

THE DECOMMISSIONING GAP – MILLSTONE FOR THE ENERGY TRANSITION

ENLIT EUROPE & PEI
WEBINAR PART 1 (JUNE 01, 2022):
OVERVIEW AND FINANCE SECTOR

Please find an on-demand recording of the webinar here:

- <https://www.enlit.world/events/the-decommissioning-gap-millstone-for-the-energy-transition/>
- <https://www.powerengineeringint.com/world-regions/europe/the-decommissioning-gap-millstone-for-the-energy-transition/>



Introduction



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Financial Deep Dive Today

THE DECOMMISSIONING GAP – MILLSTONE FOR THE ENERGY TRANSITION

Today we will tackle key questions from the financial market perspective:

- What are investor expectations for diligent valuation of decommissioning liabilities?
- What are options and requirements to secure funding, ensure long-term sustainability and optimise investment strategies for Decommissioning Investment Reserves?
- What are the implications for the corporate business model, governance framework and organization?

WEBINAR PART 1 – FOCUS TOPIC

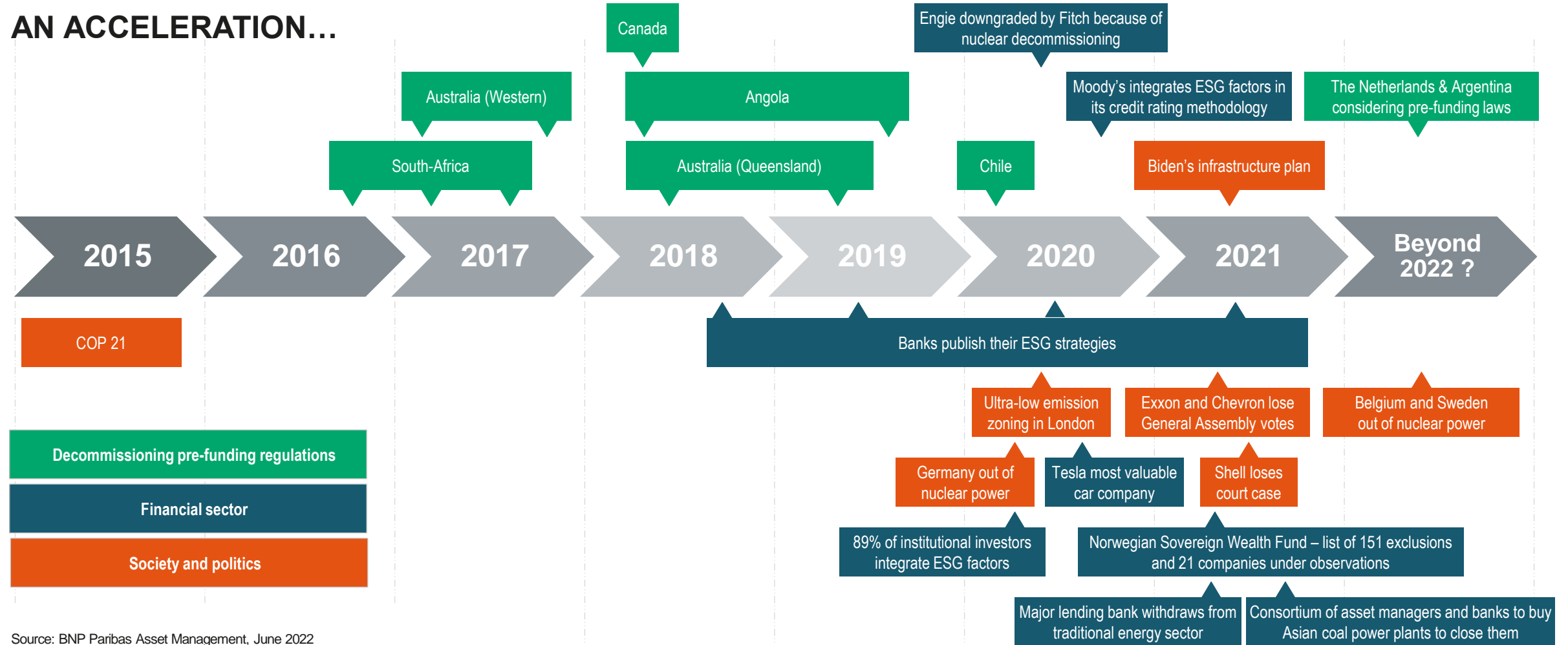
OVERVIEW – A CHANGING INVESTORS AND STAKEHOLDERS LANDSCAPE

WEBINAR PART 1



The Energy Transition

AN ACCELERATION...



Source: BNP Paribas Asset Management, June 2022

Decommissioning

A KEY STEP IN THE ENERGY TRANSITION

- **Energy Transition** refers to the global energy sector's shift from fossil-based systems of energy production and consumption to renewable energy sources like wind and solar, as well as the entire system of new infrastructure and use processes needed
- **Polluting operating assets need to be retired** for either operating reasons or because they have already become stranded – but also because their sites and infrastructure often are valuable assets 'as is' or in the circular economy
- **Decommissioning / restoration / rehabilitation / remediation costs** affect corporate balance sheets, explicitly (as Asset Retirement Obligations or industrial / environmental liabilities) or implicitly (in third party valuation)

Energy transition and decommissioning



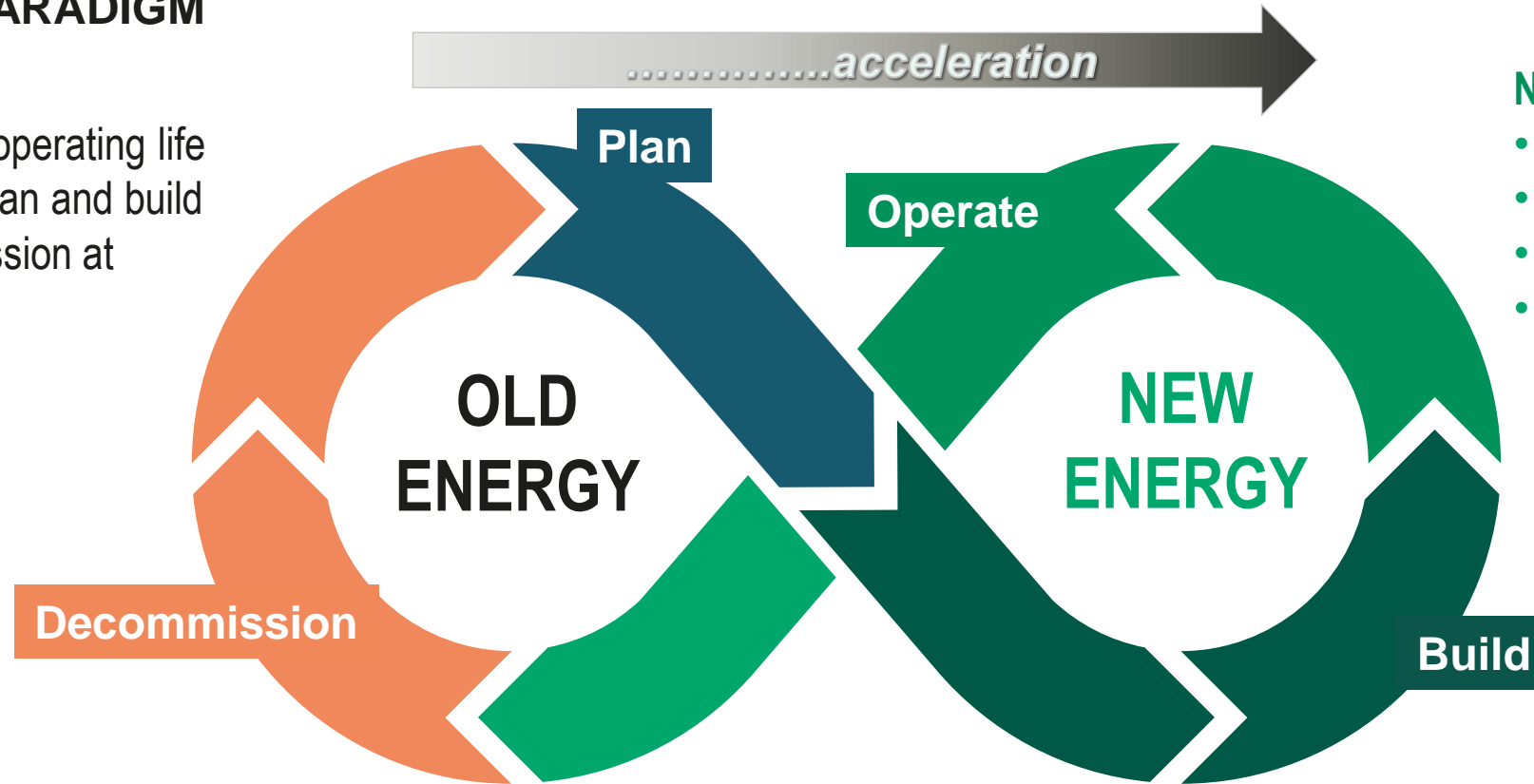
Source: BNP Paribas Asset Management, June 2022

The Energy Transition Process

THE NEW PARADIGM

Old Energy:

- 40+ years operating life
- 8+ years plan and build
- “Decommission at leisure”



New Energy:

- 20 years operating life
- “Transitional technologies”
- Continuous replacement
- Plan and build on top of pre-existing assets

The speed at which industry can cycle through the transition depends on how smoothly it can bridge the Decommissioning Gap.

Decommissioning Dimension

\$ 3 603 000 000 000

NUCLEAR AND FIRST GEN RENEWABLES END OF LIFE - AND ENTIRE FOSSILE VALUE CHAIN..

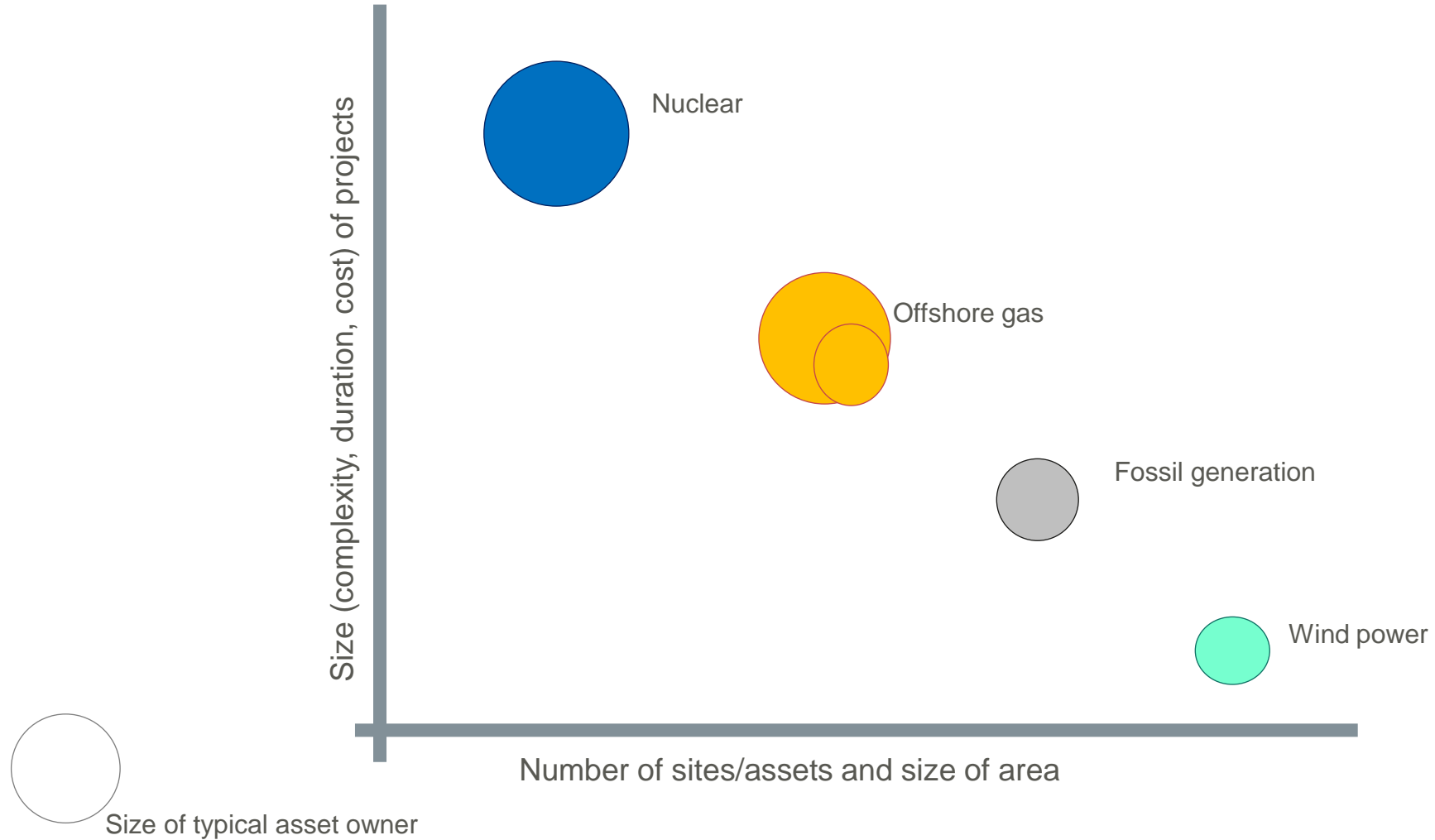
Global decommissioning liabilities (End 2019)

| (USD bn) | Nuclear | Mining | Oil & Gas | Coal Power Plant | Total |
|---------------|--------------|--------------|------------|------------------|--------------|
| Europe | 466 | 335 | 77 | 25 | 903 |
| North-America | 920 | 98 | 304 | 32 | 1,354 |
| South-America | 7 | 11 | 9 | 2 | 29* |
| Asia | 333 | 565 | 99 | 172 | 1,169 |
| Australia | 0 | 72 | 3 | 2 | 77 |
| Africa | 2 | 58 | 6 | 5 | 71 |
| Total | 1,728 | 1,139 | 498 | 238 | 3,603 |

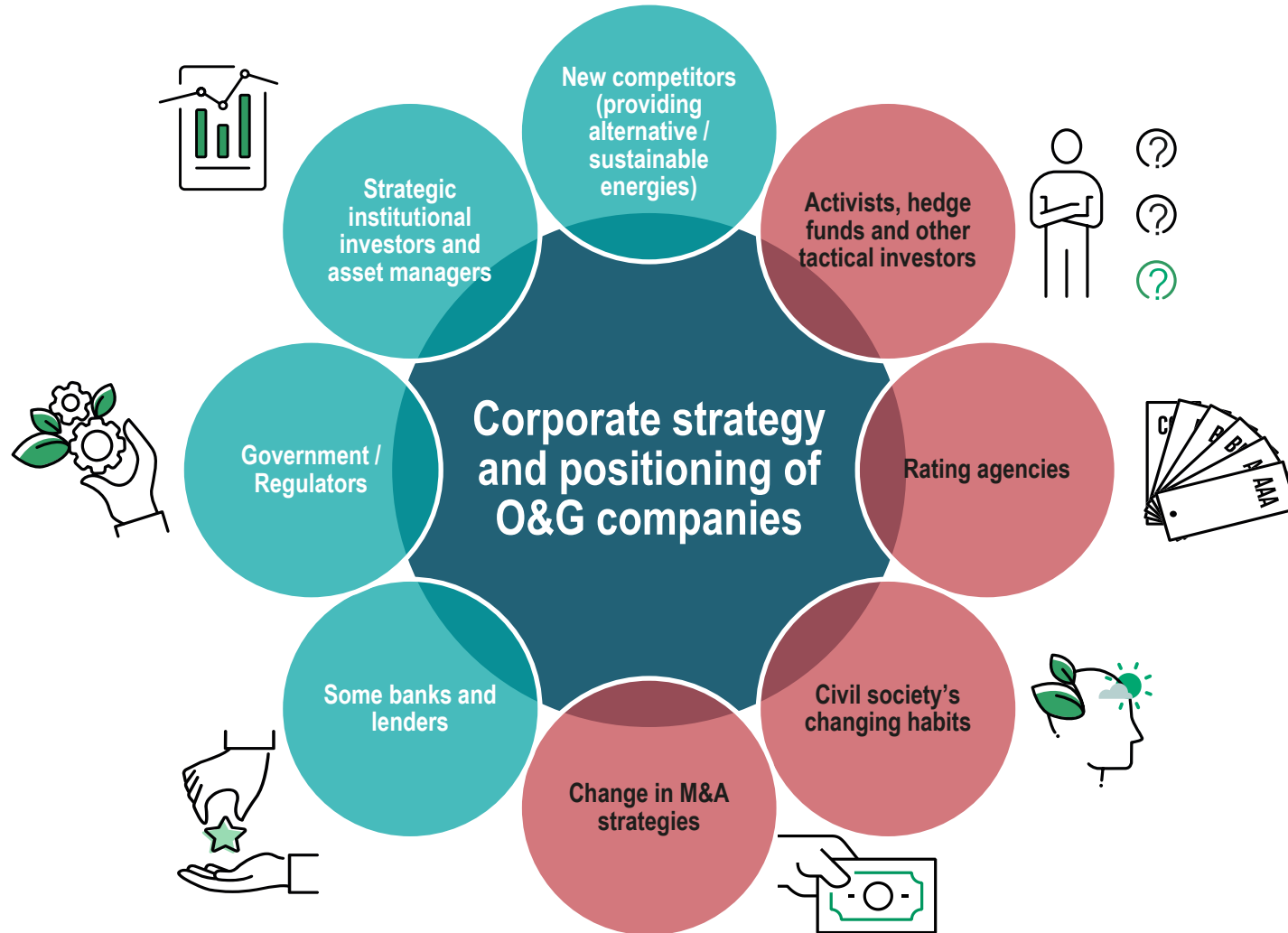
Source: BNP Paribas Asset Management, June 20222

... THIS IS JUST PART OF THE PICTURE.

Decommissioning liabilities and parameters differ, but common issues appearing



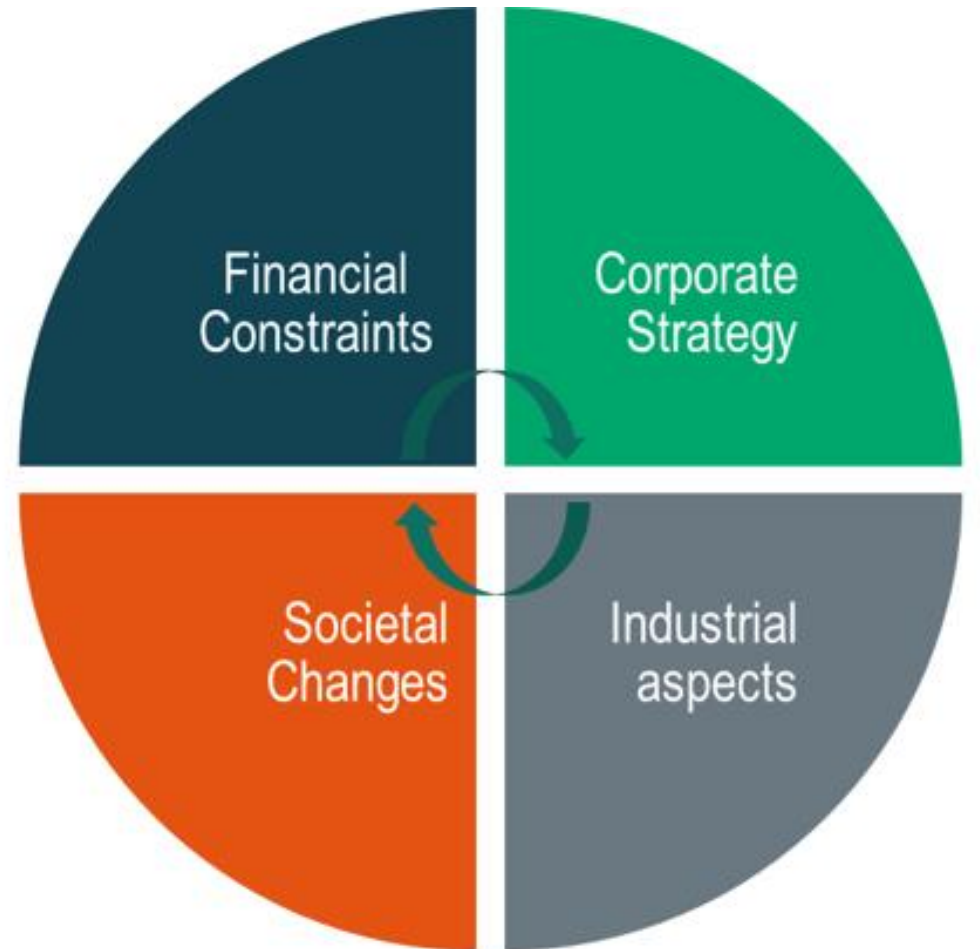
Corporate stakeholders



Source: BNP Paribas Asset Management, June 2022

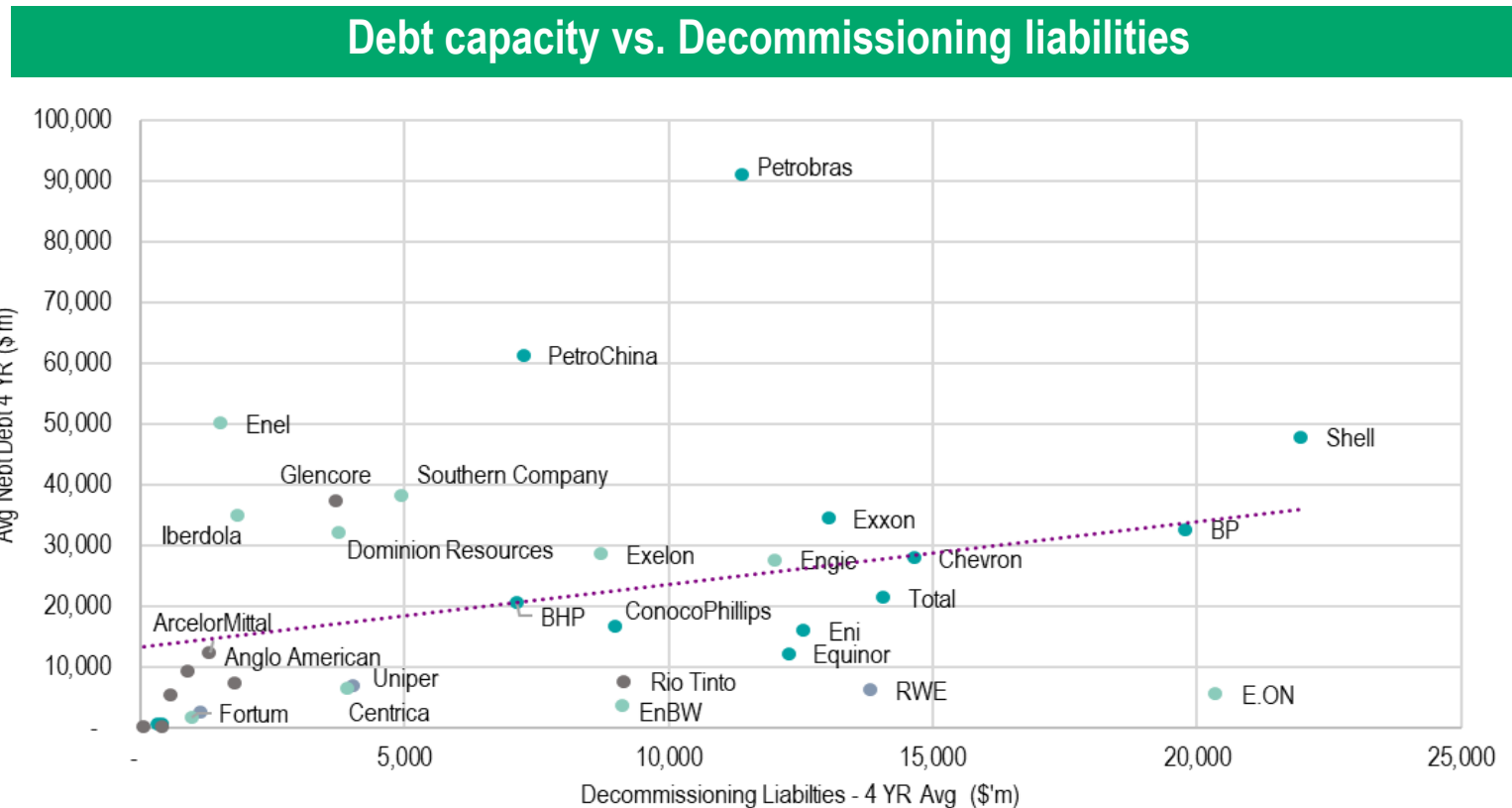
DECOMMISSIONING LIABILITY VALUATION DRIVERS

WEBINAR PART 1



Decommissioning

DEEPER DIVE - FINANCIAL EXPOSURES



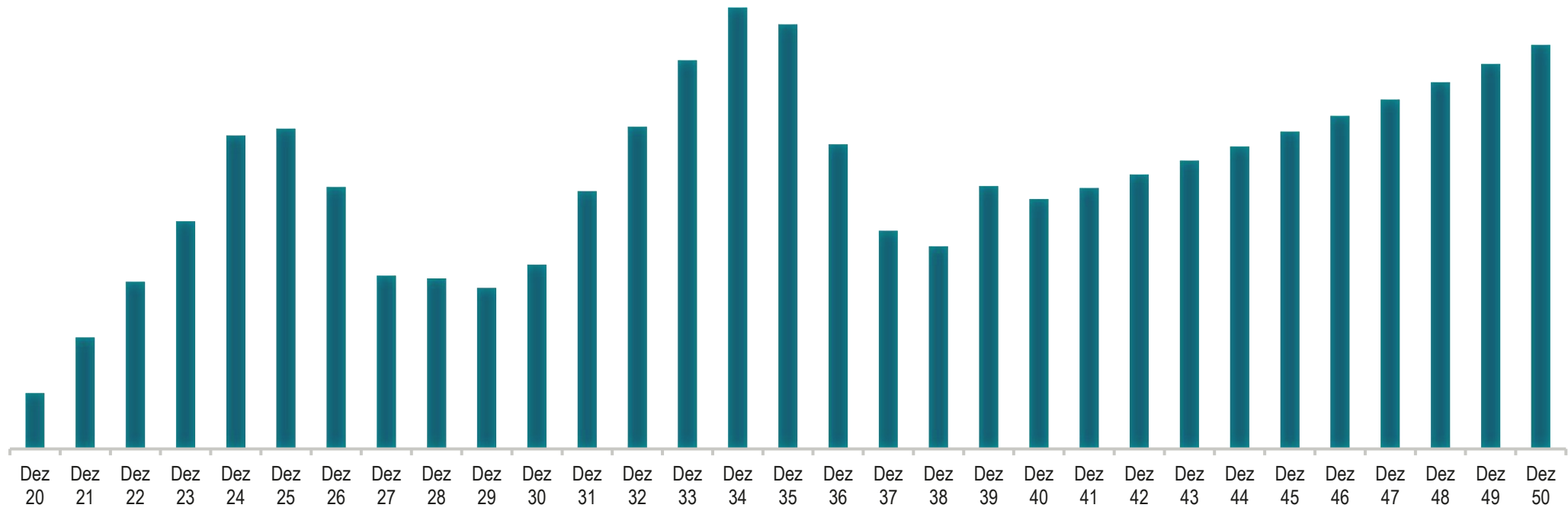
Source: BNP Paribas Asset Management, June 2022

YOU ARE NOT ALONE – A CRITICAL COMPETITIVE DYNAMIC

Decommissioning – Cost Structure

DEEPER DIVE – DECOMMISSIONING CASH FLOW PROFILE

Illustrative decommissioning cost profile



Source BNP Paribas Asset Management, Waste Analytics, Bloomberg, June 2022
For illustrative purpose only.

Decommissioning – Cost Structure

DEEPER DIVE – DECOMMISSIONING COST DRIVERS

Decommissioning cost components

Operational costs and
decommissioning program management

Operational capacity constraints / Decommissioning workforce needs

Safety and regulatory requirements

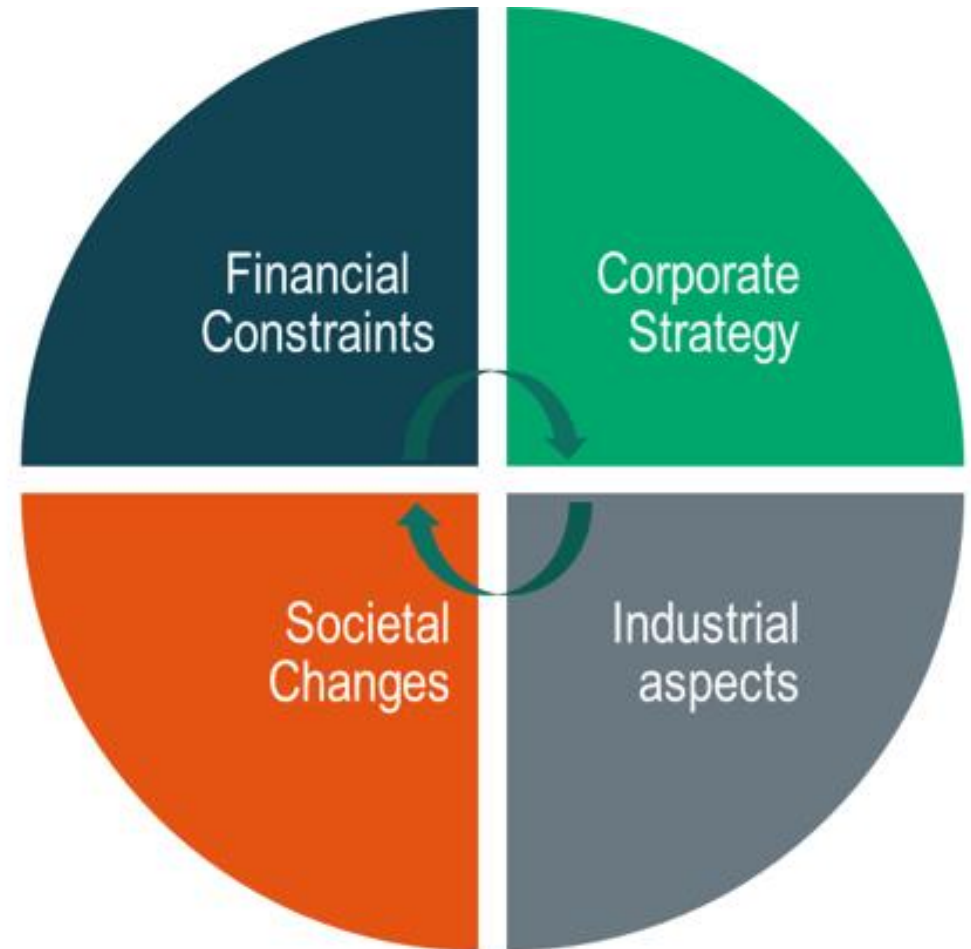
Efficiency gains

Long-term financial arrangements

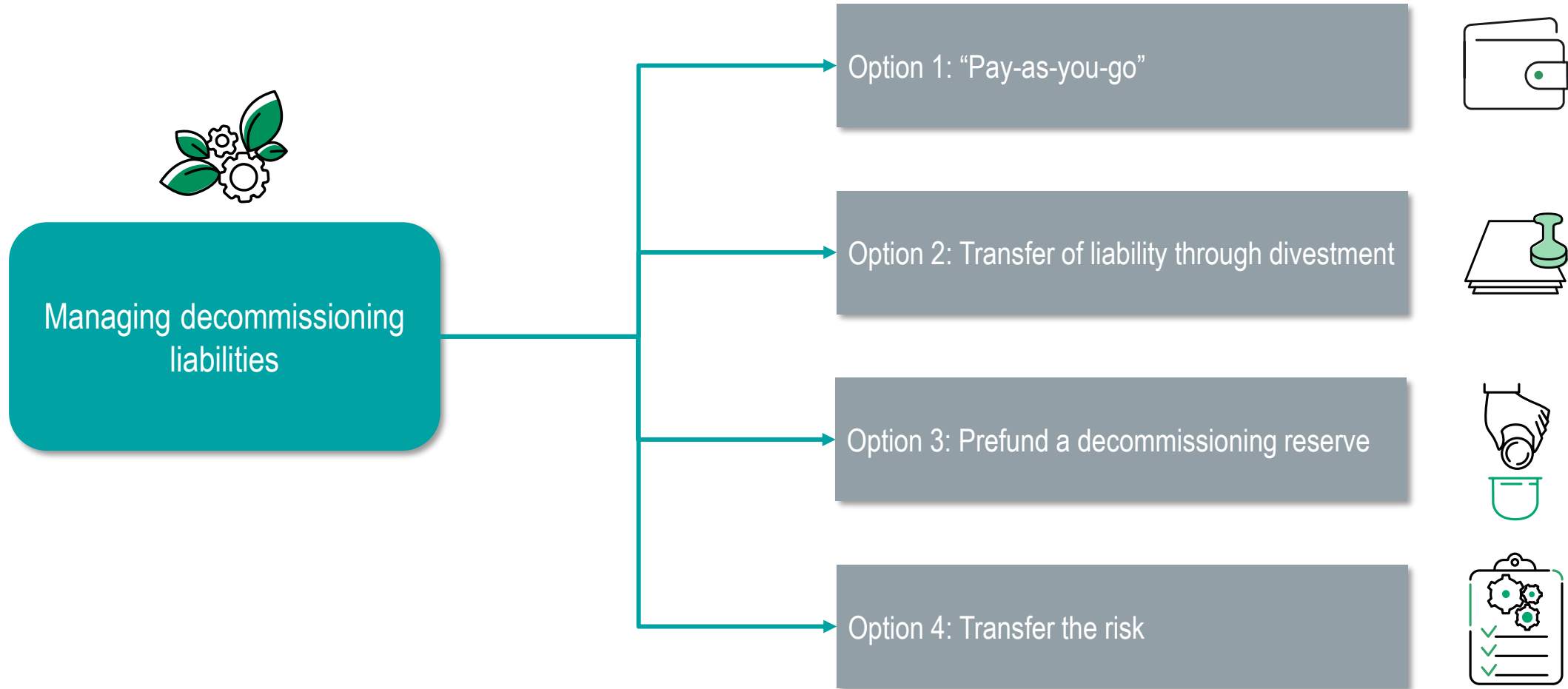
Source BNP Paribas Asset Management, Waste Analytics, Bloomberg, June 2022
For illustrative purpose only.

DECOMMISSIONING SOLUTIONS – WHAT ARE THE OPTIONS?

WEBINAR PART 1



Alternative approaches to managing decommissioning liabilities



For illustrative purpose only.

Source BNP Paribas AM, Bloomberg, June 2022

Option 1: “Pay-as-you-go”

| | Comment | Overall assessment |
|--|---|--------------------|
| What it is | Decommissioning costs are paid out of operating cash flow when they come due | ✓ |
| Risk level | Known and relatively high as this approach is exposed to essentially energy and mining prices | xx |
| Impact on energy and mining company’s financial standing | Dilutes earnings and drain operating cash flow over the long term | xx |
| Impact on corporate strategy | Reduces corporate activity and does not mitigate the risk of shortfall | xx |
| Impact on credit rating | Manageable but potentially disastrous if credit rating agencies decide to treat decommissioning liabilities differently | xx |
| Impact on ESG profile | No ESG offset offered by traditional solutions | xx |

Option 1: Commodity price performance vs. capital market performance

Commodity prices vs. S&P 500 and US Treasuries since 1989 (100 = Dec-1989)



Source: BNP Paribas Asset Management, Bloomberg, Federal Reserve of Saint-Louis, June 2022
Past performance is not an indication of future performance. TR: Total Return

Option 2: Transfer the decommissioning liability through divestment

| | Comment | Overall assessment |
|--|---|--------------------|
| What it is | Transferring the decommissioning liability by selling operational assets | ✓✓ |
| Risk level | Known and relatively low unless buyers do not implement decommissioning properly | ✓ |
| Impact on energy and mining company's financial standing | Potentially positive in the long term | ✓✓ |
| Impact on corporate strategy | Problematic as buyers are resistant to managing decommissioning programmes Risk of orphan liabilities if decommissioning is retained | ✗ |
| Impact on credit rating | Positive impact if decommissioning liabilities are transferred, otherwise potentially negative impact | ✓ / ✗✗ |
| Impact on ESG profile | Positive impact on ESG rating (even if decommissioning is retained) | ✓✓ |

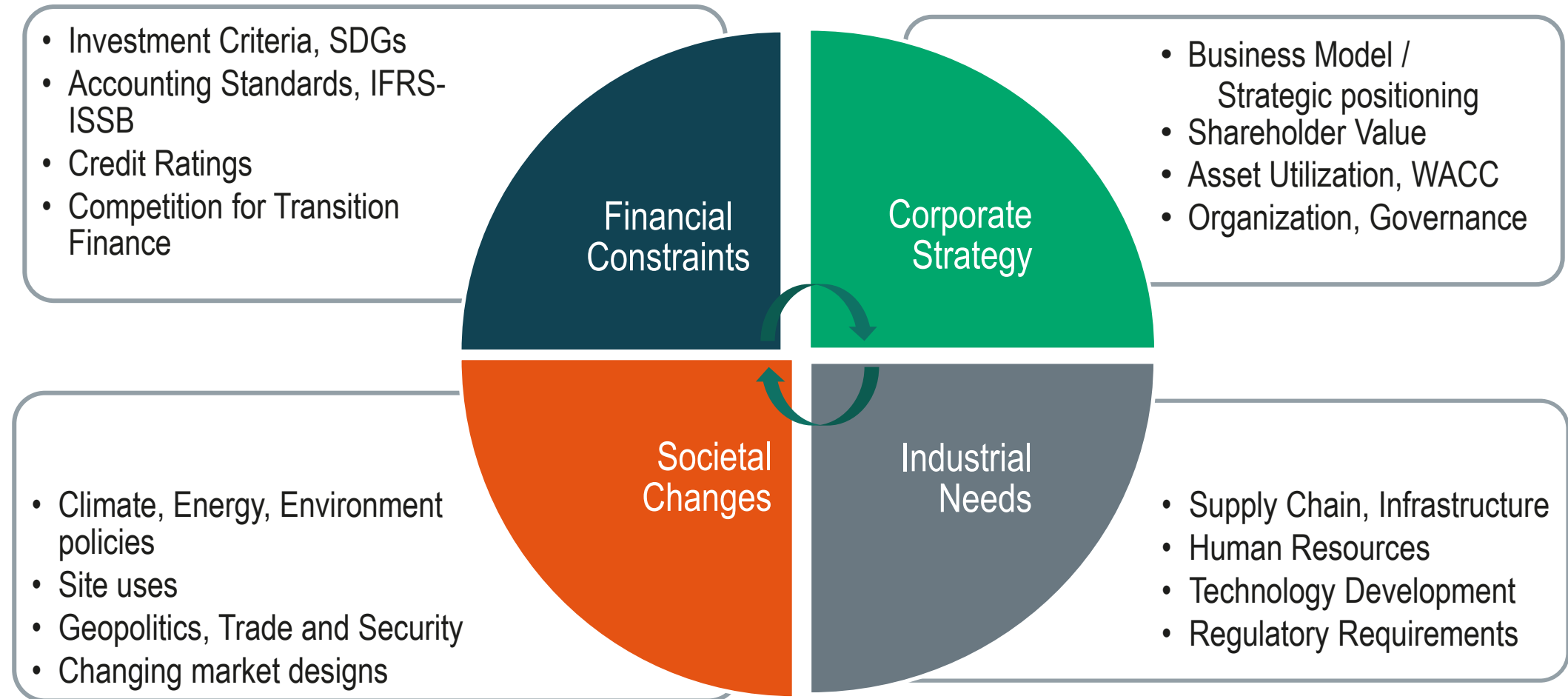
Option 3: Prefund a decommissioning reserve

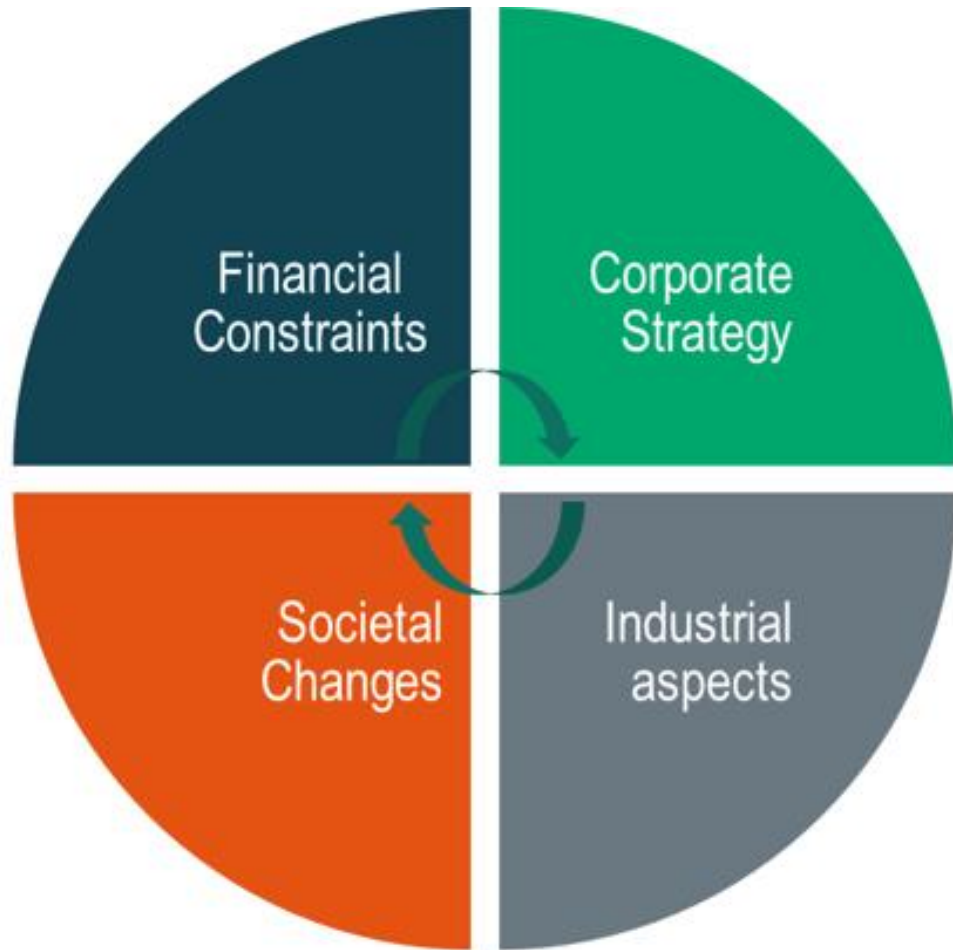
| | Comment | Overall assessment |
|--|---|--------------------|
| What it is | Creates a financial reserve to meet decommissioning costs when they come due | ✓✓✓ |
| Risk level | Known and relatively low if the reserve is properly managed | ✓✓ |
| Impact on energy and mining company's financial standing | Initial contribution reduces available cash but potentially very positive in the long term if the reserve is well managed | ✓✓ |
| Impact on corporate strategy | Opens up more possible corporate activity routes and reduces the risk of shortfall | ✓✓ |
| Impact on credit rating | Positive impact (especially with S&P and Fitch) | ✓✓ |
| Impact on ESG profile | Positive impact on ESG rating if the reserve is invested in ESG financial assets | ✓✓ |

Option 4: Transfer the decommissioning risk to an insurance company

| | Comment | Overall assessment |
|--|--|--------------------|
| What it is | Financial decommissioning is insured in the same manner as a pension buyout | ✓✓✓ |
| Risk level | Transfer can be scaled to meet risk budget / appetite of the operator | ✓✓ |
| Impact on energy and mining company's financial standing | Premium payment can be expensive but only one-off hit to the earnings | ✓ |
| Impact on corporate strategy | Opens up more possible corporate activity routes and reduces the risk of shortfall | ✓✓ |
| Impact on credit rating | Positive impact (especially with S&P and Fitch and based on pension buyout experience) | ✓✓ |
| Impact on ESG profile | Positive impact on ESG rating as it removes brown assets | ✓✓ |

Transition Perspectives





CHAT

COMMENTS FROM THE AUDIENCE

IMPLICATIONS: A MORE COMPLEX DECOMMISSIONING FRAMEWORK

LOOKING FORWARD TO WEBINAR PART 2



Transition Management – KPI aggregation



Site specific optimization:

Optimize for what is best for the individual site.
(e.g. maximum site value, minimum lifecycle cost, minimize early cash out)

Corporate (fleet) optimization:

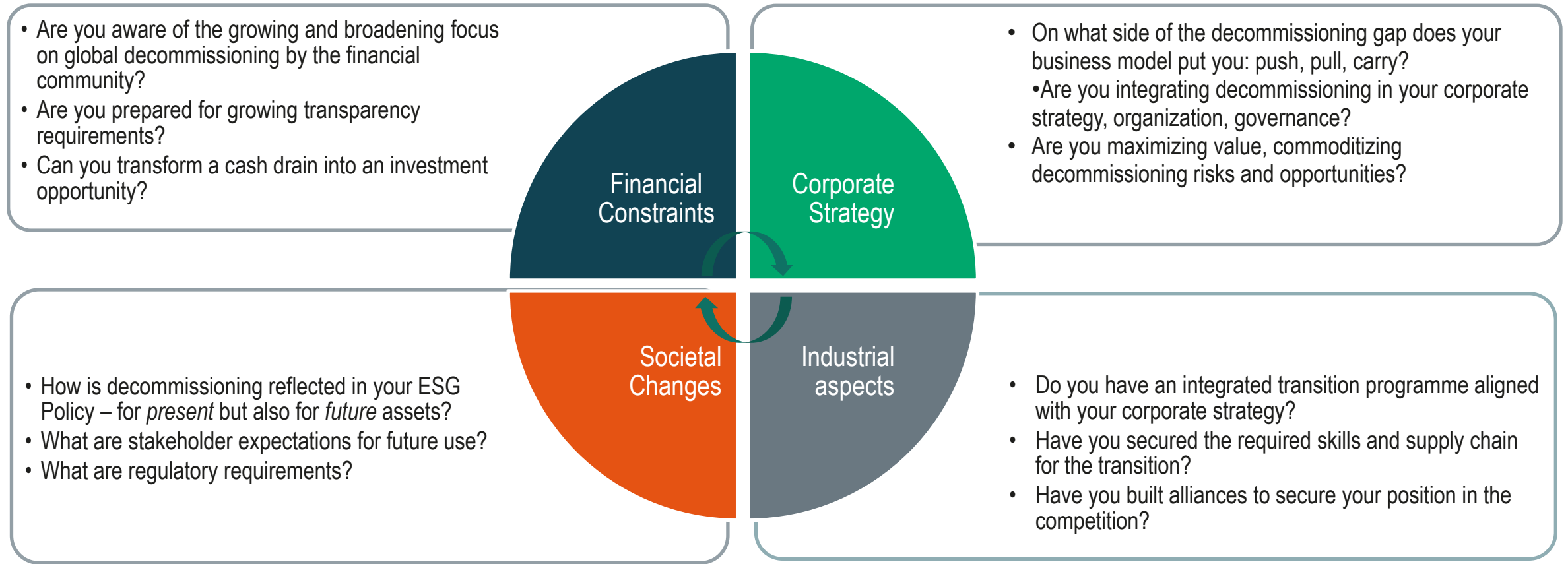
Optimize so that the integral value across all assets for the company business model is optimized.
(e.g. optimum across all assets of a company)

National/Sector optimization:

Optimize for the aggregate integral public interest.
(e.g. optimum across all sites in a region/sector for energy security, decarbonization)

For individual reflection

PATHWAYS: WHERE TO BEGIN - WHERE IS YOUR COMPETITIVE POSITION?



WEBINAR – PART 2

Please join us on September 27, 2022 at 12h30 GMT:

<https://www.enlit.world/regions/europe-uk/the-decommissioning-gap-part-2-securing-a-successful-decommissioning-and-re-purposing/>

We will return to the topic and focus on how players in the energy industry answer to those questions and deal with the following challenges:

- How to integrate the decommissioning and re-purposing of existing infrastructure into the energy transition?
- How to guarantee successful performance of the decommissioning and re-purposing process in a resource-constrained industrial environment?

THANK YOU for your interest!

May we invite your comments and suggestions?

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