Clean Fuels Development in the Southwest and Related Topics

Figure 2

RoundTable Agenda 25 March 2025

Short Round the Room Introductions

Name, Company, Where you sit in the value chain

Discussion Topic:

Who's Leading the Clean Energy Evolution—and What That Means for U.S. Industry

Roundtable Prompts

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SHINe

In the spirit of co-opetition, the Industry Roundtable aims to build community and establish a shared understanding of challenges, opportunities, gaps, and needs for a commercially viable clean hydrogen economy in the Southwest and related means to achieve deep decarbonization

Figure 2

DISCUSSION TOPIC

Who's Leading the Clean Energy Evolution—and What That Means for U.S. Industry

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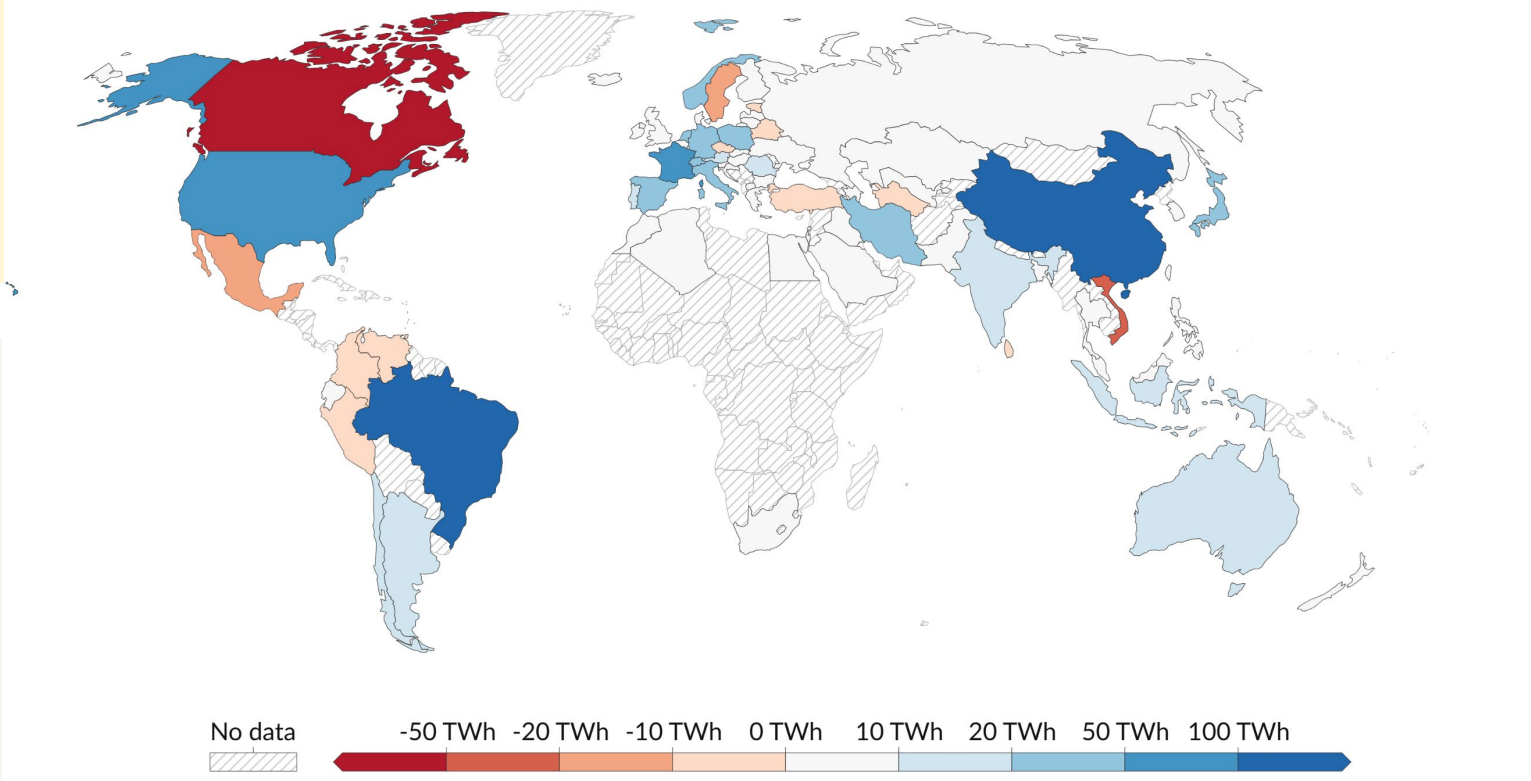
Global Momentum in Clean Energy

Increase in Renewable Energy Capacity: Significant global increase in renewable energy capacity, led by countries committed to sustainable energy practices.

Statistical Growth: Robust growth over the last decade, marking a shift towards more sustainable energy solutions.



Annual change in renewable energy generation, 2023 From Our World in Data

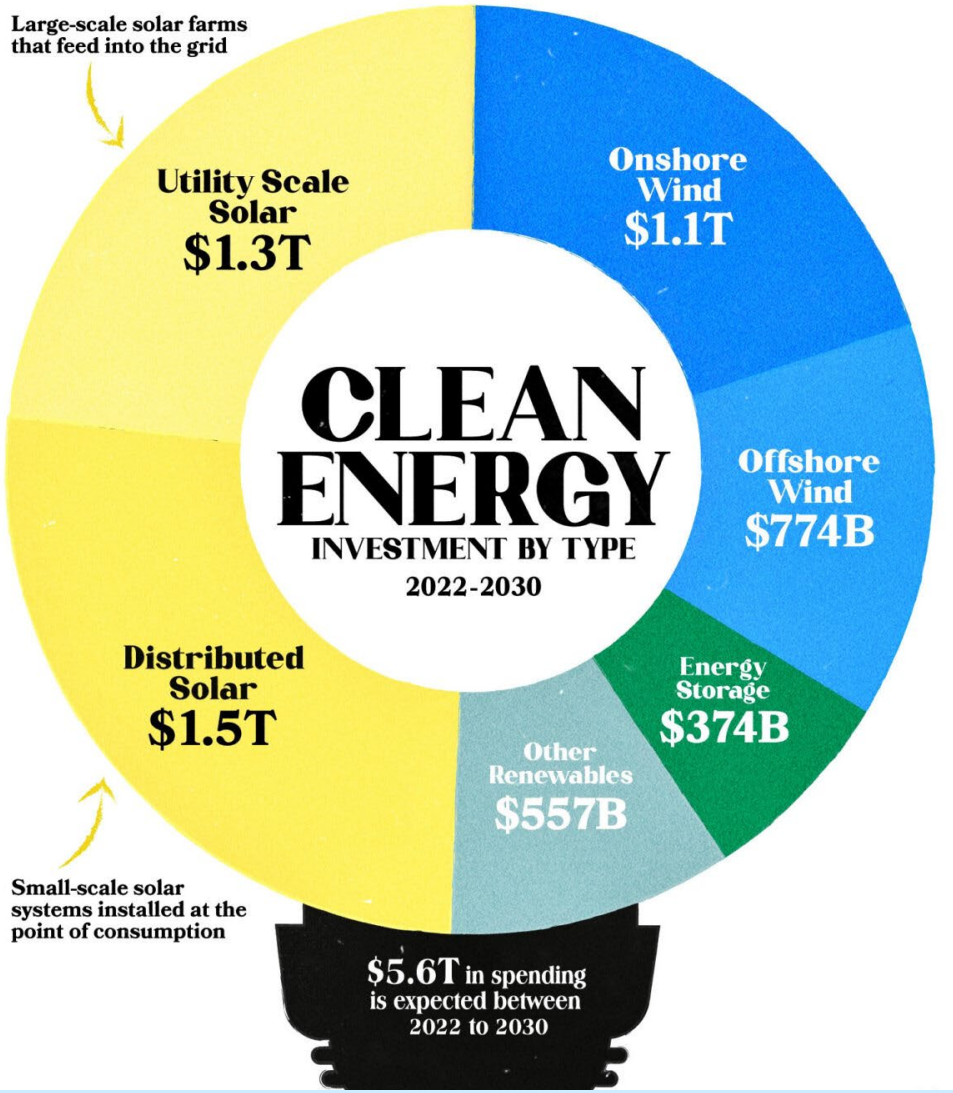
Clean Energy Investment

From BloombergNEF: $1.8T in 2023 was invested in low-carbon energy

To meet an aggressive goal of carbon neutral by 2050: Global estimate of $4.8T annually from 2024 to 2030 – Nearly $30T

Scale and Speed: These figures highlight both the scale of current investments but also the substantial increase necessary

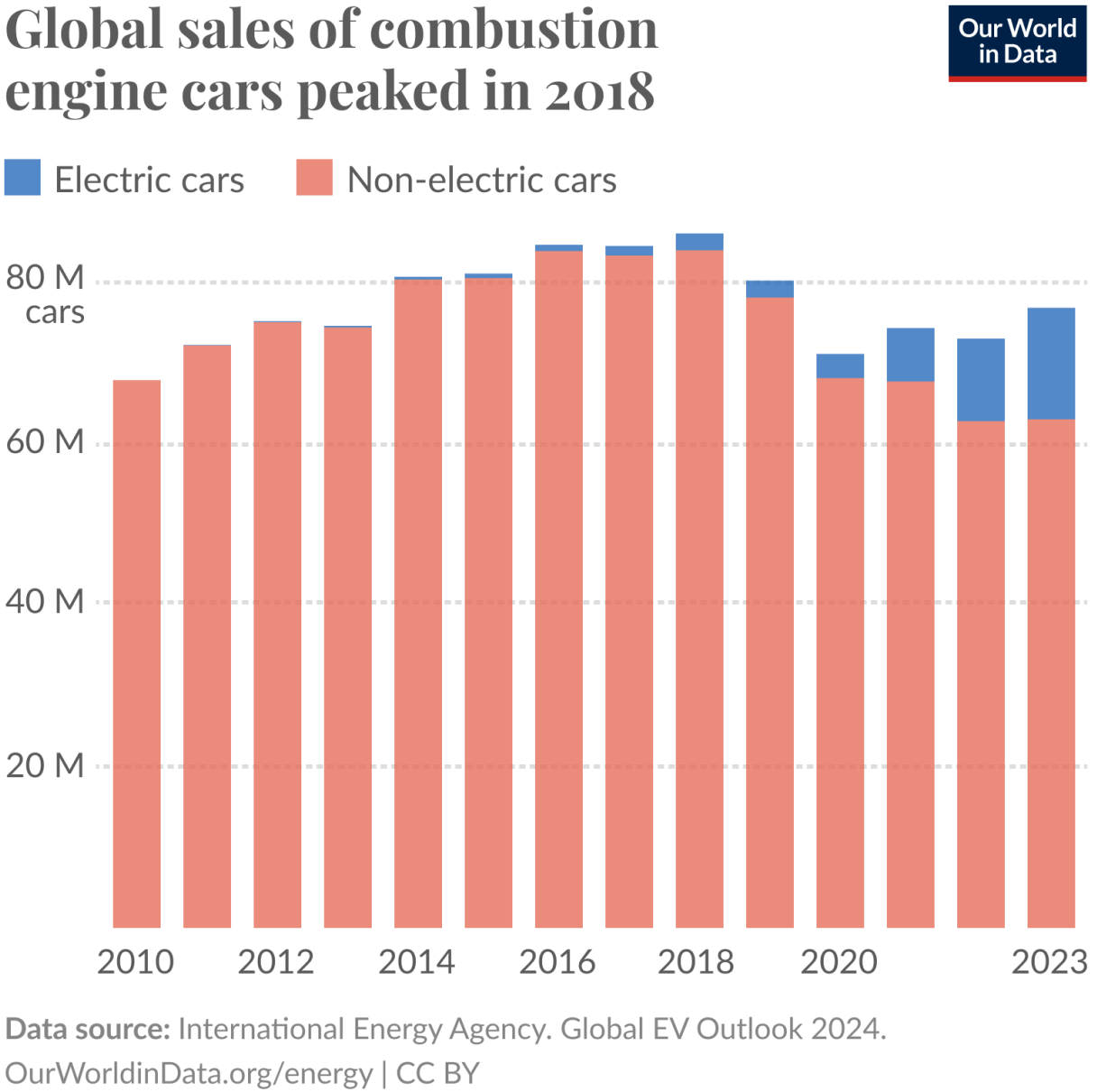
Includes, renewable energy, electric vehicles, hydrogen, carbon capture, etc. Need a lot of tools in the toolbox



The Visual Capitalist Decarbonization Channel

Global Vehicle Sales Trends

- **2018 peak, signaling the start of a long-term structural shift in the auto market.**
- **Total global vehicle sales (including EVs) declined in 2019 and 2020, driven by supply chain issues, COVID-19, and slowing demand in key markets.**
- **Since 2021, sales are gradually recovering, but overall volumes remain below the 2018 peak.**
- **Battery electric vehicle (BEV) sales surging, reaching record levels in 2023—driven by policy, technology advances, and consumer interest.**
- **BEVs accounted for nearly 1 in 5 cars sold globally in 2023, according to the IEA.**
- **The combination of declining ICE sales and rising EV market share suggests a clear pivot in long-term transportation trends.**
- **This shift has major implications for charging infrastructure, power demand, critical minerals, and industrial strategy.**



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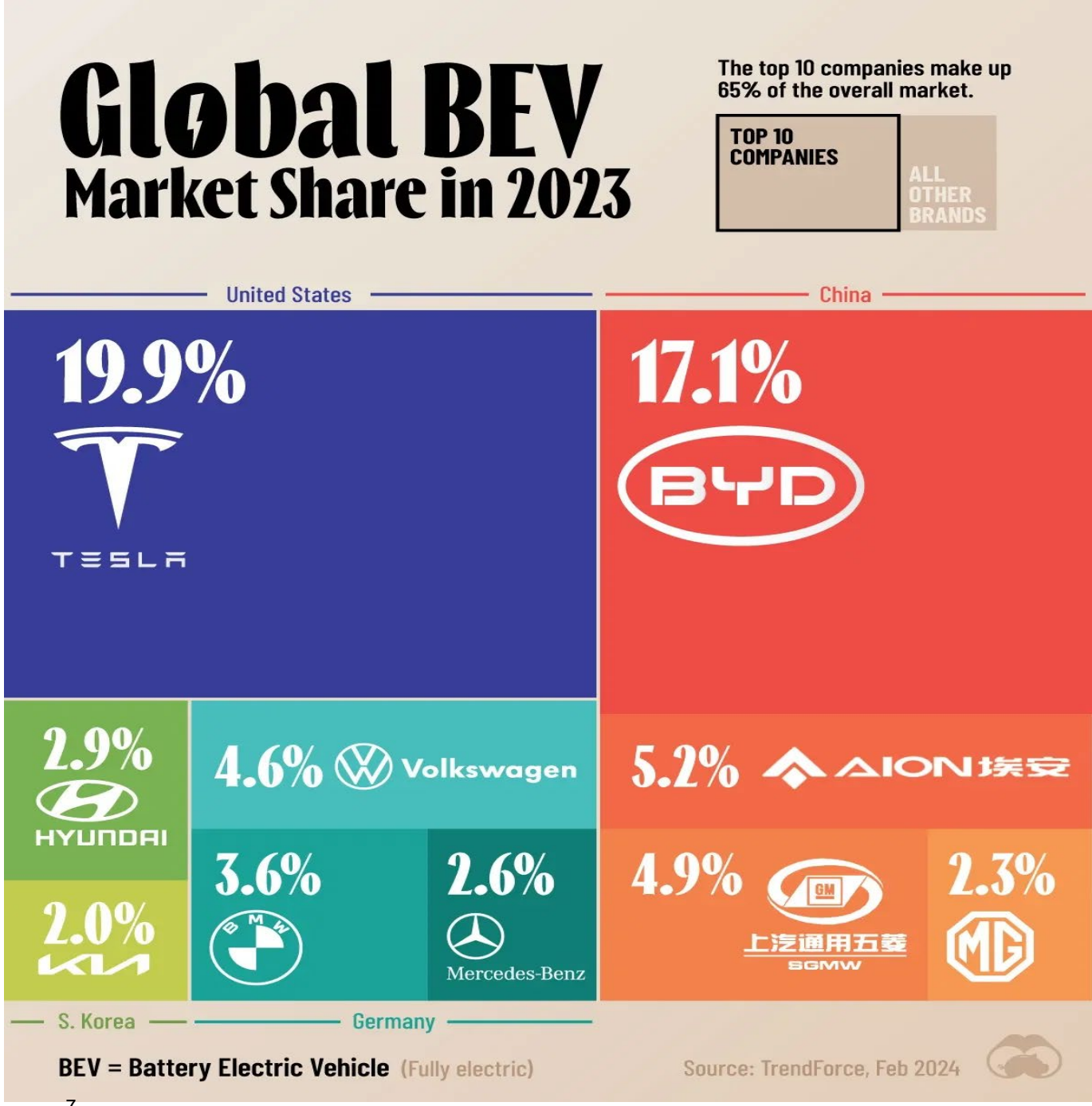
Top Global BEV Market Shares in 2023

- Tesla maintained its lead in the global battery electric vehicle (BEV) market in 2023 with a 19.9% market share, delivering approximately 1.8 million vehicles.
- BYD closely followed, achieving a 17.1% market share by selling around 1.55 million BEVs. This reflects BYD's strong performance in China and its expanding international presence.
- The combined market share of Tesla and BYD accounted for 37% of global BEV sales in 2023, underscoring the significant influence of these two manufacturers in the electric vehicle industry.
- Projections for 2024 indicate that BYD may surpass Tesla in BEV sales, driven by its rapid growth and strategic market expansions.



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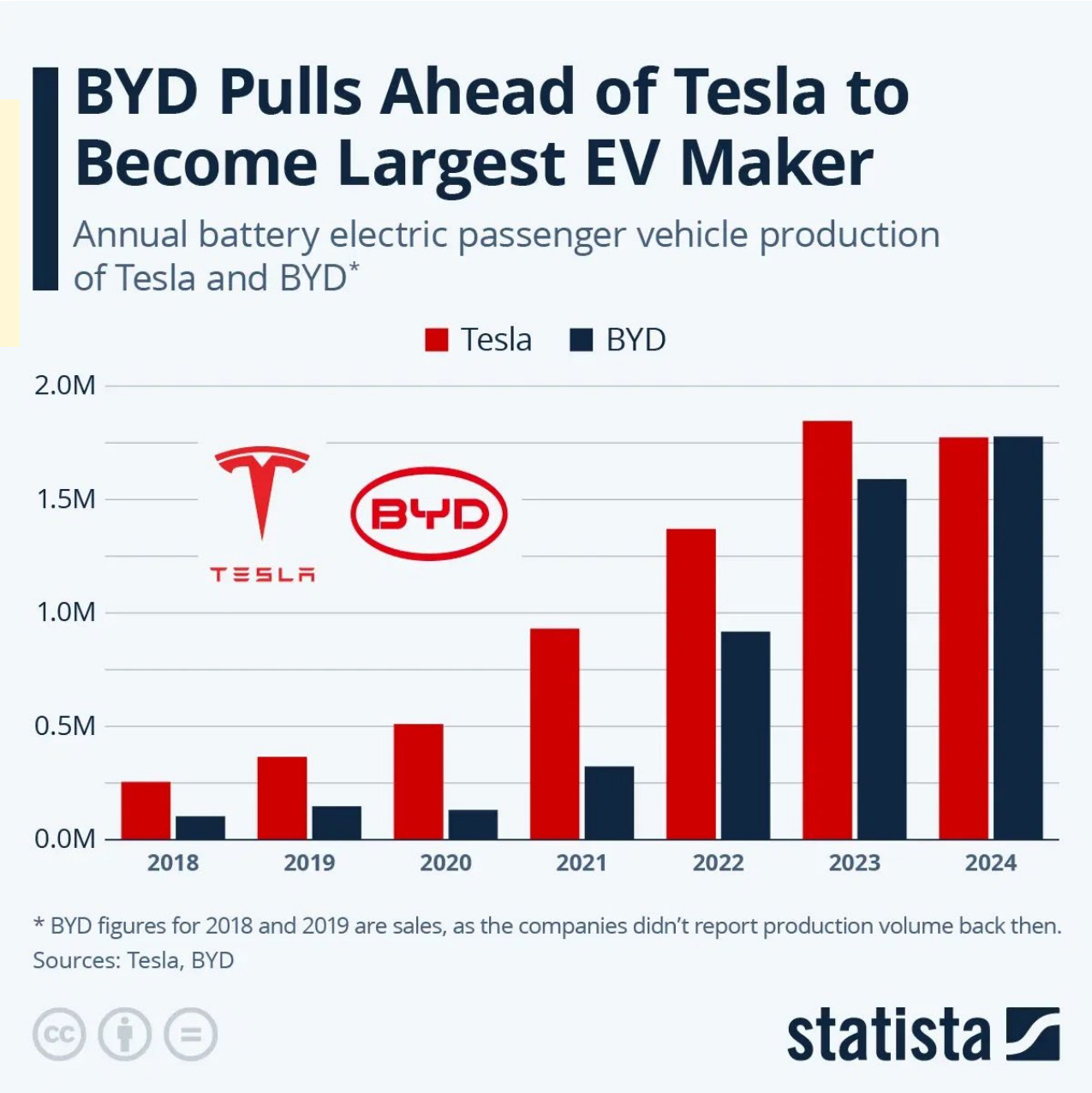
A Turning Point in Global EV Leadership

- **Tesla led global BEV sales from 2018 through 2023, steadily growing from around 250,000 vehicles in 2018 to over 1.8 million in 2023.**
- **BYD's BEV sales grew more rapidly, starting well behind Tesla in 2018 but closing the gap year by year due to aggressive domestic expansion and rising global exports.**
- **In 2024, BYD surpassed Tesla in total BEV sales, marking a symbolic shift in global electric vehicle leadership from the U.S. to China.**
- **This trend reflects China's growing dominance in EV manufacturing, supported by strong industrial policy, robust domestic demand, and vertical integration across the battery supply chain.**



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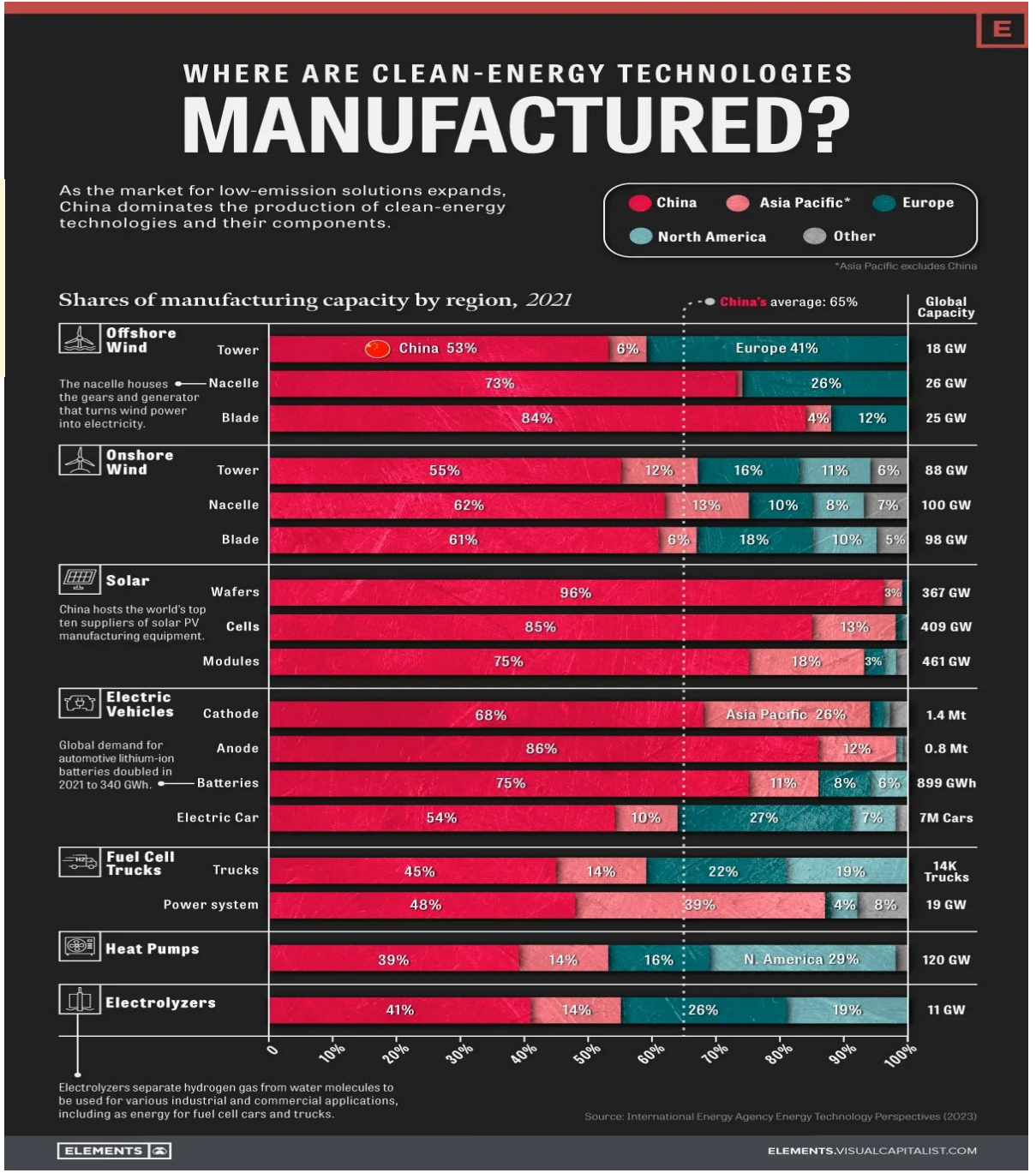
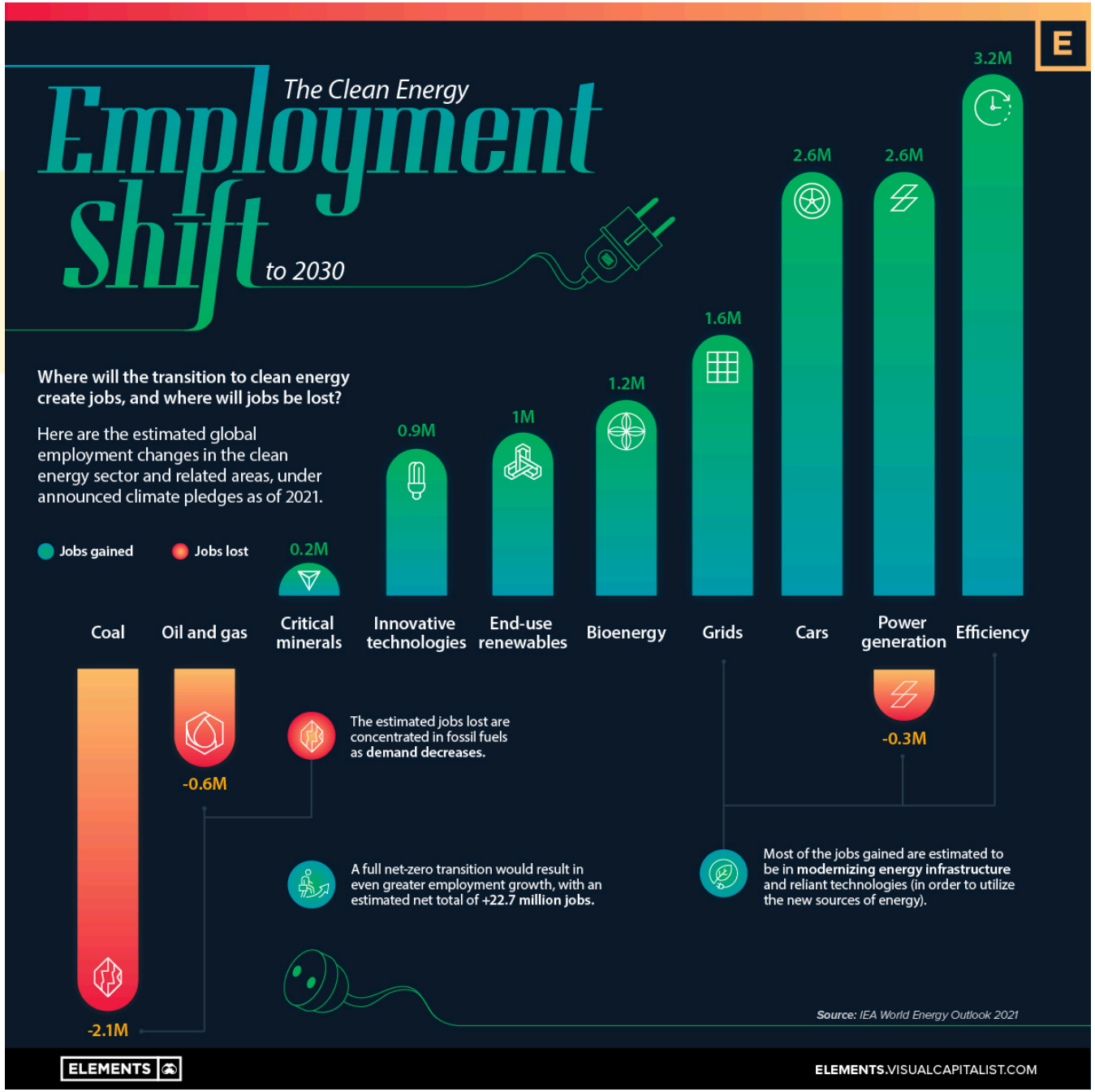
Geographic Distribution of Clean Energy Supply Chains

- **China dominates global manufacturing capacity** for many key clean energy technologies—including solar panels, batteries, wind turbines, and critical minerals processing.
- China's leadership stems from **early investment, scale, supply chain integration, and strong domestic demand**—all supported by national industrial policy.
- The U.S. and EU trail significantly, but are attempting to **rebuild capacity** through industrial strategies like the Inflation Reduction Act (IRA), EU Green Deal Industrial Plan, and now Tariffs
- This imbalance raises **strategic concerns** about supply chain security, economic competitiveness, and the resilience of the energy evolution in other regions.



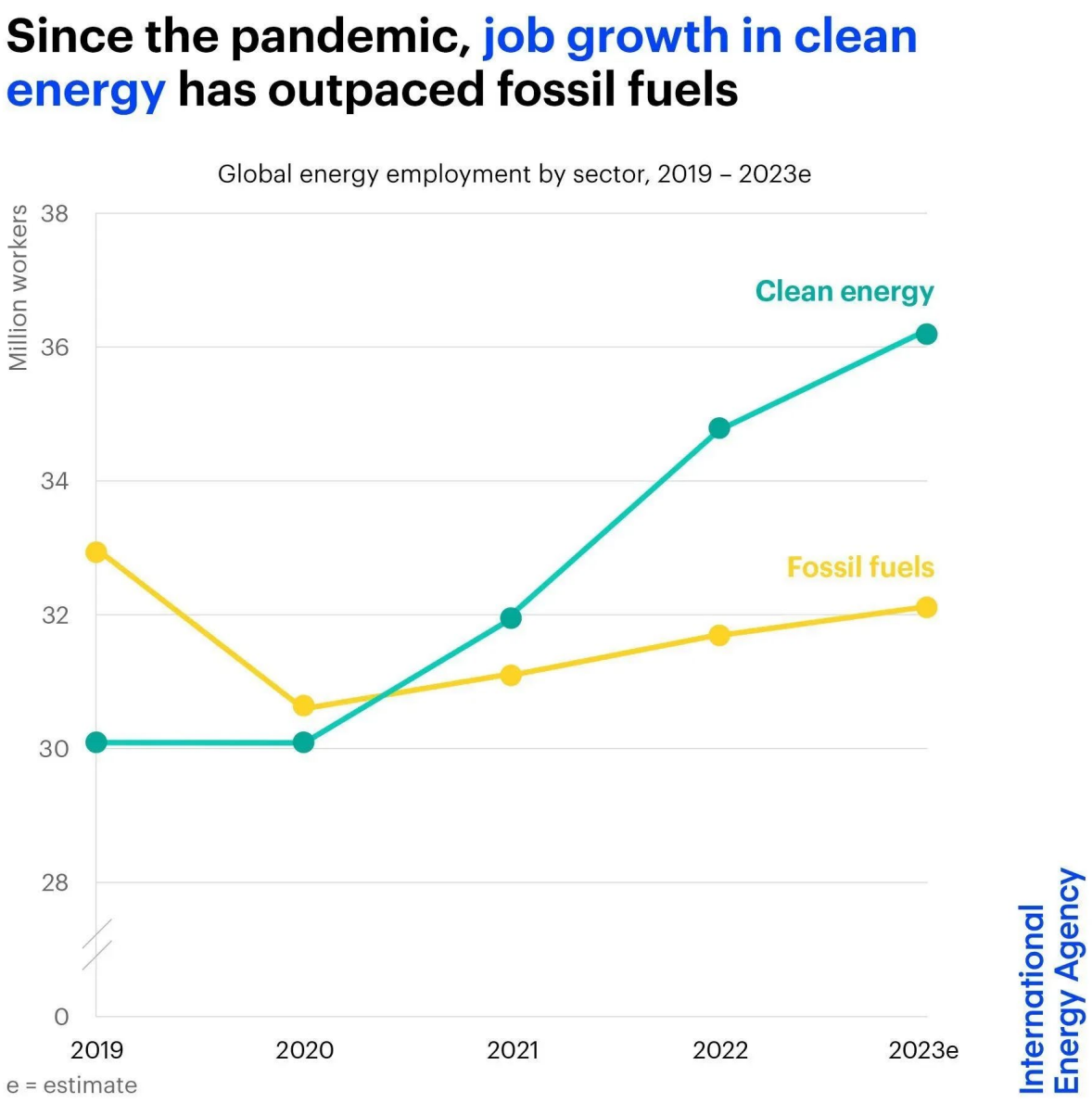
Clean Energy Job Gains and Losses by 2030

- The global clean energy evolution is expected to create a net **increase in energy jobs** by 2030, with millions of new roles in renewables, EVs, grids, and energy efficiency.
- Solar and wind lead job growth[10], followed by battery manufacturing, EV supply chains, and transmission infrastructure.
- Some regions and sectors—especially coal mining and traditional fossil fuel refining—will face job declines, emphasizing the importance of **planning**.
- **Reskilling and workforce development** will be critical to ensure displaced workers can access emerging opportunities in clean energy industries.
- These job shifts represent not only an environmental imperative but also a **major industrial and workforce opportunity** if managed well.



Clean Energy Jobs Surpass Fossil Fuel Jobs Globally

- Global employment in clean energy surpassed fossil fuel jobs between 2022 and 2023, marking a **significant milestone** in the energy evolution.
- **Clean energy jobs have grown steadily** since 2019, led by solar, wind, EV manufacturing, and grid modernization.
- Meanwhile, fossil fuel employment has remained flat or declined, particularly in coal and oil extraction, as **investment shifts toward low-carbon technologies**.
- This trend reflects a rebalancing of the energy workforce, highlighting the **growing economic footprint of clean technologies.**
- Policy stability, supply chain resilience, and equitable labor practices will shape whether clean energy jobs remain **high-quality and widely accessible**.



U.S. Policy Leadership – and Uncertainty

- IRA & IIJA triggered over $300 billion in private-sector clean energy commitments
- Implementation delays, political challenges, and regulatory uncertainty threaten momentum
- Risk: Losing competitiveness in clean tech, jobs, and industrial resilience

Prompts

- **What is one signal that you are watching today that could shape the clean economy future?**
- **How do U.S. industries stay competitive if federal momentum slows?**
- **What role do regional economies like Arizona play in leading clean energy growth?**
- **How can industry drive investment, infrastructure, and innovation in uncertain** times?

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Thank you for your participation

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