

2023

Energy Perspectives

Global macroeconomic and energy market outlook

Michel Myhre-Nielsen

Senior advisor

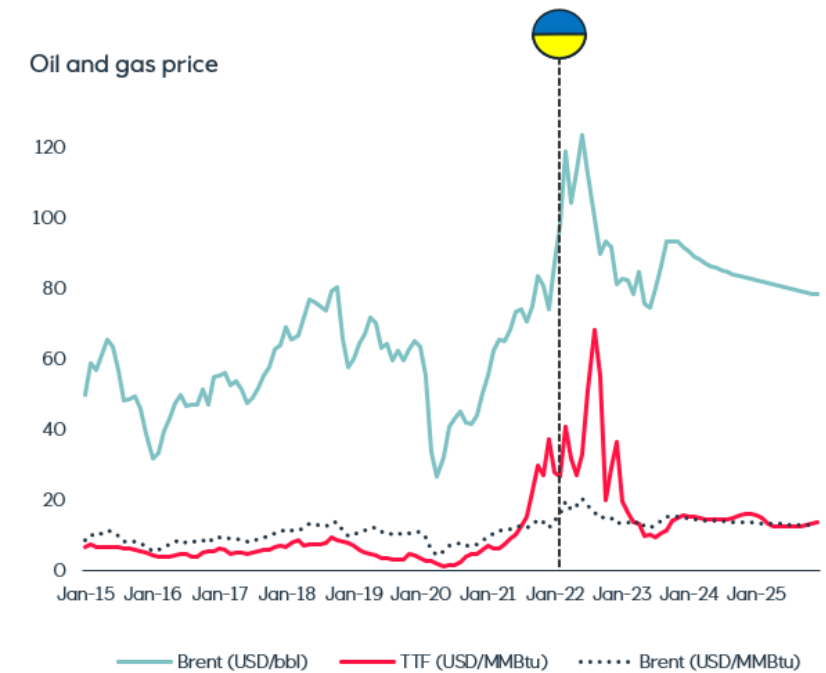
Equinor

05.10.2023



A volatile and uncertain world

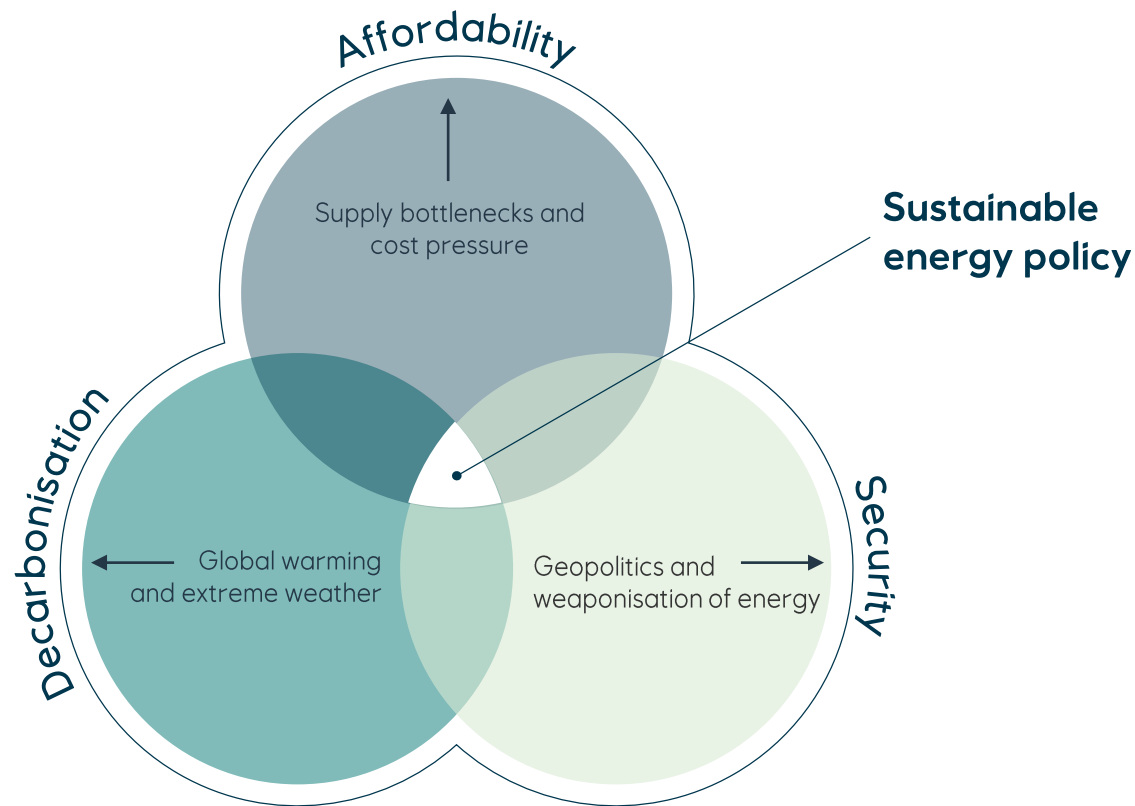
... with long-term repercussions, also for our ability to take collectively smart decisions



Source: Platts, Heren (history), ICE (projection)

The energy trilemma is playing out and affected by events

Sustainability requires a balanced approach – but what about global inequalities and just transition?



Source: Equinor



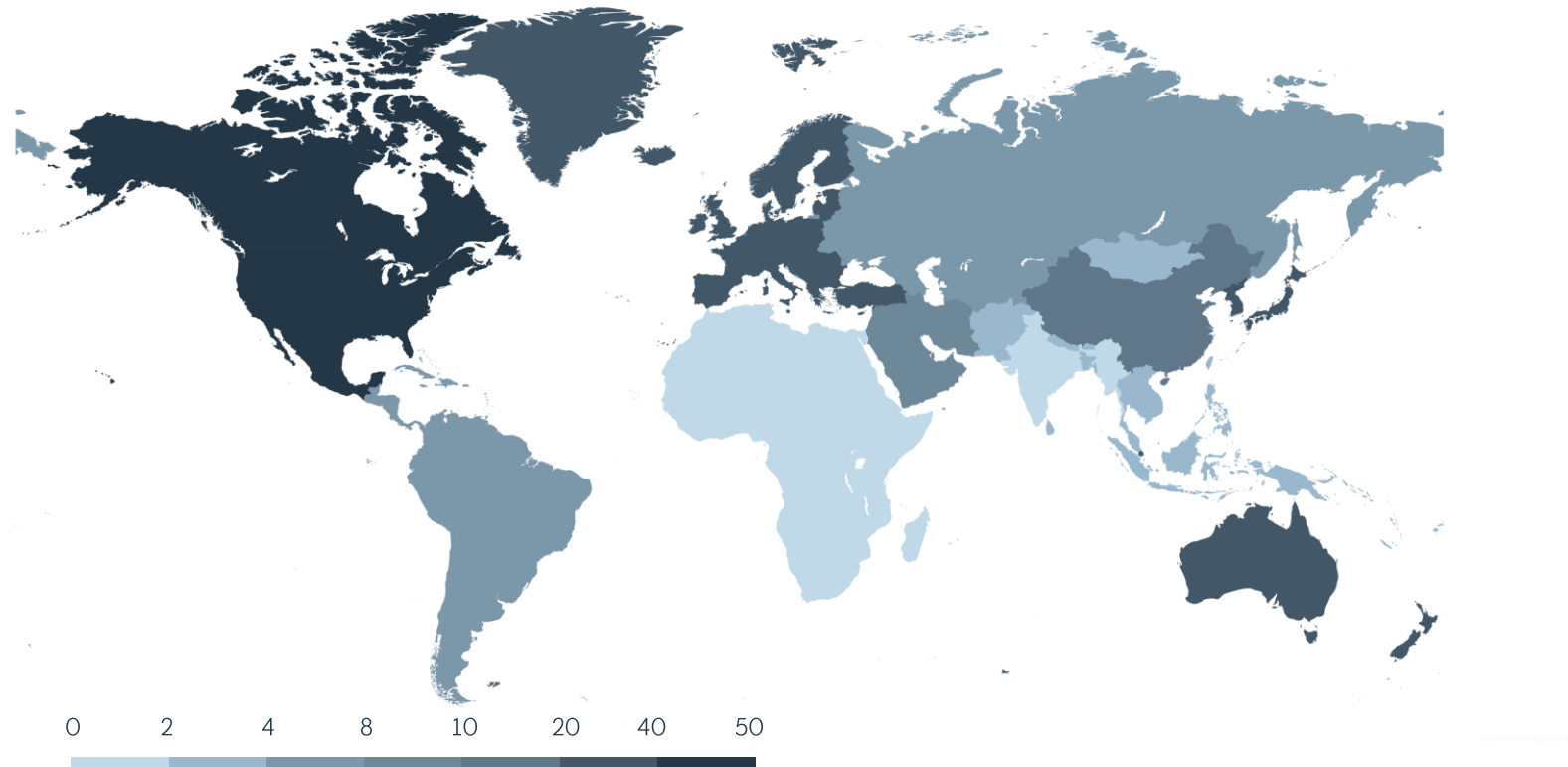
Source: United Nations

The ultimate dilemma – reducing income differences while reducing emissions

Emerging economies are less energy efficient than industrialised countries – transfer of wealth will increase energy use and emissions?

GDP per capita, 2020

Real thousand USD at market exchange rate



Source: © Oxford Economics Limited 2023 (GDP), UN (population), MapChart



Walls protect

but also divide

Walls

- Builds on current market trends, policy developments and policy signals
- Russia's invasion of Ukraine and geopolitical tensions give rise to obstacles for global cooperation
- Energy security is increasingly important in the short-to-medium term
- Regional differences in speed and scale of the energy transition

Bridges connect and enable

Bridges

- A normative back-cast scenario
- Consistent with a 1.5°C temperature rise
- Immediate and coordinated international action needed
- Illustrates the kind of drastic measures needed to meet the goals of the Paris Agreement

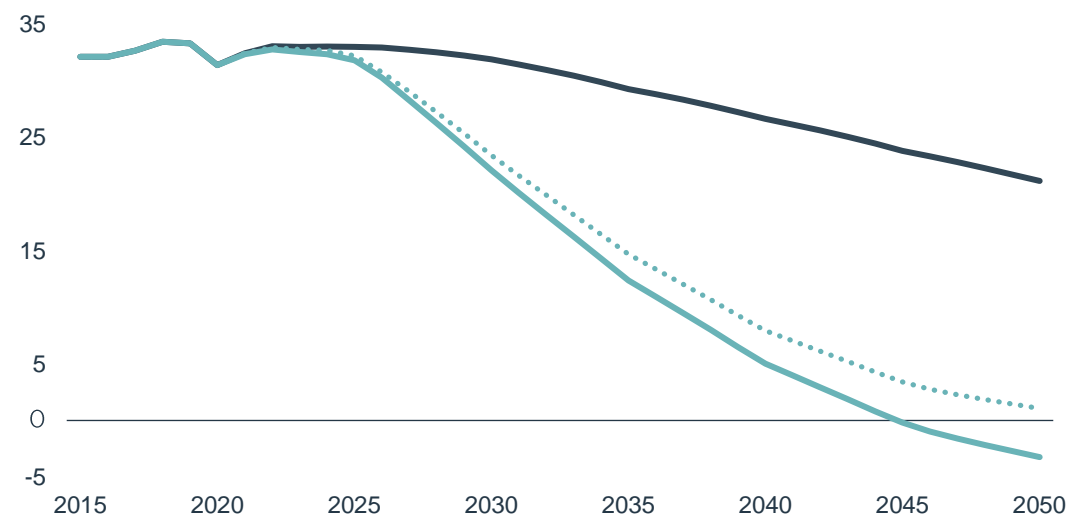


Emissions in Walls and Bridges decline, but at very different speeds

Oil and gas emissions decline, but at very different speeds

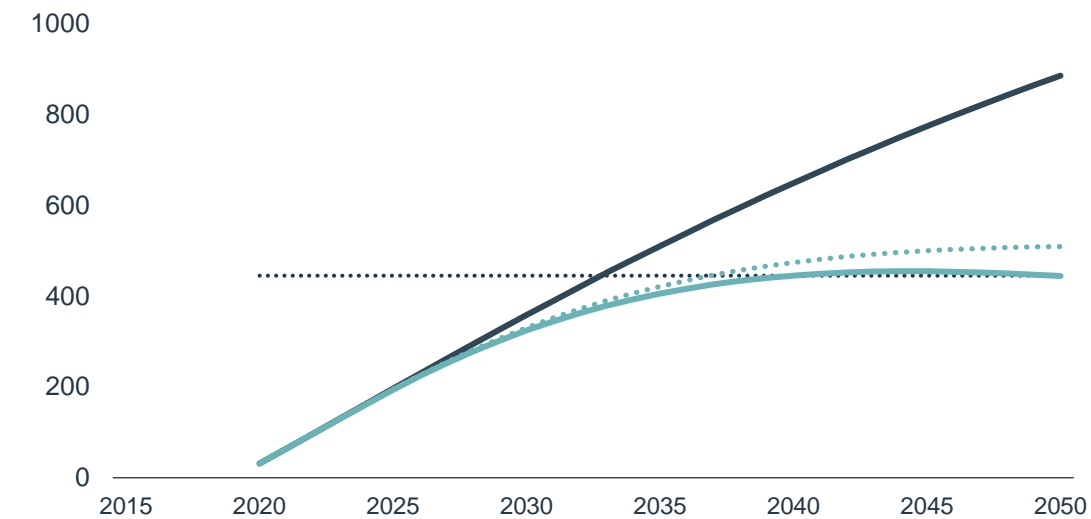
Annual energy-related emissions

Gt CO₂



Cumulative energy-related emissions

Gt CO₂



■ Walls ■ Bridges Bridges without carbon removal 1.5°C Budget

Source: IEA (history), Equinor (projections)

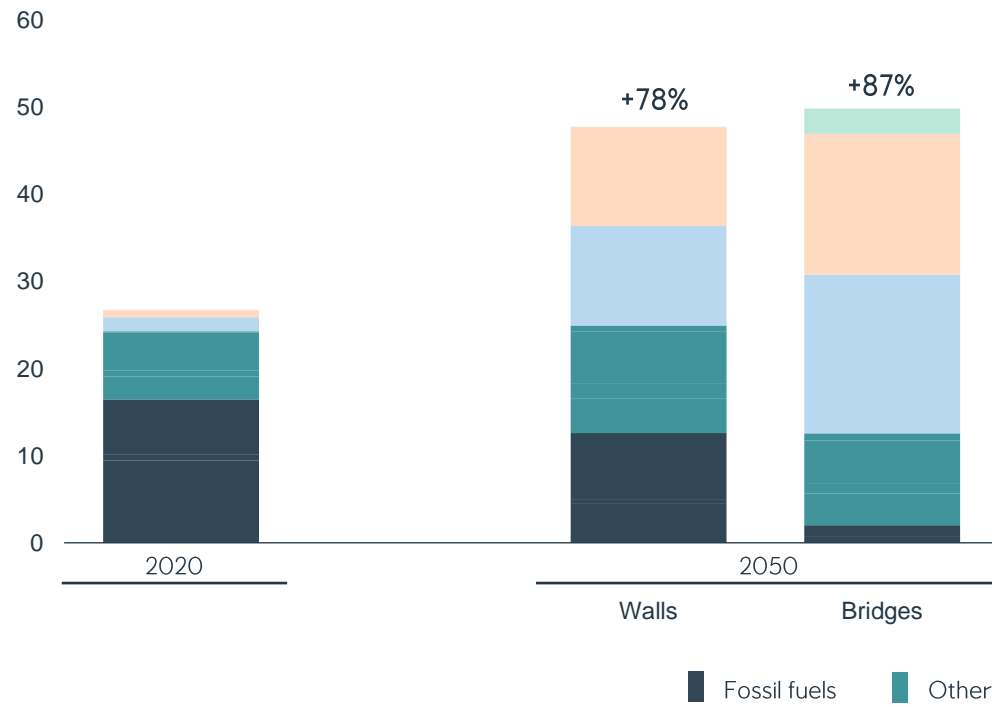
Oil and gas emissions decline, but at very different speeds

Renewables continue to grow and replace fossil fuels

Renewables continue to grow and replace fossil fuels

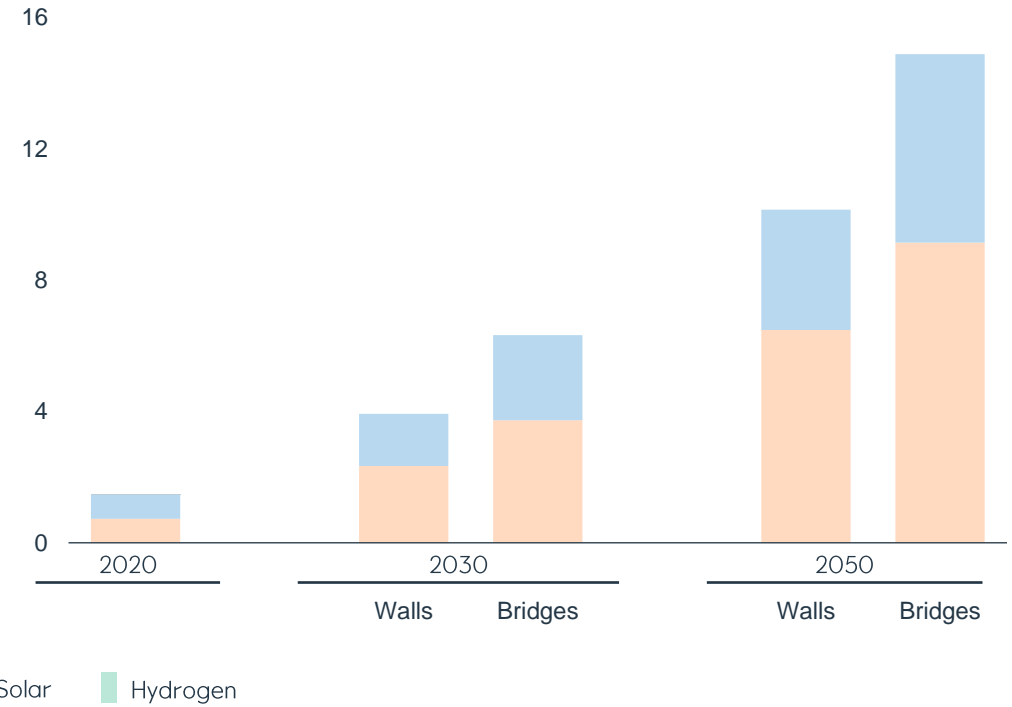
Electricity generation

Thousand TWh



Wind and solar PV capacity

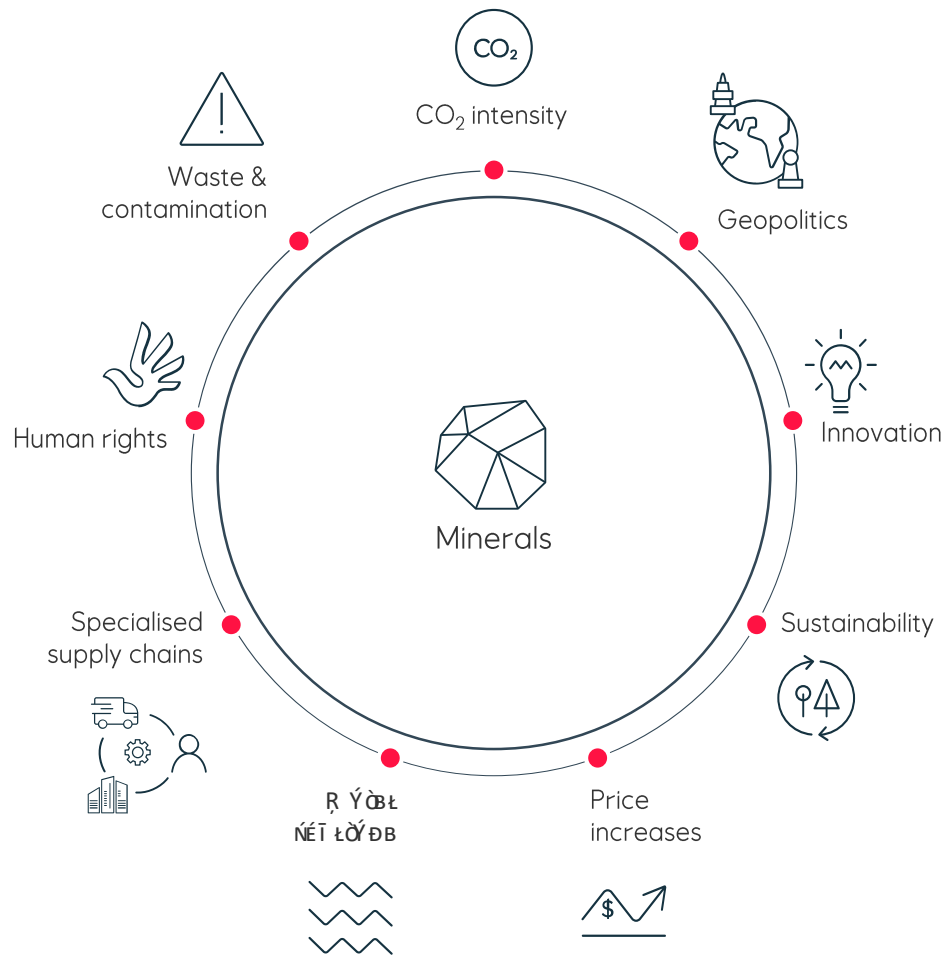
Thousand GW



Source: IEA (history), Equinor (projections)

Solar and wind expansion requires critical minerals

... raising a lot of issues...

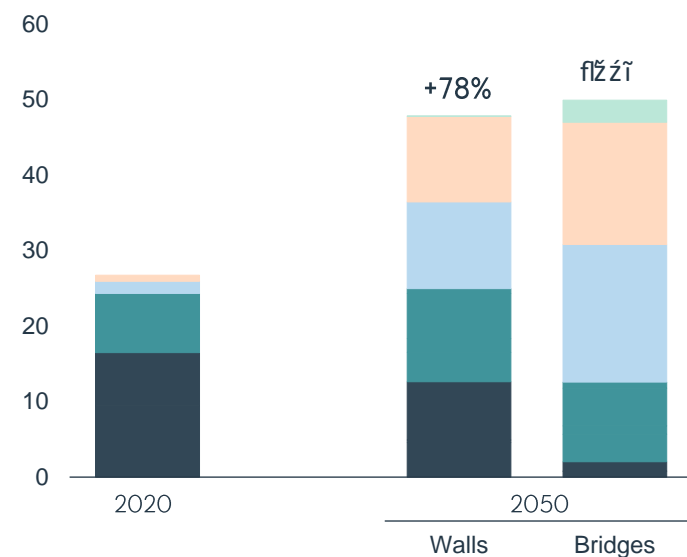


Massive changes in different parts of the energy system

Electrification is the key element of the energy transition, and a major factor in efficiency improvements

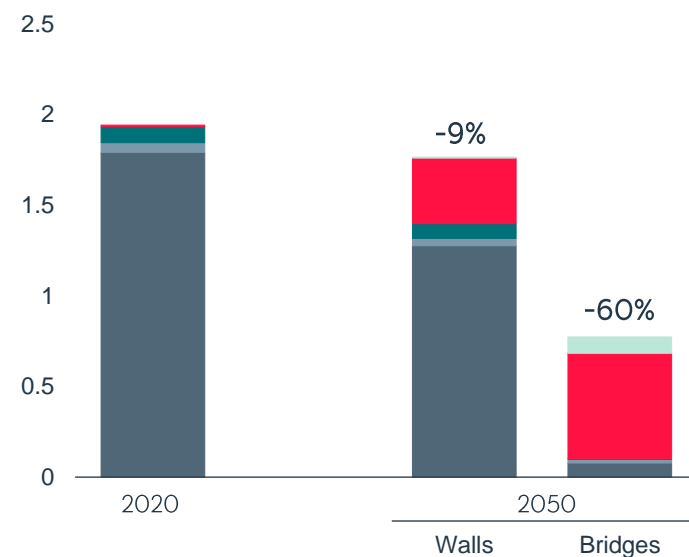
Electricity generation

Thousand TWh



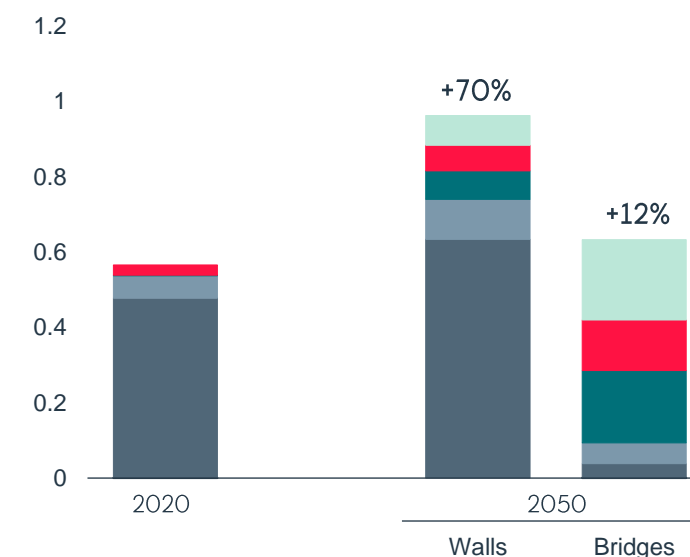
Road transport fuel demand

EB



Non-road transport fuel demand

Gtoe



Source: IEA (history), Equinor (projections)

A change of pace and a revolution in transforming the energy system



	History 1990 - 2020	Walls 2020 - 2050	Bridges 2020 - 2050
Total primary energy demand CAGR %	1.6%	0.2%	-1.0%
Energy intensity CAGR %	-1.2%	-1.9%	-3.2%
Fossil fuel demand (Change in period - Gtoe)	3.9	-2.0	-8.7
Solar and wind in power generation (Change in period - Thousand TWh)	2	∞x	32
	History 2016 - 2020 (avg.)	Walls Peak 2050	Bridges Peak 2035
Mineral demand from solar and wind in power generation (Mt)	2.3	6.3	10.2

“ R B fñ Ö Ê Ä fñ
Ö Ì fñ Ý Ì Ñ fñ Ý Ö fñ
Ý Ì Á fñ Ò Ñ Ì Ö Ð É fñ
Ã Ł Ê Ä Ð B Ñ Ç

fñ Ò Ñ Ê Ä Ð B Ñ Ç fñ fñ Ý Ì Ñ fñ BR Ö Ì

