Shell Scenarios

The 2025 Energy Security Scenarios

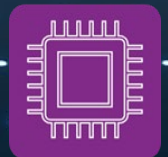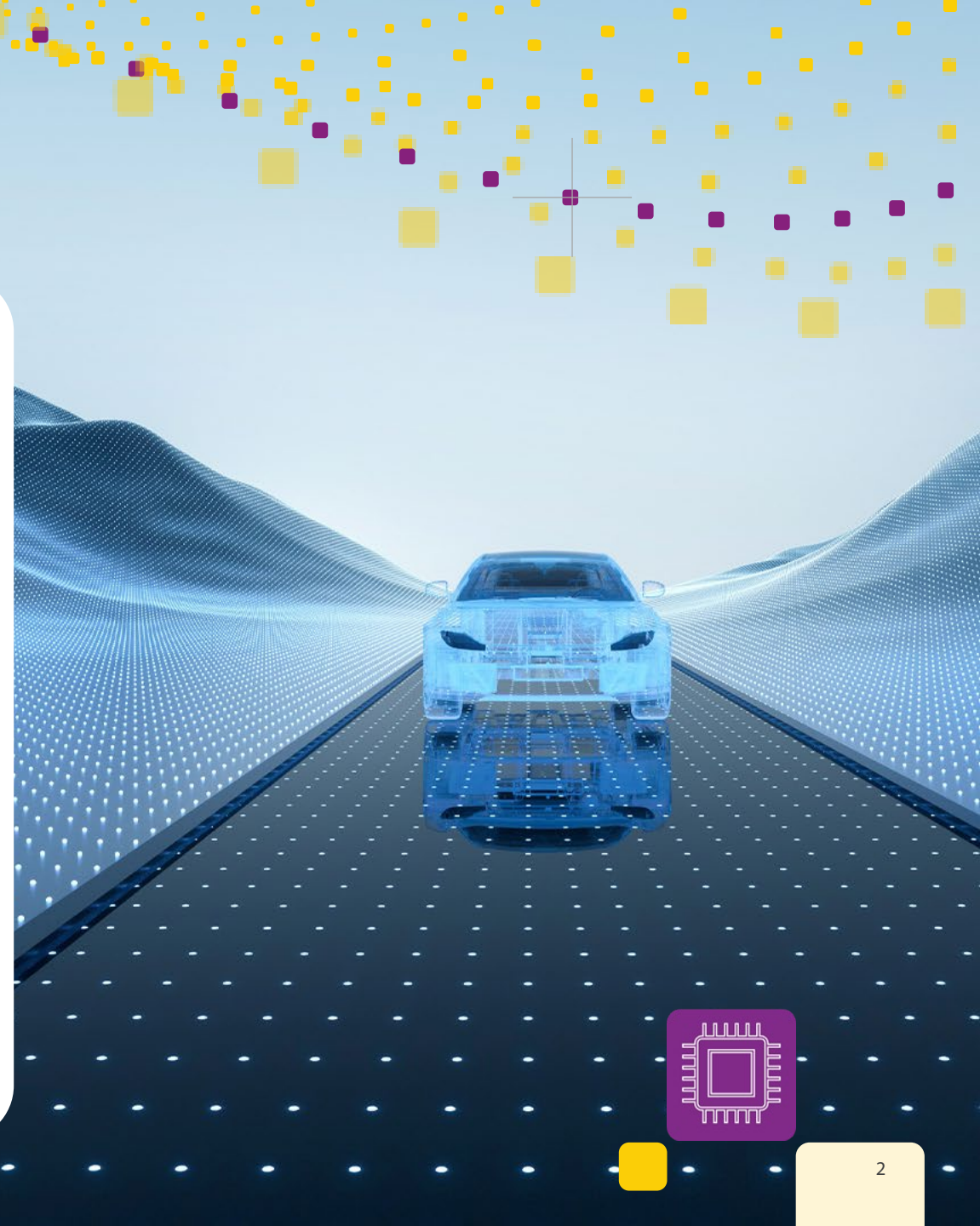Energy and artificial intelligence

Peter Wood
Feb-2025

shell.com/scenarios

Surge
Security through growth

Artificial intelligence technologies take root and usher in a period of stronger economic growth.
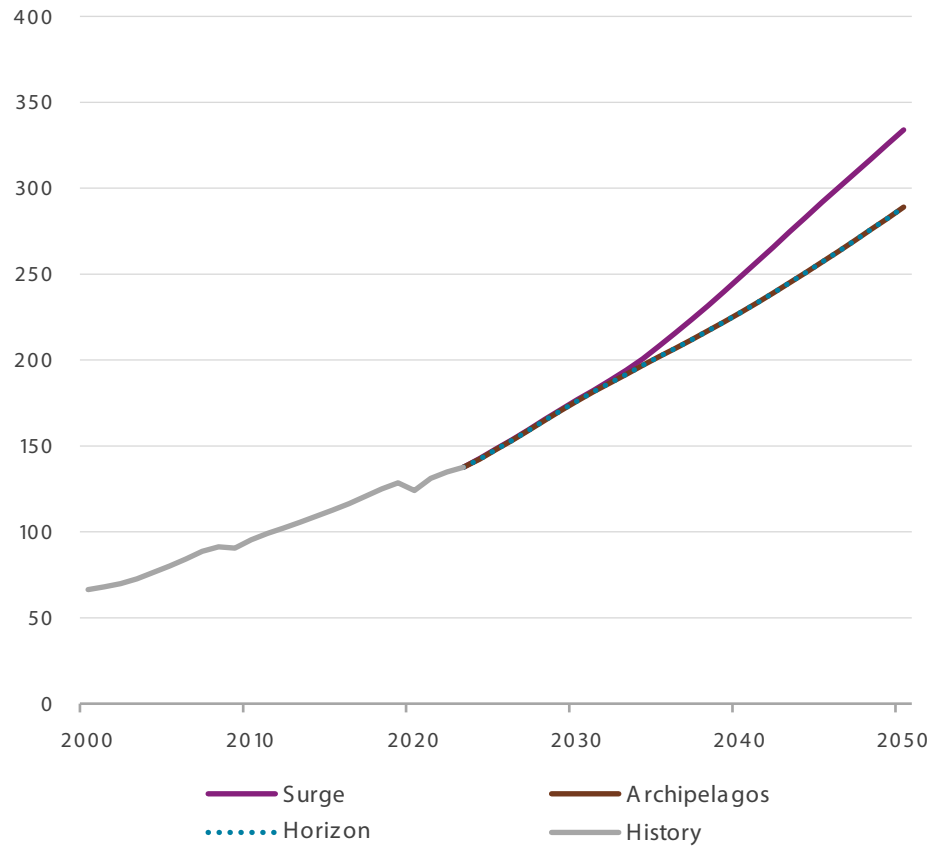
- Governments yield to related hardware and data security issues as the economic benefits meet their more immediate needs.

- At first, countries with the necessary infrastructure, skills and market access thrive and inequality between countries initially widens:

    - The USA leads and enjoys the most pronounced growth.

    - China continues its role as the principal global manufacturer of energy system infrastructure.

    - A different energy system architecture emerges in developing countries.

- The trends mark a new start for many countries, with the rapid emergence of a middle-income population in some locations, supported by the new opportunities and refreshed governance structures.

- AI benefits from quantum advantage in the 2030s, leading to a new technocratic era.

Artificial intelligence drives economic growth

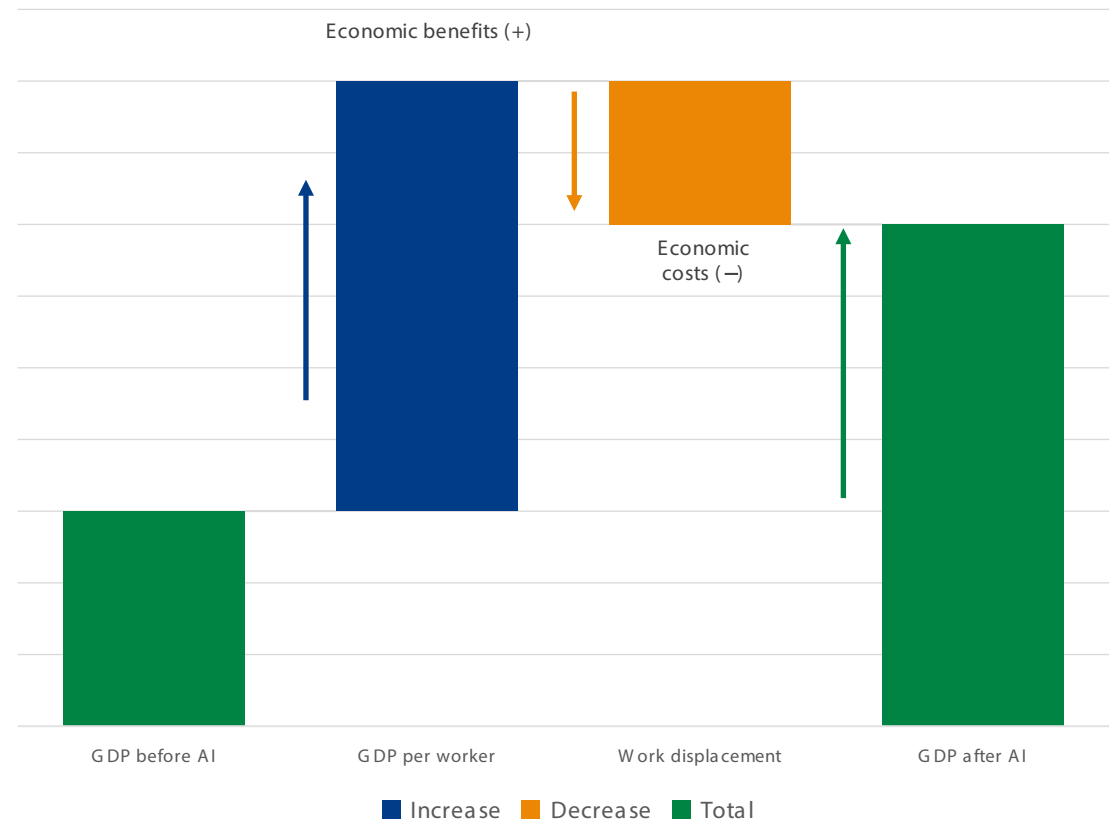## GDP compared in the three scenarios

GDP, USD trillion (2016 PPP)

Surge
Archipelagos
Horizon
History

Note: GDP = gross domestic product; PPP = purchasing power parity.

Impact of AI on GDP through worker productivity change

GDP = GDP per worker x number of workers

Economic benefits (+)

Economic costs (—)

GDP before AI
GDP per worker
Work displacement
GDP after AI

Increase   Decrease   Total

Final energy demand continues growing

World final energy demand in **Surge** by country archetype

Final energy, EJ per year

Legend (top to bottom):
- Global South – Middle Income
- Global South – Low income
- China
- OECD Europe
- OECD outside Europe