Geopolitics of Industrial Decarbonisation: Global Scenarios and R&I Opportunities for Europe

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Background and rationales

- EU commitment to achieve net-zero emissions by 2050
- Clean Industrial Deal positions the EU as a leader in sustainable industry
- Scenario and roadmapping work help stakeholders to identify and consider R&I needs and opportunities
- Turbulent geopolitics require relying on **global context scenarios** and **multi-level** perspective in the thematic work

Purpose

- Foresight: How to incorporate a multi-level perspective with context scenarios in thematic foresight work?

- Thematic contribution: How the EU could navigate amidst global uncertainties to foster a resilient, competitive path to industrial decarbonisation?

Method: Two-Day EoE Foresight Workshop

- Background paper
- Policy, industry, and academia participation
- Three facilitators
- Day 1: Context scenarios and multi-level scenario work covering global and EU-specific developments
- Day 2: Roadmapping of R&I needs (demand) and opportunities (offer)

Scenios – a multi-level approach

2040	A "Thriving Europe" (Genuine Collaboration)	B "Europe, Respected Partner" (Limited Cooperation)	C "Fortress Europe" (Open Hostility)
Global Context			
European Context: Dynamic, resilient and decarbonised EU → Implications to climate			
Decarbonisation in thematic areas (Energy, Raw materials, Manufacturing) →R&I needs and opportunities			

DISCUSSION IN PLENARY

CO-CREATION IN GROUPS

Global Context 2040	Genuine Collaboration	Limited Cooperation	Open Hostility
Governance	Effective global governance Strong UN	Poles around leading powers Fragmented UN and IPCC	At least one hostile pole Collapsed UN, no IPCC
Production and innovation systems	Global networks and diffusion of climate solutions aligned with SGDs, CSR, ESG	Strategic autonomy Selected co-operation and diffusion between poles	Autonomy Cooperation and diffusion between 'friendly' nations; minimal between poles
Trade	Strong, effective WTO, climate integrated	Weakened WTO, bilateral agreements (among poles and nations)	Protectionism Trade wars
Security and defence	Expanded NATO, also for climate crisis No major wars, disarmament	Confined NATO Proxy wars, defence and climate budgets compete	Shrunk NATO Beyond proxy wars Defence budgets consume climate budgets

Dynamic and Resilient EU 2040	A "Thriving Europe" (Genuine Collaboration)	B "Europe, Respected Partner" (Limited Cooperation)	C "Fortress Europe" (Open Hostility)
Governance	Expanded EU Sustainable, smart and inclusive, global leader	Stable EU, Competitive, clean and secure	Deferring EU, competitiveness and security first
Production and innovation systems	Global inter-dependent networks	Strategic autonomy	Autonomy (close to autarchy)
Trade	EU leadership in global trade (excluding terrorist etc countries)	EU-driven strategic partnerships with third countries	Functional Single Market Trade wars
Security and defence	EU with expanded NATO	EU with smaller but united NATO	European defence alliance Direct conflict with a hostile pole

How could the EU *decarbonise* the energy, transport, and hard-to-abate industries in each of the three context scenarios *in 2040*?

How would ...

... policies support decarbonisation?

... production and innovation systems lead decarbonisation?

... would trade contribute to decarbonisation?

... would security and defence contribute to, or hamper, decarbonisation?

Scenario work in thematic areas (in groups)

Energy Security and Supply	Dependency on imported fossil fuels
	Access to alternative energy sources, especially hydrogen
	Energy infrastructure (Cross-border)
Critical Raw Materials (e.g. for renewables and EVs)	Diversification of supply chains and partnership*ps*
	Domestic production and processing
	Circular economy and substitution
Manufacturing in Hard-to-Abate Sectors (e.g. steel, cement and chemicals)	Energy-intensive manufacturing processes
	Supply chain footprint and transparency
	Defence and security needs

Roadmapping

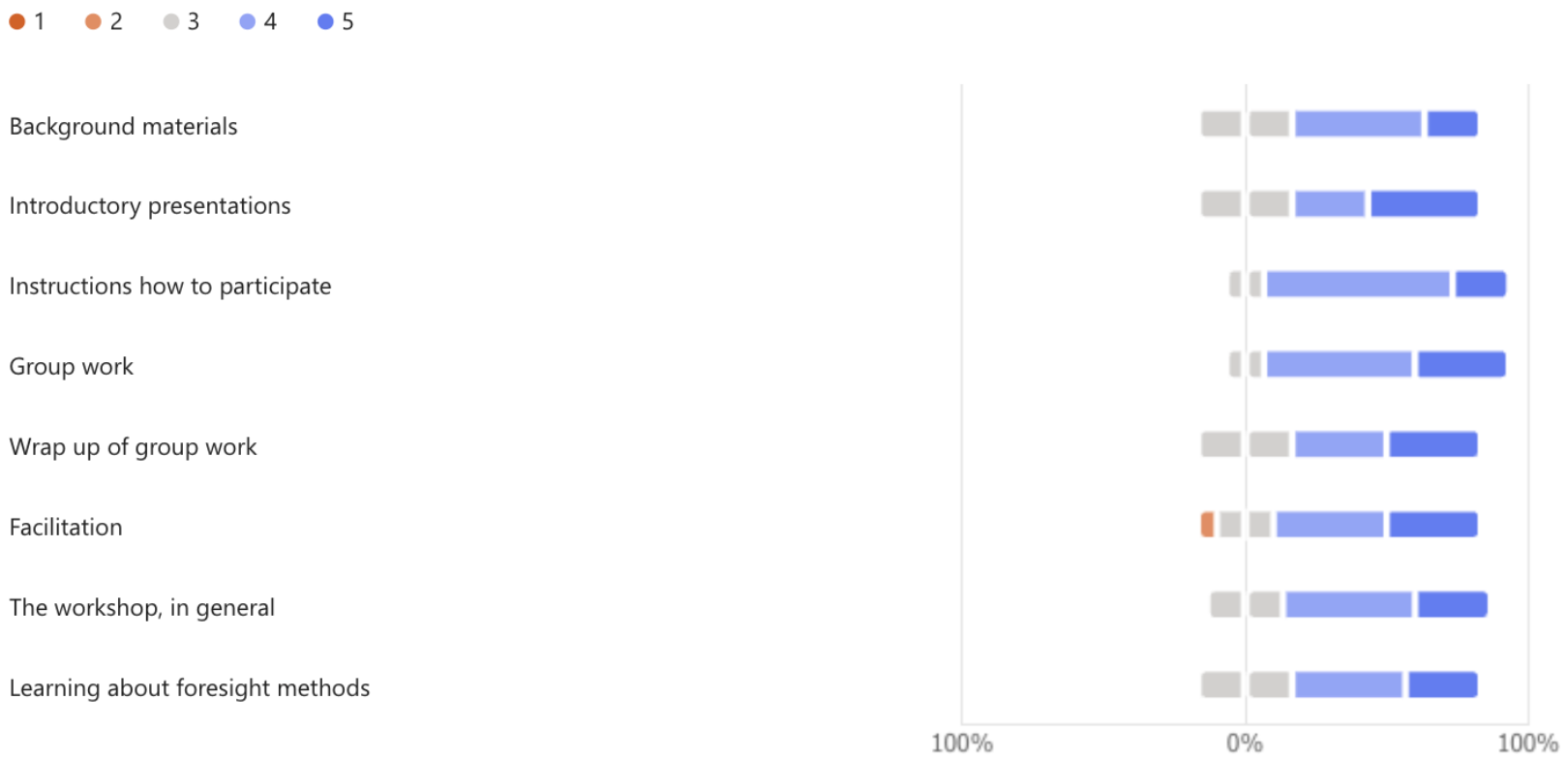
Dynamic, resilient and decarbonised EU	A "Thriving Europe" (Genuine Collaboration)	B "Europe, Respected Partner" (Limited Cooperation)	C "Fortress Europe" (Open Hostility)
1) Energy Security and Supply		X	
2) Critical Raw Materials		X	
3) Manufacturing in Hard-to-Abate Sectors		X	

Roadmapping R&I needs and opportunities

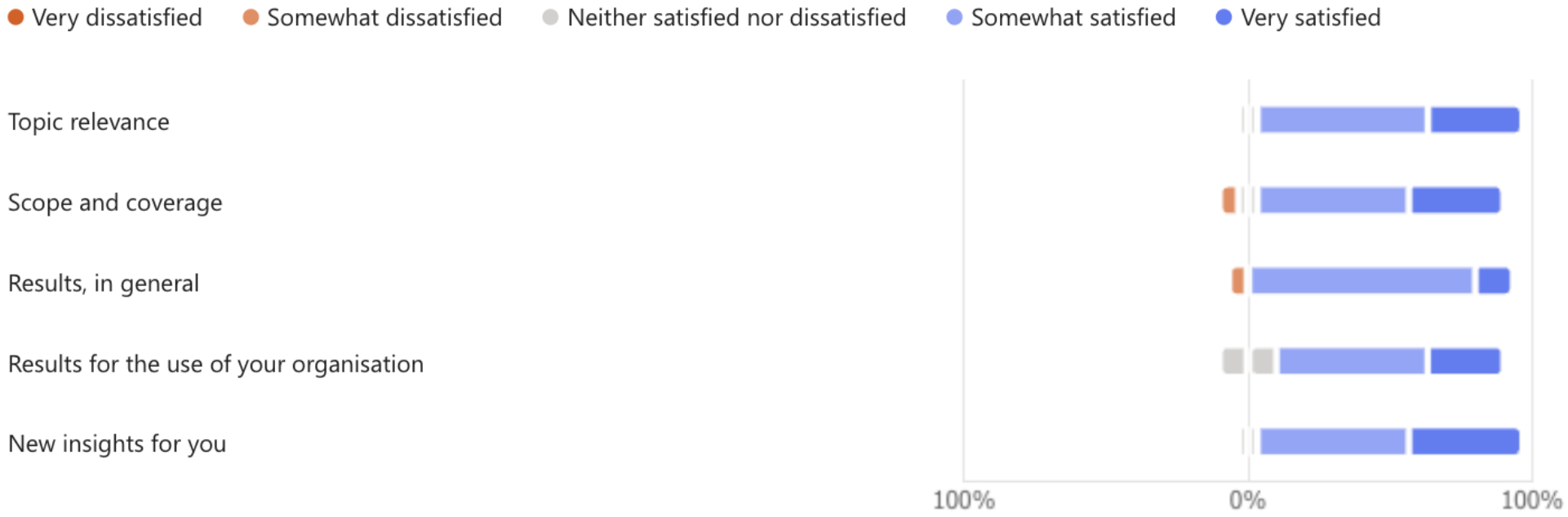
"Europe, Respected Partner" (Limited Cooperation)

	Present	2030	2040 and beyond
Societal drivers and barriers			
Policy and governance			
Market deployment of industry applications			
Science and technology			

How satisfied are you with the following aspects of the organisation of the workshop? (1 extremely dissatisfied > 2 dissatisfied > 3 neither satisfied nor dissatisfied > 4 satisfied > 5 extremely satisfied)



How satisfied are you with following aspects related to the topic and outcomes of the workshop?



Discussion

- Context scenarios
  - Require scenarios to be specific about the context
  - Facilitate multi-level analysis
  - Facilitate thematic discussions also by comparing the scenarios and working on multiple scenarios at the same time
  - Participants preferably with *diverse* backgrounds and competences
- Roadmapping
  - Help connect the work to the organisational challenges of the participants
  - Participants preferably with *specific* thematic and technical competences

Thank you

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