energy transition be a source of volume and value growth more broadly?
- How might opportunities be seized in potentially disruptive and fast-moving areas by being on the front-foot and early into developments? Where will this be more successful than hoping to be a fast-follower and arriving late at the party?

GOVERNMENT POLICYMAKERS

- Which new decarbonization policy developments can boost domestic industrial competitiveness in deploying new technologies? Where does being too late rather than too soon pose the greater risk to industrial competitiveness or social benefit?
- What forms of proactive energy infrastructure action plans will enhance systems resilience, e.g., in addressing power generation intermittency and seasonal variability through short- and long-duration energy storage?
- What are the mechanisms to identify integrated policy innovation opportunities and implement sector-coupling policies? Which advantageous new alignments can be orchestrated through convening customers and business and community leaders involved in high-emissions business chains under pressure to lower emissions?

INTERNATIONAL COMMUNITY LEADERS

- What avenues are still available for encouraging cross-border, cross-sector, and cross-vector strategic partnerships?
- How might efforts be renewed to facilitate technology transfer, secure new investment, and progress regional investment integration where it improves the matching of energy sources and demand?
- How might international emissions-reduction monitoring and verification standards and approaches be deepened, harmonised, and integrated into business opportunities?