



Energy
Transitions
Commission

Navigating Low-Carbon Technology Trade –Local vs. Global Supply Chains and Key Priorities in the ETC's 2025 Regional Programme

*ETC Commissioners Meeting
20th March 2025*

Aims of the regional program translate into...

1

Accelerate the local energy transition

- **Produce insights** to set the vision of a Net Zero region, show pathways to decarbonize hard to abate industry sectors, and provide solution set to implementation barriers
- **Influence strategy** via local partners and ambassadors

2

Enhance ETC's global perspectives & credibility

- **Diversify the perspective** of the global ETC vision and key messages
- **Stress test ETC global analyses** to address analytical gaps
- **Create bottom-up vision** of global transition

3

Grow ETC membership

- **Attract new members**, considering both firms with global activities and organizations with business in specific regions

key focus areas for 2025



Expand insights to new, key regions



Enhance networks in existing key regions



Enhance local priorities in existing regions



Expand insights across all regions



A reminder of the ETC regional network

	India	China	Europe	Australia	USA	Canada	Japan	Africa	Indonesia	Brazil
Est.	2017	2018	2018	2019	2020	2021	2021	2022	2023	2024
Knowledge Partner(s)	teri CEEW THE COUNCIL RMI	ENERGY FOUNDATION 能源基金会 清华大学 Tsinghua University RMI	SYSTEMIQ European Climate Foundation	Climateworks CENTRE MISSION POSSIBLE PARTNERSHIP	Duke NICHOLAS INSTITUTE for ENERGY, ENVIRONMENT & SUSTAINABILITY WORLD RESOURCES INSTITUTE	The Transition Accelerator IVEY foundation	IF 東京大学未来ビジョン研究センター Institute for Future Initiatives The University of Tokyo	WORLD RESOURCES INSTITUTE	IESR Institute for Essential Services Reform	SYSTEMIQ
Initiative	Energy Transitions India		Energy Transitions Commission	Australian Industry Energy Transitions Initiative	Energy Pathways USA	ELECTRIFYING CANADA AN INITIATIVE OF THE TRANSITION ACCELERATOR	CENTER FOR GLOBAL COMMONS	African Energy Dialogues		
Insights	Achieving Green Steel The Potential Role of Hydrogen in India	China 2020: A Policy-Driven, Rich Zero-Carbon Economy Pursuing Zero-Carbon Steel in China	Unlocking the First Wave of Breakthrough Steel Investments	Pathways to decarbonisation Setting up industrial regions for net zero	Pathways to Net-Zero for the US Energy Transition	The Cool Way to Heat Homes		A path across the Rift		
									In-progress	In-progress



Primary focus on Brazil, Canada, India, and Indonesia



Brazil

- Systemiq Brazil, ETC, iCS
- Re-examination of Brazil's latest NDCs
 - Interrogation of bio-centric decarbonization pathways
 - Framing of Brazil within the global context, rather than as a standalone country
- Run up to COP30



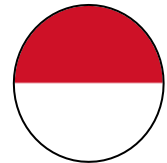
Canada

- Transition Accelerator + ETC
- Canada specific look at grids + bio
 - Focus on types of forests for bio-supply, comparing higher latitude countries like Canada with Brazil
 - Integration of high shares of renewables into Canadian grid



India

- TERI and ETC
- Examination of agriPV pilots in India
 - Land availability for solar generation
 - Interaction with distribution networks
 - Best practices around agriculture
- 8-10 months, starting end Q2

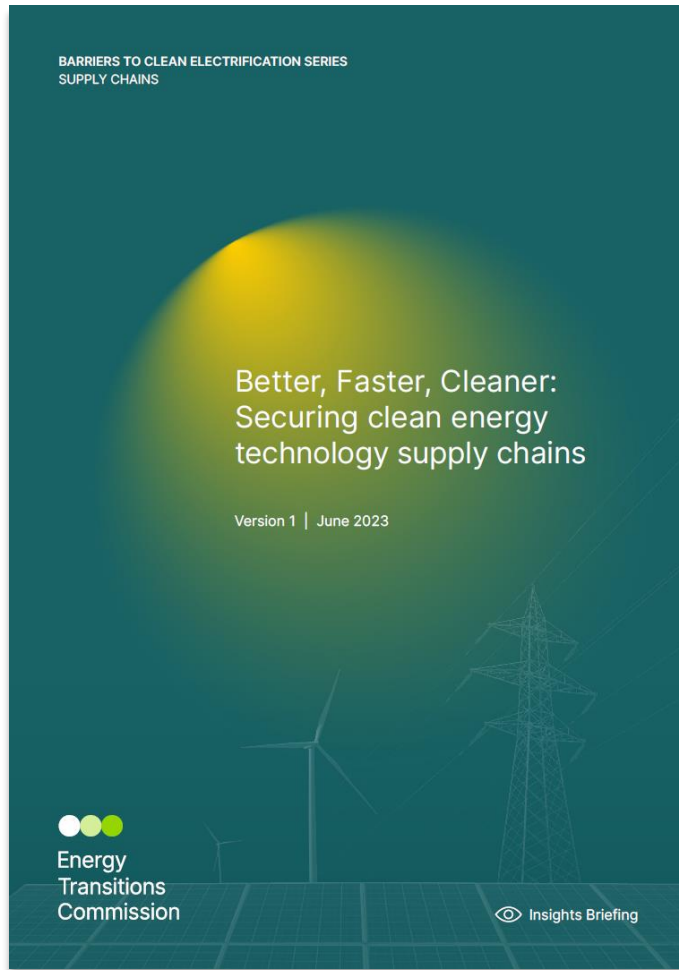


Indonesia

- IESR and ETC done under Indonesia Climate and Growth Dialogue (ICGD) platform of IISD
- Systems-wide approach to Net Zero
 - Update of IESR power system analysis in light of latest solar and battery costs
 - Implications for energy security and economic growth



Reminder: the ETC looked at clean energy supply chains in 2023



June 2023

Conclusion: at the global level, there are no inherent barriers to the scale-up of clean energy supply chains.

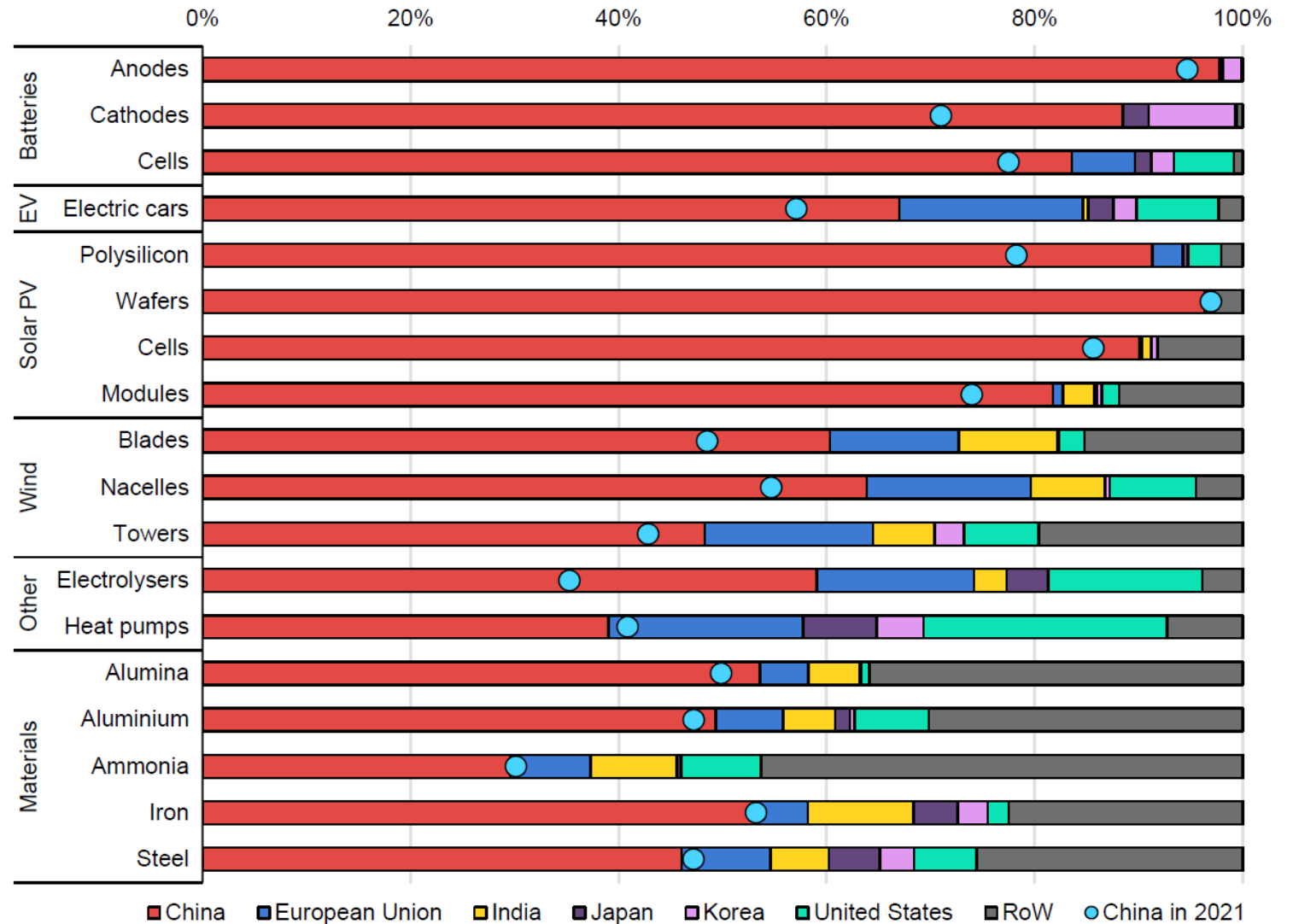
However, three **cross-cutting risks** require **clear actions** from policymakers and industry:

- 1** There **could be tight markets for some key input materials**, notably for some raw materials (lithium, copper) as well as shorter-lived volatility or delays for some more complex components.
- 2** There are **specific environmental and social risks** especially relevant to solar PV and batteries.
- 3** There is a **high degree of concentration of production** across many steps of clean energy technology supply chains.
Focus of new briefing



China's dominance of clean technology supply chains has grown since 2021

Installed global manufacturing capacity by country/region 2023



IEA. CC BY 4.0.

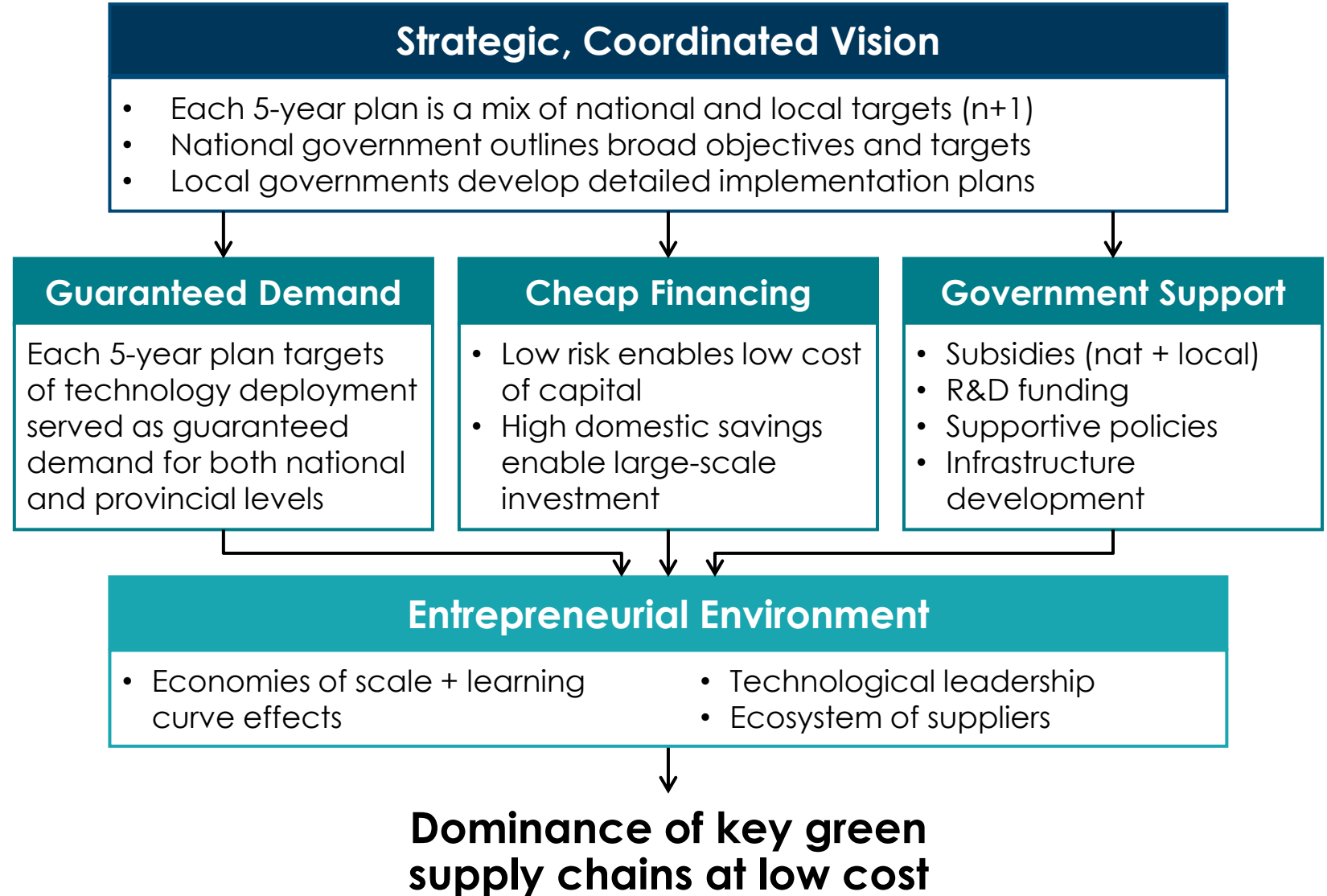
Source: IEA (2024) *Clean Technology Perspectives*



Key drivers of China's clean tech advantage

Common beliefs are that low prices are due to **low environmental standards and lower labour costs**.

But the **importance of these have declined** with rising environmental standards and increasingly automated manufacturing



Principles for building diversified or local supply chains

Diversifying supply chains is a legitimate, rational objective

Major countries will not accept near 100% supply of key clean technologies from any single country, China or other

100% autarky is neither realistic nor desirable

Countries must aim for significant local know-how and capacity

- EU Net Zero Industry Act, India Production Linked Incentives, and US IRA (today)
- Brazil local content requirements (early 2000s)
- China inward investment (1990s)

Imports and trade remain crucial to transition

Welcome foreign products where there are no local substitutes at a good price, or where low cost is particularly important at this stage of the transition



Thinking straight about “security”



ENERGY SECURITY

- Risks of clean tech imports much smaller than for fossil fuel imports
 - Fossil assets require continuous supply via ships, pipelines
 - Once installed, clean tech assets provide energy services over asset lifetime



INTELLIGENCE / MILITARY SECURITY

- Need for analysis-based approach
 - Semiconductors are militarily important, solar panels are not
 - Extent of remote software control of technology remains important factor



Potential for European supply chain development: considering the fundamental economics for two technologies

SOLAR PV

- Standardized, mass-produced commodity with minimal variation, customization needed for different markets
- Trivial existing workforce in Europe
- Current cost of 9 cents/watt in China v. 25 cents/watt in the US/ EU
- Current manufacturing capacity in China greater than total global demand

Buy from the cheapest source to keep transition costs as low as possible

Electric Vehicles / Batteries

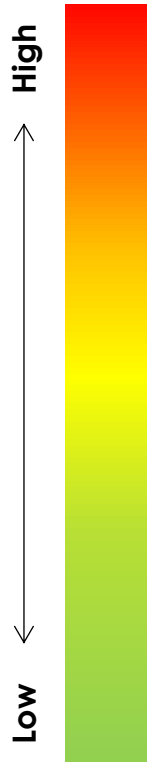
- Highly customizable, with variations in design, regulation, and consumer preference across different markets
- Large EU auto industry with 13.8m employees
- Strong economic case for producing batteries closer to vehicle assembly plants

Highly desirable to develop European EV and battery industry **if cost effectively**



Intelligence / military security concerns: a spectrum of issues

Degree of concern



- Grid control software
- Autonomous vehicles
- Remotely controlled battery management systems
- Electric vehicles
- Battery cells and packs
- Electrolysers
- Solar PV

Issues need to be assessed on a case-by-case basis

Risks can be managed by having specific conditions included in government policies, e.g. CFIUS regulation in US limited Chinese controlled battery companies to pack manufacture, excluding remote battery management



Focus on location, not ownership

Foreign owned companies can provide employment and valued added within country



Foreign-owned auto companies in the UK (e.g., Toyota, Nissan, BMW) provide over 70,000 jobs

Inward investment can be key driver of technology transfer and skills development



Successfully used by China starting in the 1990s

- Difficult to catch up from far behind without learning from leading companies



- Failure of BritishVolt and Northvolt


Multiple options to prevent assembly only operations and ensure supply chain and skill development, e.g. joint ventures, local content requirements, or technology license agreements



US Inflation Reduction Act made access to battery manufacturing subsidies dependent on gradually rising requirements for local content percentages



Clean tech manufacturing growing in Europe

 electrive.com

BYD considers third European plant and battery factory

Chinese manufacturer BYD wants to build another plant in Europe since the EU now collects special tariffs on electric vehicle imports from...



 Batteries News

CATL – German battery plant powers up local green transition

CATL - German battery plant powers up local green transition A new plant set up by China's leading battery maker Contemporary.



 ESG Today

Stellantis, CATL to Build \$4.3 Billion Battery Plant for Affordable EV Models

The new plant will enable the company to offer more high-quality, durable and affordable battery-electric passenger cars, crossovers and SUVs.



 eeNews Europe

Europe approves €48m for Envision AESC French battery gigafactory

The European Commission has approved a €48 million grant for a second battery gigafactory in France to supply car maker Renault.



The role of tariffs and subsidies

Time-bound subsidies to build local industries, not permanent tariffs

- Permanently protecting structurally higher-cost industries increases consumer costs and slows energy transition

WTO compliant approach to setting tariff level based on analysis of apparent scale of current subsidy



Tariffs on EVs imported from China:

- Following detailed analysis looking at the level of current subsidy, EU tariffs set between 17% and 45%
- UK not imposing tariffs
- US tariffs increased from 25% to 100%
- Canada increased from 6% to 100%
- Australia has 5% tariffs

