



Shell Scenarios

The Energy Security Scenarios

Entering a world of competitive transition

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23-Mar-2023

shell.com/scenarios

Warning: Uncertainties ahead

The Energy Security Scenarios

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Scenarios - What are they?

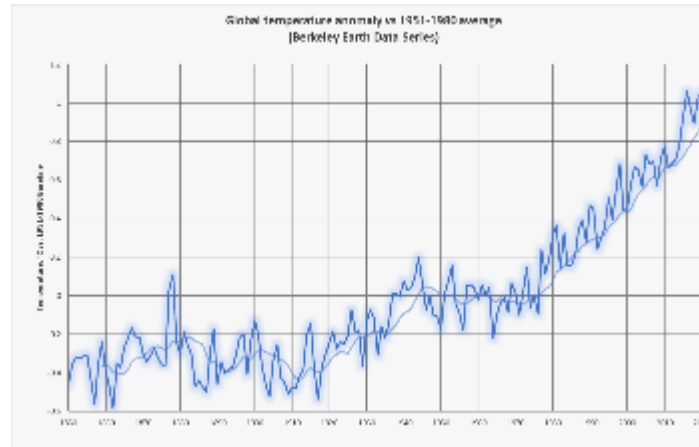
- Scenarios explore how the world could possibly evolve under different sets of assumptions.
 - Informed by data.
 - Constructed using models.
- Scenarios contain insights from leading experts in the relevant fields.
- Scenarios consider different versions of possible futures. Some may seem unlikely or even surprising.
- The value to Shell is to help senior management think about the long-term challenges Shell could face.
- Scenarios are not expressions of Shell's strategy, they are not Shell's business plan and they do not necessarily reflect the thinking or behaviour of the business.
- Shell also publishes some of its scenario thinking to help governments, academia and business to think about the long-term challenges that they, and the world at large, could face.
- Scenarios are possible worlds built from incomplete and uncertain information.
- Scenarios are intended as an aid to making better decisions. They stretch minds and broaden horizons.

In a troubled world, three key drivers of change emerge

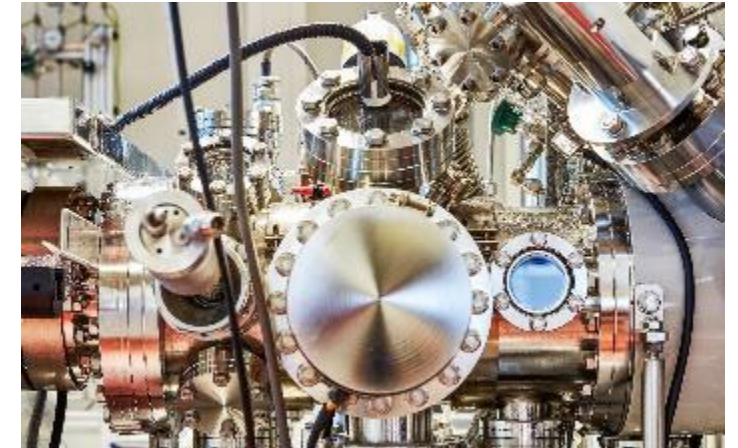
Rising energy costs, food prices, inflation



Global surface temperature continues to rise



Accelerated technological change



Two key dilemmas shaping the transition

Least developed economies need energy

> 2 billion people today using ~ 35 GJ per capita

> 4 billion people by 2070 need ~ 100 GJ per capita

The diminishing carbon budget

< 380 Gt CO₂ for 1.5° C

> 40 Gt CO₂ current annual emissions

< 10 years



Four emerging energy transition archetypes, each with a differing pace of decarbonisation

Green Dream

(rapid shift from oil and gas
and reduced energy demand)

Innovation Wins

(new solutions with
rapid commercialisation)

Great Wall of Change

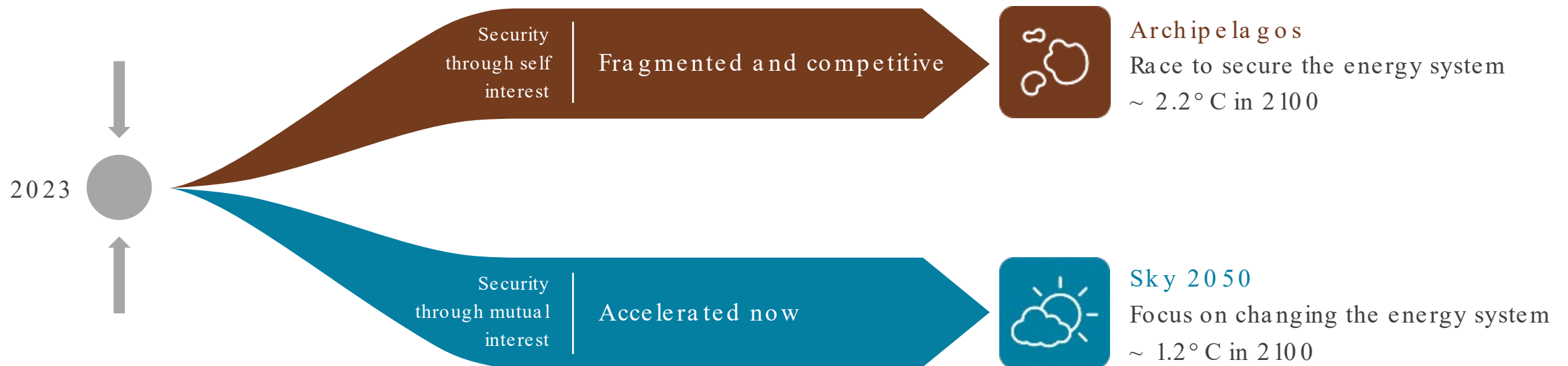
(a China-led low-carbon infrastructure push)

Surfers

(riding the waves of opportunity)

Two scenarios emerge, Sky 2050 and Archipelagos

We are collectively entering a world of competitive transition.

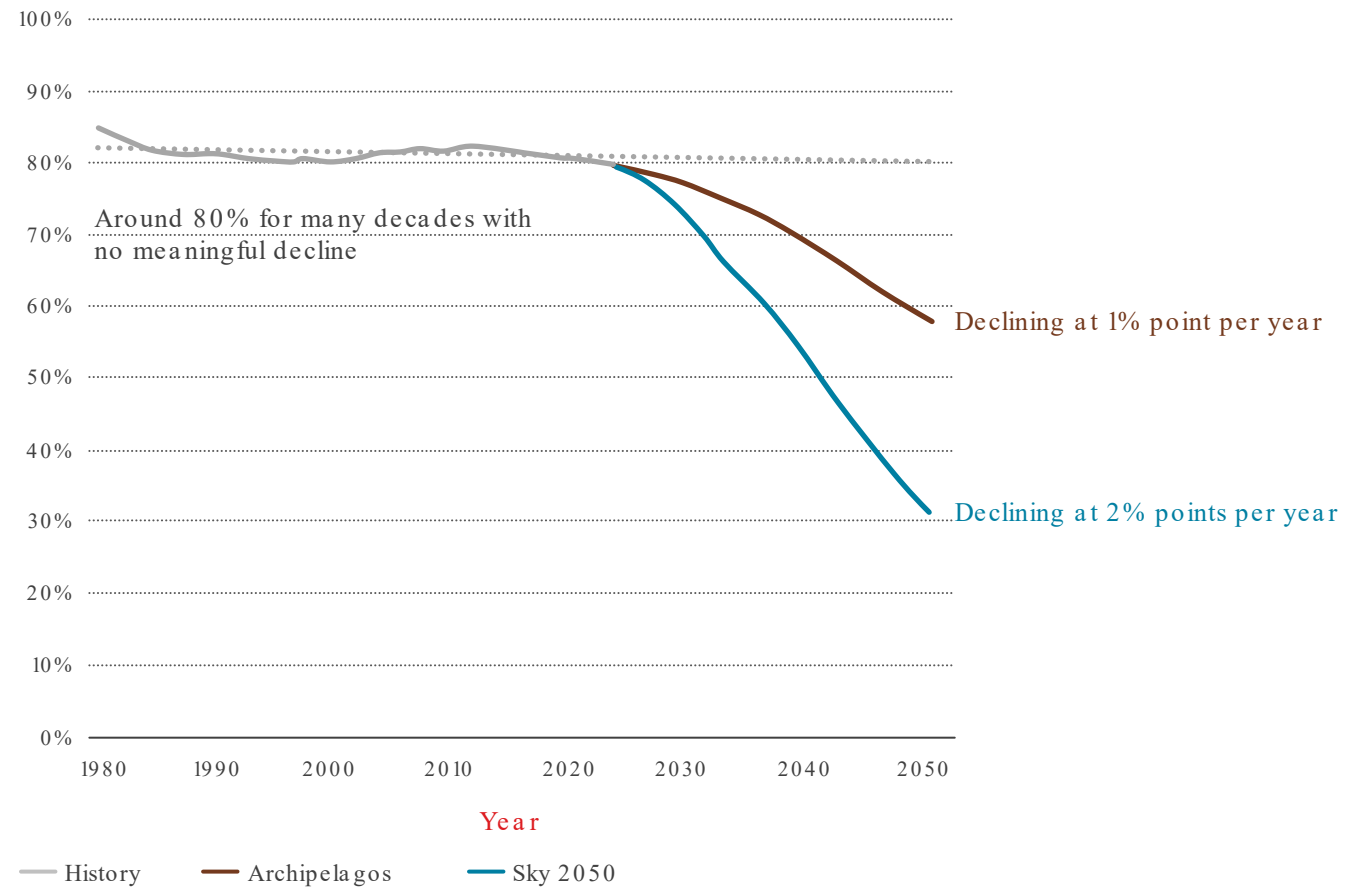


The Energy Security Scenarios

Primary energy in Sky 2050 and Archipelagos

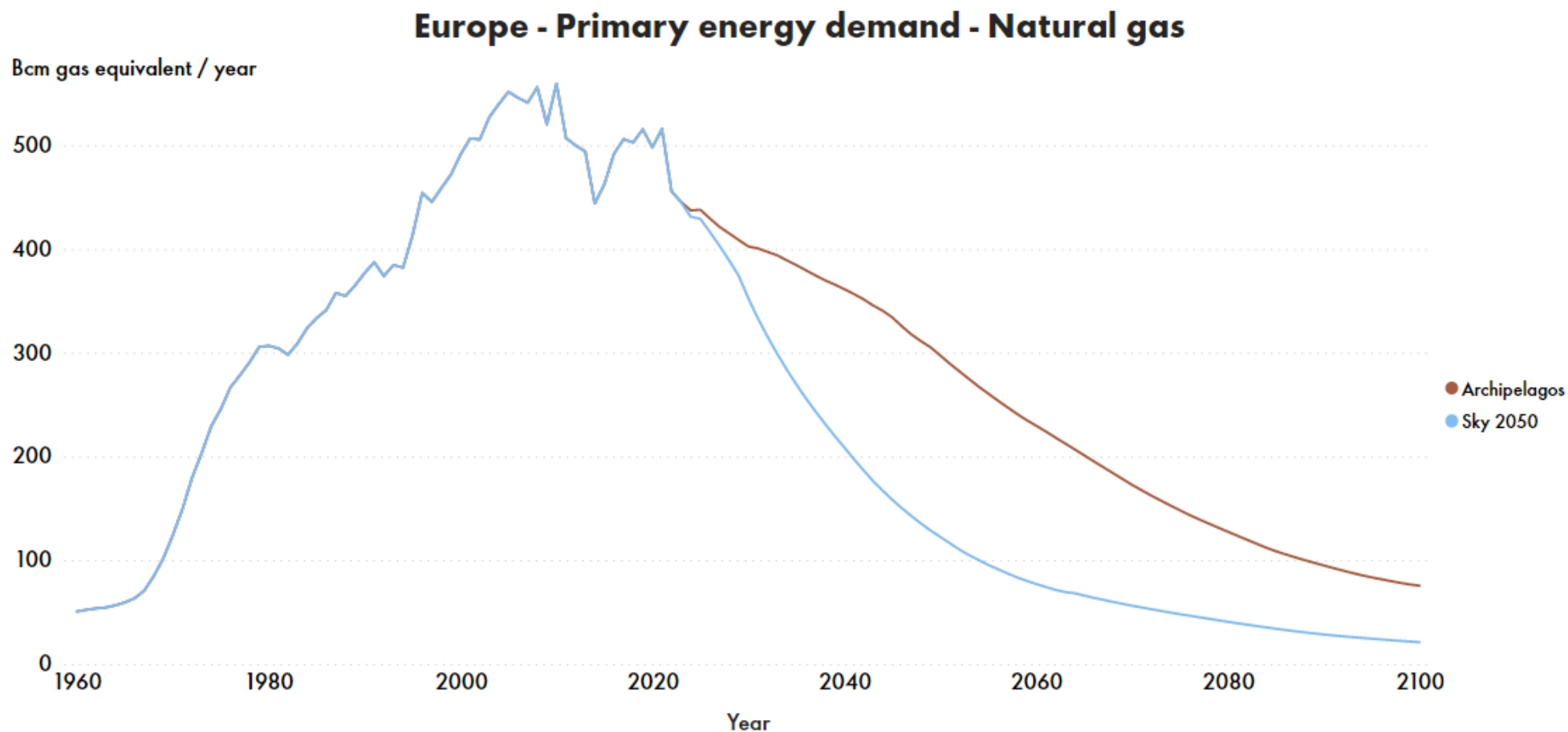
Oil, coal and gas as a fraction of total primary energy

Fraction of primary energy (%)



The Energy Security Scenarios

European Natural Gas Demand of Sky 2050 and Archipelagos



Source: Shell analysis and IEA (2021) Extended Energy Balances (Link, all rights reserved (history); Shell Energy Security Scenarios 2023 (projections)

