

The net-zero transition

What it would cost, what it could bring

March 2022

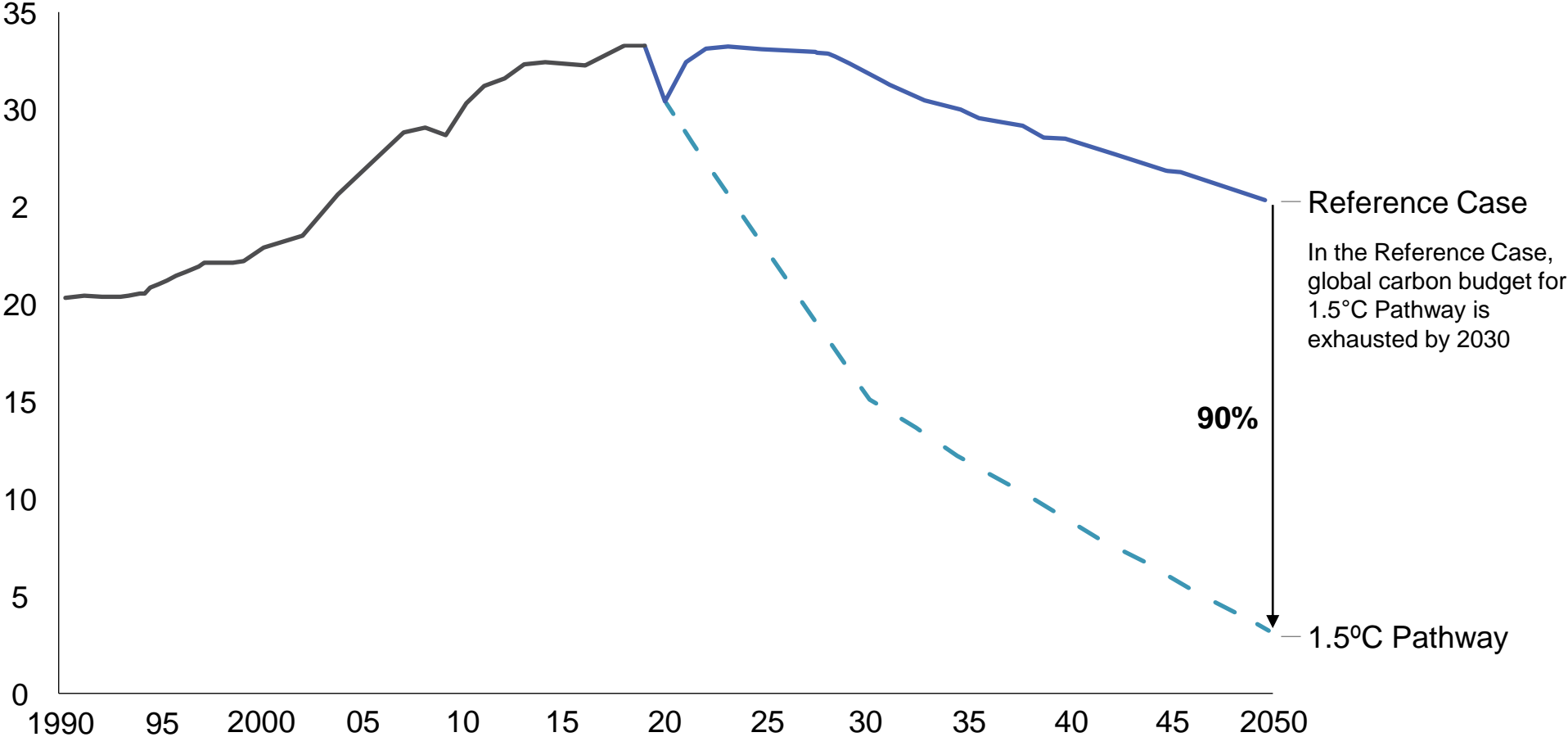


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While net-zero commitments have been rising, the net-zero equation is not solved today

Global gross energy-related CO₂ emissions, GtCO₂ p.a.

Current as of February 1, 2022



Source: McKinsey Energy Insights Global Energy Perspective 2021, January 2021

Several **elements** would need to come together to help solve the net-zero equation

Physical building blocks

Economic & societal adjustments

Commitment and enabling mechanisms

Focus of this research

We looked at the **economic shifts** needed to reach net-zero by 2050

- Demand
- Capital allocation
- Costs
- Jobs

...in sectors that produce **85%** of overall emissions, and **69** countries

We conducted a scenario-based analysis of the Net Zero 2050 scenario from the Network for Greening the Financial System (NGFS)

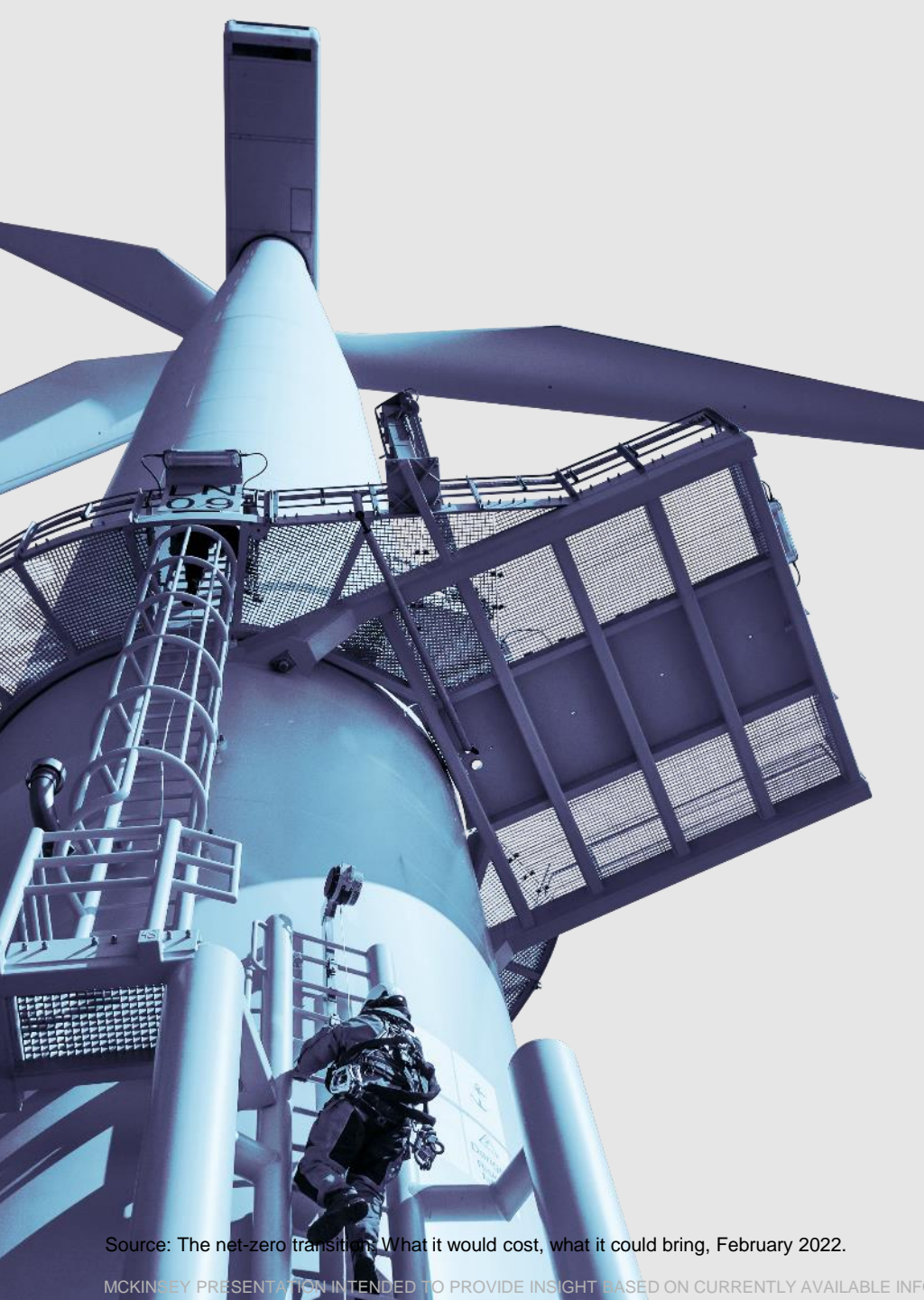




6

characteristics

**of an economic transition
to net-zero...**



1 Universal

2 Significant

3 Front-loaded

4 Uneven

5 Exposed to risks

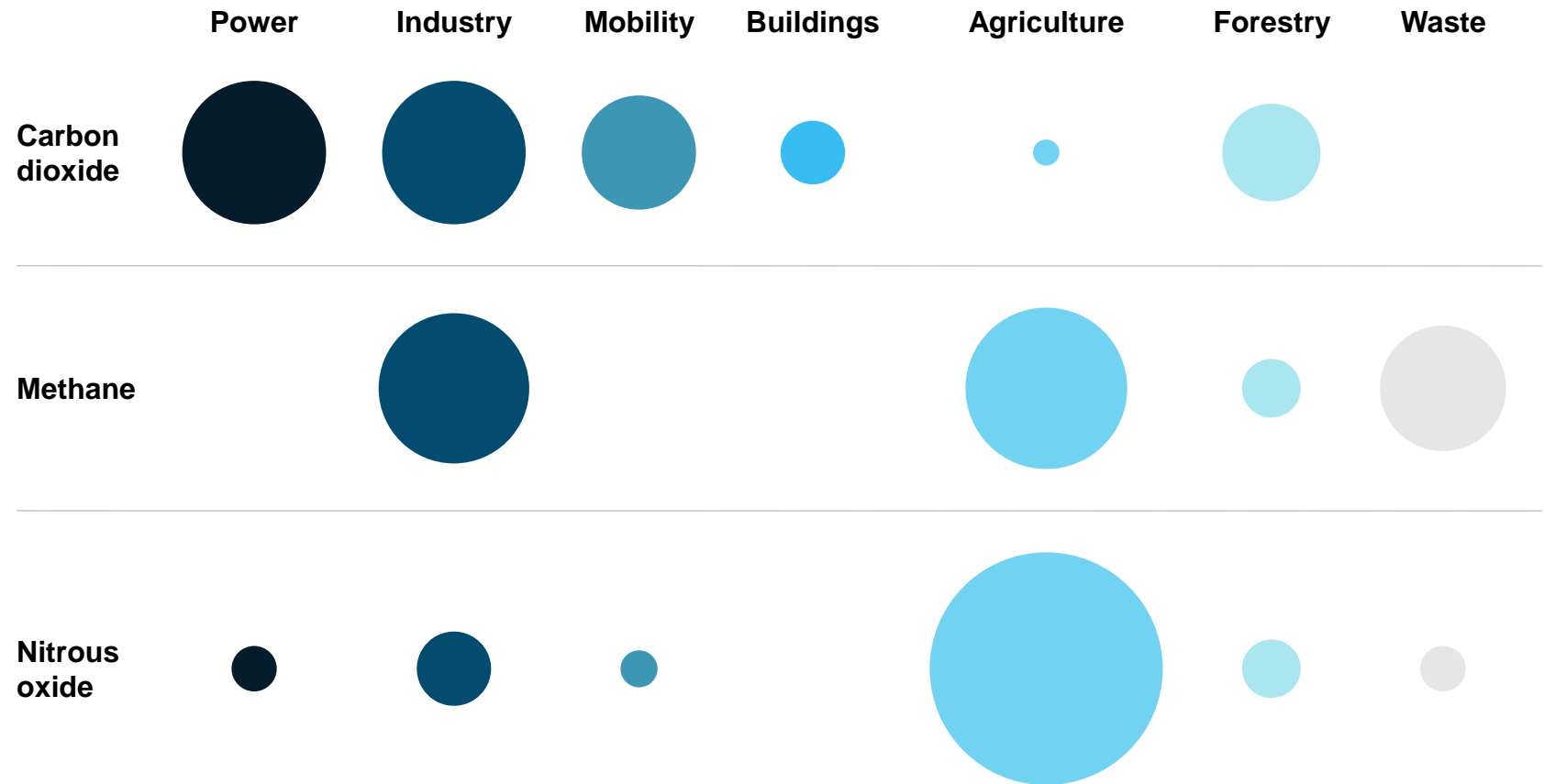
6 Rich with opportunity

1 Universal

The net-zero transition can only be achieved if **all** seven energy and land-use systems substantially reduce emissions

Share of emissions per energy and land-use system, 2019, %

Bubble size 10%

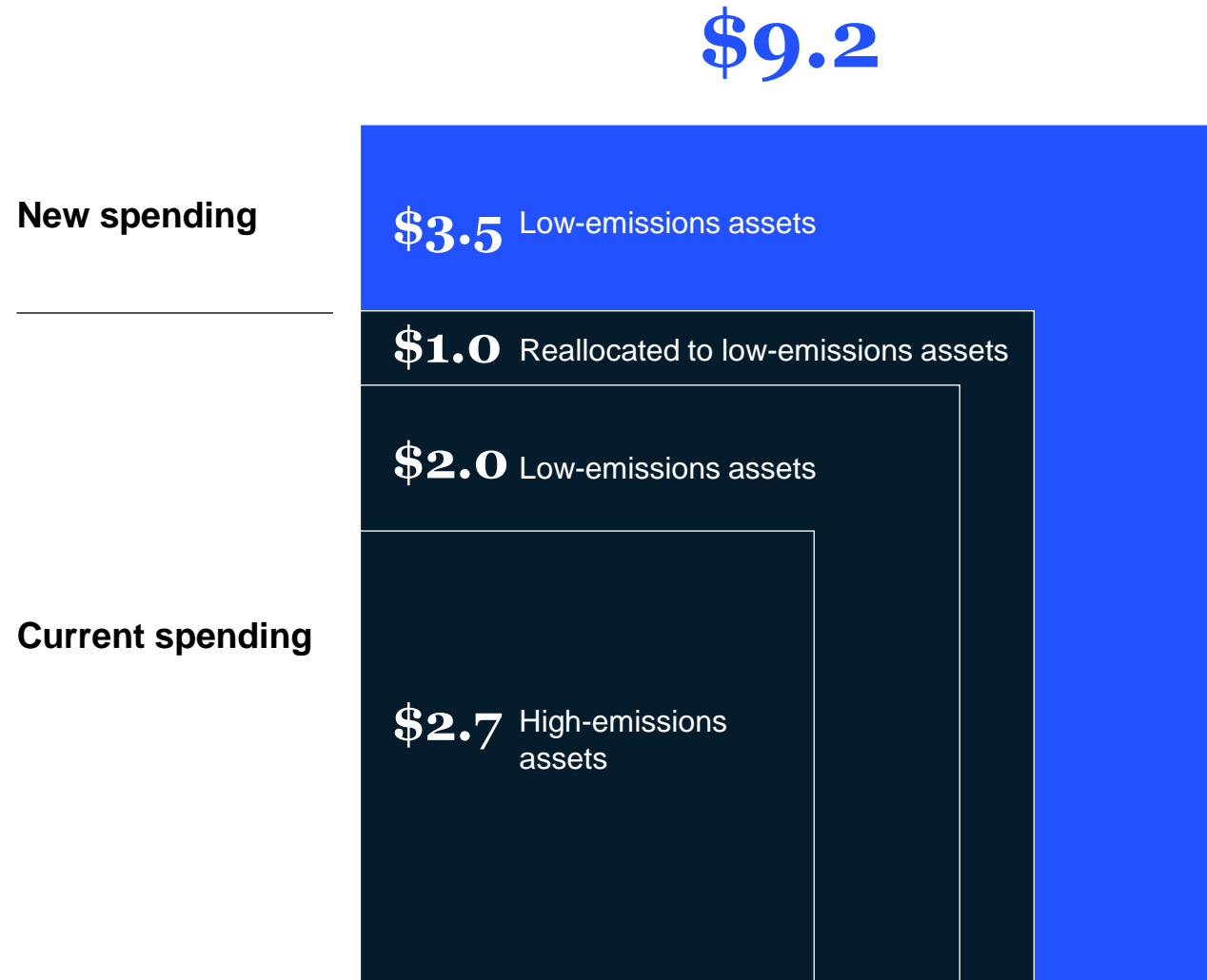


Source: The net-zero transition: What it would cost, what it could bring, February 2022

2 Significant

In the transition scenario examined here, annual spending on physical assets would rise to about \$9.2 trillion

Average annual spend on physical assets for energy and land-use systems under the NGFS Net Zero 2050 scenario, average 2021-2050, \$ trillion



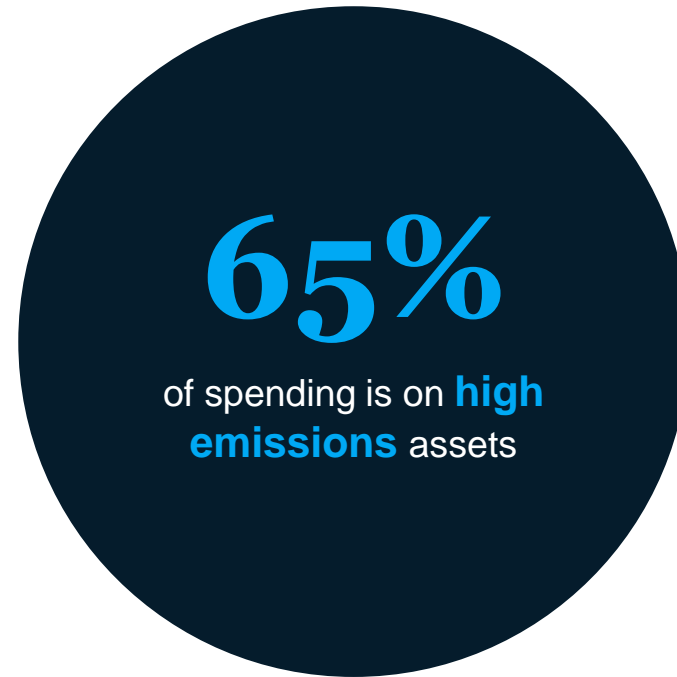
Source: The net-zero transition: What it would cost, what it could bring, February 2022. Based on the NGFS Net Zero 2050 scenario, a hypothetical scenario and not a projection.

2 Significant

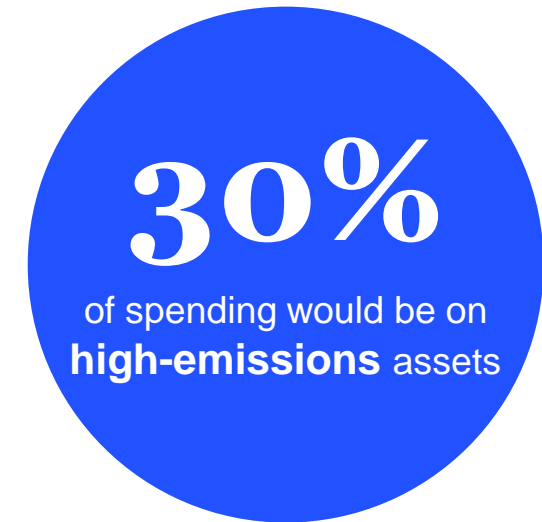
This scenario would also require a major shift in the nature of capital spending

Spend on physical assets for energy and land-use systems under the NGFS Net Zero 2050 scenario

Today



Next 30 years¹



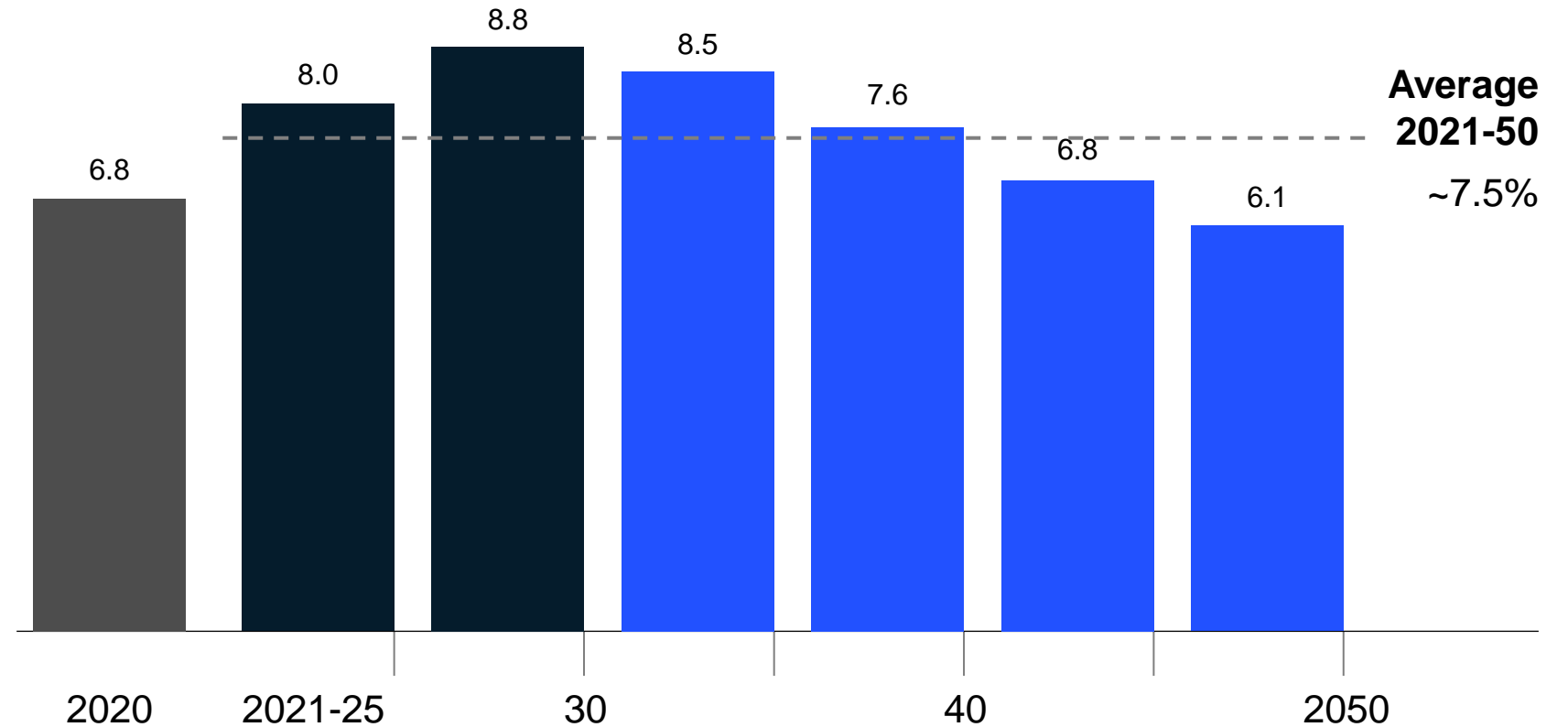
Source: The net-zero transition: What it would cost, what it could bring, McKinsey Global Institute, February 2022. Based on the NGFS Net Zero 2050 scenario, a hypothetical scenario and not a projection.

1. Average for 2021 - 2050

3 Front-loaded

Global capital spending in this scenario would **rise** to almost 9% of GDP by 2030 before falling back

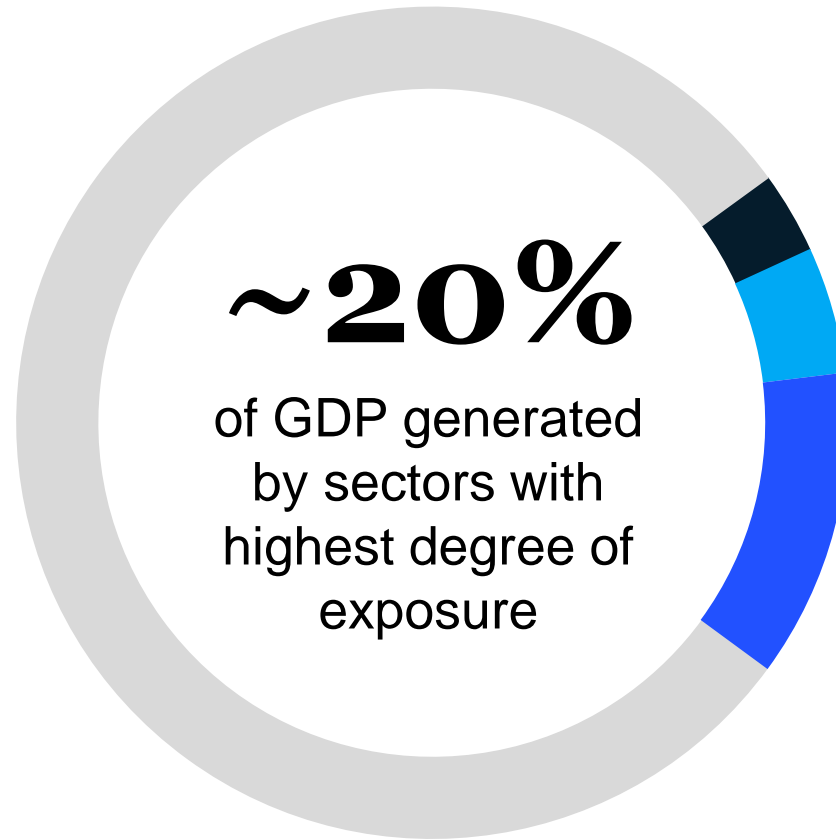
Average annual spend on physical assets for energy and land use systems under the NGFS Net Zero 2050 scenario, % of global GDP



Source: The net-zero transition: What it would cost, what it could bring, McKinsey Global Institute, February 2022. Based on the NGFS Net Zero 2050 scenario, a hypothetical scenario and not a projection.

4 Uneven

A fifth of the economy is most exposed to the net-zero transition



3% of GDP

Producers of fossil fuel energy

5% of GDP

Producers of fossil fuel-dependent products

12% of GDP

Emitters in core operations

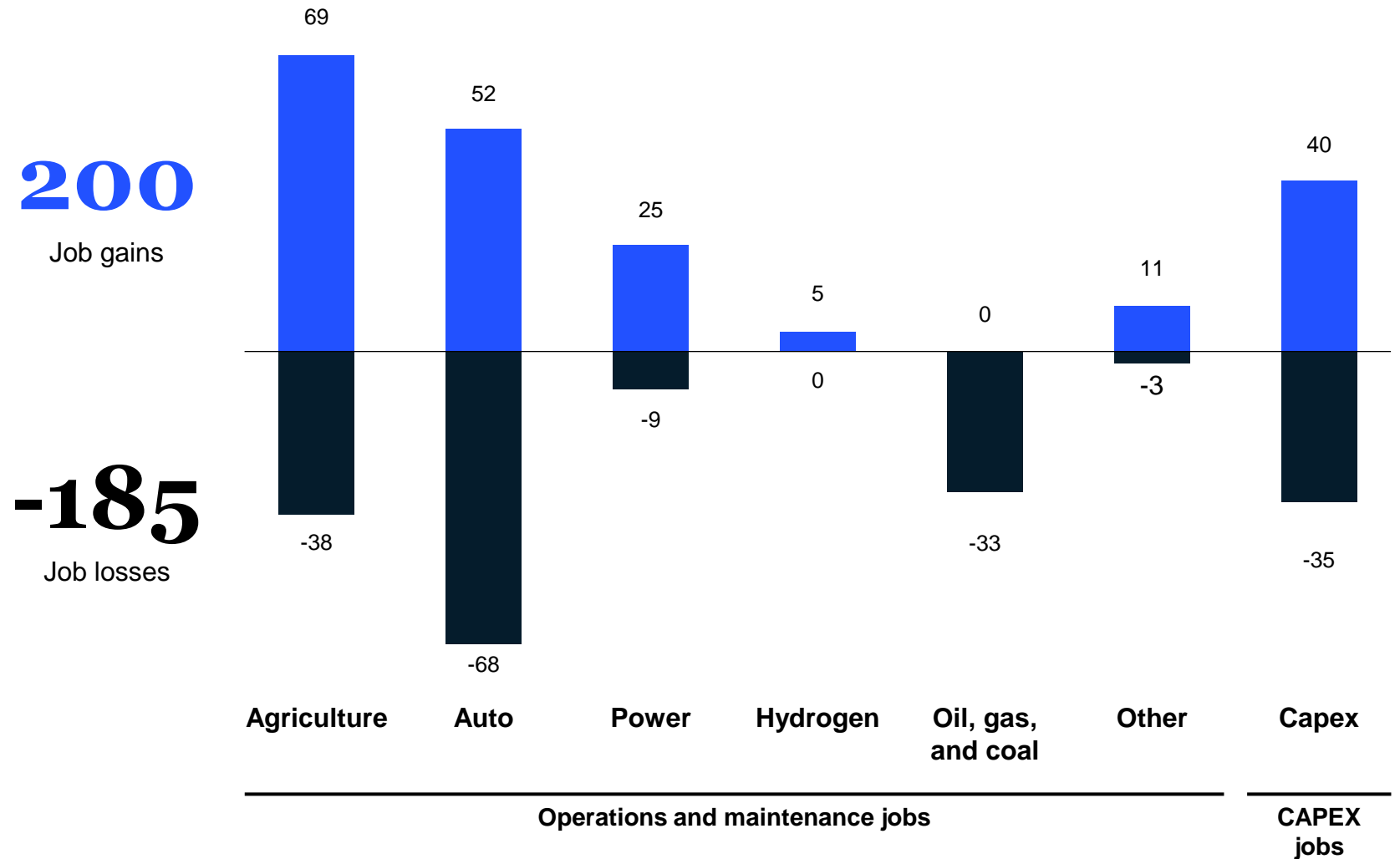
Other sectors

Source: World Input-Output Database; Emissions Database for Global Atmospheric Research; McKinsey Global Energy Perspectives; IPCC; OECD; IHS Global; Penn World Tables; The net-zero transition: What it would cost, what it could bring, McKinsey Global Institute, 2022.

4 Uneven

The transition would result in a **reallocation** of jobs across sectors

Total job shifts by sector, direct and indirect, by 2050 from the net-zero transition under the NGFS Net Zero 2050 scenario, million¹

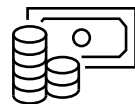


Source: The net-zero transition: What it would cost, what it could bring, February 2022. Based on the NGFS Net Zero 2050 scenario, a hypothetical scenario and not a projection.

1. Includes job losses and gains directly associated with the transition and does not include other macroeconomic forces like population or income growth. Total job gains and job losses figures are not equal to the sums of the reallocation figures broken-down by sector due to rounding.

5 Exposed to risks

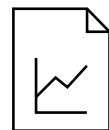
The transition is exposed to a multitude of short-term risks



Supply constraints and price volatility



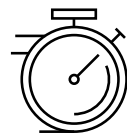
Labor market disruptions



Stranding of high-emissions assets



Exacerbated higher-order effects



Rising physical climate risks

Source: The net-zero transition: What it would cost, what it could bring, February 2022. Based on the NGFS Net Zero 2050 scenario, a hypothetical scenario and not a projection.

6 Rich with opportunity

However, the shift to a net-zero emissions world would also create **opportunities** for both **businesses and countries**



Decarbonizing processes and products

Benefit from lower operating costs and access new markets as consumer demand rises for relatively low-emissions products



Replacing high-emissions products and processes with low-emissions ones

Scale existing, and develop new and emerging technologies to capture growth in demand for low-emissions goods



New offerings to aid decarbonization

Expand supply chain infrastructure and support services as new technologies emerge

Potential actions for stakeholders to consider to drive a more orderly transition to net-zero

NOT EXHAUSTIVE EXAMPLE CONSIDERATIONS, NOT SPECIFIC ADVICE

1. Capabilities to assess transition risks and opportunities
2. Decarbonization plans supported by agile business strategies
3. Governing standards, tracking, and market mechanisms
4. Integration of climate-related factors into key decisions
5. Support programs for workers and lower-income consumers
6. Convening of stakeholders and facilitate collaboration

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