



Anthony Schiavo  
Research Director

## TODAY'S WEBINAR WILL BEGIN SHORTLY

Decarbonization Darwinism: The Existential Challenge Facing the Global Chemicals Industry

QUESTIONS?

Use the questions box on your screen

AUDIO ISSUES?

Use the global dial-in number in your confirmation email



The  
Deciding  
Factor

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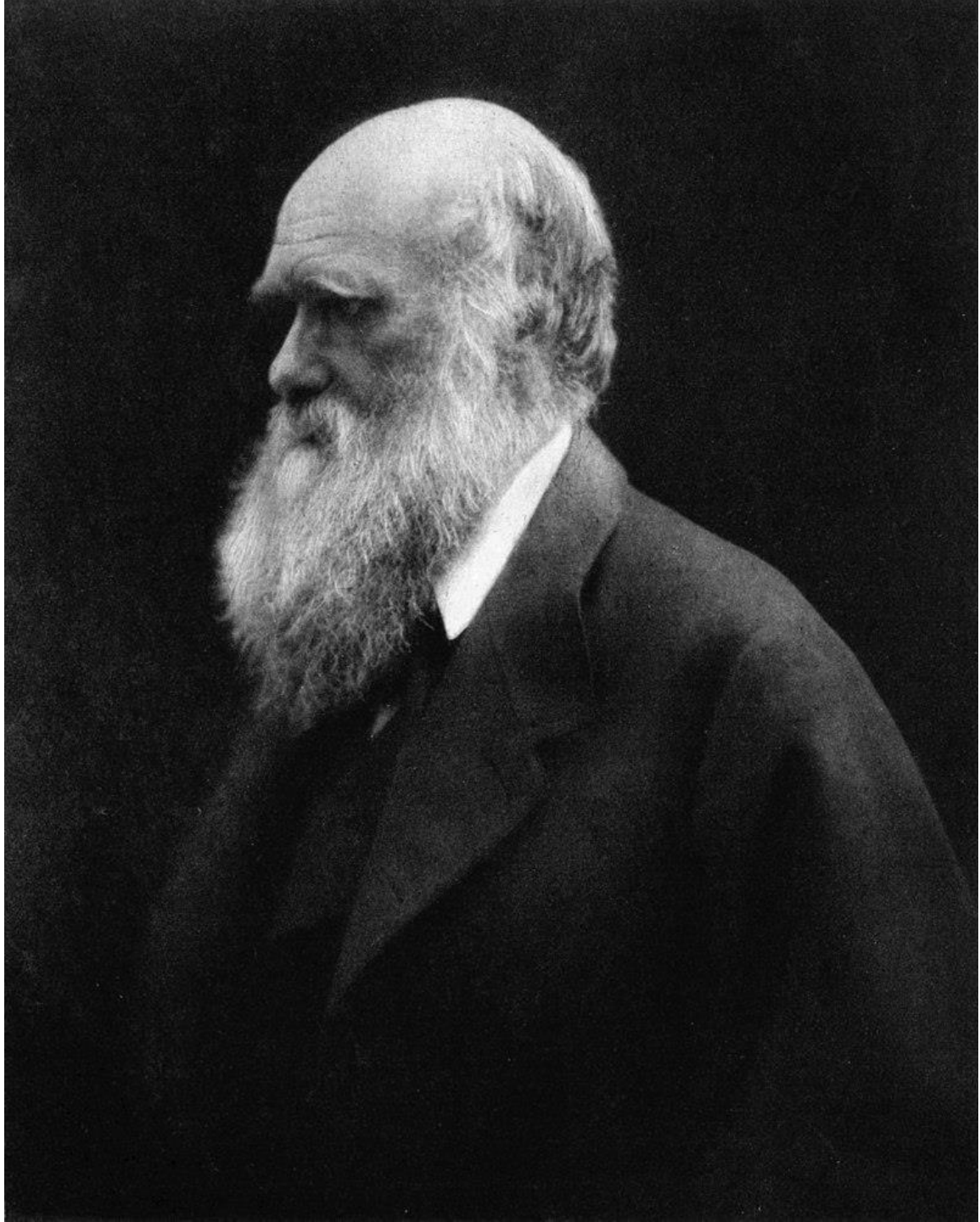
# DECARBONIZATION DARWINISM: THE EXISTENTIAL CHALLENGE FACING THE GLOBAL CHEMICALS INDUSTRY



Anthony Schiavo  
Research Director



The  
Deciding  
Factor



# Agenda

- 1 | Decarbonization as evolution
- 2 | Analyzing the chemicals industry on the Carbon Canvas
- 3 | Darwin's finches and the future chemical enterprise

## Near the limit

The world's fossil carbon budget is running out. To limit global warming to 1.5 °C, not more than 2,895 Gtonne of CO<sub>2</sub> can be released from fossil sources.

We're less than 420 Gtonne away from that limit.

**Fossil carbon released**  
(Gtonne cumulative)

**Temperature**

3,745

+ 2 °C

3,245

+ 1.7 °C

2,895

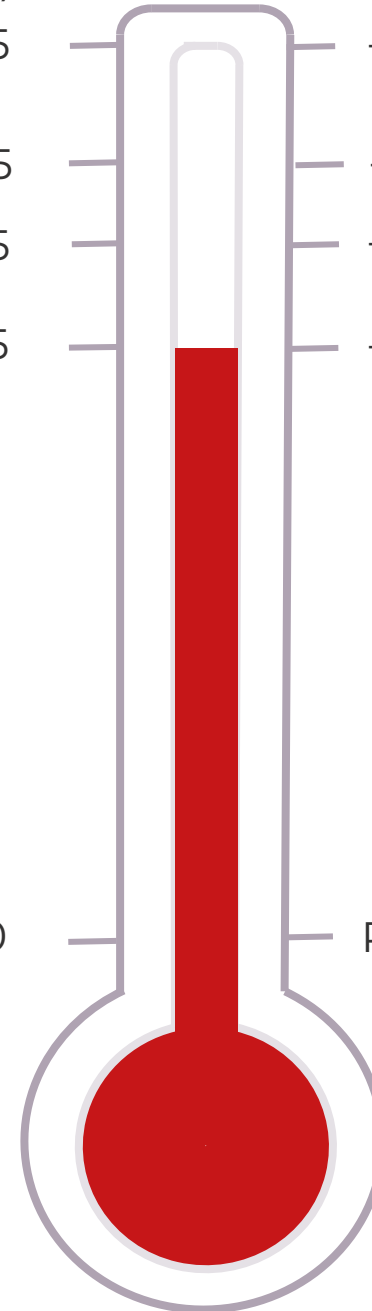
+ 1.5 °C

2,475

+ 1.2 °C

~ 0

Preindustrial



Just 10 more years

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The remaining budget lasts until 2033

# 35 Gtonne/a

In 2020, a year with record low fossil fuel consumption, the world released 35 Gtonne of fossil CO<sub>2</sub>. At that rate, the remaining budget lasts only 10 more years.

**Decarbonize  
operations**



**Access new  
markets**



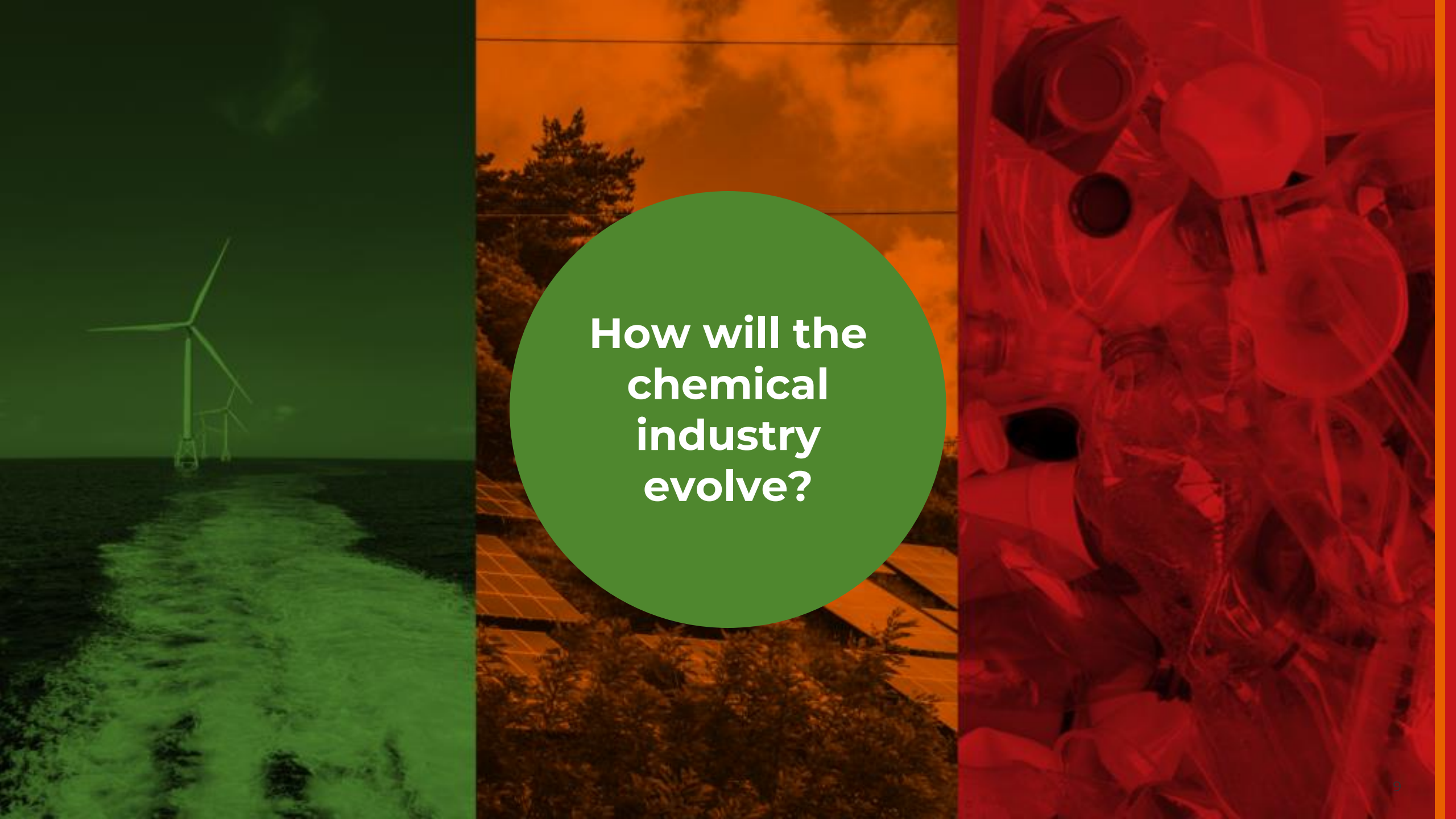
One weird trick to cut  
your carbon emissions  
instantly

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~~Immediately cease all  
business operations~~

**Decarbonizing while  
maintaining the business**





**How will the  
chemical  
industry  
evolve?**

## LUX CARBON CANVAS

# The Lux Carbon Canvas measures companies resilience to carbon pricing and capacity to invest in decarbonization

### Lux Carbon Canvas: Framework to Evaluate Levels of Resilience to Carbon Pricing

Available capital from sales (y-axis); Critical carbon price \$US per MT eCO<sub>2</sub> (x-axis)



## Critical carbon price

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Measures a company's  
resilience to carbon pricing

**Critical  
Carbon  
Price**

=

$$\frac{\text{Gross profit} - 10\% \text{ margin on sales}}{\text{Scope 1 carbon emissions}}$$

## Available capital from sales

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Measures a company's capability to invest in decarbonization

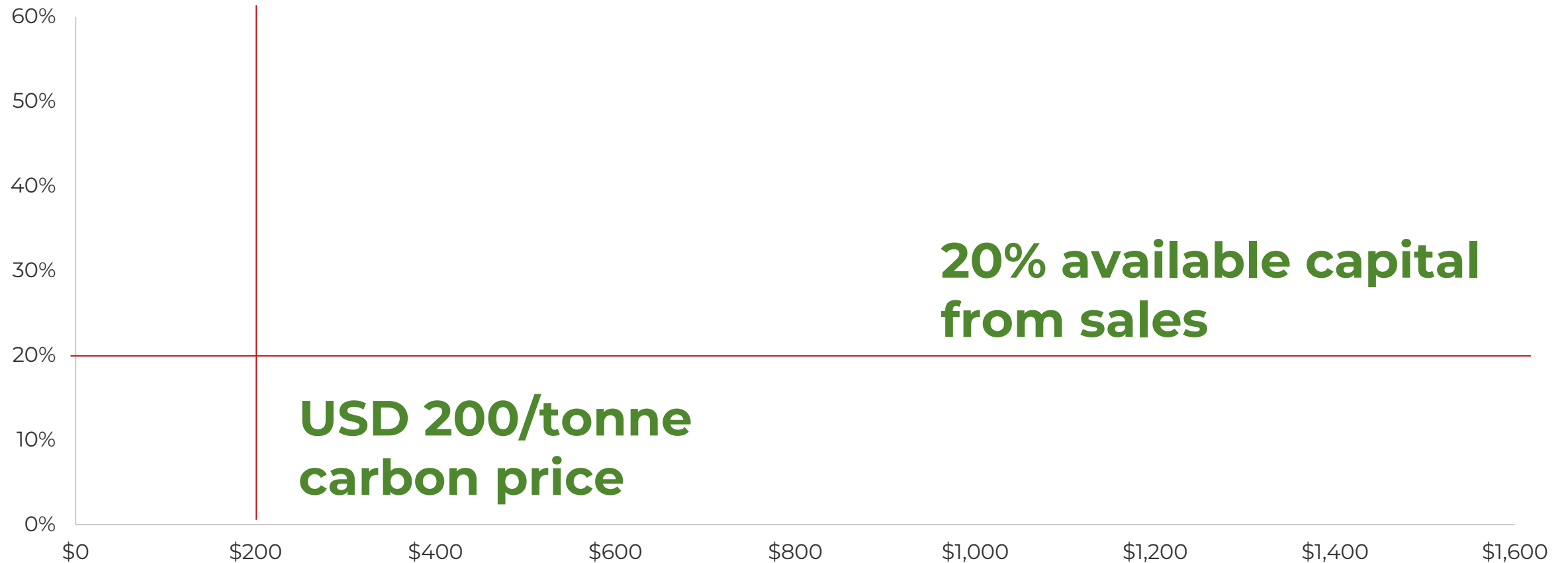
$$\text{Available capital} = \frac{\text{Gross profit} - \text{10\% margin on sales}}{\text{Total Revenue}}$$

## LUX CARBON CANVAS

# The Lux Carbon Canvas measures resilience to carbon pricing and ability to decarbonize

### Lux Carbon Canvas: Framework to Evaluate Levels of Resilience to Carbon Pricing

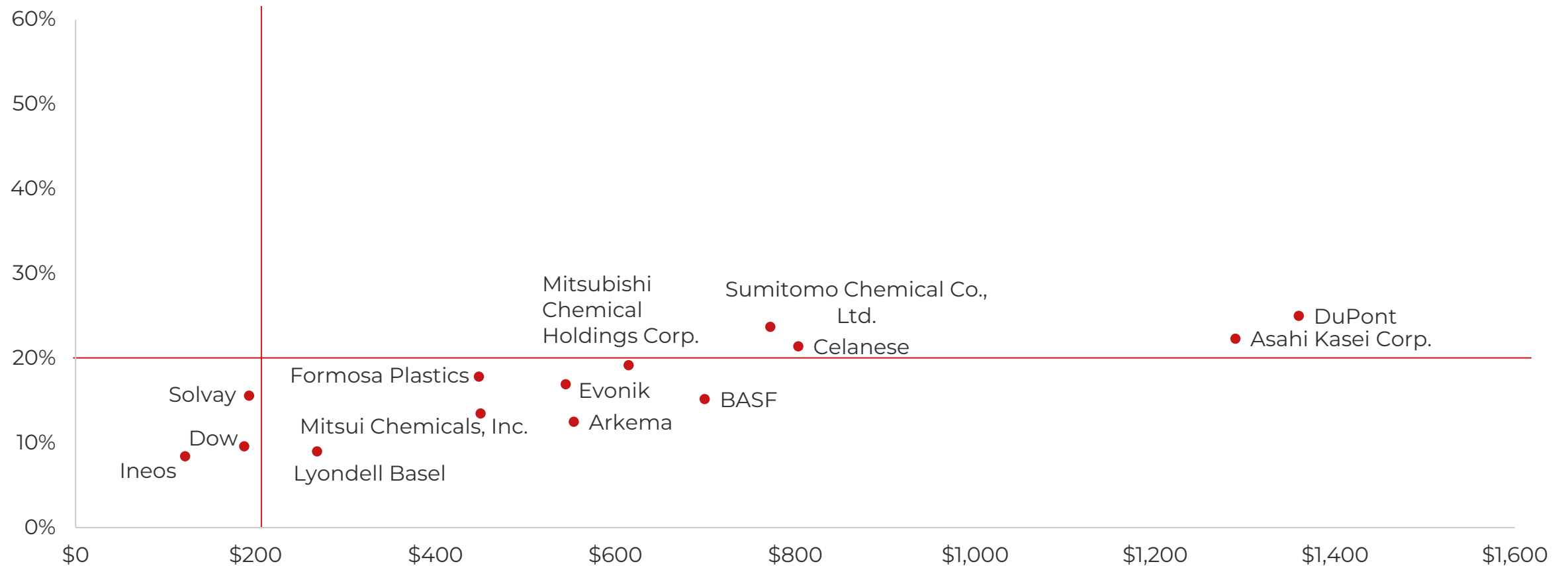
Available capital from sales (y-axis); critical carbon price USD/tonne eCO<sub>2</sub> (x-axis)



# The Lux Carbon Canvas measures resilience to carbon pricing and ability to decarbonize

## Lux Carbon Canvas: Framework to Evaluate Levels of Resilience to Carbon Pricing

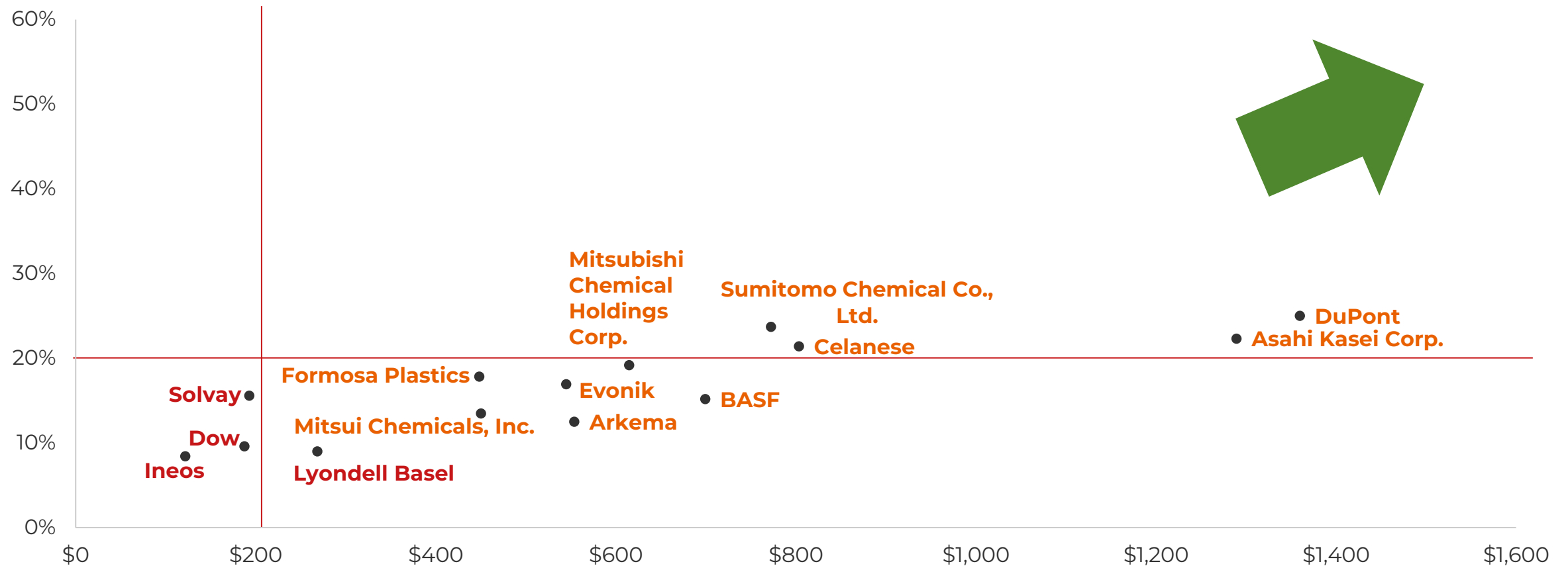
Available capital from sales (y-axis); critical carbon price USD/tonne eCO<sub>2</sub> (x-axis)



# Three evolutionary categories of companies

## Lux Carbon Canvas: Framework to Evaluate Levels of Resilience to Carbon Pricing

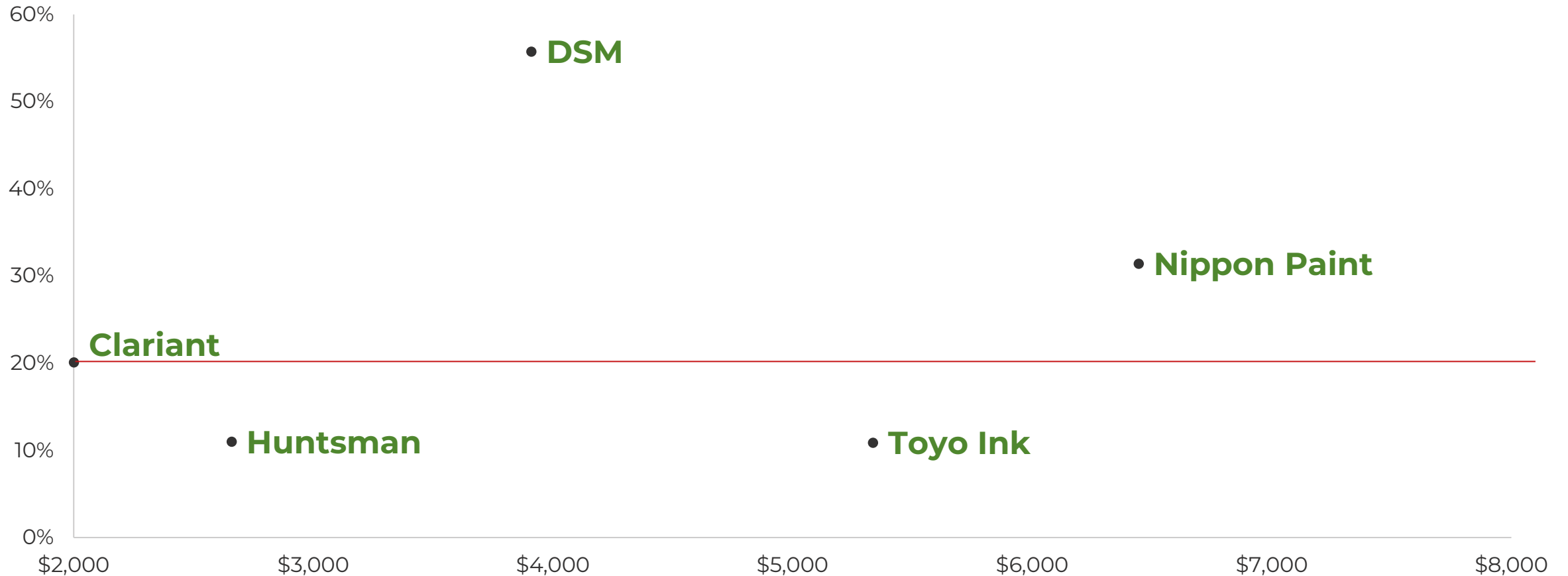
Available capital from sales (y-axis); critical carbon price USD/tonne eCO<sub>2</sub> (x-axis)



# Group one: Least-concerned species have transcended the energy transition risk by luck or design

## Lux Carbon Canvas: Framework to Evaluate Levels of Resilience to Carbon Pricing

Available capital from sales (y-axis); critical carbon price USD/tonne eCO<sub>2</sub> (x-axis)

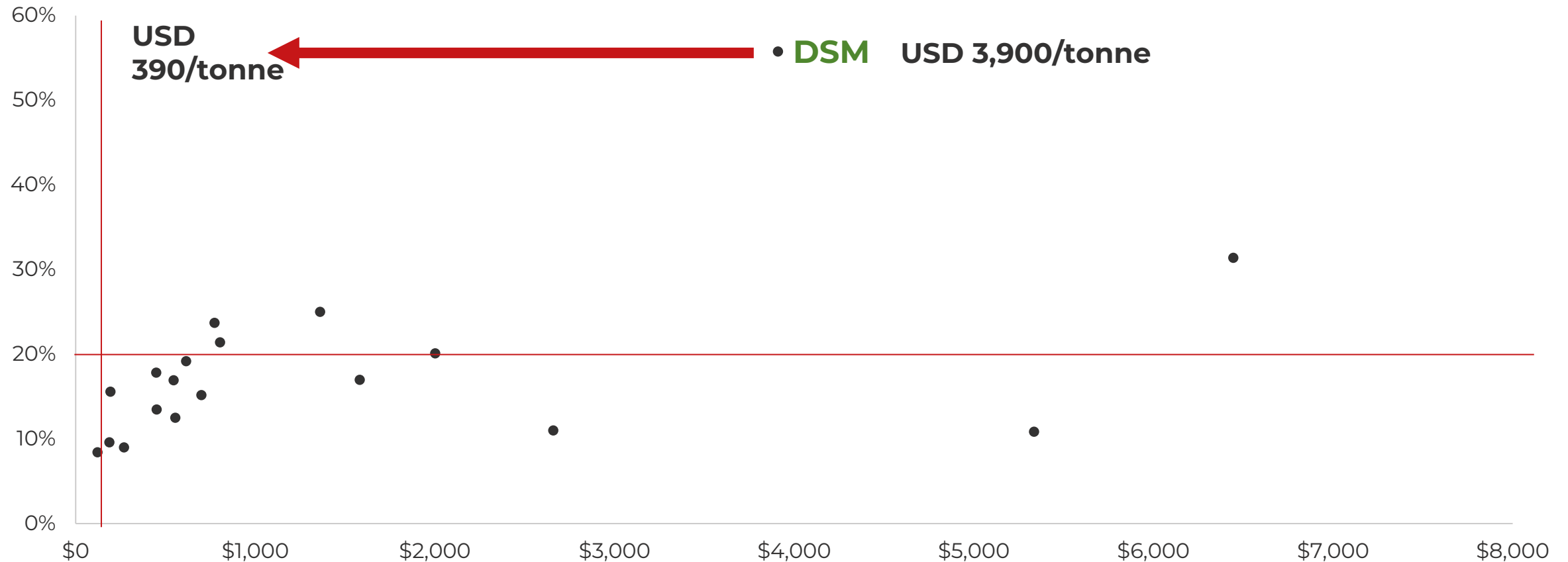




# Scope 3 emissions pricing would substantially hurt these companies, but they would still be fine overall

## Lux Carbon Canvas: Framework to Evaluate Levels of Resilience to Carbon Pricing

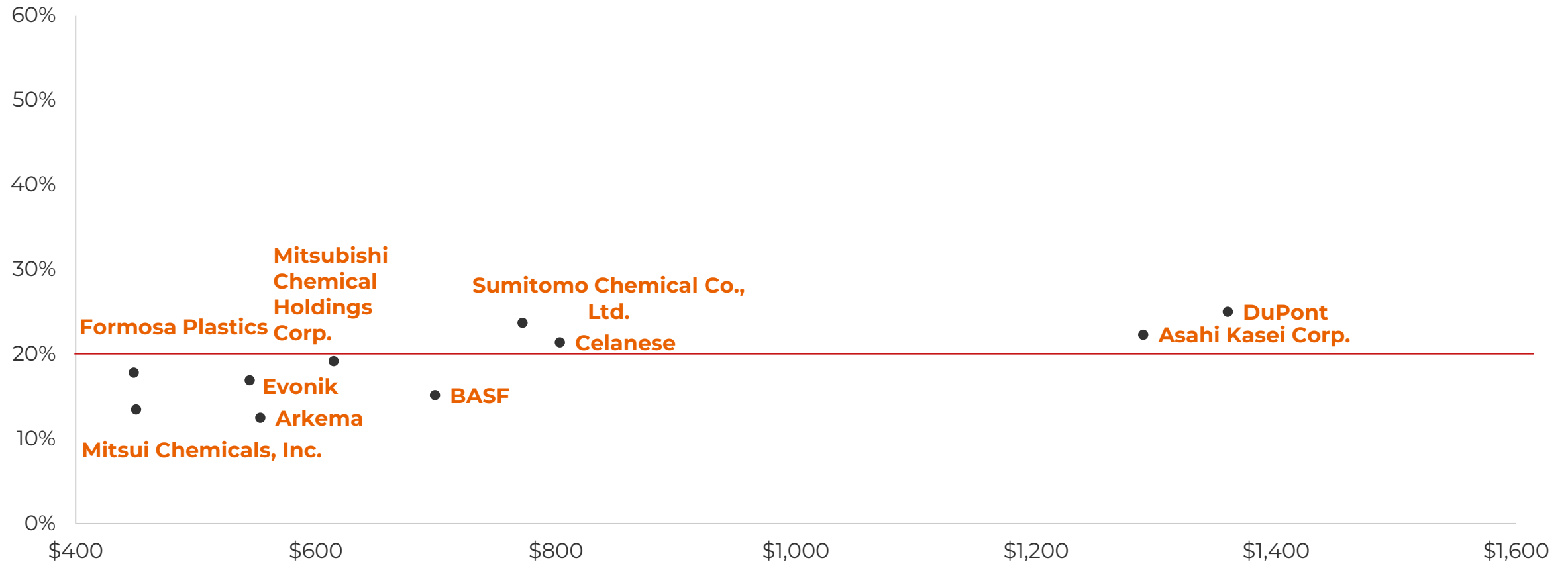
Available capital from sales (y-axis); critical carbon price USD/tonne eCO<sub>2</sub> (x-axis)



# Group 2: Transitional lifeforms will be under pressure to split up to survive

## Lux Carbon Canvas: Framework to Evaluate Levels of Resilience to Carbon Pricing

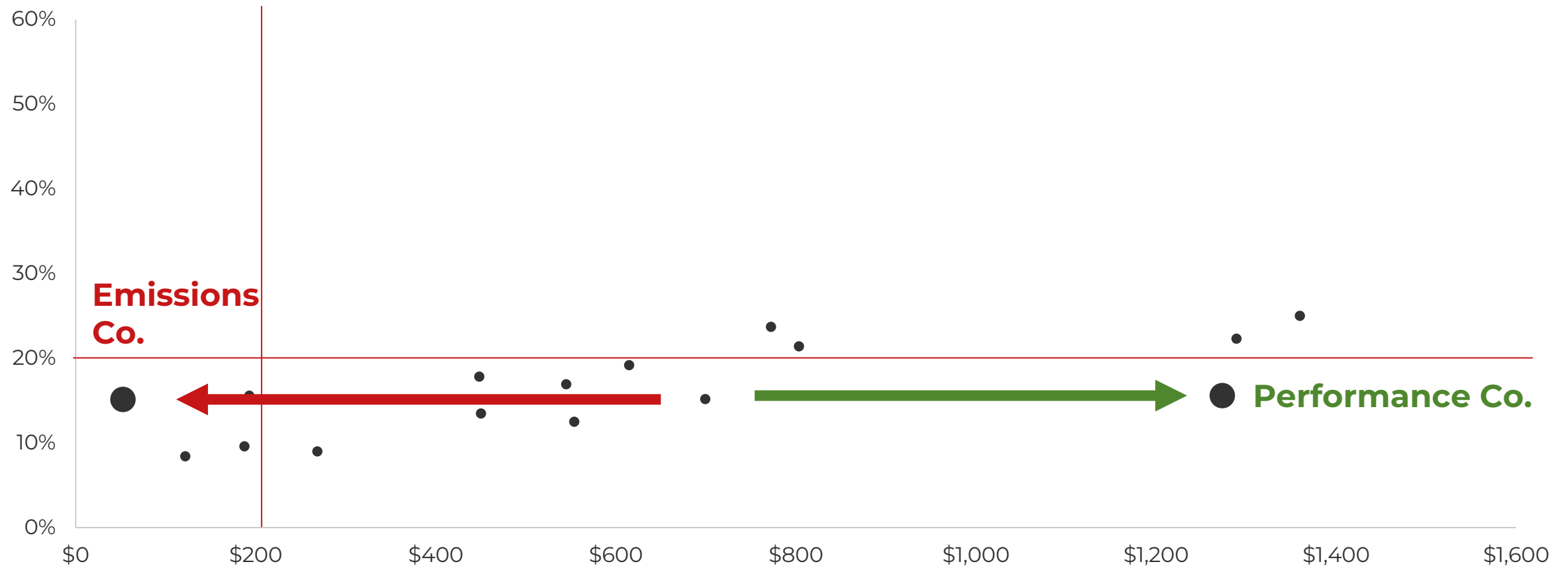
Available capital from sales (y-axis); critical carbon price USD/tonne eCO<sub>2</sub> (x-axis)



# Companies will be under pressure to split up from shareholders, but this makes decarbonization harder

## Lux Carbon Canvas: Framework to Evaluate Levels of Resilience to Carbon Pricing

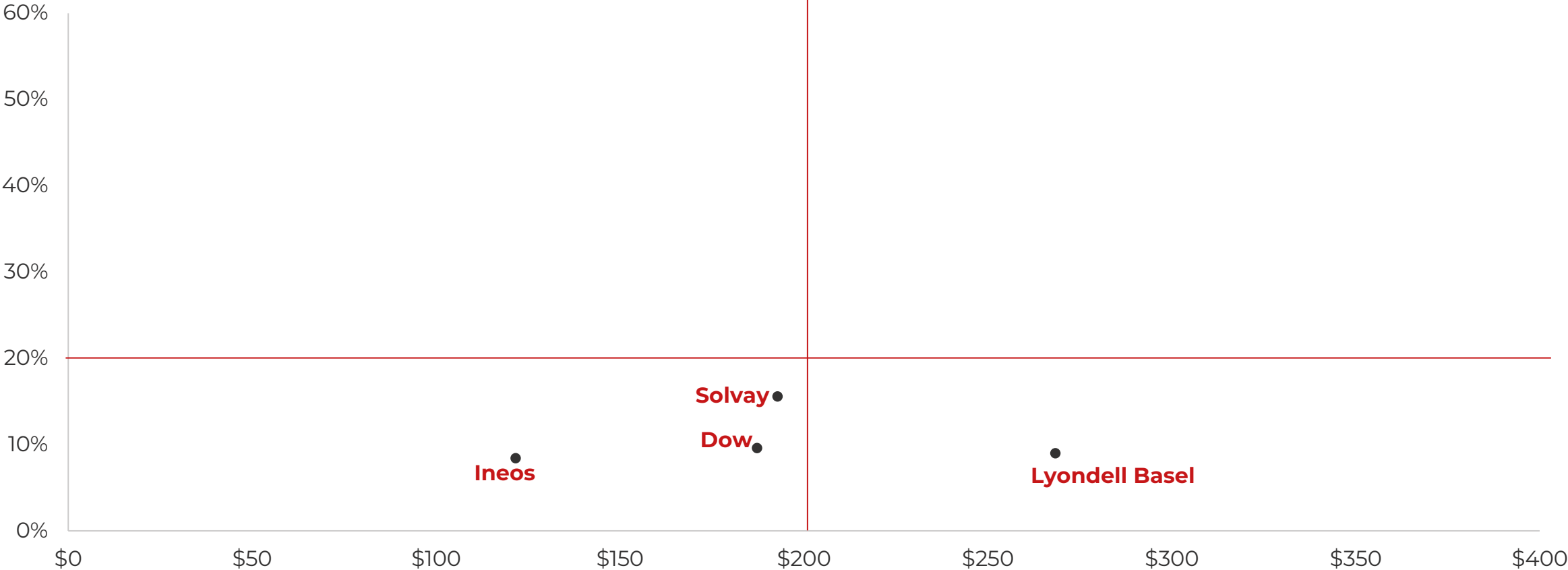
Available capital from sales (y-axis); critical carbon price USD/tonne eCO<sub>2</sub> (x-axis)



# Group 3: Asteroid victims are under real risk from carbon pricing and stranded assets

## Lux Carbon Canvas: Framework to Evaluate Levels of Resilience to Carbon Pricing

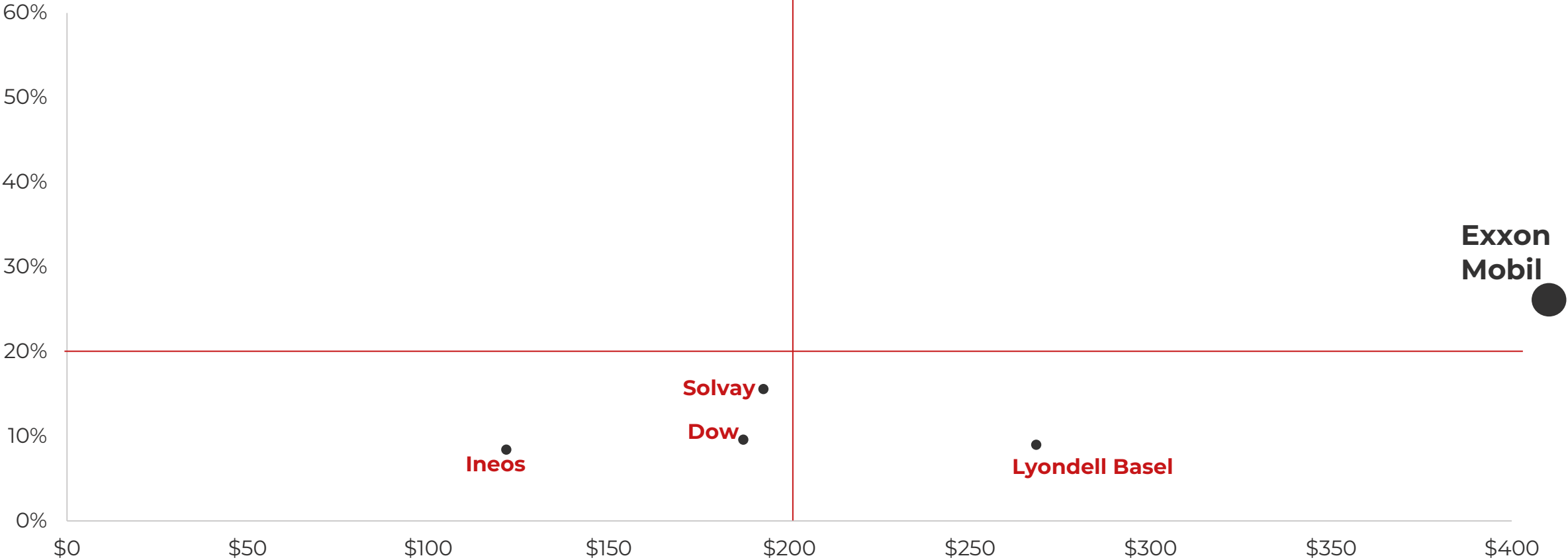
Available capital from sales (y-axis); critical carbon price USD/tonne eCO<sub>2</sub> (x-axis)



# Commodity chemicals businesses will face increasing pressure from oil and gas companies with major cash reserves

## Lux Carbon Canvas: Framework to Evaluate Levels of Resilience to Carbon Pricing

Available capital from sales (y-axis); critical carbon price USD/tonne eCO<sub>2</sub> (x-axis)



**Decarbonize  
operations**

**Decarbonization is  
fundamentally much  
more challenging**



**Access new  
markets**



# Decarbonize operations



Startup ecosystem ✓



Corporate structure ✗



Financial Incentives ✗



# Access new markets



Startup ecosystem ✓

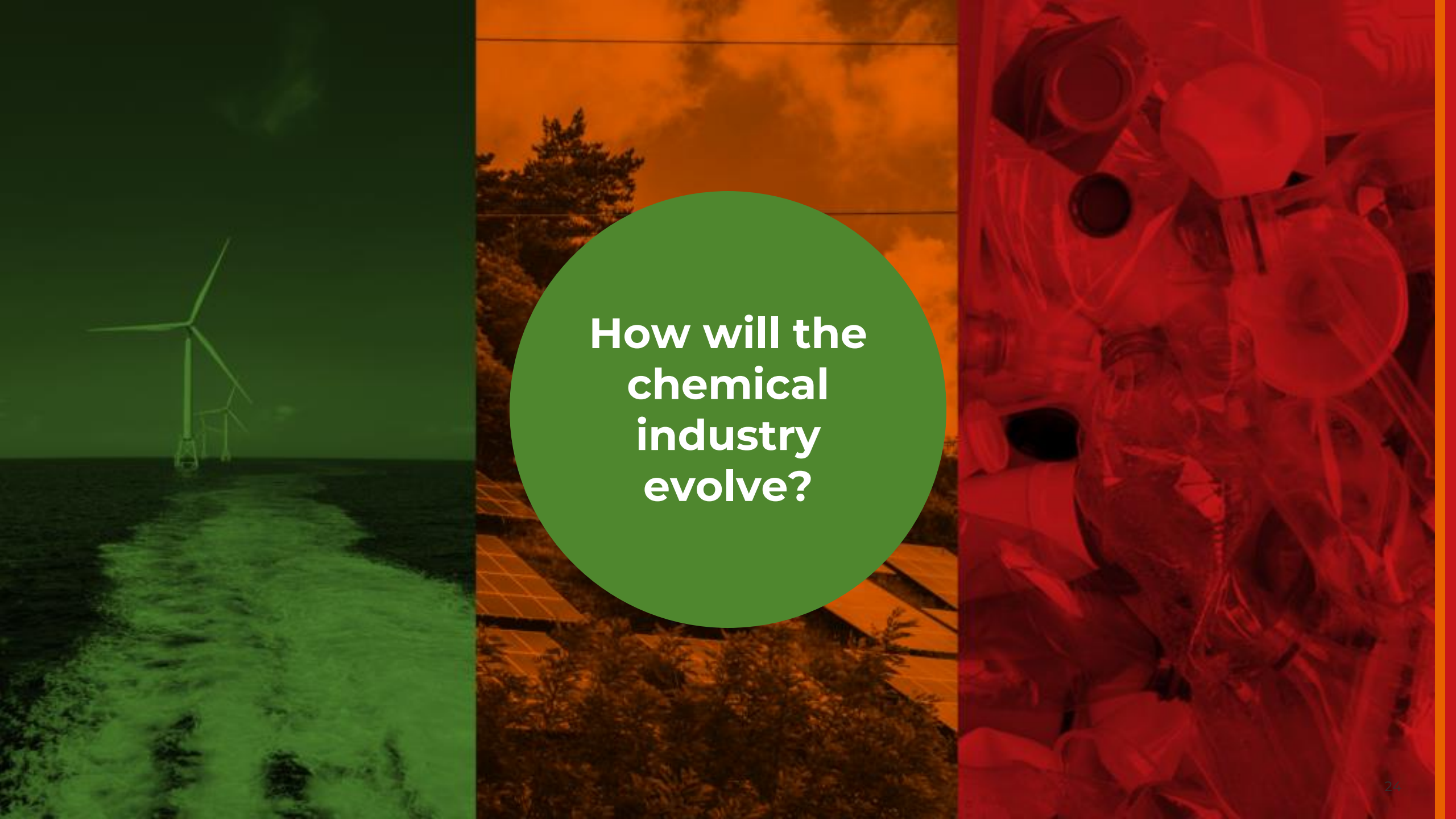


Corporate structure ✓



Financial Incentives ✓





**How will the  
chemical  
industry  
evolve?**



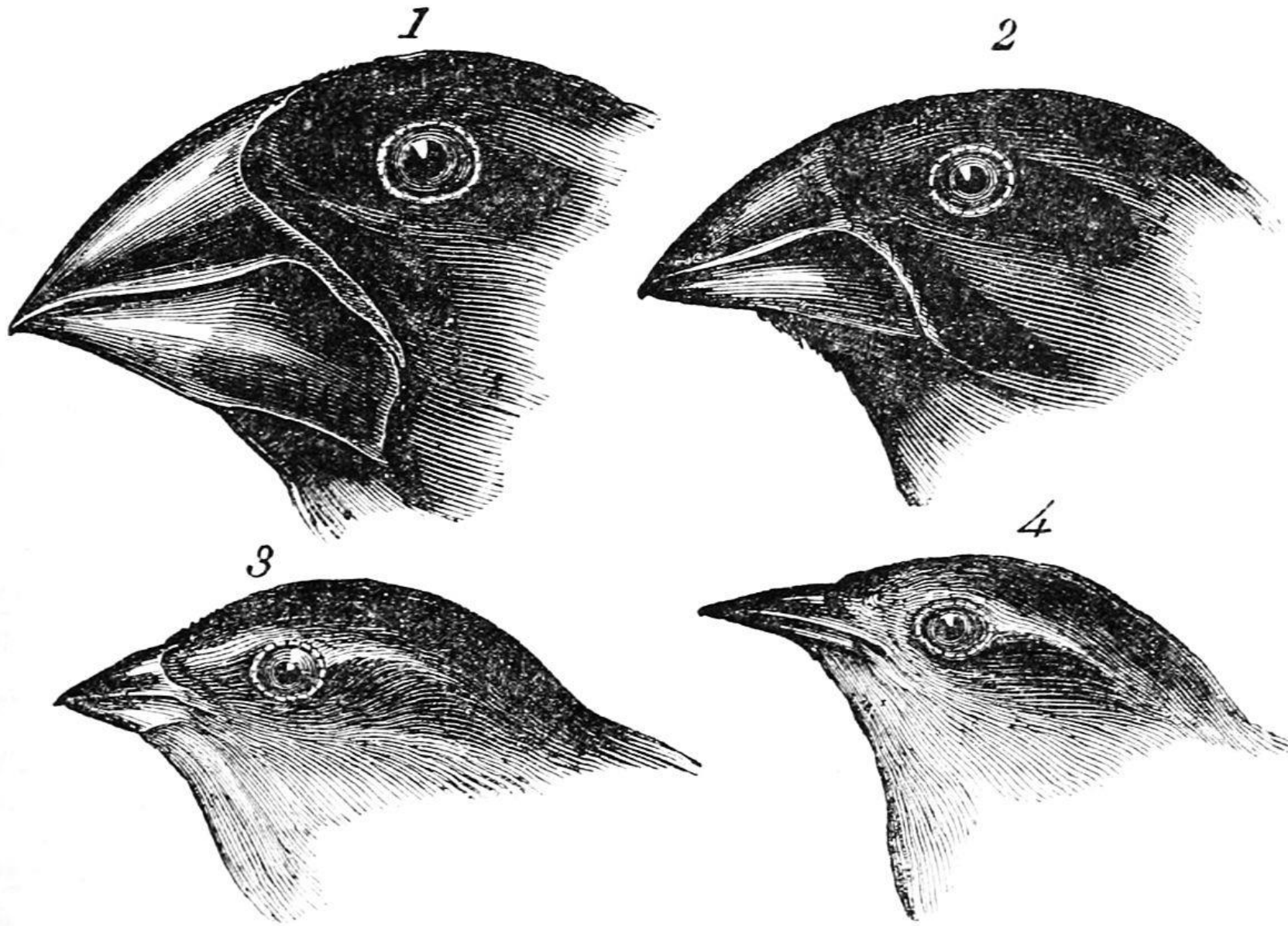
**Nationalization**

**Fragmentation**

**How will the  
chemical  
industry  
evolve?**

**Centralization**

**Obfuscation**



# Thank You

A link to the webinar recording will be emailed within 24–48 hours.

## KEEP IN TOUCH

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**September 13th**

[Oil and Gas Scenarios: Surviving the Energy Transition](#)

**October 25th**

[2023 Innovation Planning: Reviewing Key Developments of 2022 and Predictions for the Future](#)

**November 22nd**

[Product Innovation: Balancing Sustainability, Risk, and Returns](#)

**December 20th**

[The Top Technologies Enabling the Net-Zero Grid of the Future](#)