
Enter the Dragon
How China has risen to the top of the world of tech
(without the US – or Wall Street! – realizing it!)

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How China has risen to the top of the world of tech

(without the United States – or Wall Street! – realizing it!)

South African Institute of International Affairs

Michael Power, Kaskazi Consulting

2nd September

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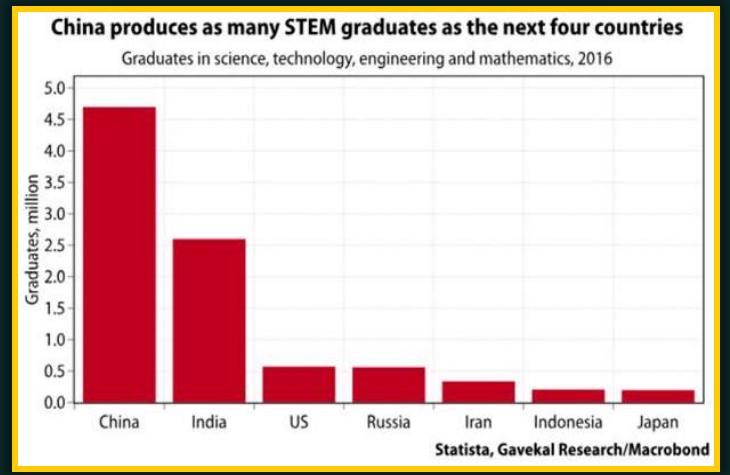
Let's start at the very beginning, a very good place to start…

Of Nature's 2025 *'Top Research Universities in the World'*…

…15 out of 22 are in China

1	Chinese Academy of Sciences, China	+6.2%
2	Harvard University, (USA)	-17.5%
3	University of Science and Technology of China , China	+12.5%
4	Zhejiang University, China	+18.0%
5	Peking University, China	+12.5%
6	University of Chinese Academy of Sciences, China	+5.7%
7	Tsinghua University, China	+8.5%
8	Nanjing University, China	+5.2%
9	Max Planck Society, Germany	-0.4%
10	Shanghai Jiao Tong Universit), China	+19.9%
11	Sun Yat-sen University, China	+14.1%
12	Fudan University, China	+21.6%
13	French National Centre for Scientific Research, France	-9.8%
14	Helmholtz Association, Germany	-5.8%
15	Sichuan University, China	+10.6%
16	Stanford University, USA	-4.3%
17	Massachusetts Institute of Technology, USA	-12.3%
18	University of Oxford, UK	-3.8%
19	Jilin University, China	+38.3%
20	Nankai University, China	+8.4%
21	Huazhong University of Science and Technology, China	+5.9%
22	Shandong University, China	



Every Western University saw their ranking fall, every Chinese university saw their ranking rise

Science & technology | Research rankings

Are China's universities really the best in the world?

Nature's prestigious index says yes

The Economist

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…then arrange this academic excellence into categories using ASPI's Critical Technology Tracker

Of 64 critical technologies, 57 are now led by China

Number of sectors at No. 1	2007	2024
	60	7
	3	57

ASPI has tracked critical technologies since 2023, backdating their ranking methodology to 2007

ASPI
AUSTRALIAN STRATEGIC POLICY INSTITUTE

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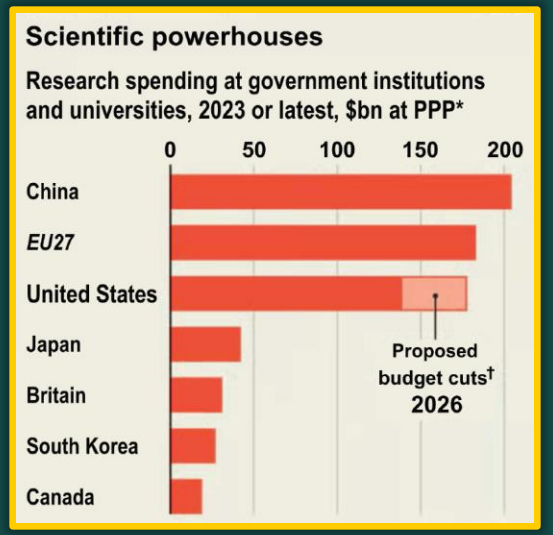
There is SO much more to tech leadership than market cap

WHERE CHINA LEADS THE WORLD IN CRITICAL TECHNOLOGIES (ASPI)		
Nanoscale materials & manufacturing	Protective cybersecurity technologies	Advanced undersea wireless communication
Wide & Ultrawide bandgap semiconductor technologies	Advanced radiofrequency communications (5G & 6G)	Advanced integrated circuit design and fabrication
Smart materials	Supercapacitors	Mesh networks
Advanced composite materials	Electric batteries	Coatings
Novel metamaterials	Photovoltaics	Adversarial AI
Air-independent compact energy generation	Multispectral and hyperspectral imaging sensors	Machine learning (inc. neural networks and deep learning)
Advanced explosive & energetic materials	Directed energy technologies	Genome and genetic sequencing and analysis
Nuclear energy	Biofuels	High Spec machine processes
Advanced magnets & superconductors	Critical minerals extraction & processing	Hypersonic detection, tracking, characterization
Continuous flow chemical synthesis	Post-quantum cryptography	Autonomous systems operation
Advanced protection	Quantum communications	Quantum Sensors
Synthetic biology	Advanced robotics	Inertial navigation systems
Advanced optical communications	AI algorithms and hardware accelerators	Advanced aircraft engines and hypersonics
Biological manufacturing	Photonic sensors	Radar
Distributed ledgers	Sonar and acoustic sensors	Magnetic Field sensors
Advanced data analytics	Hydrogen and ammonia for power	Electronic warfare
Novel antibiotics and antivirals	Autonomous systems operation technology	Autonomous underwater vehicles
High performance computing	Space launch systems	Gravitational-force sensors
Drones, swarming and collaborative robots	Additive manufacturing including 3D printing	Nuclear waste management and recycling
Advanced optical communications		

WHERE THE US LEADS
Quantum computing
Atomic clocks
Natural language processing (including speech and text recognition and analysis)
Vaccines and medical countermeasures
Genetic Engineering
Nuclear Medicine and Radiotherapy
Small satellites

Remember DeepSeek? UNLISTED



There is SO much more to AI than improving service sector apps

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China is now attracting talent from abroad, US is losing it

‘Too good to refuse’: why top-flight insect detective Jason Chapman chose China

British behavioural ecologist and entomological radar specialist will lead research into smart agriculture, climate change and food security

Star mathematician Joshua Zahl leaves Canada for China after solving century-old puzzle

The maths luminary is joining Nankai University as a full-time chair professor, months after publishing findings hailed as ‘magical’

OPINION
THE OPINIONS

The World’s Best and Brightest Are Moving, but Not to America

Immigration isn’t a crisis. It’s the future.

July 9, 2025, 5:01 a.m. ET

Webpage views of Phd programmes April 2025, yoy change

Respected mathematician Kenji Fukaya leaves US to teach at China’s Tsinghua University

In a video, Fukaya said Chinese students reminded him of Japanese students’ strong focus and dedication to studying mathematics

French Nobel-winning laser scientist Gérard Mourou joins China’s top university

The renowned physicist is expected to play a crucial role in setting up a cutting-edge international research institute in Beijing

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Chinese scientists and student abroad are returning home

How US suspicion is pushing Chinese researchers into Beijing's arms

Trailblazing mathematician Yitang Zhang leaves US for job at Chinese university

Top neuroscientist Dan Yang leaves US for China, reunites with mentor-husband Mu-ming Poo

…and it is not just the professors leaving: foreign students are being evicted from/leaving the US too

Chinese brain drain 'great loss' for US, Nvidia CEO Jensen Huang says

Trump visa shock rattles Chinese students, shakes fragile ties

Trump administration formally subpoenas Harvard University over foreign student information

Science & technology | Death by a thousand cuts

Trump's attack on science is growing fiercer and more indiscriminate

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From MADE IN CHINA 中国制造 2025 to *INTELLIGENTLY* MADE IN CHINA 中国制造 ~~2025~~ 2030

- President Xi Jinping s supercharging the 2015 programme "*Made In China 2025*" with AI
- Today's focus is on NEW QUALITY PRODUCTIVE FORCES
- This emphasises the QUALITY of growth more than its QUANTITY
- Priority is given to sectors that are:
  - AI-enabled…
  - …innovation-driven…
  - …high-tech…
  - …reliant on cheap renewable energy
  - …and so environmentally sensitive

All round, the IMIC2030 programme is:

- …designed to improve efficiency…
- …and increase productivity

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What are New Quality Productive Forces?

New Quality Productive Forces
新質生産力

- New industrial focus on…
  - …intelligent manufacturing: robotics, lasers, nano
  - …next generation products: 6G, satellites, quantum and photonic computers
  - …new materials: metal, chemical, inorganic e.g. carbon fibres, superconductors
  - …new energy: nuclear fusion, hydrogen, biomass plus energy storage
  - …space: aerospace, deep sea and earth, spaceflight
  - …health: cell and gene editing, synthetic biology, advanced medical equipment,
- Innovation-rich products derived from the above…
  - humanoid robots, quantum computers, holographic display, brain-computer fusion, autonomous vehicles and EVs, solar wind and wave energy equipment, energy storing devices, 6G-enabled products, ultra-largescale computers, Next Gen entertainment, advanced drones and aircraft, deep sea mining equipment

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The format of this presentation

To show what China is doing…
…and compare it to what others have achieved

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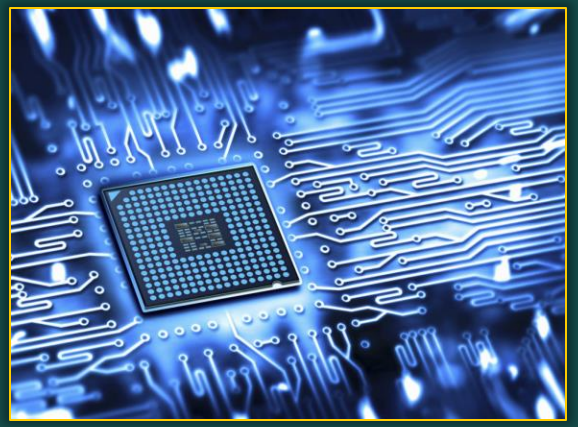
China's 'ground up' approach…

On a foundation of elite universities undertaking world beating research…

ENERGY SUPPLY

INFRASTRUCTURE

Add the world's best…



NEW INDUSTRIES

EMBEDDED AI

…generating electricity
to be used by…

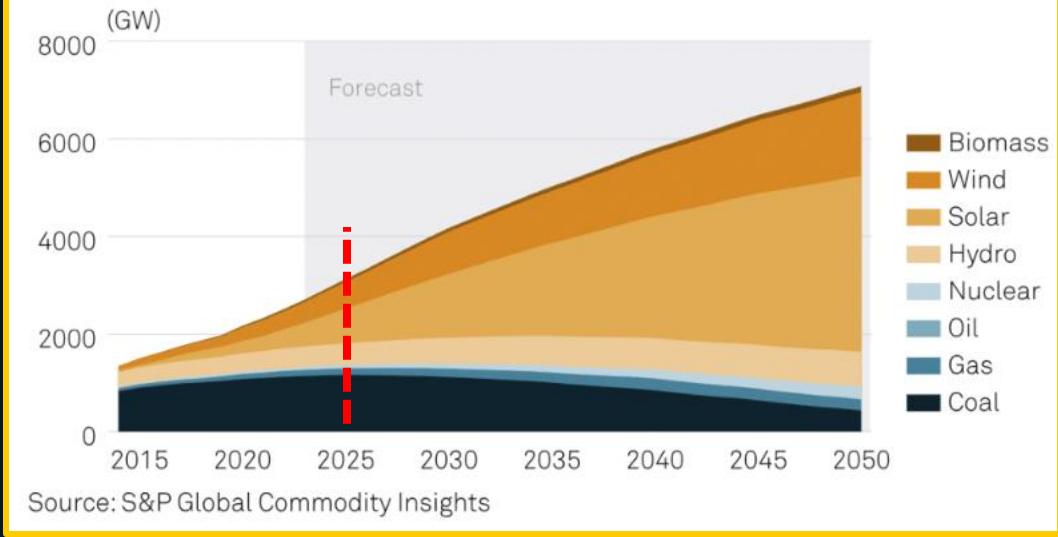
©MP@K

ENERGY

2023: World's Top 10 Energy Consumers

№	Countries	Terawatt-hours
1	China	47,428
2	United States	26,189
3	India	10,838
4	Russia	8,692
5	Japan	4,834
6	Canada	3,875
7	Brazil	3,854
8	Iran	3,531
9	South Korea	3,454
10	Germany	3,170

- Carbon: oil, gas. coal
- Wind
- Solar
- Hydro
- Nuclear



China's cumulative installed capacity for power generation

©MP@K

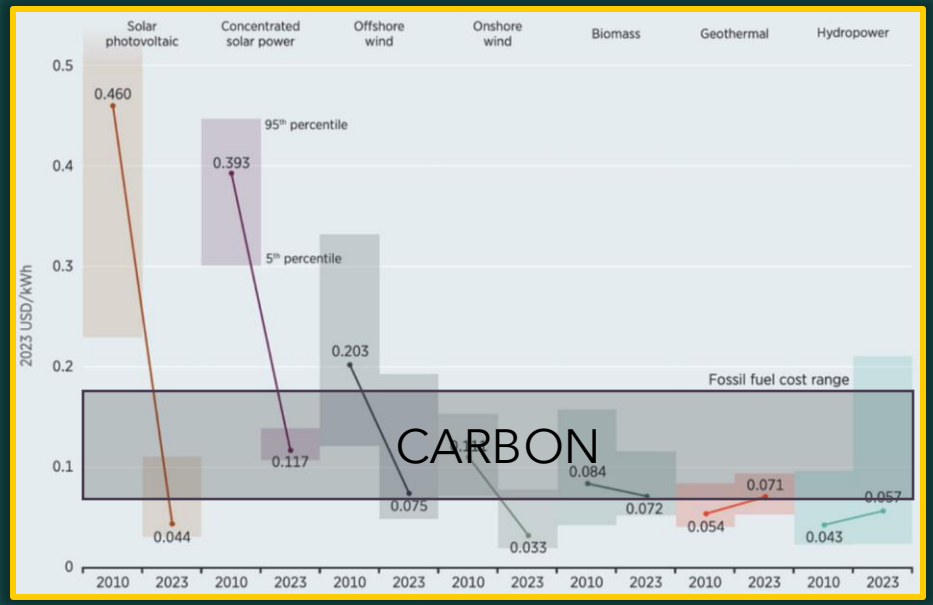
Why renewables win: free feedstock, lowest running costs

China's technical advances have driven down production costs of renewable energy sources below that of fossil fuels:

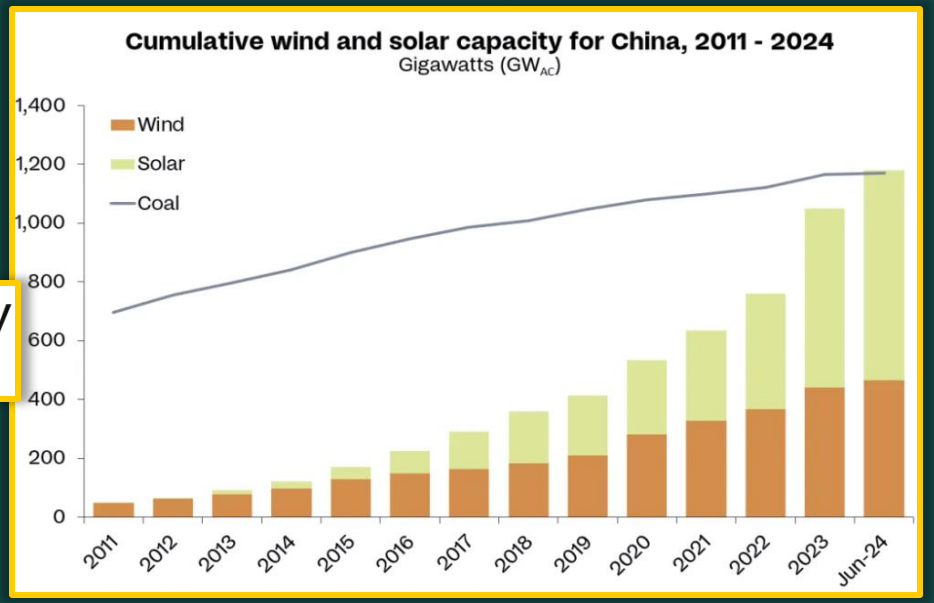
- solar
- offshore/onshore wind
- hydropower
- nuclear (needs uraniuim feedstock)

Next generation sources

- biomass
- thermal



China's Renewable Energy Capacity Surpasses Coal for the First Time



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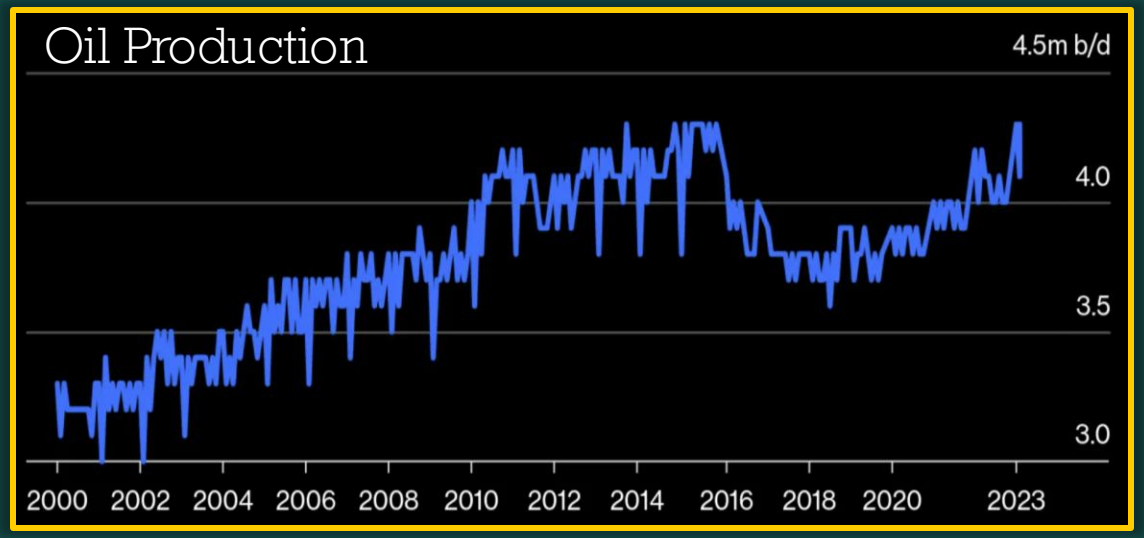
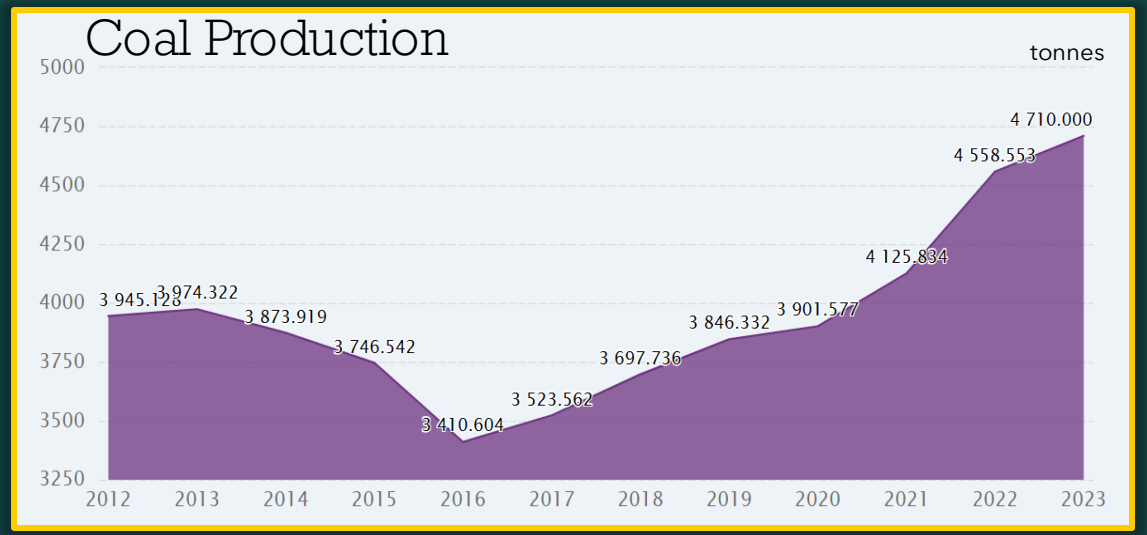
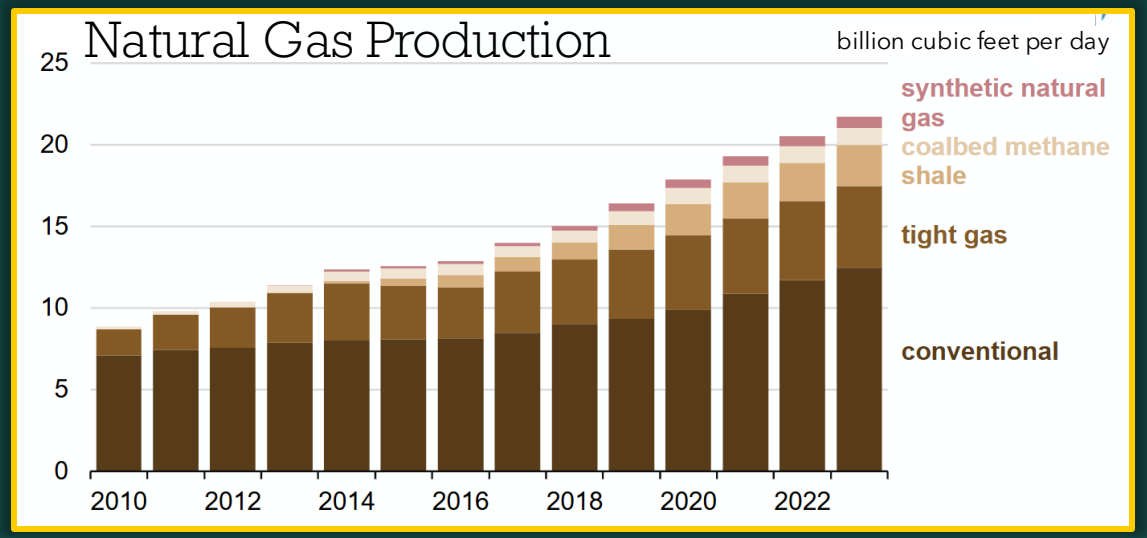
Carbon remains needed but renewables are China's future



China Targets Peak Coal Consumption by 2025: A Major Energy Transition Milestone

China's crude oil imports fall in 2024, first time in two decades outside of COVID





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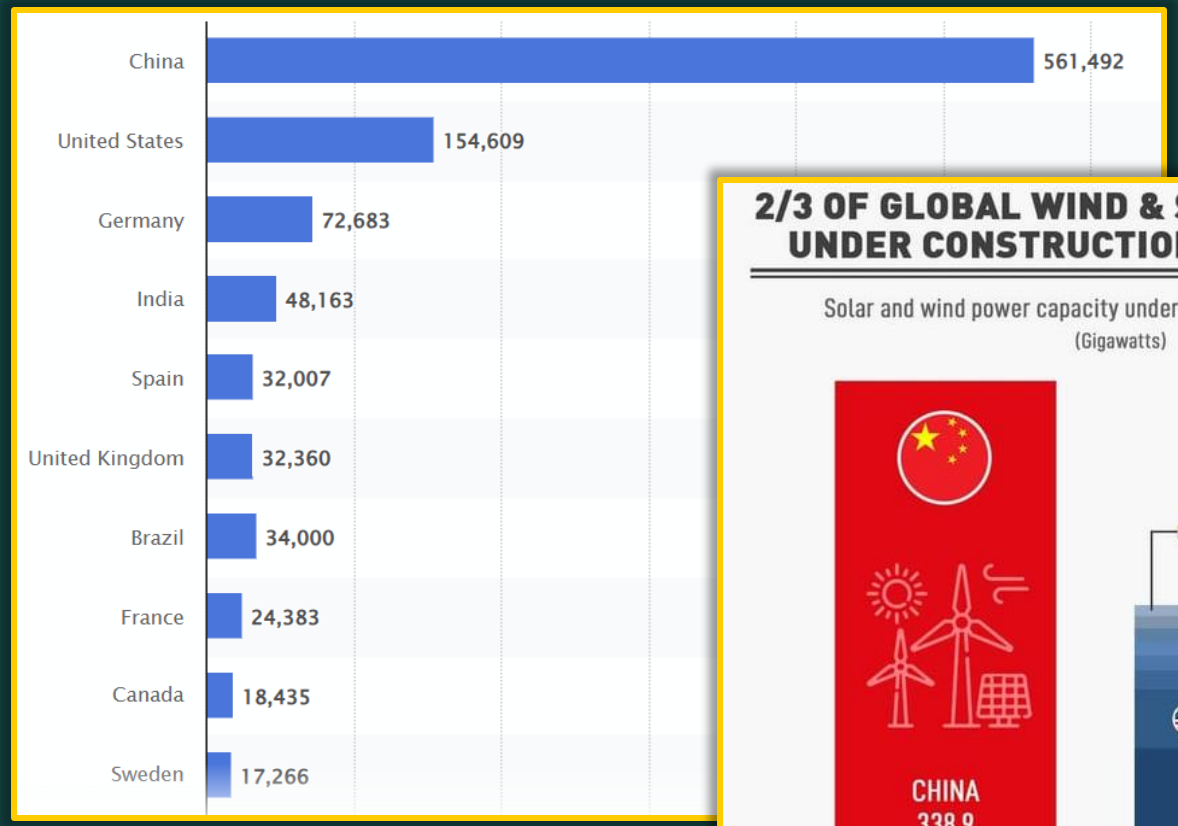
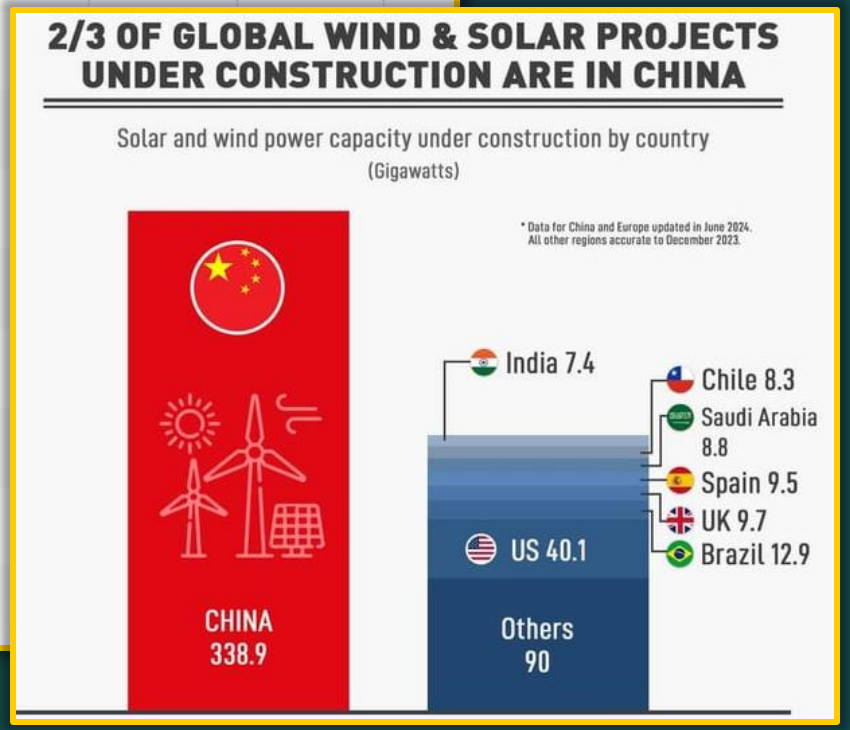
Wind

The world's largest wind farm is in a desert near Gansu; 7000MW rising to 20000MW



Wind Power Capacity 2024



The world's largest wind turbine: Offshore Fuzhou, Fujian: 26MW; diameter of 310m, 3 rugby fields

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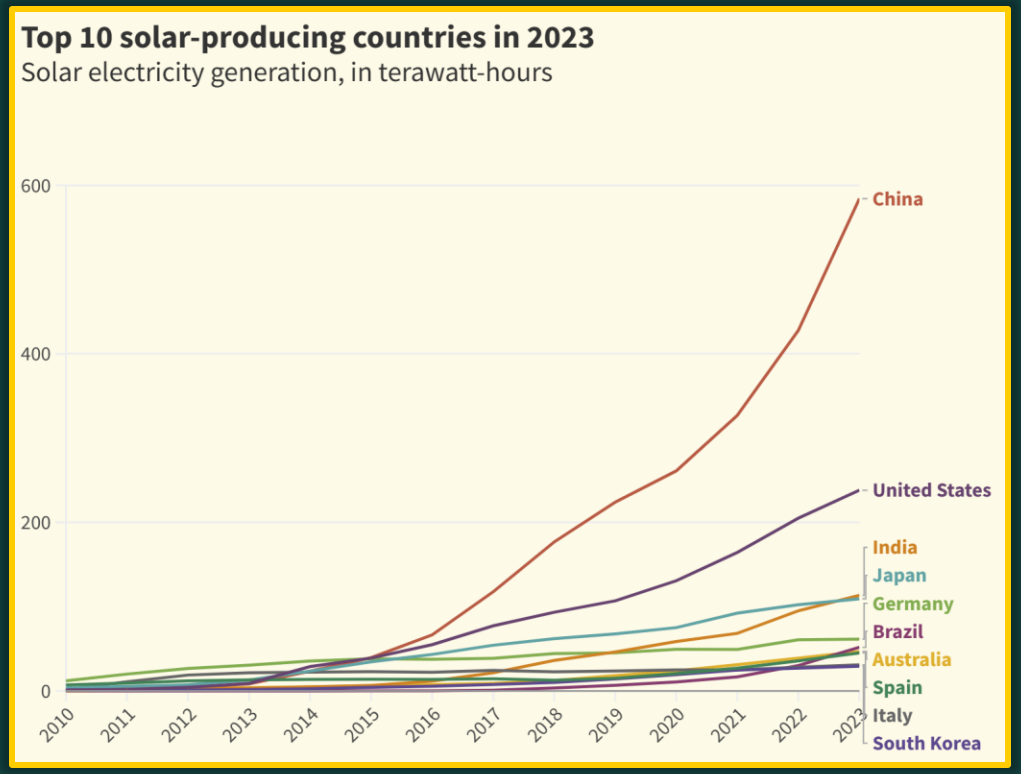
Solar



China opens world's largest solar farm on site of former coal mine: 'Making that entire area much more suitable for life'

90 former coal mines are operating as solar-power facilities. An additional 46 projects are planned.

China starts the biggest megaproject since the Great Wall — 250 miles and 180,000 kWh

by Anke E. — June 27, 2025 in Energy

Located in the Kubuqi Desert – "*the Sea of Death*" – the Solar Farm opens in 2030 with a 100 GW capacity

"China Tightens Solar Grip": Already Dominating the Market, Beijing Unveils New Tech to Cement Total Global Control

China's latest breakthrough in solar technology, achieving a 67% photothermal conversion efficiency with a revolutionary organic component, sets a new global standard and promises to reshape the landscape of renewable energy.

China builds up electric power in Gobi and western deserts equal to half US capacity

Chinese scientists boost perovskite solar cell efficiency

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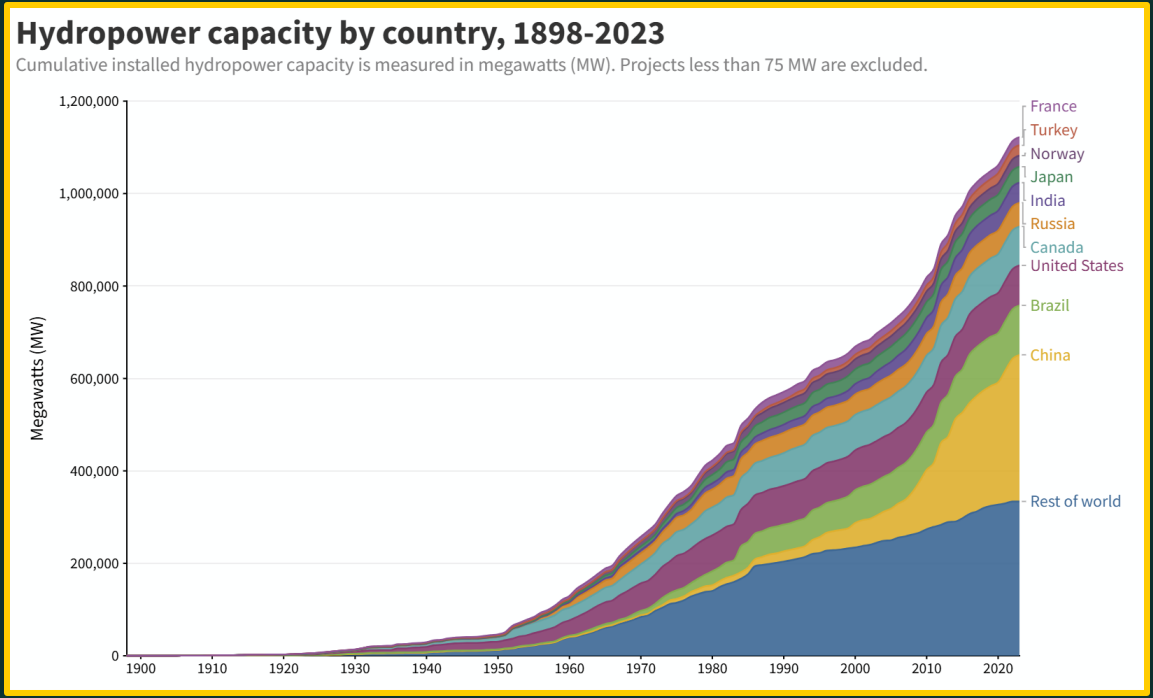
Hydro



In 2024, the world added 24,6GW of hydropower. 14.4GW was in China

Rank	Station	Country	Location	Capacity (MW)
1.	Three Gorges Dam	China	30°49′15″N 111°00′08″E	22,500
2.	Baihetan Dam	China	27°13′23″N 102°54′11″E	16,000
3.	Itaipu Dam	Brazil Paraguay	25°24′31″S 54°35′21″W	14,000
4.	Xiluodu Dam	China	28°15′35″N 103°38′58″E	13,860
5.	Belo Monte Dam	Brazil	03°06′57″S 51°47′45″W	11,233
6.	Guri Dam	Venezuela	07°45′59″N 62°59′57″W	10,235
7.	Wudongde Dam	China	26°20′2″N 102°37′48″E	10,200

4 out of 7 of the world's 10,000 MW hydropower-producing dams are in China

China rolls out record-setting turbine for Tibet hydropower plant

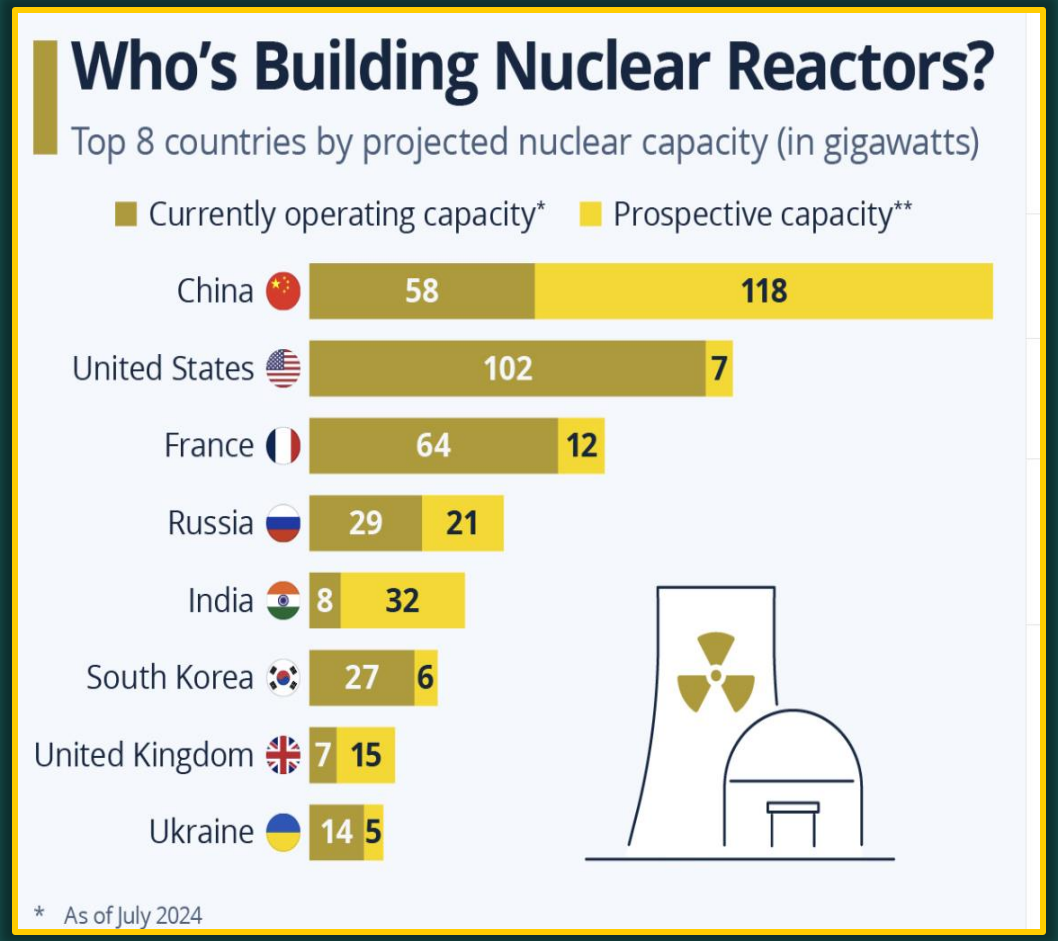
With two of the turbines, Datang Zala Hydropower Station will generate as much power as burning 1.3 million tonnes of coal every year

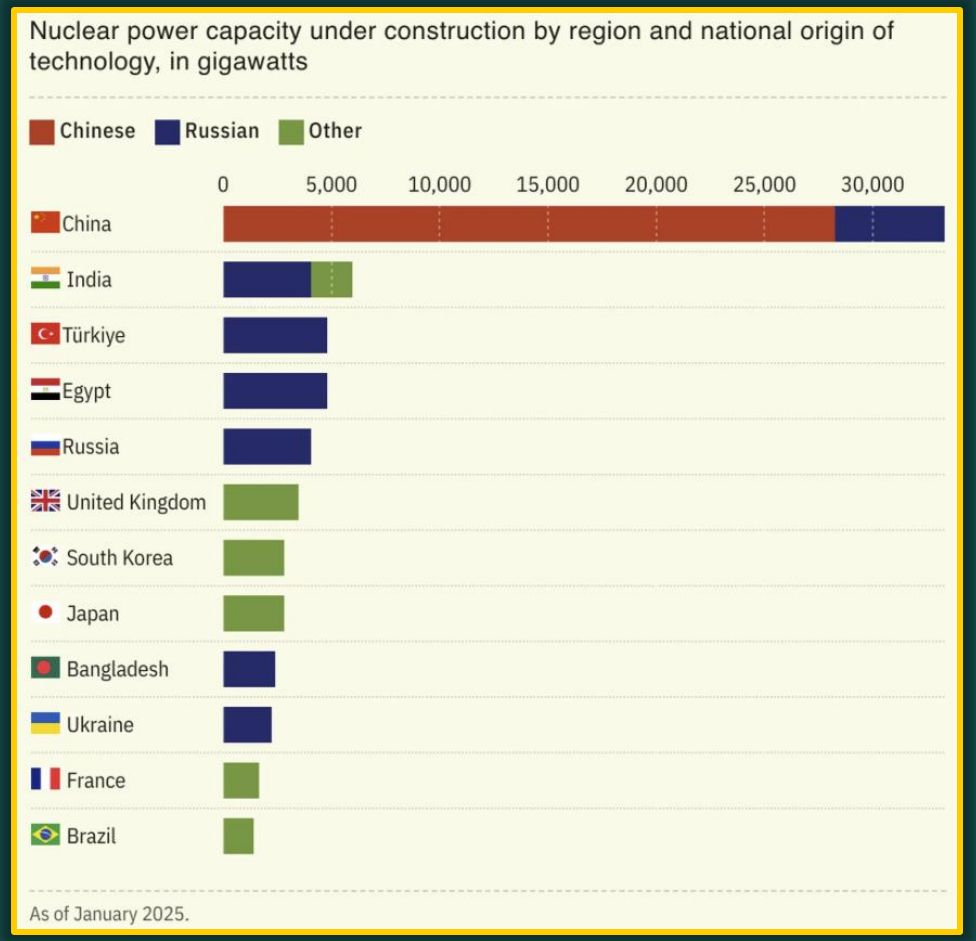
China to build world's largest hydropower dam in Tibet

Medog Hydropower will produce 60,000 MW annually, three times the Three Gorges Dam and twice of 2025's US utilized hydro output

©MP@K

Nuclear





The US does not make the top 12

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China's energy is increasingly…

- …much lower cost with most feedstocks free: SUN, WIND, WATER
- …renewable and so "inexhaustible"
- …green
- …home-grown not import-dependent
- …a huge cost advantage for industry

China is building 74% of all current solar and wind projects, report says

Beijing is dominating the construction of renewable energy sources, according to Global Energy Monitor

China's emissions may be falling - here's what you should know

10 hours ago

Share Save

Tony Han
Global China Unit

As the world races to cut carbon emissions in the fight against climate change, a potentially game-changing milestone may have been reached.

China - currently responsible for some 30% of global emissions - saw its emissions decline in the 12 months up to May 2025.

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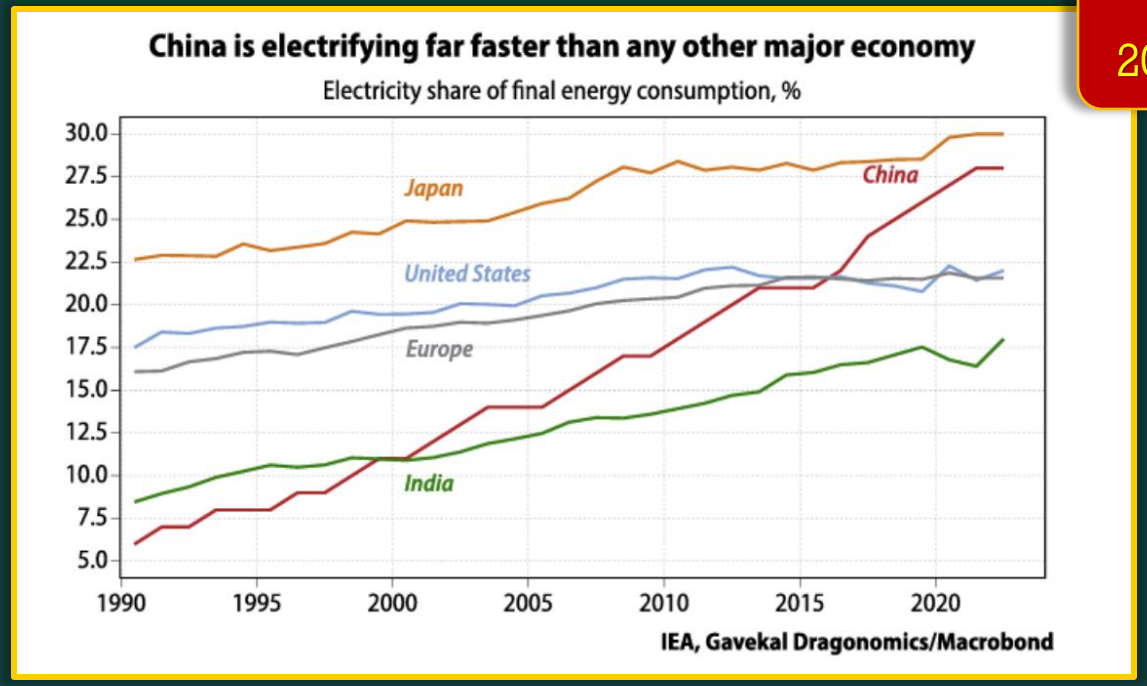
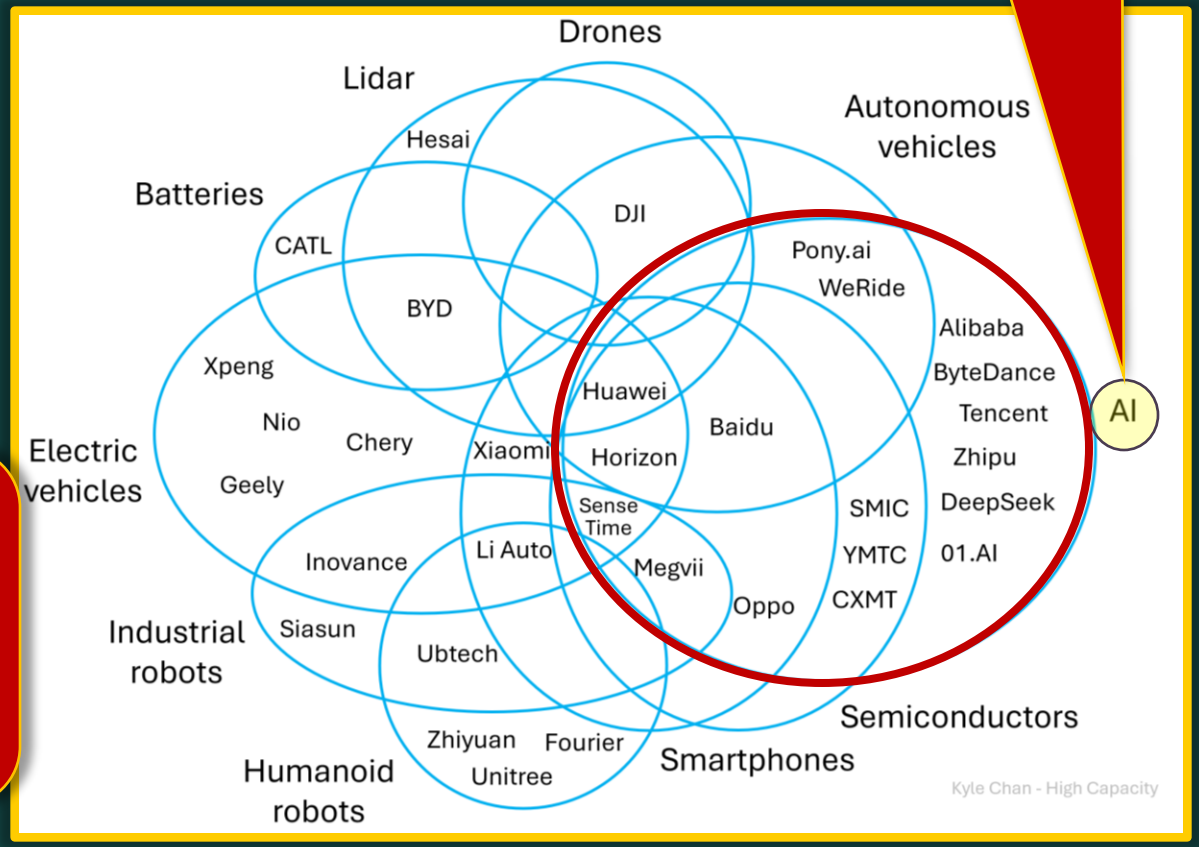
Electricity powers China's New Quality Productive Forces



1900-202?: The US led the world economy as a petro-state
202?: China will lead the world economy as an ELECTRO-STATE

AI-optimised smart grids are happening



"China has developed multiple tech-industrial ecosystems that overlap in terms of the firms and technologies involved, creating a compounding effect for its industrial policy efforts."

KYLE CHAN

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Yet the US's main exports are carbon-based commodities

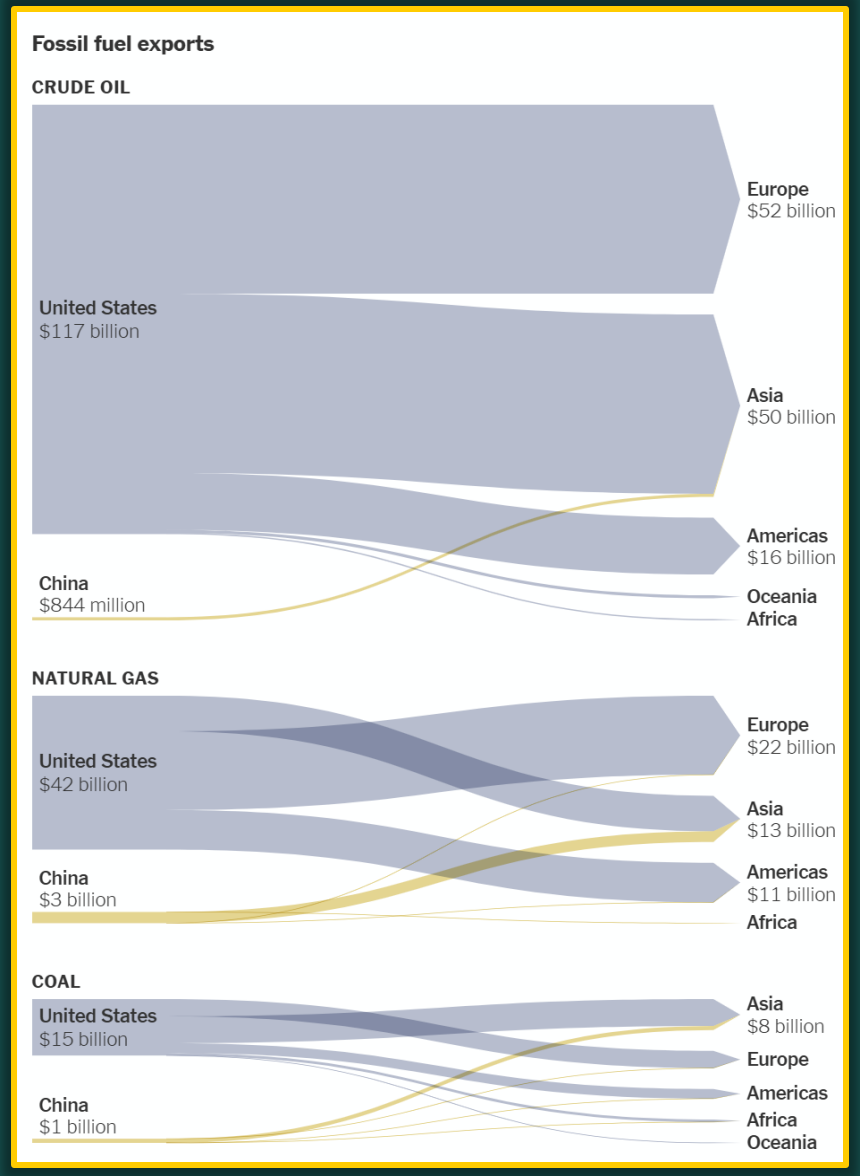
- The top three US exports in October 2024 were:
  - refined petroleum
  - crude petroleum
  - petroleum gas

- Donald Trump wants the rest of the world to *"buy US oil and gas"*.
- Is oil and gas all the US has left to sell in quantity?

Trump says US to be leading supplier of oil and gas to India

Donald Trump tells EU to buy more US oil and gas or face tariffs

Is the US becoming a warmer Canada?



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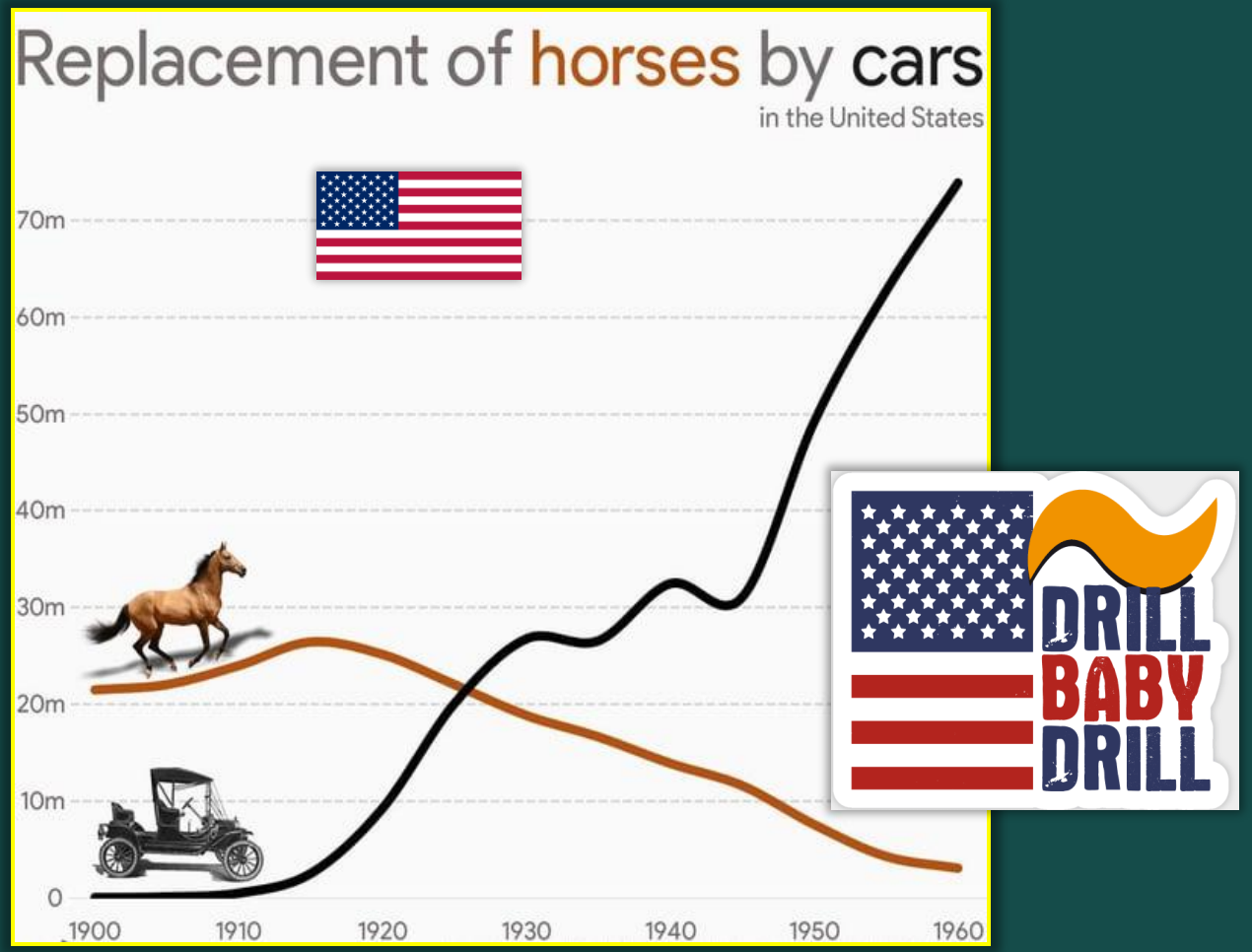
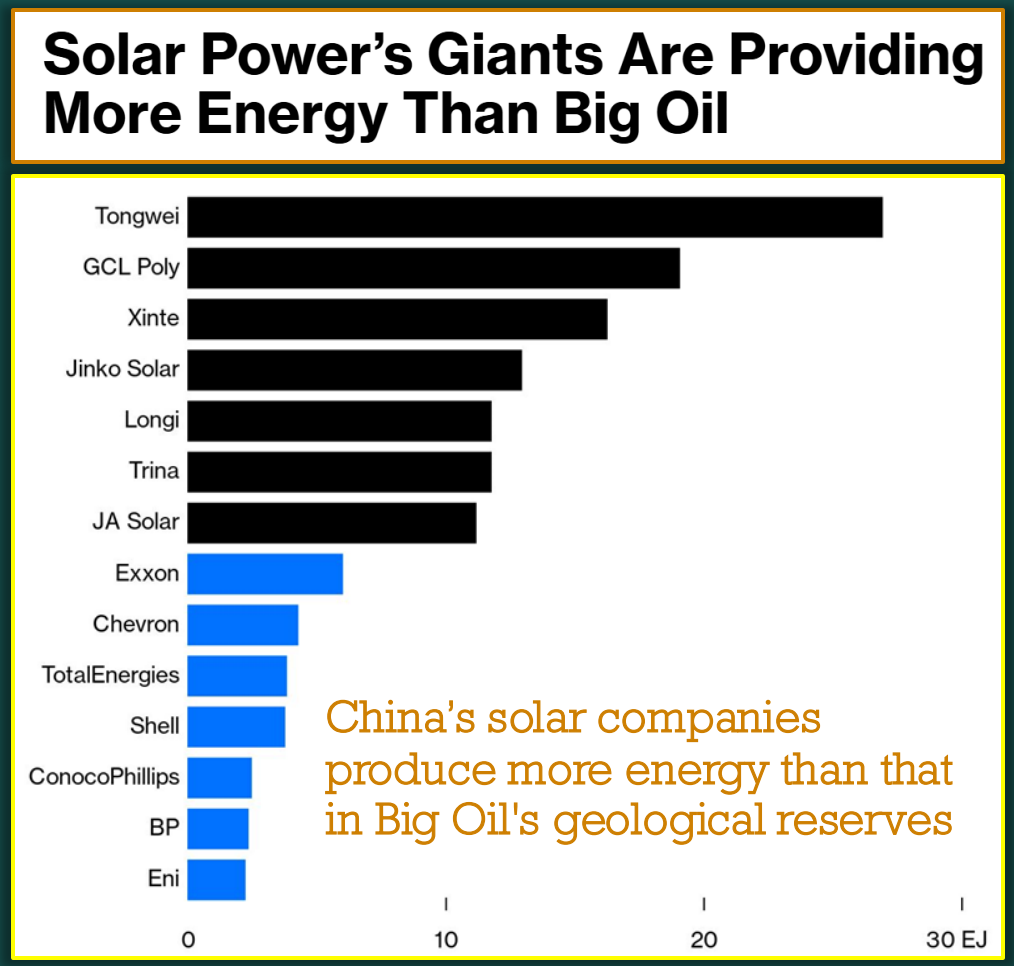
Is *'Drill for Oil'* 2025's equivalent of 1914's *'Breed Horses'*?



Source: E.R.Kirby; US Department of Transportation



Source: Bloomberg

"From China's perspective, THIS IS JUST FABULOUS. For the next four years, the US is giving up on the greatest economic battle of our time."

Source: Kingsmill Bond in *The Daily Telegraph*

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Big Beautiful B…lunder?

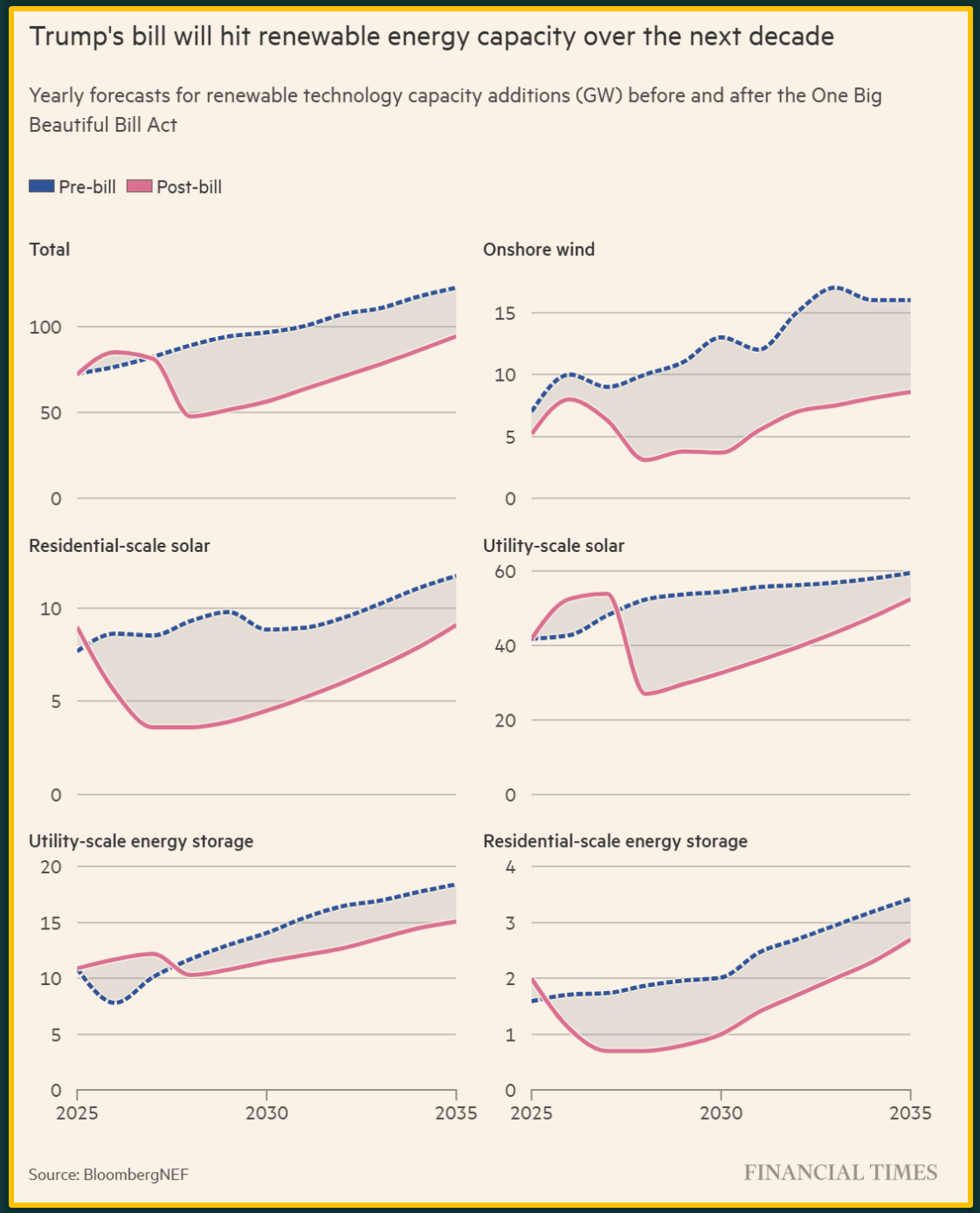
THOMAS L. FRIEDMAN

How Trump's 'Big, Beautiful Bill' Will Make China Great Again

July 3, 2025

Can you hear it — that roar coming from the East? It's the sound of 1.4 billion Chinese laughing at us.

The Chinese simply can't believe their luck: that at the dawn of the electricity-guzzling era of artificial intelligence, the U.S. president and his party have decided to engage in one of the greatest acts of strategic self-harm imaginable. They have passed a giant bill that, among other craziness, deliberately undermines America's ability to renewably generate and store electricity — through solar, wind and batteries, in particular.



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Celebrating the iron and steel of the early 20th Century

The spectacular folly of Donald Trump's copper tariffs

President Trump Orders 50 percent Section 232 Tariff on Copper Imports

U.S. copper demand is forecast to double to 3m tonnes by 2035. Current domestic supply is under 1m tonnes.

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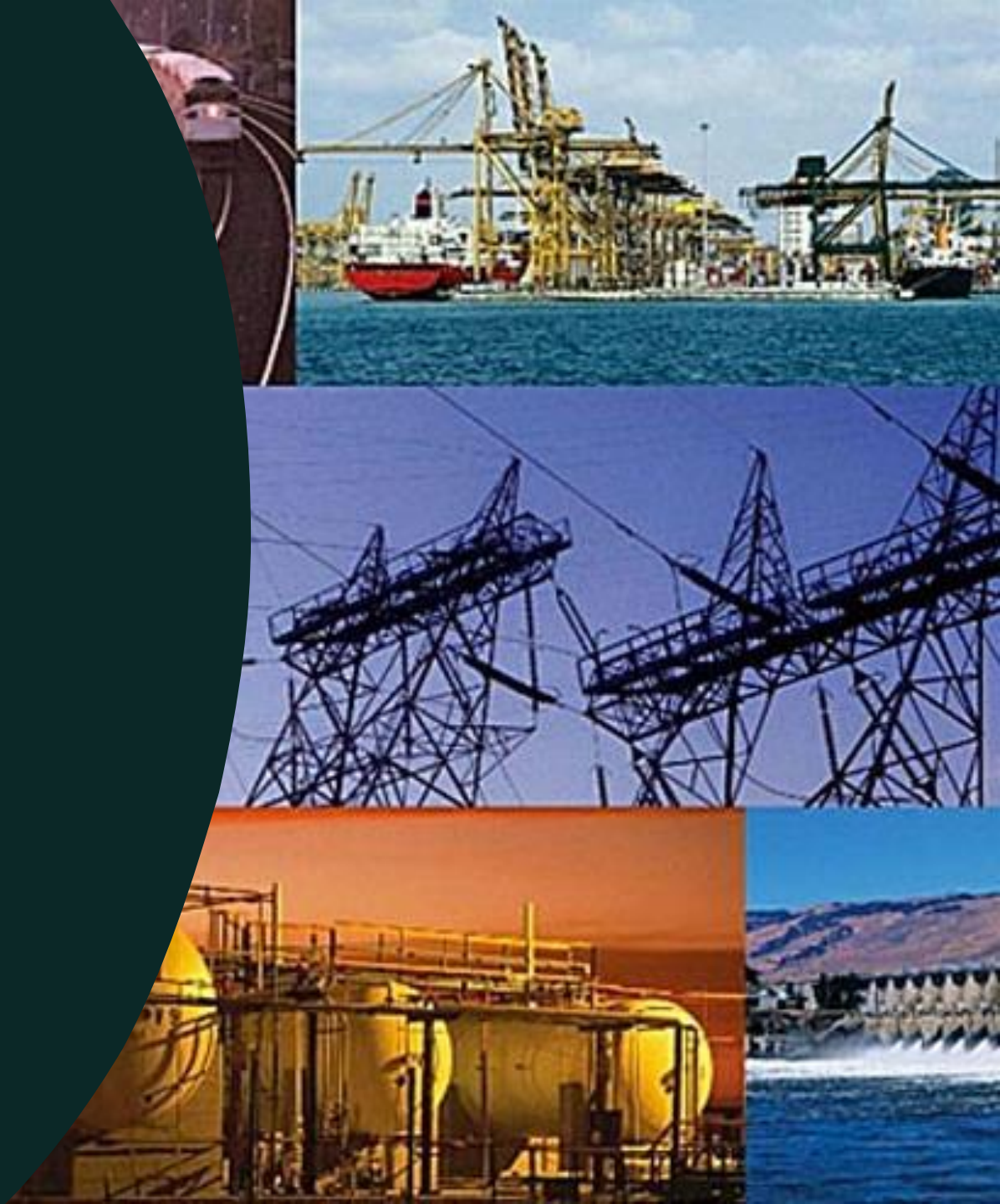
INFRASTRUCTURE

- UHV Electrical Grid
- Telecom network
- Road system
- Rail network
- Port structure
- Airport locations
- Canal network



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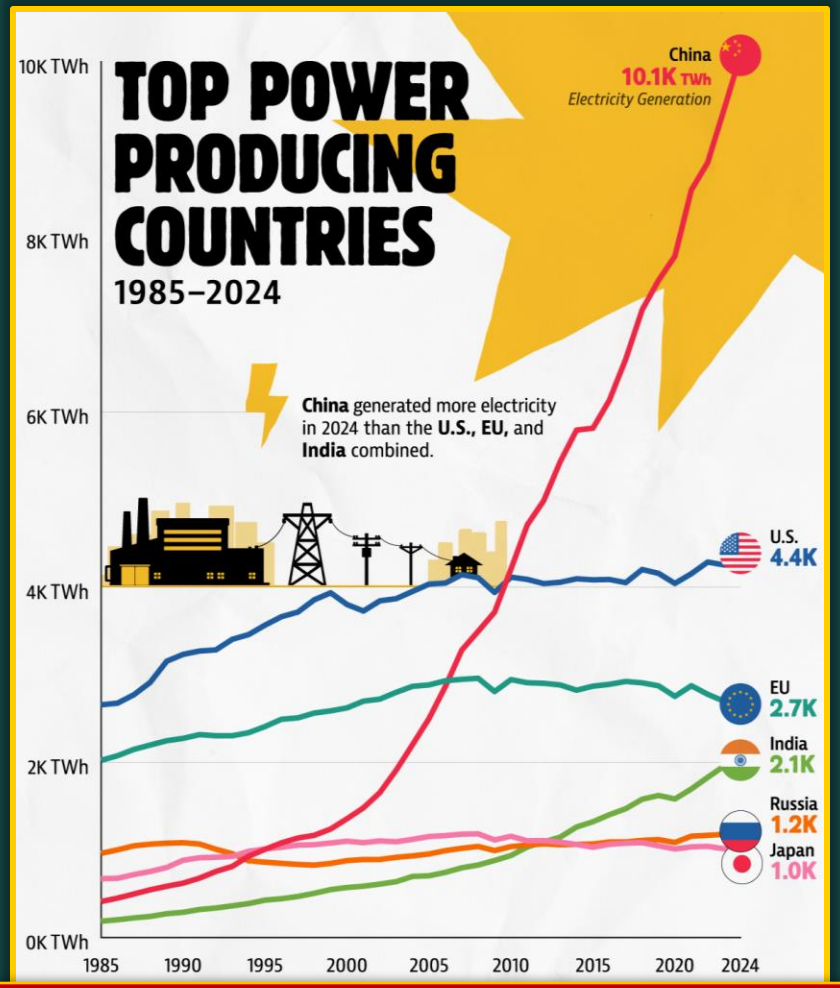
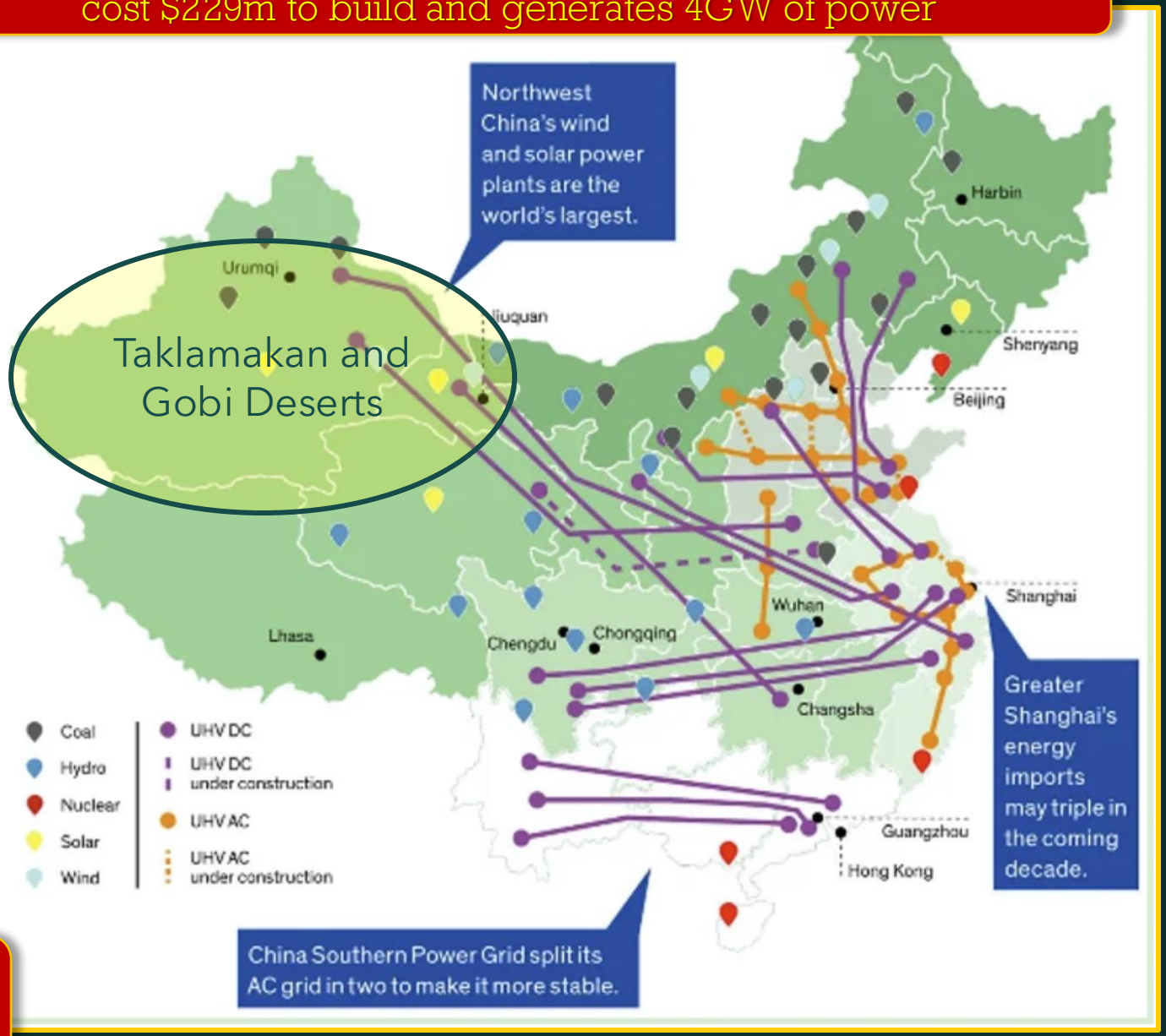
UHV Electrical Grid

The Moyu Solar Farm in the Taklamakan Desert covers 4 million m^2, cost $229m to build and generates 4GW of power





UHV can, using DC not AC, transmit power over very long distances with little loss so at low cost: Taklamakan to Shenzhen 3500kms

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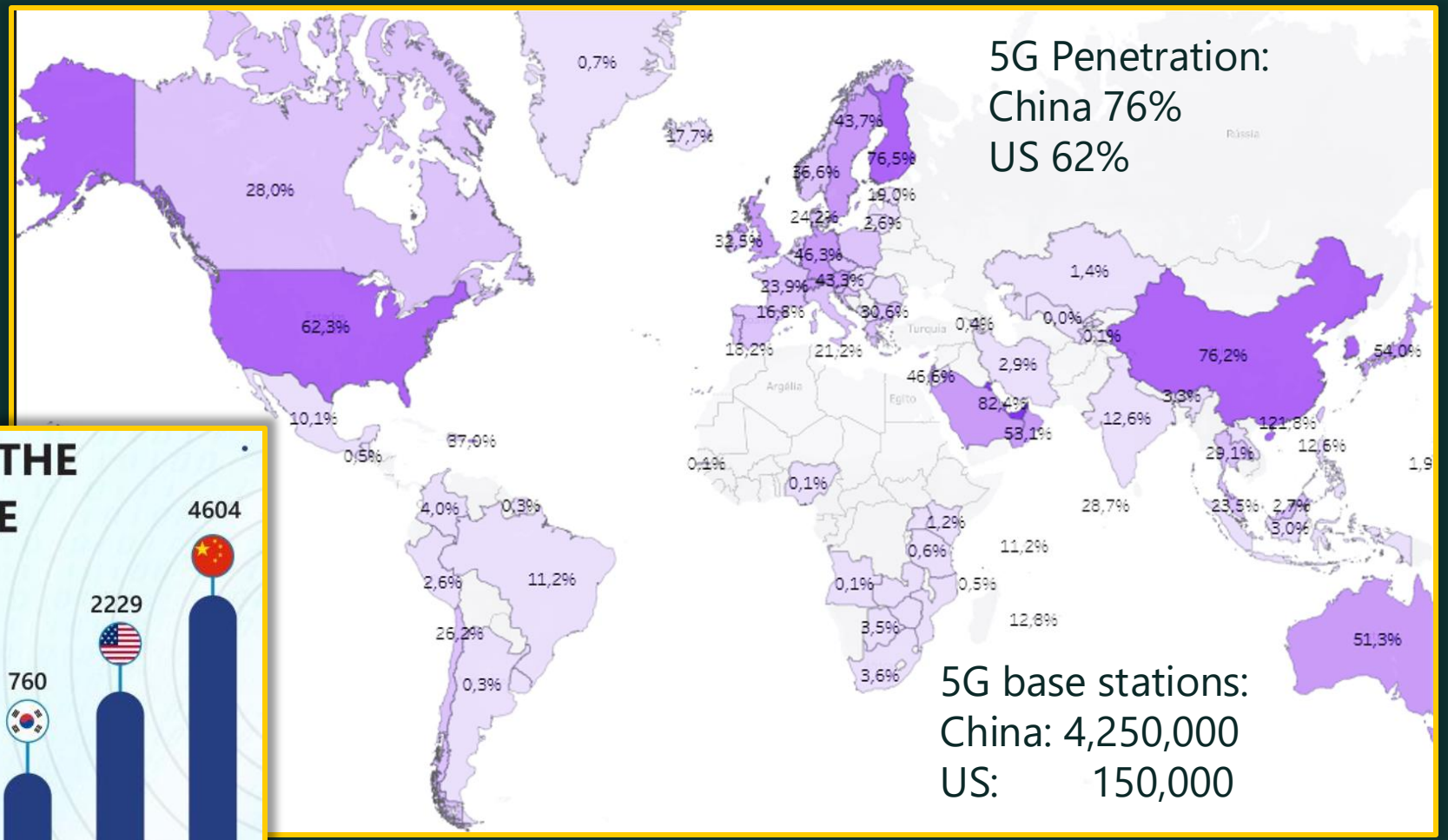
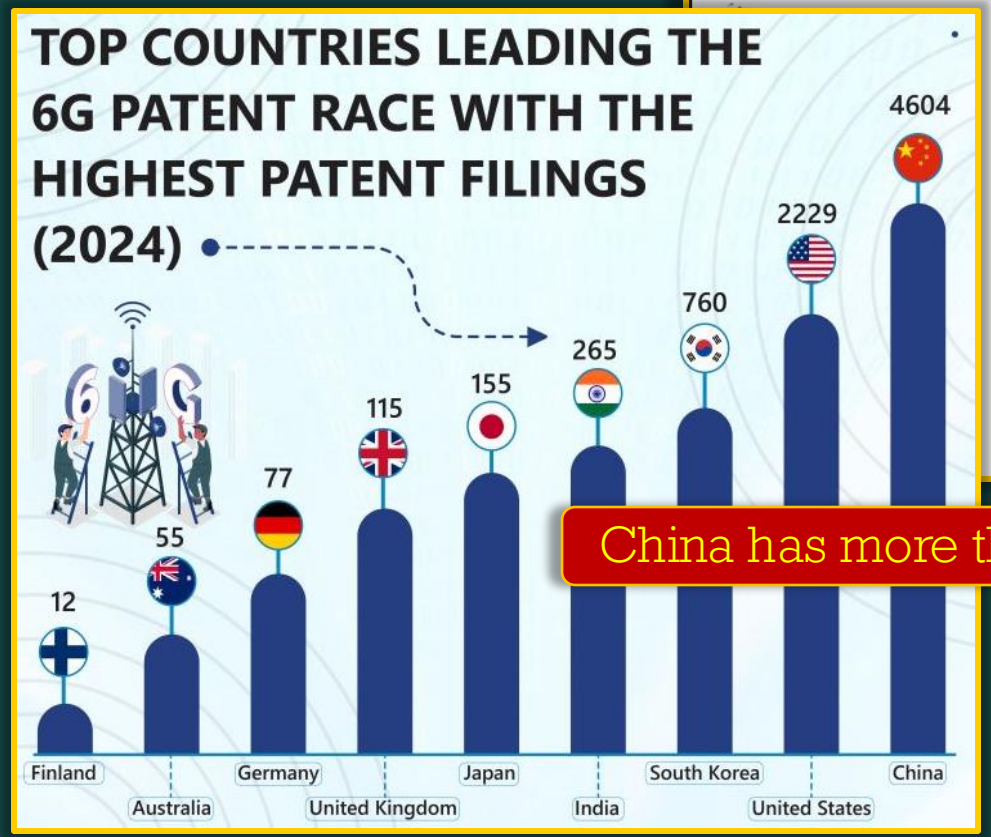
Telecoms: 5G and 6G





China has more than twice the 6G patents as the US

China unveils world's first 'universal' 6G chip 5,000 times faster than rural US speeds

Device can provide high-speed internet across all frequencies, potentially increasing service speed to 5,000 times current level in rural US

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Roads

In 1990, China had 271 kilometres in its National Trunk Highway System. By 2022, it had 177.000 kilometres

SOURCE / ECONOMY

China to build 461,000 km of highways by 2035, world-class highway network by 2050

By Global Times

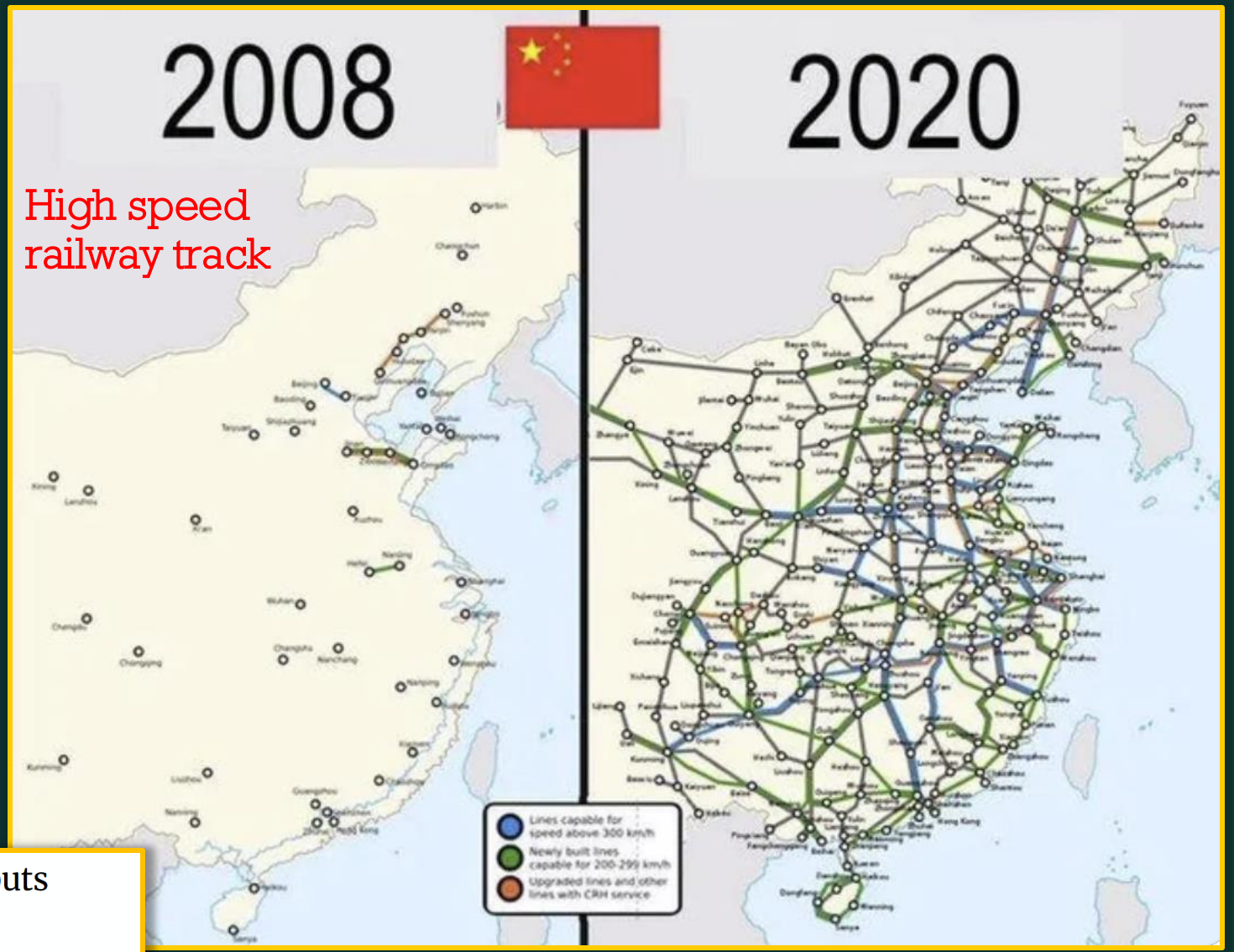
Published: Jul 12, 2022 09:45 PM

©MP@K

Rail

	COUNTRY	TOTAL HIGH SPEED RAIL LENGTH (KM)
	China	64,775
	Spain	5,579
	Japan	3,677
	France	4,460
	Germany	2,009
	Finland	1,514
	Turkey	4,659
	Italy	1,248
	South Korea	922
	Sweden	1,412

US does not make the top 10 countries. China has 70% of the world's High Speed Rail Track. 28% of China's total railway network is high speed



China unveils next-gen high-speed rail tech as US puts brakes on bullet train funding

China's CR450 train is being prepared for 400km/h commercial operation trials with the help of a newly developed material

Beijing to Shanghai in 2½ hours: the maglev marvel redefining high-speed rail

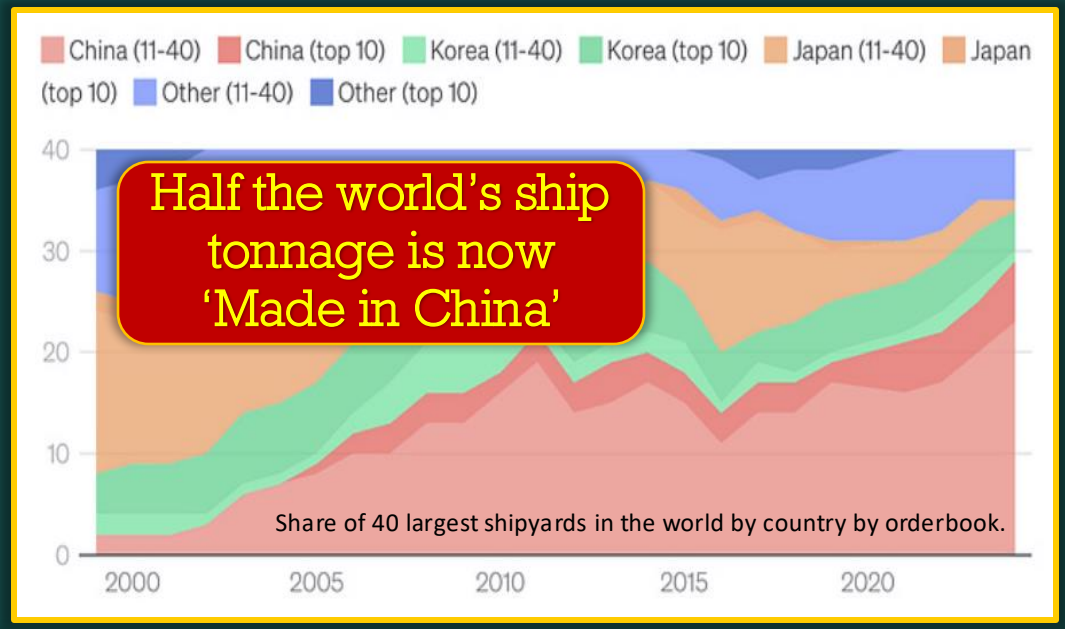
1320km or 528 kph

©MP@K

Ports… and the shipyards in them

Rank	Name	Country	TEU Volume (Millions)
1	Port of Shanghai	China ★	~50
2	Port of Singapore	Singapore	~39-40
3	Port of Ningbo-Zhoushan	China ★	~35-36
4	Port of Shenzhen	China ★	~27-28
5	Port of Qingdao	China	~26-27
6	Port of Busan	South Korea ★	~23-24
7	Port of Guangzhou	China ★	~22-23
8	Port of Tianjin	China ★	~20-21
9	Port of Hong Kong	Hong Kong SAR ★	~17-18
10	Port of Rotterdam	Netherlands	~14-15

China has 7 of the 2025's largest 10 ports by TEU.
Los Angeles – the US's largest – ranks 16th.
Shanghai's tonnage exceeds all US ports combined



Half the world's ship tonnage is now 'Made in China'

China is building a port network around the world.
The US has objected Panama Canal ports being owned by HK's Hutchison. MSC of Switzerland is buying them

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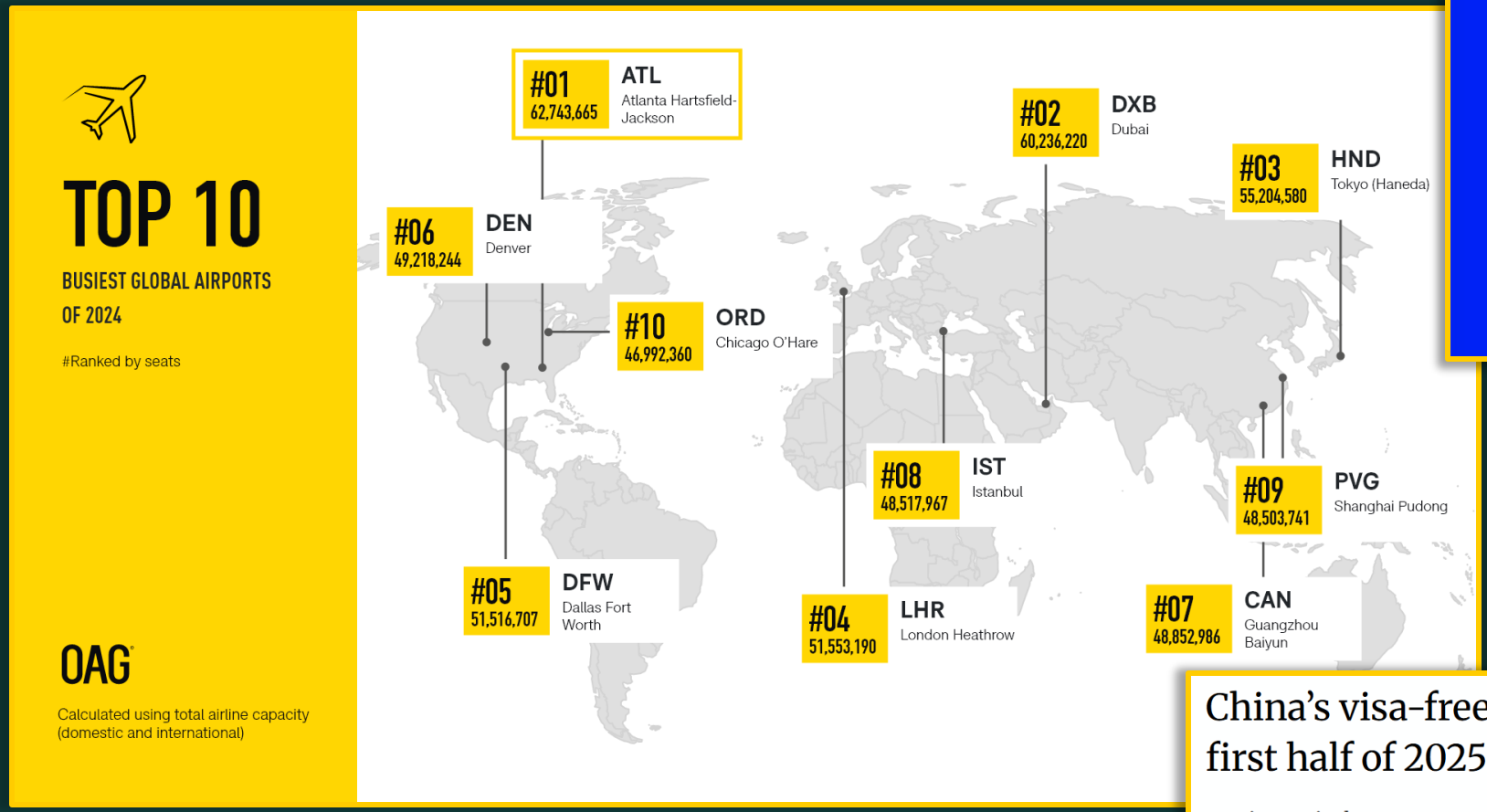
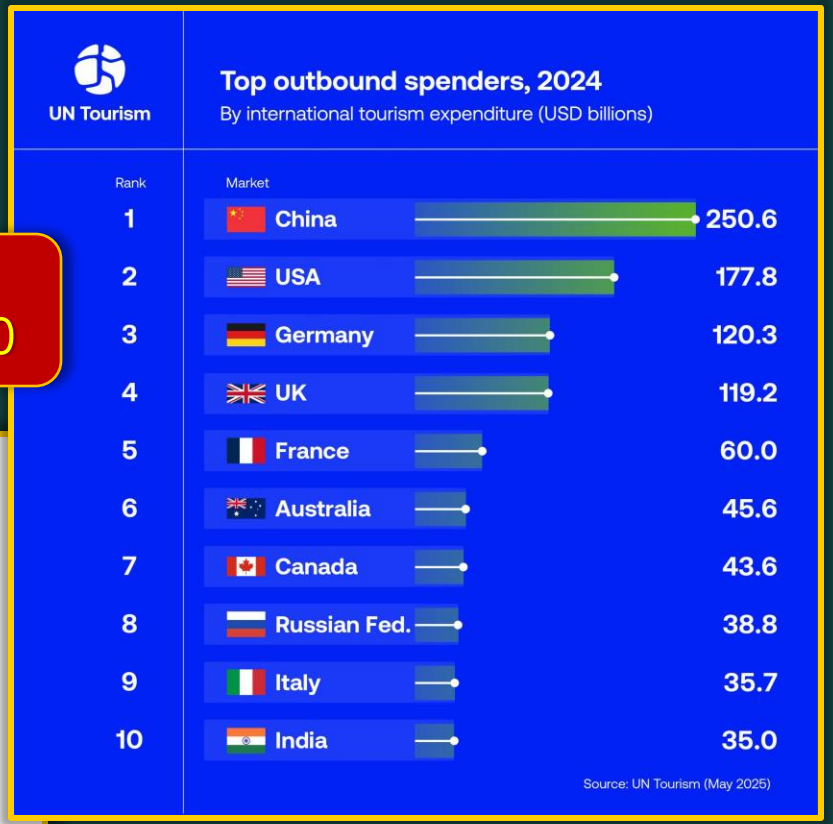
Airports: China lags but is rising fast

In 1985, China had 100 airports.
In 2021: 241. In 2025: 270. By 2037: 450





China's visa-free boom picks up steam as entries soar in first half of 2025

Foreign arrivals surge more than 50 per cent as visa measures boost tourist and business travel, immigration officials say

©MP@K

Canals

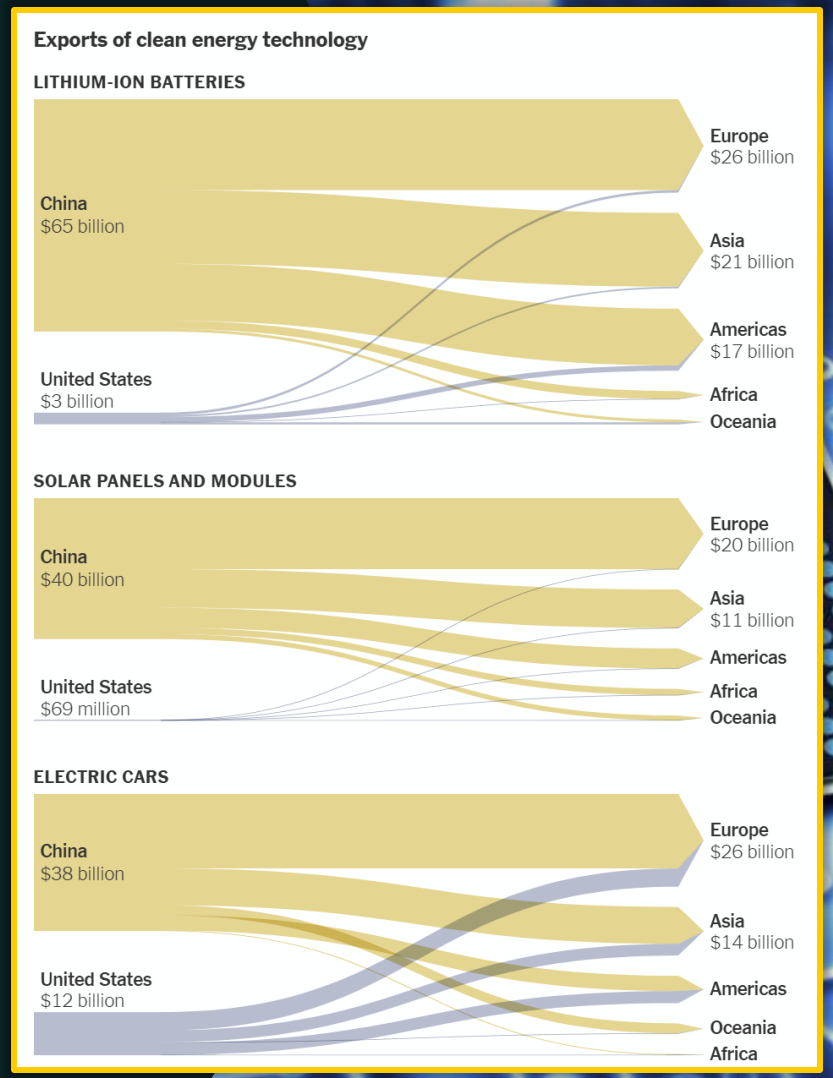
China's 'water grid':
Big 3 rivers run West to East
…and East to West!
Its canals run North to South
…and South to North!

The Grand Canal is the world's longest.
Zhejiang-Jiangxi-Guandong canal opens late 2025

©MP@K

NEW INDUSTRIES

- Microchips
- EVs and batteries
- Drones
- Renewables
- Automation
- Humanoid Robots



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Microchips

Chinese scientists develop world's first ultra-high parallel optical computing chip

- China's three-pronged strategy
  1. Catch up… now at 3 nanometre chips
  2. 'Mitigate chokepoints'… parallel chips
  3. Try something new… photonics

China's Semiconductor Leap: Xiaomi Unveils 3nm Chip Without EUV Technology

TDS News Africa October 23, 2024

Electronic chips, which have made everything AI possible so far, appear to be reaching their limits in terms of speed and size or scalability, prompting scientists to focus more on optical alternatives using light, or the photons within, instead of electrons to transfer data.

Light offers degrees of freedom that an electrical signal does not, according to Amit Agrawal, associate professor in optical engineering at the University of Cambridge and a fellow at the university's Trinity College.

Tech war: which Chinese firm is supplying next-generation AI chips to DeepSeek?

Published: 9:00pm, 22 Aug 2025

China's photonic chip debut to power AI, 6G and quantum computing advances, expert says

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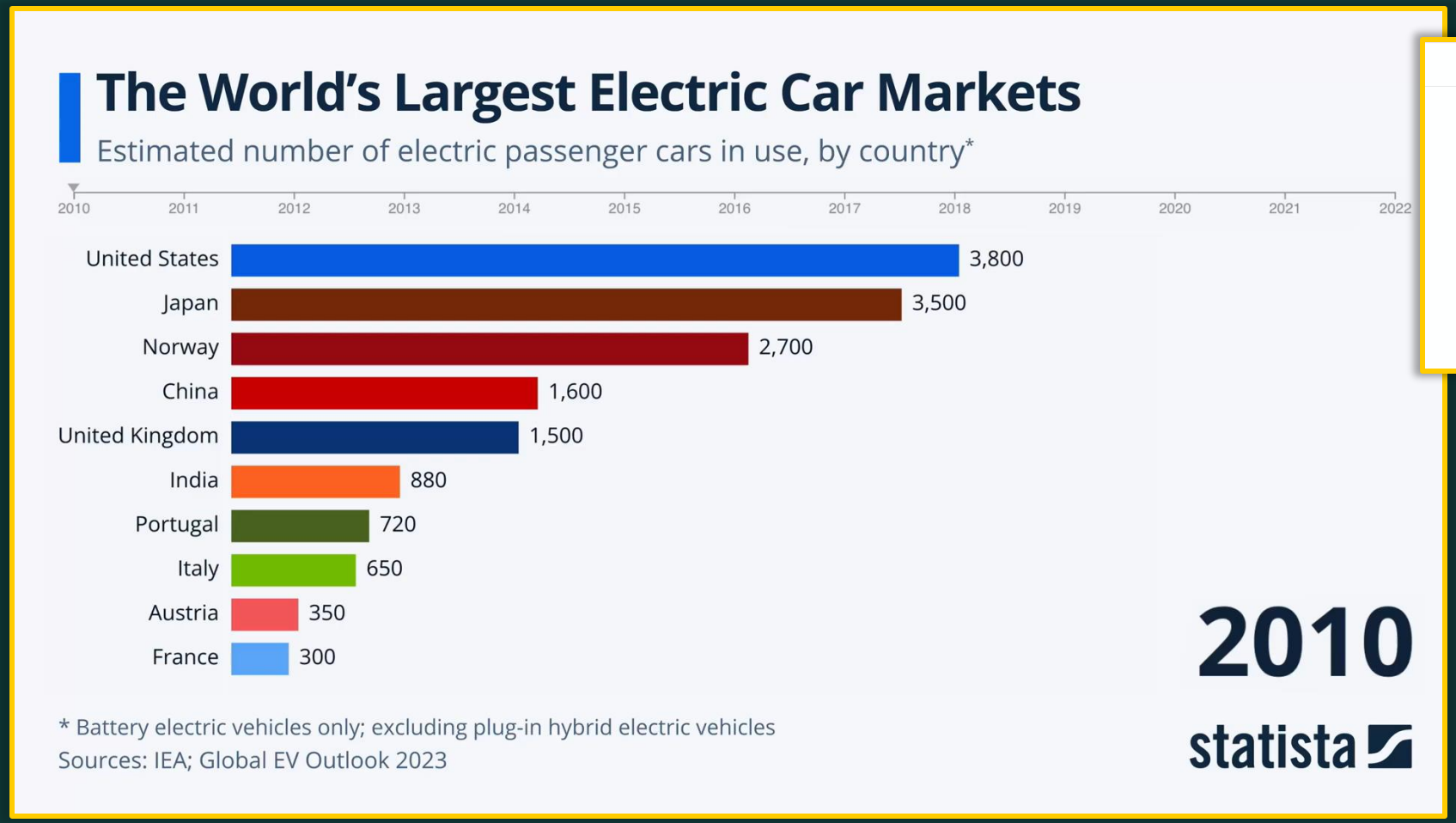
Electric Vehicles



The New York Times

OPINION
GUEST ESSAY

Why Americans Can't Buy the World's Best Electric Car

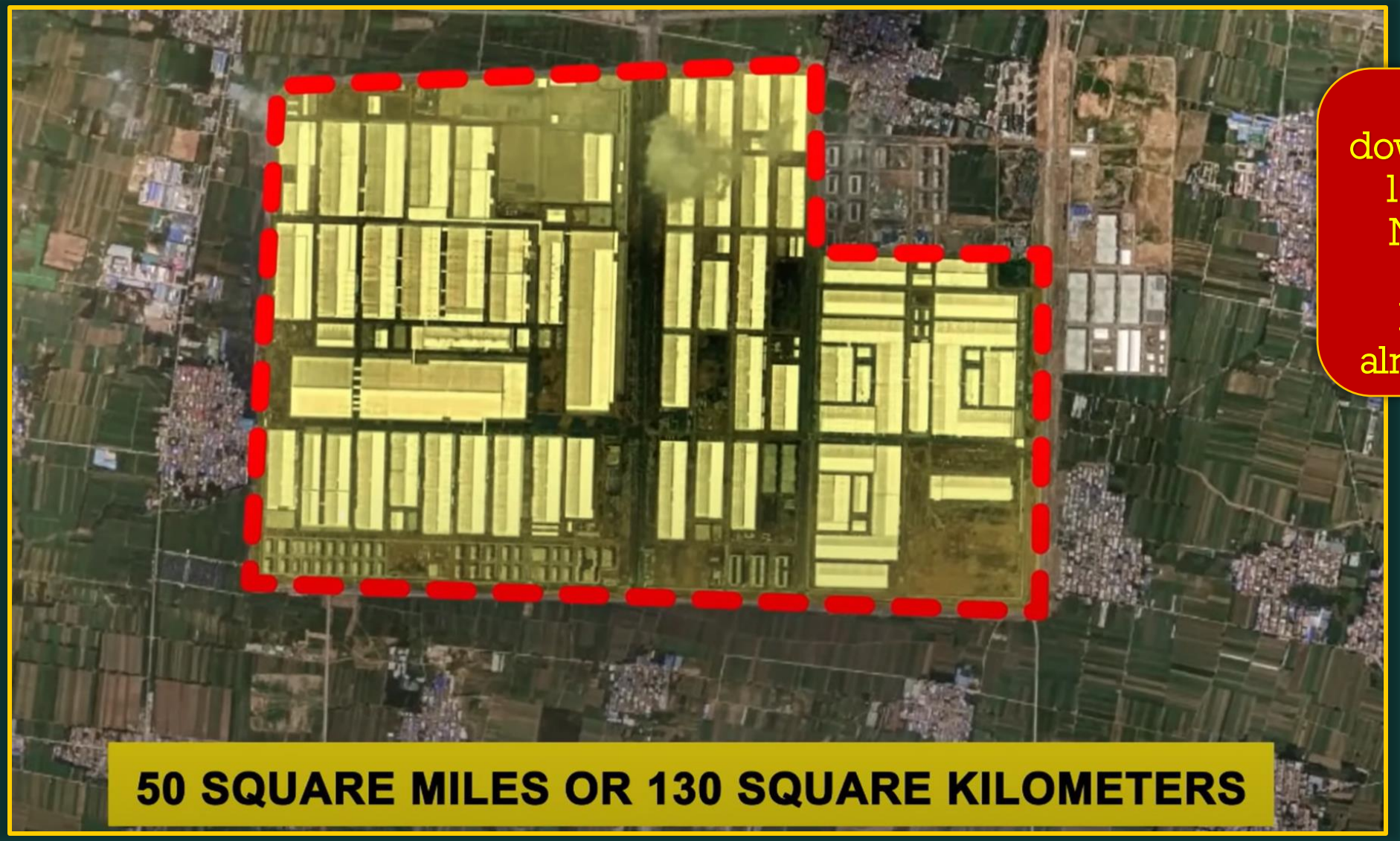
July 8, 2025

Total EVs in China
end 2022: 11m
2023: 8m sales
2024 :11m sales
2025f :14m sales
TOTAL 44m sales
or 3x in 3 years

2024 China EV car production: 12.4m units vs. 4.9 ROW
EV Charging stations China 760,000 vs. US 28,000

©MP@K

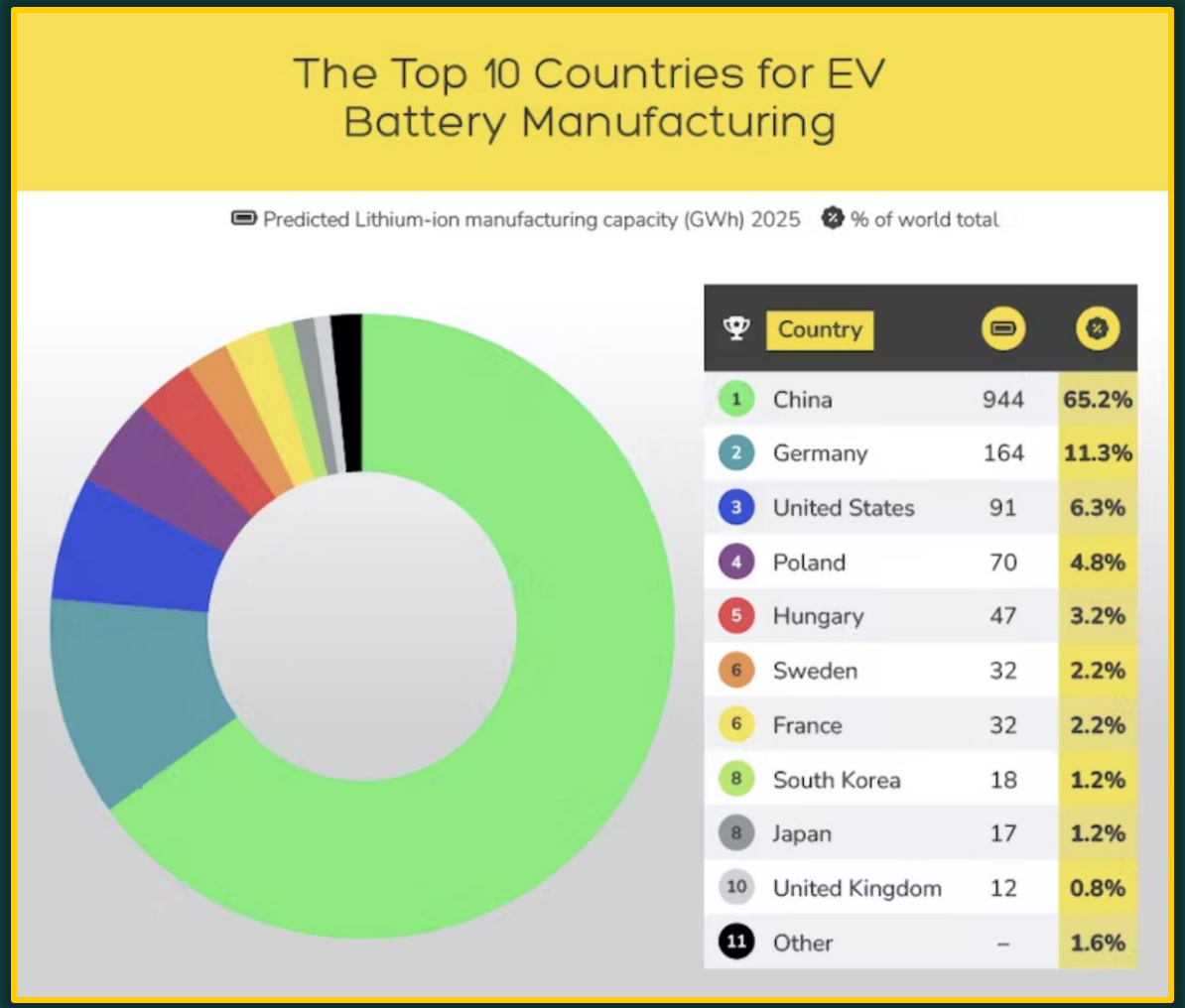
BYD's new factory in Zhengzhou

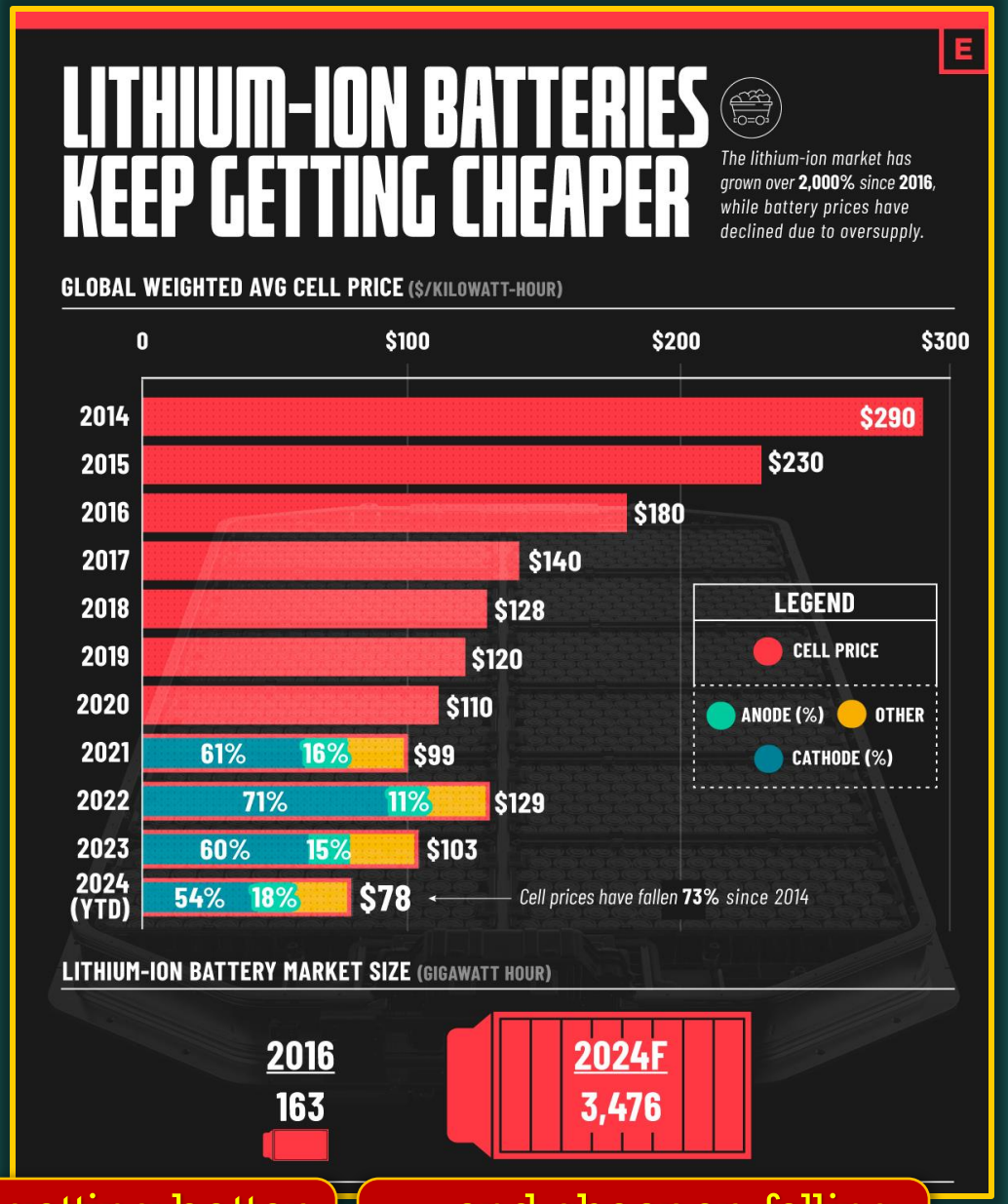


Twice the area of downtown San Francisco;
10x the size of Tesla's Nevada Gigafactory;
16 production lines;
1m units p.a. output;
almost 2 EVs per minute

©MP@K

Batteries





… and the tech keeps getting better e.g. quicker charging times…

… and cheaper, falling 40% in price in 2024

©MP@K

Drones

China unveils new drone that takes off and lands on its tail like a rocket

TOP 10 PRODUCERS (2024)

1. DJI of China…with a 70%+ market share!
2. Parrot of France
3. Yuneec of China
4. Autel Robotics of China
5. Skydio of US
6. Holy Stone of China
7. Hubsan of China
8. PowerVision of China
9. Ehang of China
10. Flyability of Switzerland

Trump wants to ground China's drones – but have they flown too high to reach?

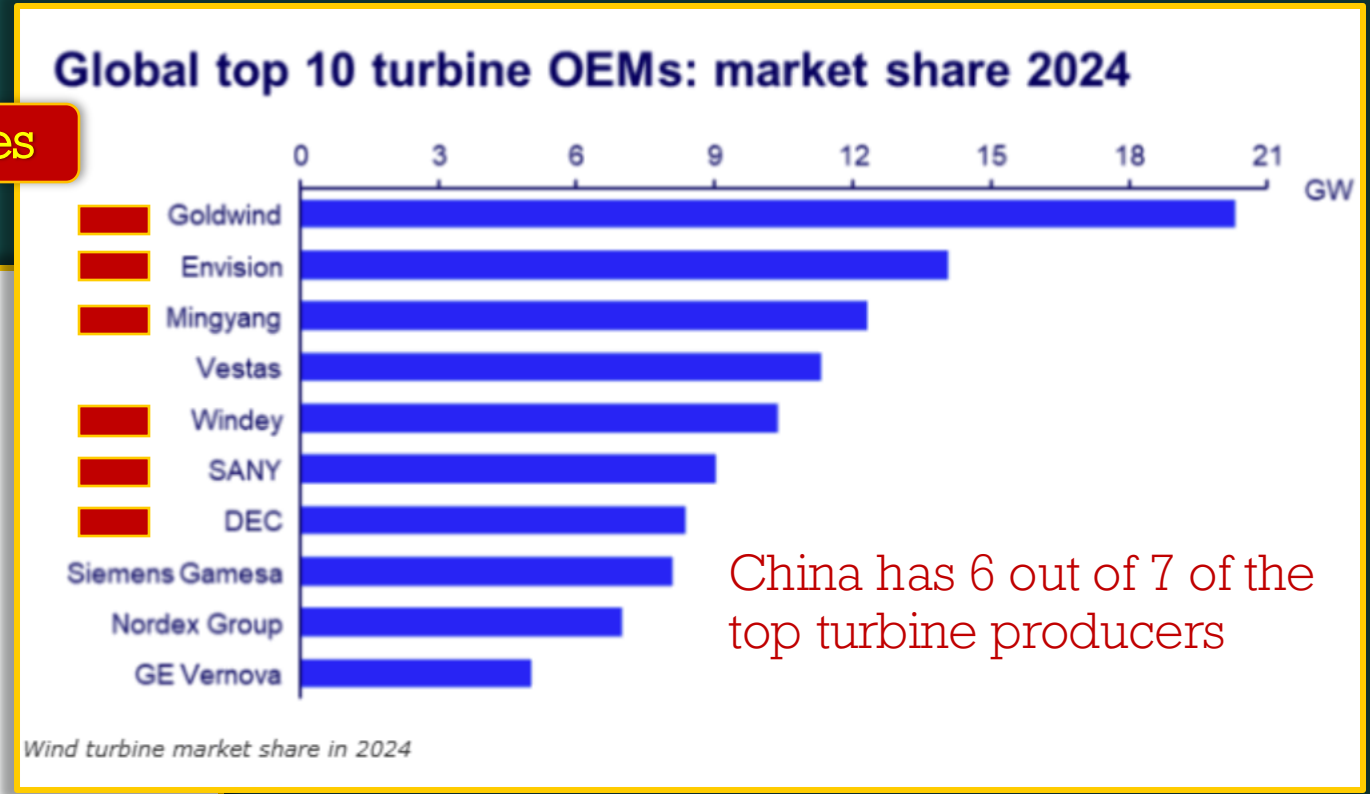
DJI drones helped track and stop the Notre Dame fire

Despite no 2 Parrot being French!

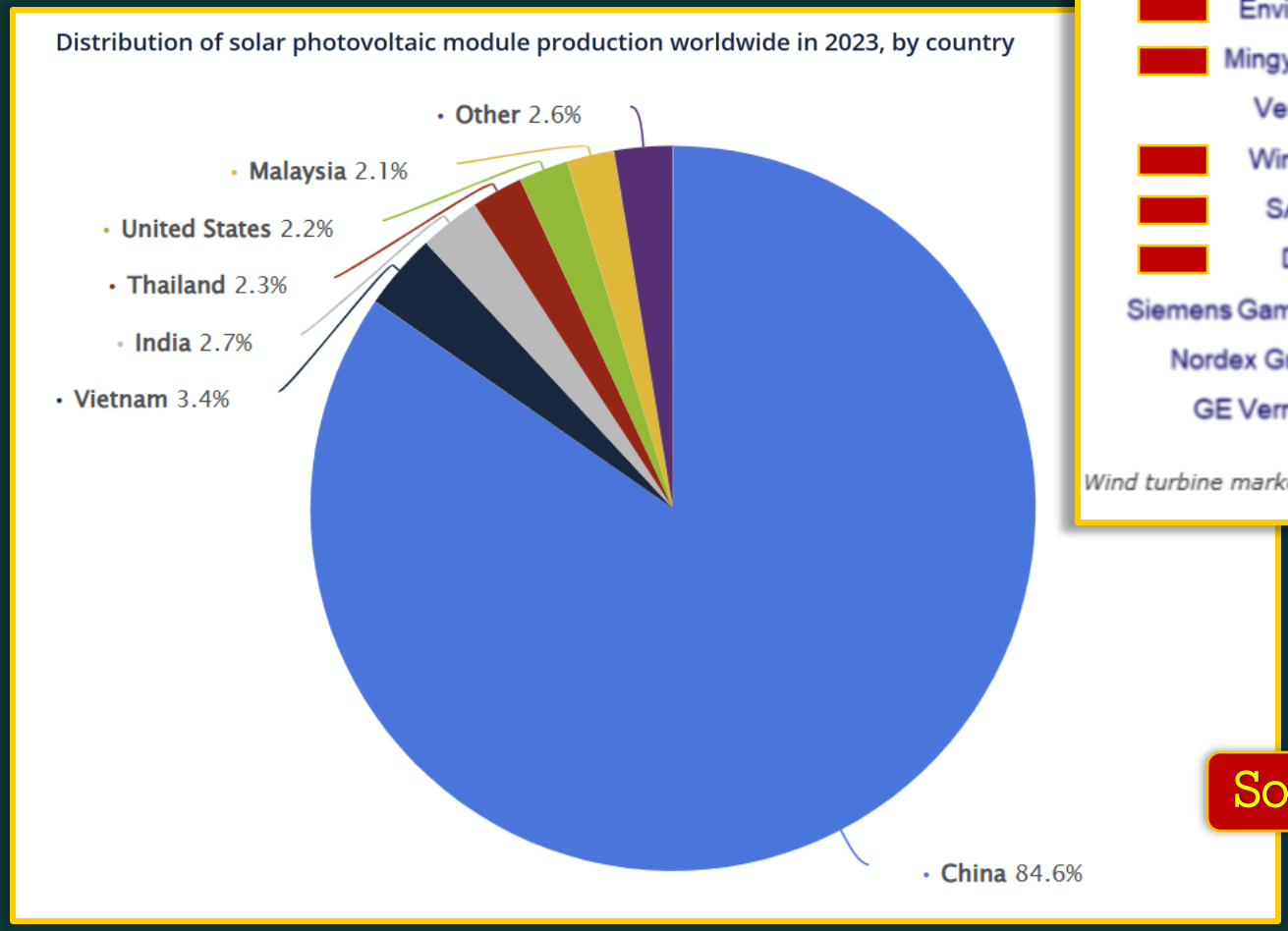
©MP@K

Renewable equipment

Wind turbines



Solar panels



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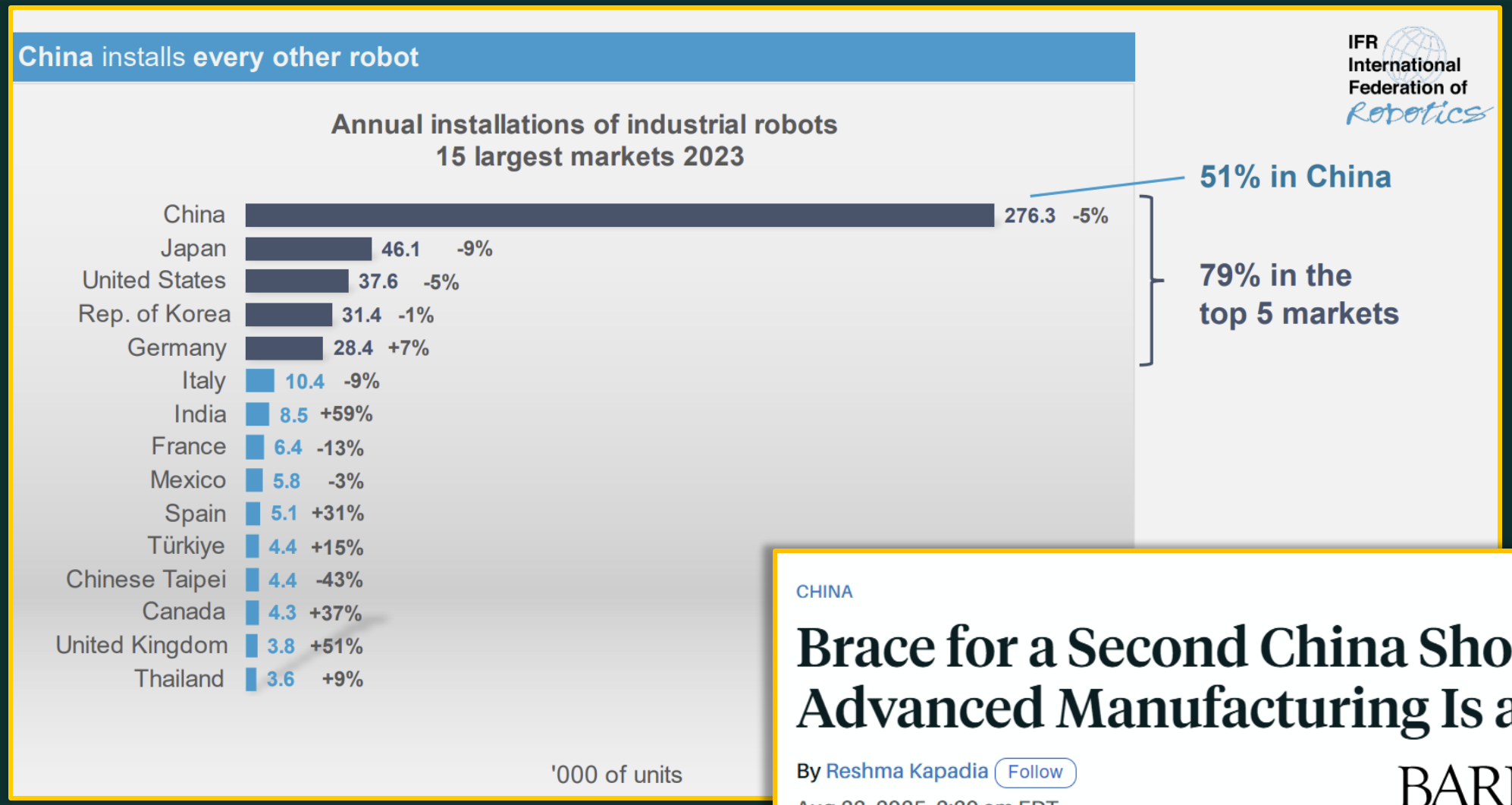
Automation



CHINA

Brace for a Second China Shock. Advanced Manufacturing Is at Risk.

By Reshma Kapadia Follow

Aug 23, 2025, 2:30 am EDT

BARRON'S

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Dream on, Donald!

Trump threatens 25% tariff on Apple and Samsung phones not made in US

Xiaomi's 'Dark Factory in Beijing

Fully automated, worker-free, AI-assisted. Output? 10m mobile phones p.a.

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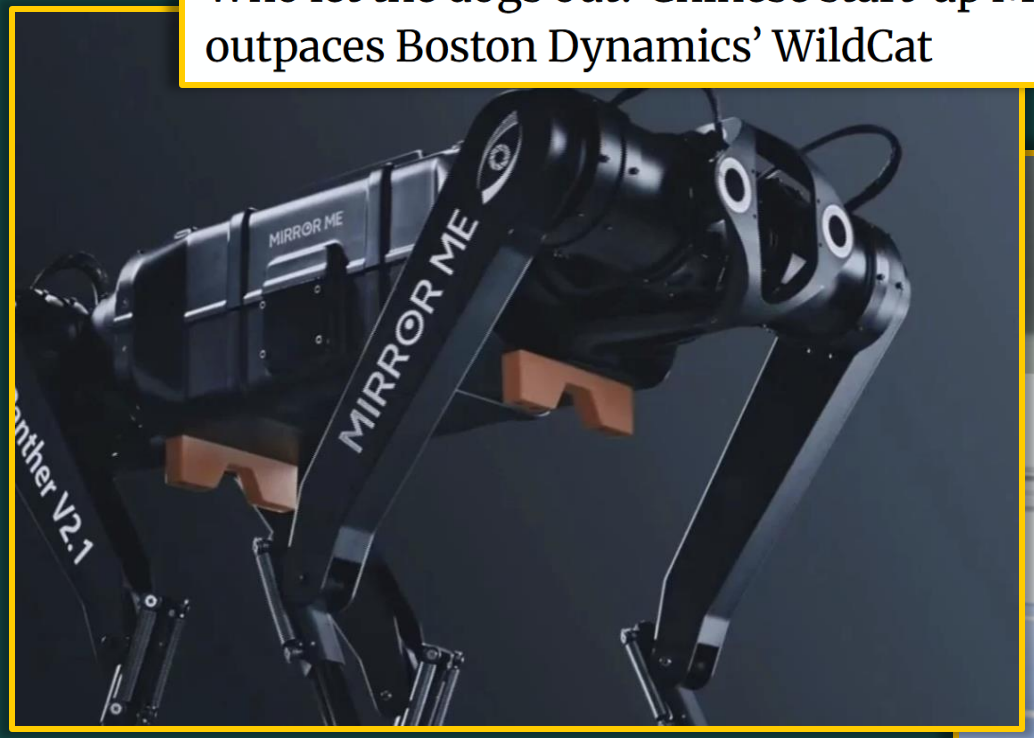
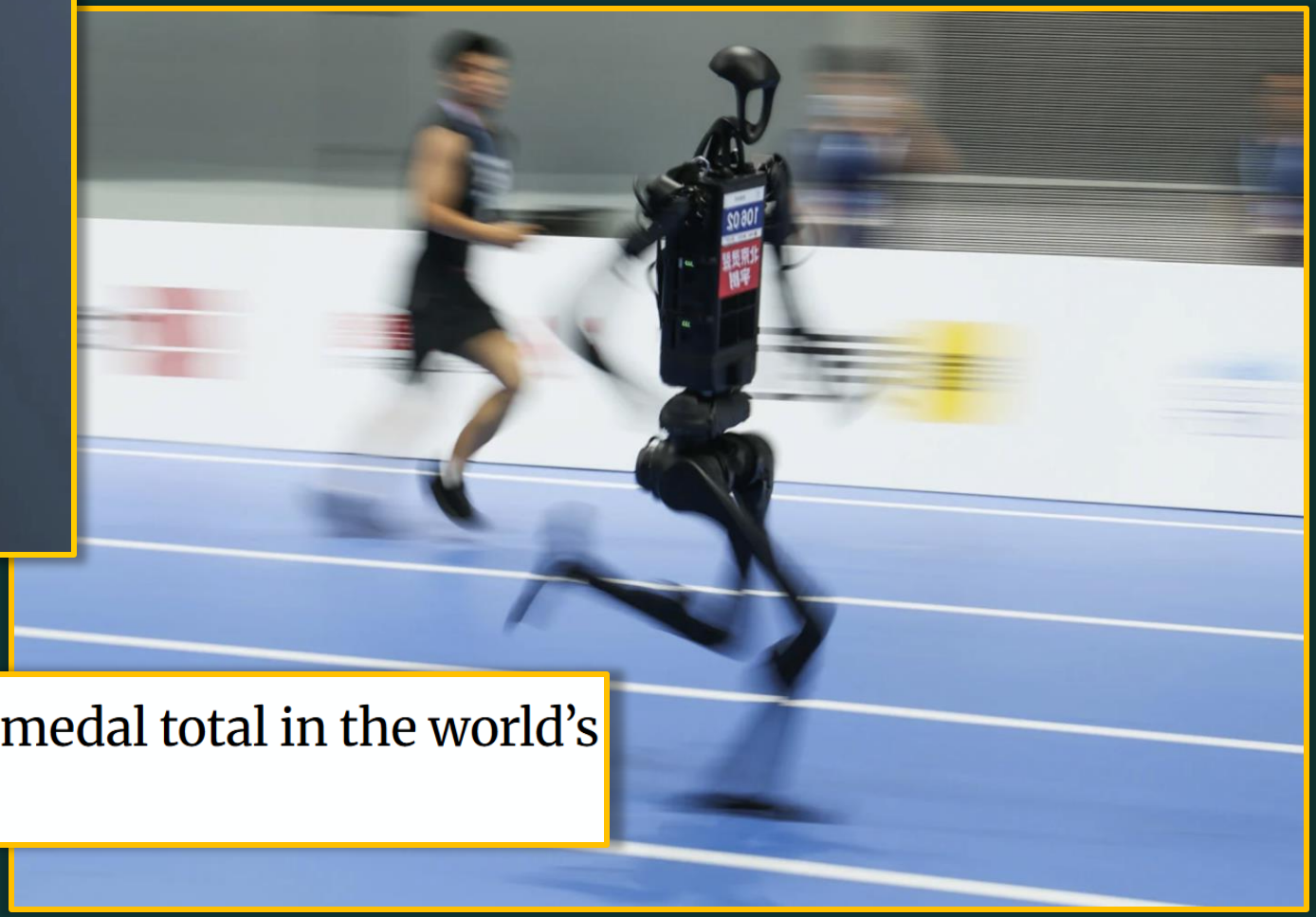
Robots

Who let the dogs out? Chinese start-up Mirror Me's robot outpaces Boston Dynamics' WildCat





China's Unitree, X-Humanoid top medal total in the world's first humanoid robot games

©MP@K

The Big Question
…or one of them! Who wins?

- Specialist China versus generalist US
- Low-cost China versus high-cost US
- More ‘attention to technical detail’ China versus more ‘creative’ US
- More production-oriented China versus more service-oriented US
- ‘Open Source’ China versus proprietary US

HOME » TECH

Why DeepSeek AI has the tech world on red alert

A Chinese chatbot just beat ChatGPT—and U.S. lawmakers are not having it

BY MIRIAM MUSA JUL 03, 2025 12:29 PM

DeepSeek represents a shift in the global tech narrative

China may now rival the US in both software and hardware capabilities

ChatGPT vs DeepSeek

ChatGPT	CATEGORY	DeepSeek
Developed by OpenAI, based on GPT-3.5 and GPT-4. A general-purpose conversational AI.	Overview	Developed by DeepSeek AI, tailored for enterprise-level applications andindustry-specific solutions.
Built on GPT architecture using transformer-based neural networks.	Architecture & Technology	Uses a hybrid architecture combining NLP, ML, and DL for domain-specific tasks.
Trained on a diverse dataset, suitable for general topics but lacks specialization.	Training Data & Specialization	Trained on industry-specific datasets withdeep expertise in sectors like finance, healthcare, and logistics.
Customer support, content creation, education,personal assistants.	Key Use Cases & Applications	Financial analysis, healthcare, logistics, legal applications.
Limited customization, fine-tunablefor some tasks but not deeply specialized.	Customization & Adaptability	Highly customizable for industry-specificneeds,integrated with enterprise systems.
Great at generating human-like text but can produce inaccurate or irrelevant responses.	Performance & Accuracy	High accuracy and relevant responses, especially in specialized domains with structured data.
Scalable for general-purpose tasks across various platforms.	Scalability & Deployment	Optimized for large-scale enterprisedeployments, integrates with ERP systems.
Versatile across multiple topics.- User-friendly and accessible.-Fast development with pre-trained models.	Strengths	Expertise in specialized industries.- Highly accurate responses.- Customizable for enterprise needs.
May struggle with technical or domain-specific queries.- Can generate incorrect responses.	Weaknesses	Complex deployment and integration.-Higher development and deployment costs.
General-purpose AI tasks.- When domain expertise is not critical.- Cost-effective,easy deployment.	Ideal For	Specialized industries like finance, healthcare, or logistics.-Applications needing high accuracy & domain knowledge.- Businesses with the resources for customization.
Larger datasets and advanced models like GPT-4.- Focus on reducing inaccuracies & enhancing domain-specific features.	Future Trends	Complex deployment and integration.-Higher development and deployment costs.

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High tech products where China does not clearly lead

- Commercial Aircraft. Who leads? Europe's Airbus with the US's Boeing stumbling
- Industrial robots. Who leads? Japan's Fanuc
- Microchips: Who leads? US's Nvidia
  - Microchip manufacture: Taiwan's TSMC and Korea's Samsung
- EUV machines: Who leads? Netherlands' ASML
- Pharmaceuticals: US and European Big Pharma
- Satellite communication: US's Starlink

China approving innovative drugs at record pace as discovery momentum shifts from West

'If we're not careful, every drug could be made in China,' warned former head of US Food and Drug Administration in May

Chinese satellite achieves 5 times Starlink speed with 2-watt laser from 36,000km orbit

Chinese scientists use 'groundbreaking' method to push data through turbulent skies from Space to Earth in less than five seconds

South Africa courts another Chinese Starlink rival

How Chinese scientists cracked the secret of organ regeneration

Chinese scientists who discovered a 'genetic switch' that restored damaged mice ear tissue say their research could one day help humans

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ARTIFICIAL INTELLIGENCE

AI is being applied in almost every field

- Robotics
- Manufacturing
- Transportation
- Computer tech
- Data analytics
- Healthcare
- Finance
- Retail
- Education

60 of the world's top 100 AI brains are Chinese: 50 work in China, 10 in the US. (UNIDO) China holds 70% of the world's AI patents

Alibaba upgrades flagship Qwen3 model to outperform OpenAI, DeepSeek in maths, coding

China tops India, US and EU with growing pool of open-source developers, experts say

The level of contribution from China to global open-source projects grew more than 10 times between 2015 and 2024, according to OpenRank

Chinese open-source AI models occupy top spots among global developers: ranking

Kimi K2, MiniMax M1, Qwen 3 and a variant of DeepSeek R1 rank as the world's top open-sourced AI models, according to LMArena

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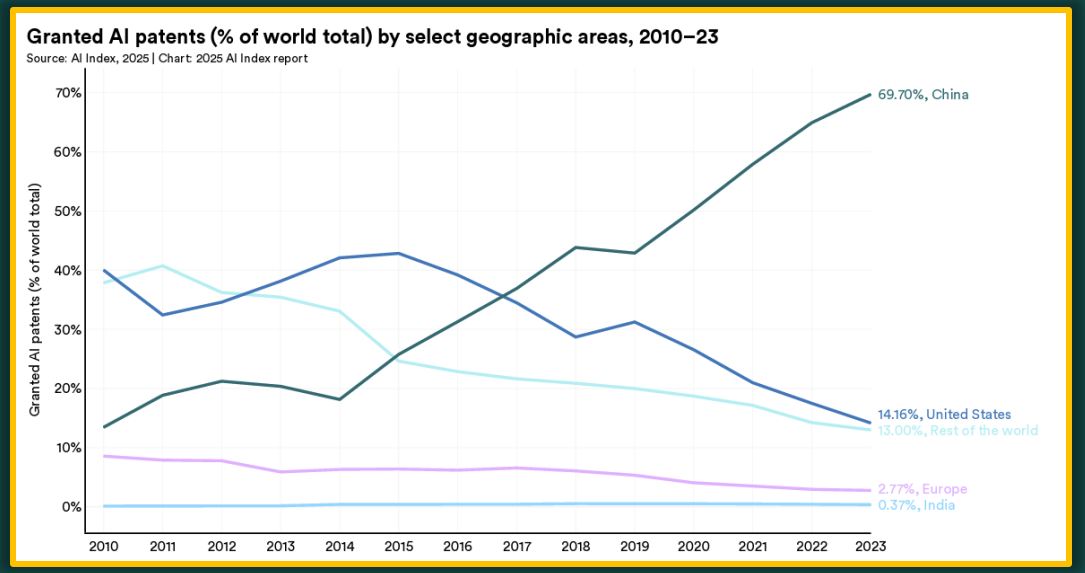
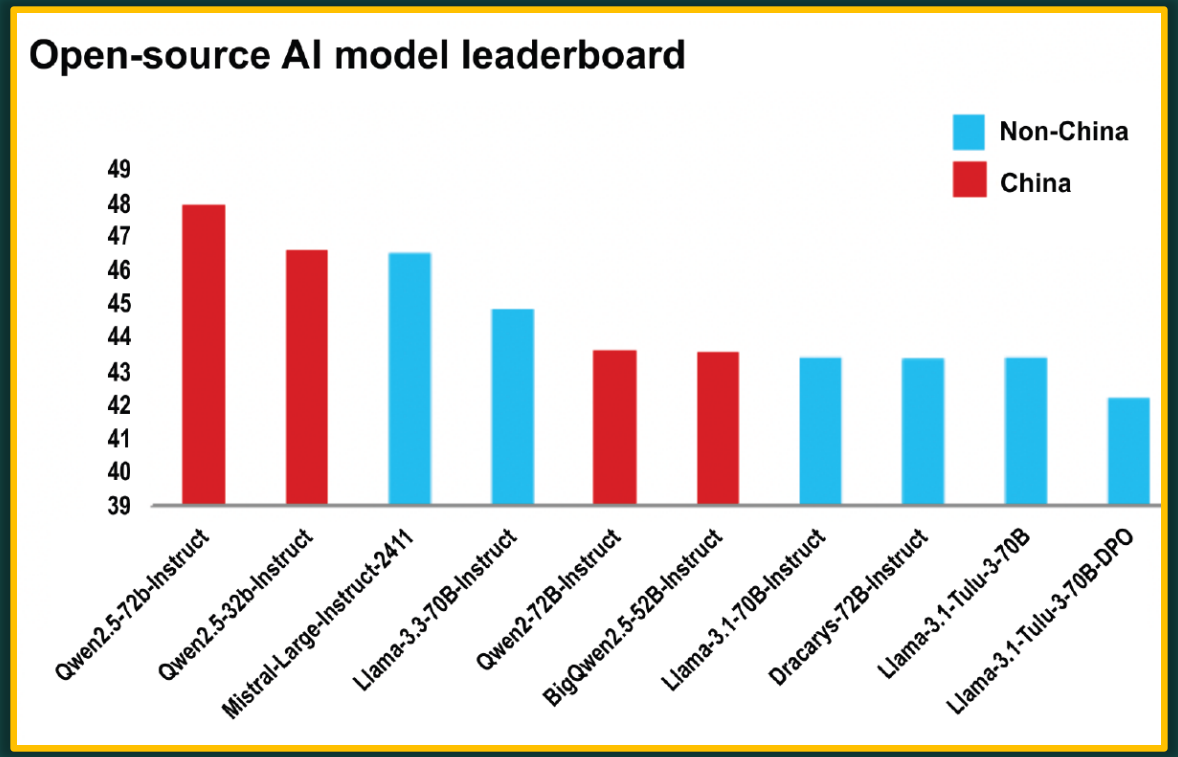
China's different approach to AI

- Using its abundance of data – 1.4bn citizens – helps China can carry out deployment of AI breakthroughs
- 43% of China's AI capex is destined for industry; 3% in the US
- China has built 30,000 smart factories, 1,200 advanced, 230 supersmart
- China champions "*Embodied AI*" versus US's "*Cloud-based AI*"
- Open source, embodied AI is more of a force multiplier than proprietary, cloud-based AI





The cost of electricity and data in a world of AI

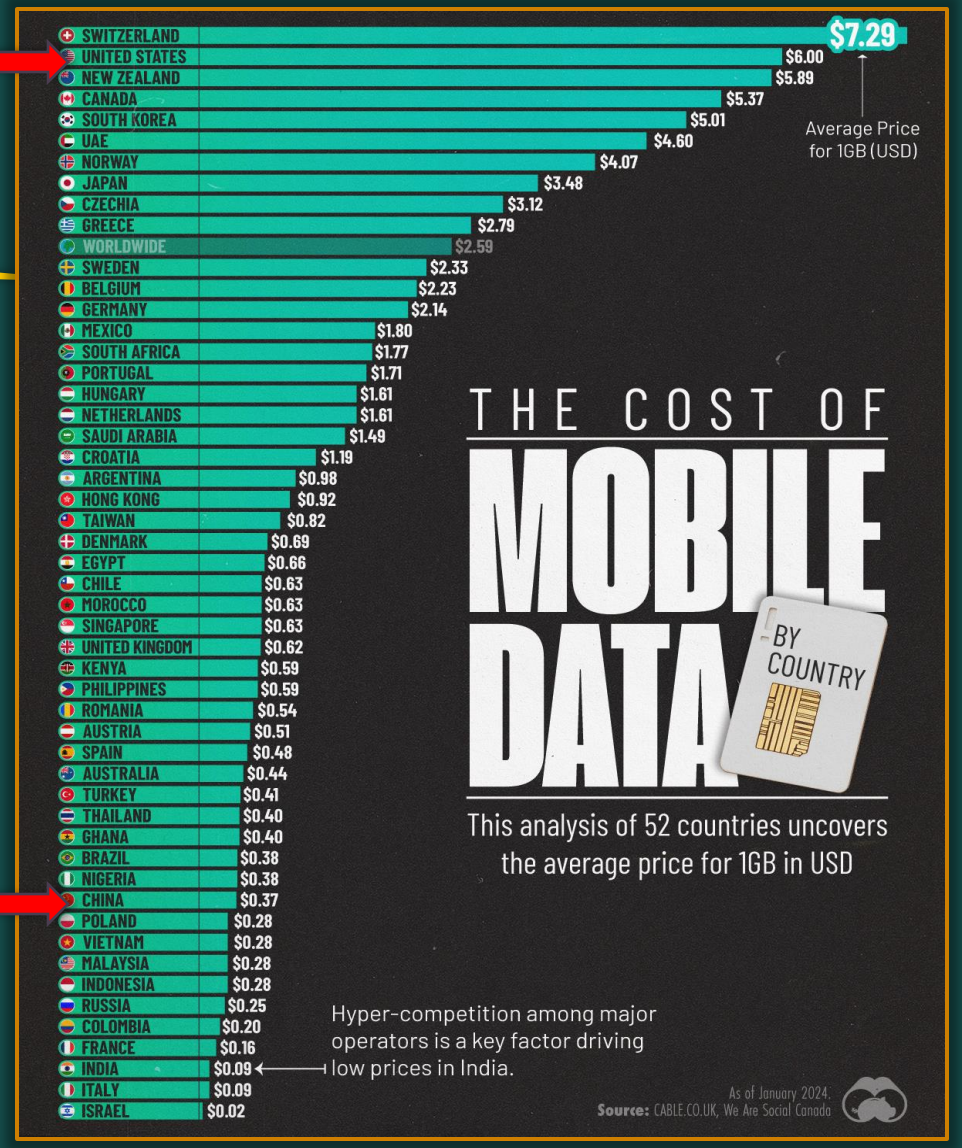
US mobile data costs 16x more than China's…
…and electricity costs are 30% more…

Average Electricity Cost of 1 kWh (USD) in Top Economies

01		$0.109	06	UK	$0.251	11	Russia	$0.050
02		$0.084	07	France	$0.173	12	Mexico	$0.052
03	Germany	$0.323	08	Brazil	$0.099	13	Australia	$0.172
04	Japan	$0.211	09	Italy	$0.201	14	South Korea	$0.133
05	India	$0.092	10	Canada	$0.124	15	Spain	$0.199

Source: PV Magazine

Chinese industrial electricity prices remained the same from 2020-2025;
US: up 14%...of which 7% in 2025



Source: Visual Capitalist

"Today, access to electricity supply is the binding constraint on continued U.S. leadership in AI." The 2025 CSIS report

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AI + Automation + Renewable Energy = Brave New World

Xiaomi's new EV factory in Beijing

Xiaomi produced its first EV last year. This year it broke Germany's Nürburgring racetrack EV record.

©MP@K

Conclusions

What the US misses about China's master energy plan

Why China is surging ahead of Trump's America in green energy race

Trump cuts are crippling US clean energy endeavours, while Beijing is building on its title as the world's largest investor in the sector

Source: Cartoon by Stephens

China is 're-engineering' so 're-energizing' energy.

Why is this so important ?

Physics 101: WORK IS ENERGY TRANSFERRED

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'Don Quixote' Trump on his nag, Rocinante, tilting at windmills with his lance

Trump hits out at 'ugly monster' wind farms as he backs oil and gas

Cervantes's Don Quixote called windmills '*hulking giants*'

Rhode Island Current

Trump orders Revolution Wind developers to stop offshore project already 80% complete

BY: **NANCY LAVIN** - AUGUST 23, 2025 12:42 PM

The US's carbon straitjacket vs. China's 'Blue Sky' future

End 2023 unless stated otherwise	US	China
Global installed wind capacity share	19%	59%
Global installed solar capacity share	7%	43%
Global installed hydro capacity share	6%	42%
Share of global solar panel production	1%	72%
Share of global wind turbine production	7%	65%
Share of global battery production	small	87%
Share of electric vehicle sales (2024)	8%	76%
Nuclear Power stations being built (end 2024)	0	25 out of 53 worldwide

Trump Says Clean Energy Is a Scam. That Could Benefit China, Experts Say.

Top US Utility Says Gas Can Meet Only a Fraction of Power Demand

Donald Trump's attacks on renewables sector quash nearly $19bn worth of projects

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China reborn

Opinion **Chinese economy**

The myth of the suppressed Chinese consumer

In reality, the country has the fastest household spending growth rate of the 21st century

RUCHIR SHARMA + Add to myFT

So far this century, in real terms, private consumer spending in China has grown more than 8 per cent a year, faster than in any other economy — by far.

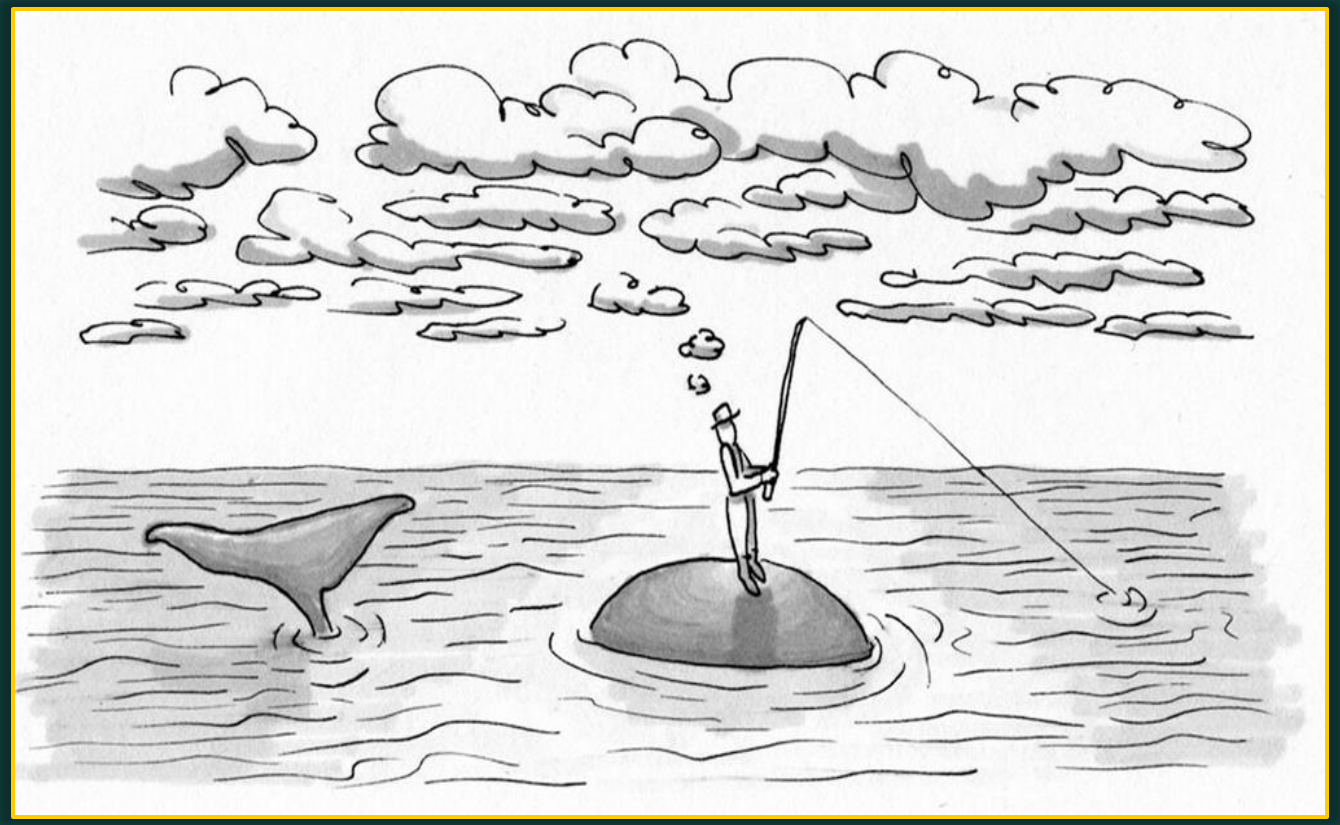
The Western narrative maintains that China:

- …does not spend enough on consumption…
- …invests too much on fixed assets…
- …and has massively increased debt to GDP

THE ALTERNATIVE TRUTH:
China has used debt to build a BRAVE NEW WORLD,
a world based on very low cost, renewable energy powering an increasingly automated, AI-assisted, high tech industrial process

US understanding is largely oblivious to China's tech rise

- The "CNBC-land" narrative is fixated on – AND BLINDED BY! – market cap…
- …even if China is part of Tesla's stumble, Apple's wobble and Nvidia's challenge
- For now, China prioritises "*goods production before service delivery*"
- That said, TenCent's WeChat is way more capable than WhatsApp or 'whatever'…
- …whilst Tiktok is the most downloaded app in the world…
- … and Temu has revolutionized online shopping, even as Trump tries to block it…
- …just as Chinese cars are flooding world markets, but banned in the US



Shenzhen-Hong Kong-Guangzhou region ascends to top of global innovation clusters

By Chi Jingyi

Published: Sep 01, 2025 10:47 PM

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Thank you

60 of the world's top 100 AI brains are Chinese:
50 work in China,
10 in the US. (UNIDO)

ASPI has tracked critical technologies since 2023, backdating their ranking methodology to 2007

Number of sectors at No. 1	2007	2024
	60	7
	3	57

Of 64 critical technologies, 57 are now led by China

GII Global Top 15 Innovation Clusters by Size, 2025

Rank	Cluster name	Economy	PCT applications	Scientific publications	Venture capital deals
1	Shenzhen–Hong Kong–Guangzhou	China / Hong Kong, China	117,542	193,635	6,916
2	Tokyo–Yokohama	Japan	135,129	115,773	5,154
3	San Jose–San Francisco	United States of America	50,813	56,510	16,296
4	Beijing	China	49,792	331,874	6,727
5	Seoul	Republic of Korea	71,318	142,509	7,376
6	Shanghai–Suzhou	China	42,819	206,292	8,705

"I have never seen a wind farm in China. Why is that? Somebody check that out." Donald Trump, 6th July 2025

The latest threat from the rise of Chinese manufacturing: MIT Technology Review – 7/7/25 The latest threat from the rise of Chinese manufacturing | MIT Technology Review

- MIT economist David Autor first documented the loss of millions of jobs to Chinese imports a decade ago. Now he sees an even more serious danger if the US loses the race for advanced manufacturing.
- "We're in the midst of a totally different competition with China now that's much, much more important. We're not talking about commodity furniture and tube socks. We're talking about semiconductors and drones and aviation, electric vehicles, shipping, fusion power, quantum, AI, robotics.
- These are the sectors where the US still maintains competitiveness, but they're extremely threatened. China's capacity for high-tech, low-cost, incredibly fast, innovative manufacturing is just unbelievable. And the Trump administration is basically fighting the war of 20 years ago. The loss of those jobs was devastating to those places. It was not devastating to the US economy as a whole. If we lose Boeing, GM, and Apple and Intel—and that's quite possible—then that will be economically devastating.