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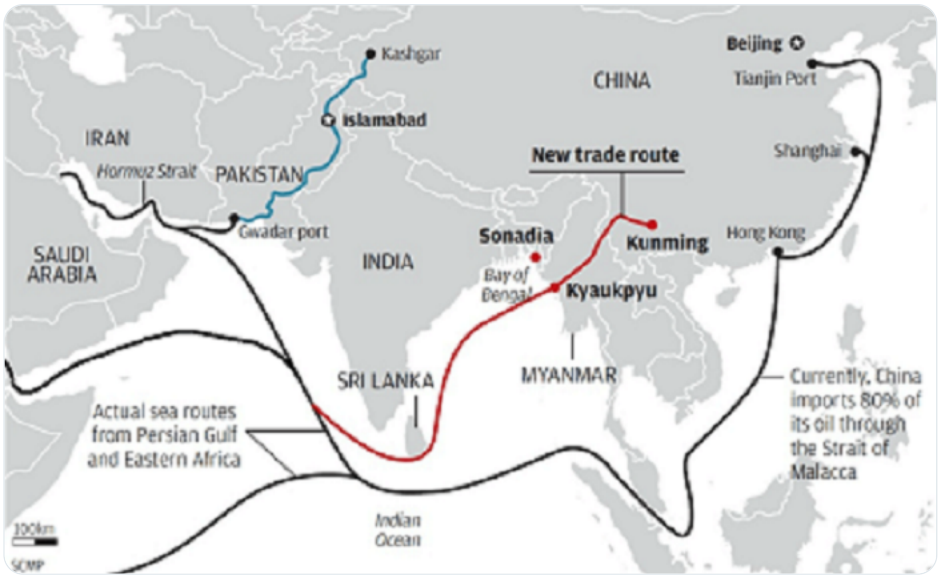
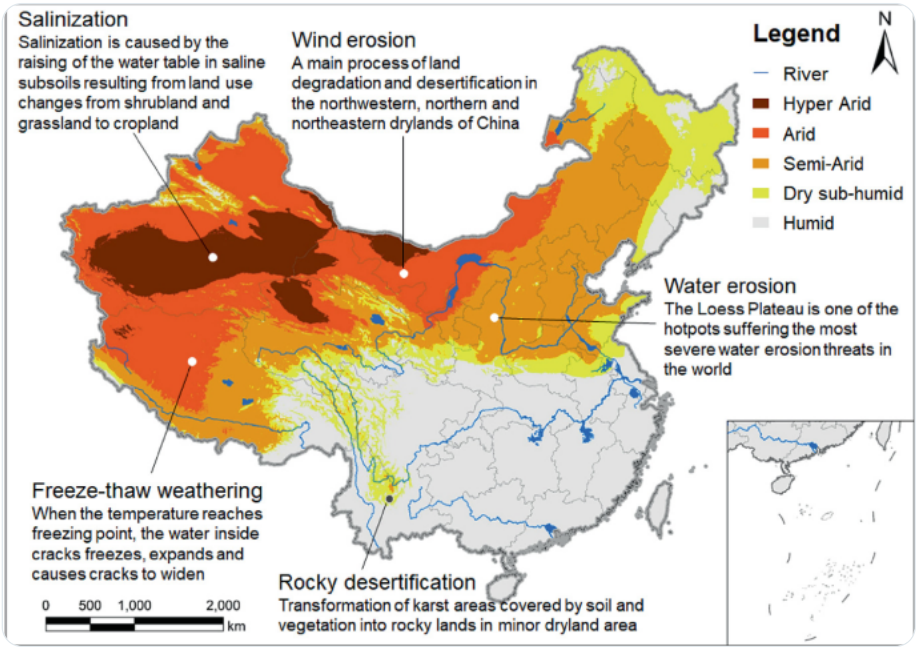
Apr 6, 2025 • 13 tweets • tphuang/status/1909019060395794554

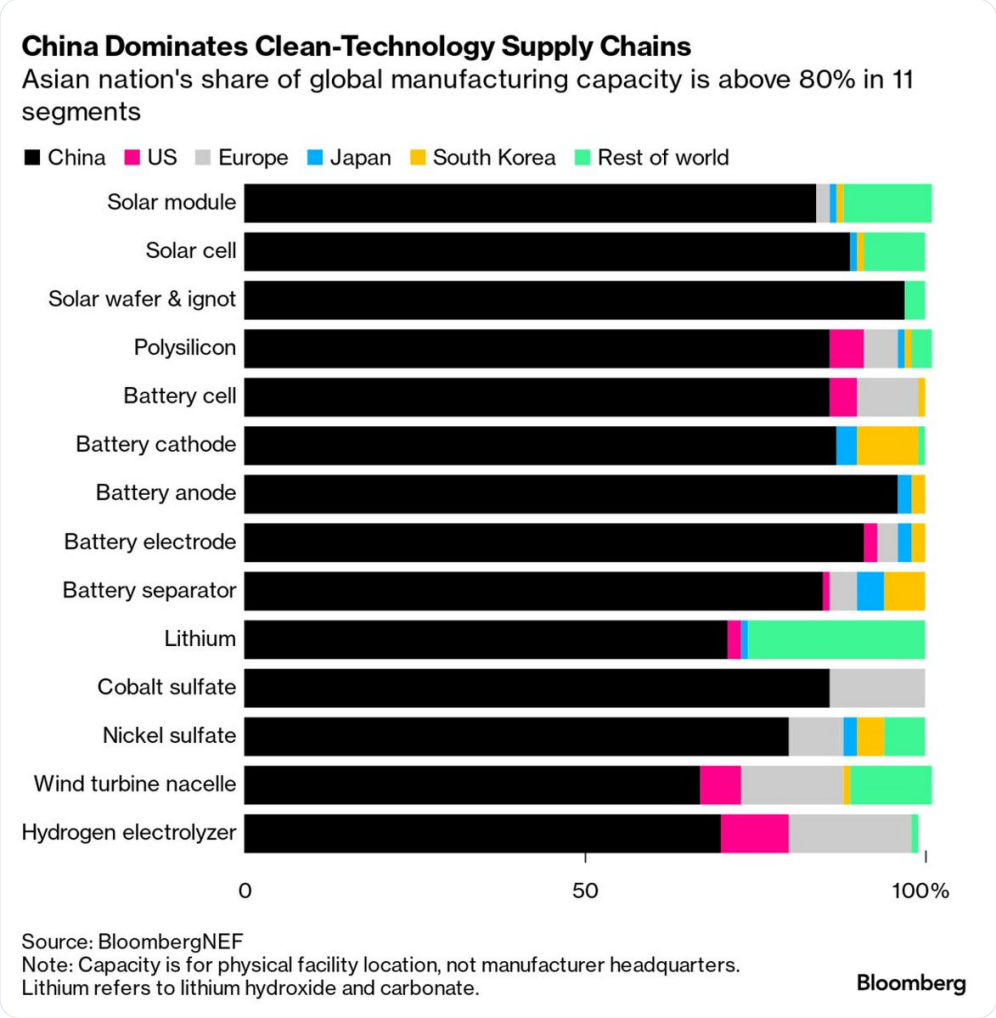
Back 15 yrs ago, Chinese development faced 2 distinct problems:
1) Energy dependence on Indian Ocean sea lane w/o Navy to defend it
2) Over dependence on Mkt access & Tech from Western countries.
Focusing on 1) today, let's discuss what China is doing for energy independence.



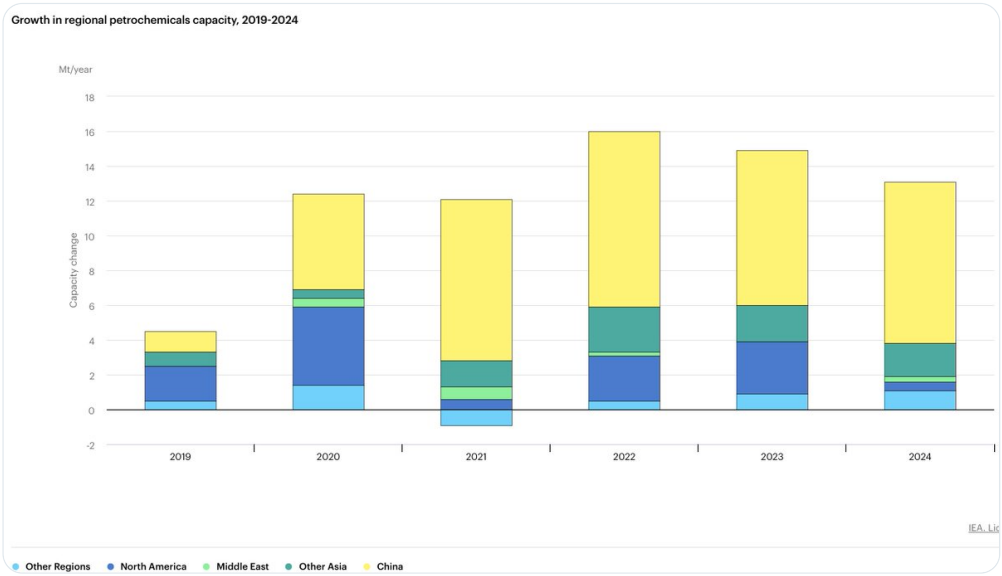
WCF saw that China was facing this energy issue when building BYD. He saw China had huge solar potential w/ vast amount of Arid, lowly inhabited land.
Solar required battery to deal w/ intermittency issues.
By electrifying cars, buses & trucks, China reduces its oil dependence.

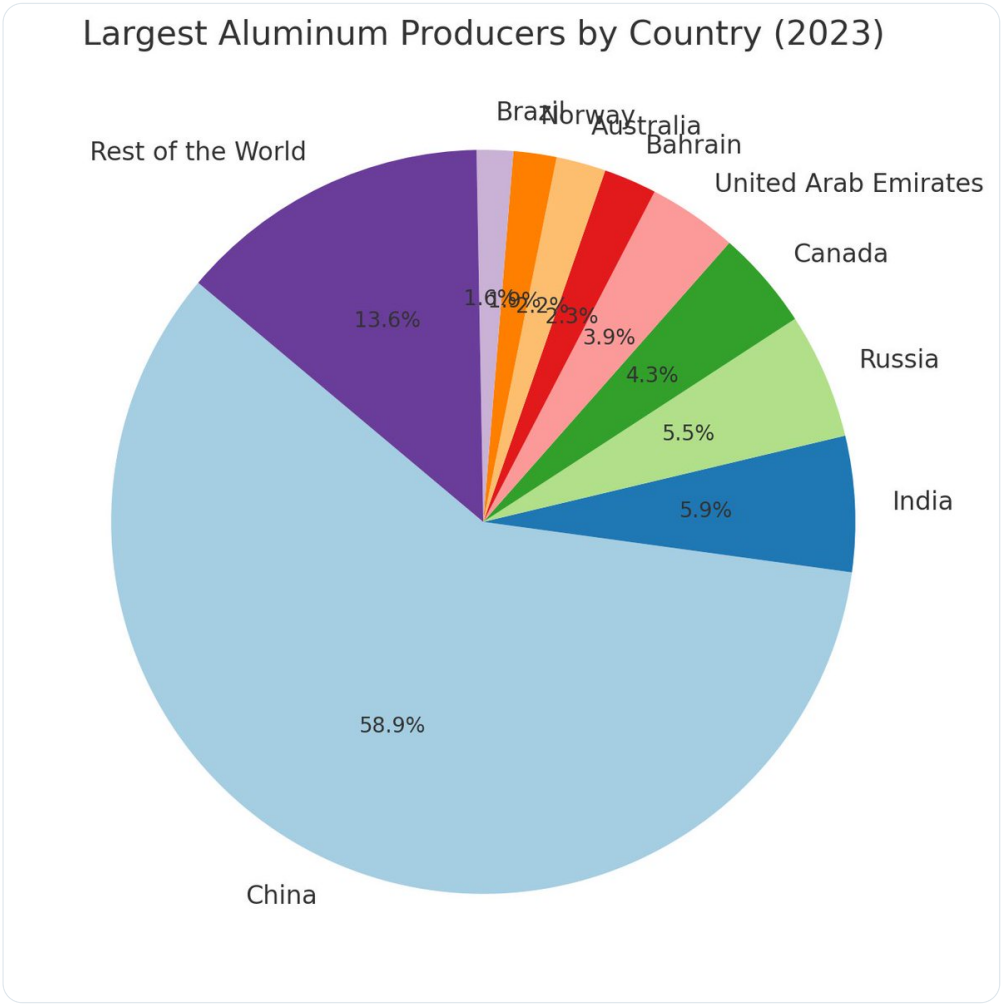


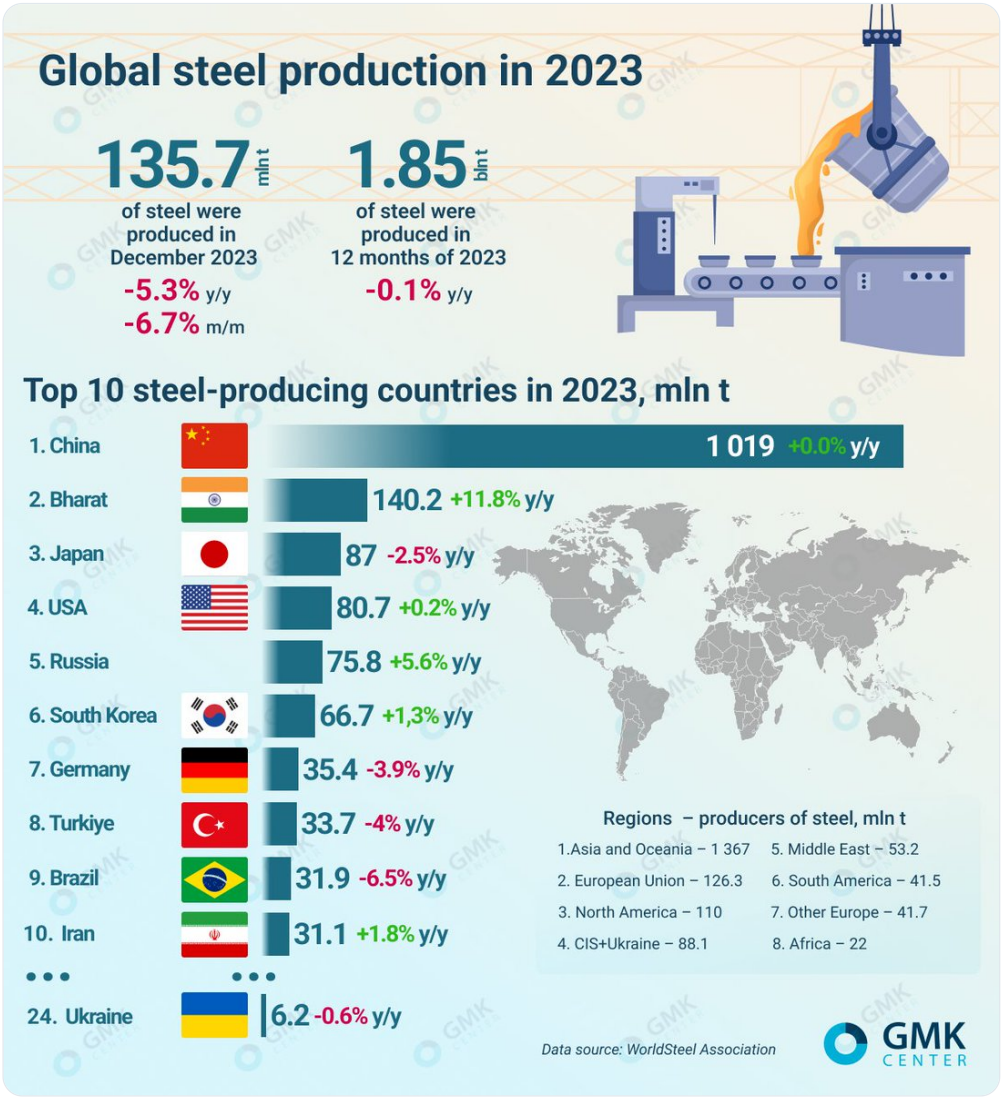
Chinese policy makers helped w/ BRI & such, but private business like BYD also saw the need & opportunity so they rushed in & invested to build the formidable supply chain that we see today all the way down to critical minerals, RE magnets, battery materials & solar ingots.

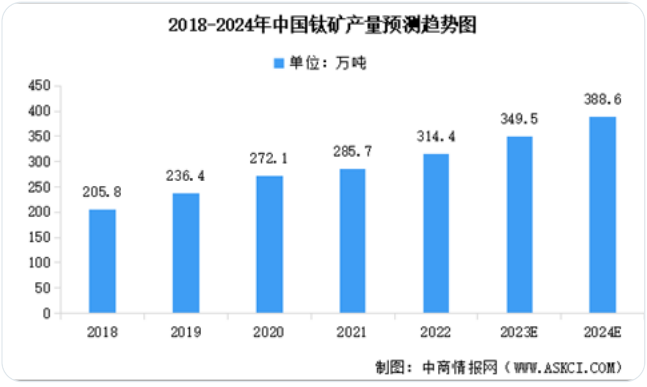


Along the way, China industrialized across all metal & chemical sectors. It now has the most petrochem capacity as well as Aluminum, steel, Titanium & many other building blocks needed by renewable industry.
And it's building up huge power IC & MCU needed by EVs & renewable grid.


Growth in regional petrochemicals capacity, 2019-2024
Mt/year
Capacity change
18
16
14
12
10
8
6
4
2
0
-2
2019
2020
2021
2022
2023
2024
Other Regions
North America
Middle East
Other Asia
China


Largest Aluminum Producers by Country (2023)
Brazil
Norway
Australia
Bahrain
United Arab Emirates
Canada
Russia
India
China
Rest of the World
13.6%
58.9%
5.9%
5.5%
4.3%
3.9%
2.3%
2.2%





We now reach the point where they have 2TW of non-fossil fuel power generation w/ 1460GW being solar & wind. All while its electricity demand has exploded to being well over 2x that of US.

Gasoline & diesel demand has plateaued. This addresses about 45% of China's crude demand.

我国非化石能源发电装机首次达20亿千瓦

中国电力企业联合会最新统计数据显示

截至2月底

我国非化石能源发电装机规模

首次达到20亿千瓦

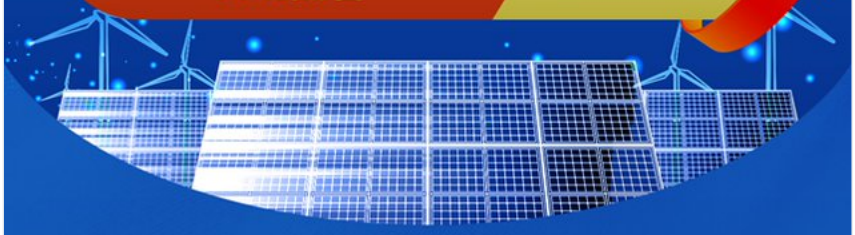
“十四五”以来

非化石能源发电装机规模

实现翻番

累计增长了

103.1%



2025年2月底

全国非化石能源发电装机

占全国总发电装机比重**达到58.8%**

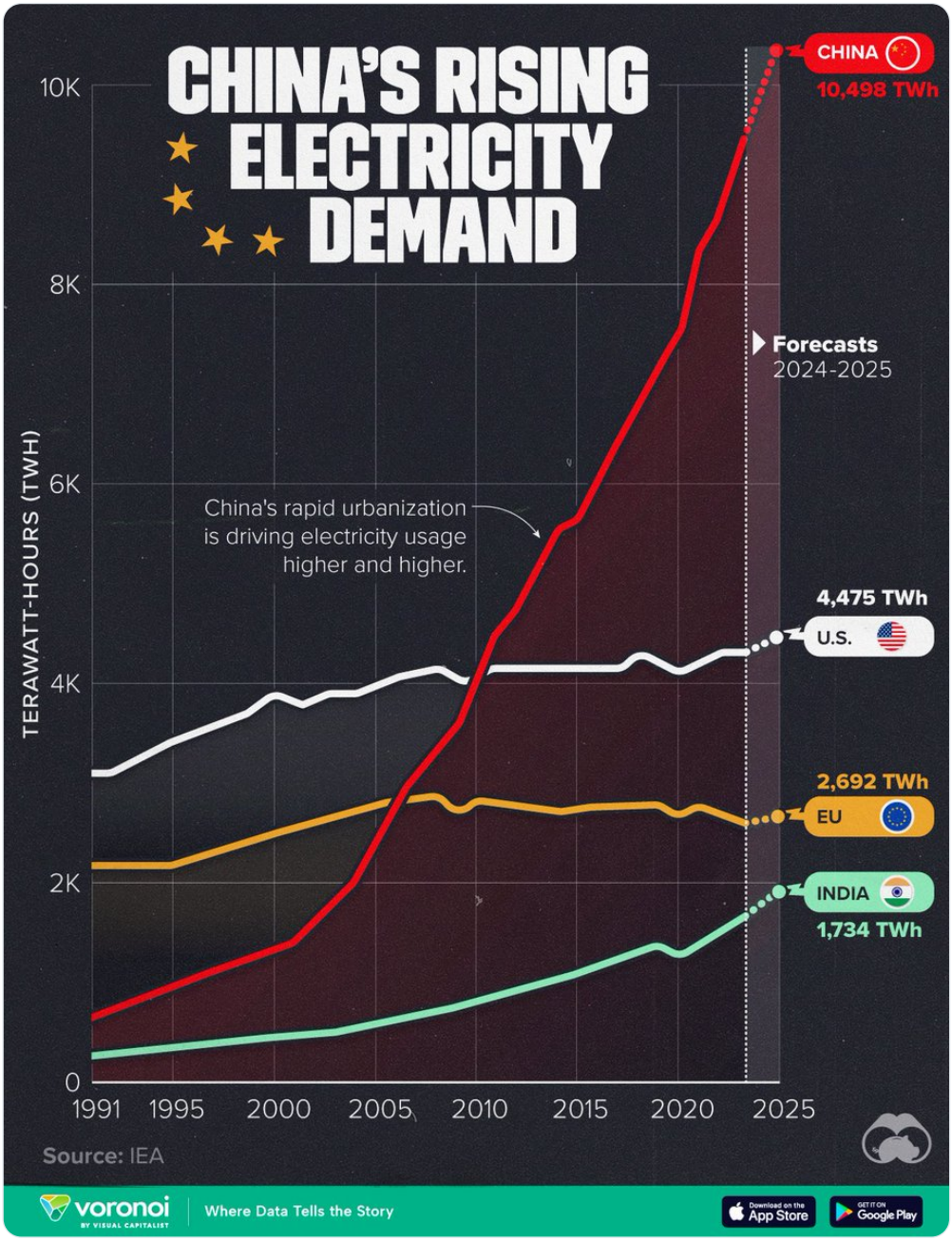
其中

以风电和太阳能发电为代表的

新能源装机**达到14.6亿千瓦**

占全国总发电装机比重**达到42.8%**

新华社发（程硕 制图）



How does China deal w/ the huge petrochemical sector which accounts for 45% of its demand?

Green methanol/ammonia is a major part of this.

Announced green methanol & ammonia projects already meet 43% & 19% of their current need respectively.

Growing rapidly, game changers.

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Promote

钢研氢冶金 investing 660m RMB into green electricity -> hydrogen -> metallurgy project
producing 250kt of casting & forging/yr using direct reduction casting tech.
中国钢研 building world's 1st green H2 vertical furnace industrial demonstration project in Songyuan, Jilin Province
Show more

3 5 70 4.1K

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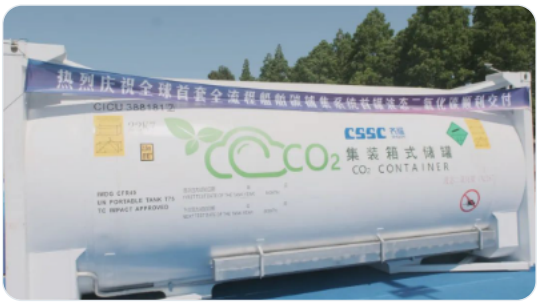
Promote

Mingyang has new 200kt green methanol project in Henan that will produce 200kt of circulating oil/lubricant using 700kW of wind power.
MY has 500kt to 1mt of green methanol projects in 6 Henan cities to replace fossil fuel in shipping fuel, fertilizers, chemical & more.
Very
Show more

It goes beyond just the production of these chemicals, it's also building the transport mechanism around them from Liquid H_2 carriers, VL ammonia carriers, Liquid CO_2 carriers + CCUS system that capture CO_2 from dual fuel ships.
Also building the largest fleet of dual fuel ships

此外，为了应对氢能大规模跨境运输的需求，第七〇八研究所研发一型180000立方级液氢运输船，为了尽可能减少热交换，该船采用表面积体积比最小的双层球罐方案，两层球壳之间抽成真空并进行绝缘填充，蒸发率不超过0.1%，单个球罐容积为45000m³。**该船型总长约为315米，船宽为54米。本船计划采用柴油推进，设计航速为18节，主燃料为MGO，燃油舱布置在船首部区域，与此同时也可应需求选择LNG作为燃料推进。机舱内配置质子交换膜型燃料电池，蒸发氢用于燃料电池发电给船舶供电。**货物机械处所布置在机舱上方，内部布置再液化和压缩机等液货设备，GCU布置在烟囱。为了适当增加吃水深度，本船采用V型船体，设计吃水为10米，压载吃水不小于9米。为满足视线要求，生活楼布置在船首，并在船首布置挡风罩降低航行风阻并减少恶劣工况中砰击上浪对生活区域产生影响。



This includes LNG dual fuel iCER engine, medium speed, low speed & different sized engines.
Methanol dual fuel low & medium engines of different sizes + fuel supply system.
+ Biodiesel marine engines.
+ ports that refuel

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3/29-30th, Shanghai Yangshan Port refueled Korean ship HMM Green in its automated pier w/ 2902t green methanol + 1532 TEU containers. 1st time an internationally operated ship bunkered Chinese produced green methanol.
A step in Shanghai becoming the global green fuel refueling Show more

> **tphuang** @tphuang
> This past wk out of Chinese shipyards.
> Dalian built LNG dual fuel 16000 TEU container ship started sea trials for delivery to MSC
> JN launched another batch of LNG ships, large container ships, VLXC & VLEC.
> Inland shipyard building 6 LNG fuel 1138 TEU container ships
> Adoption of
>
> 
>

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中国船舶 I

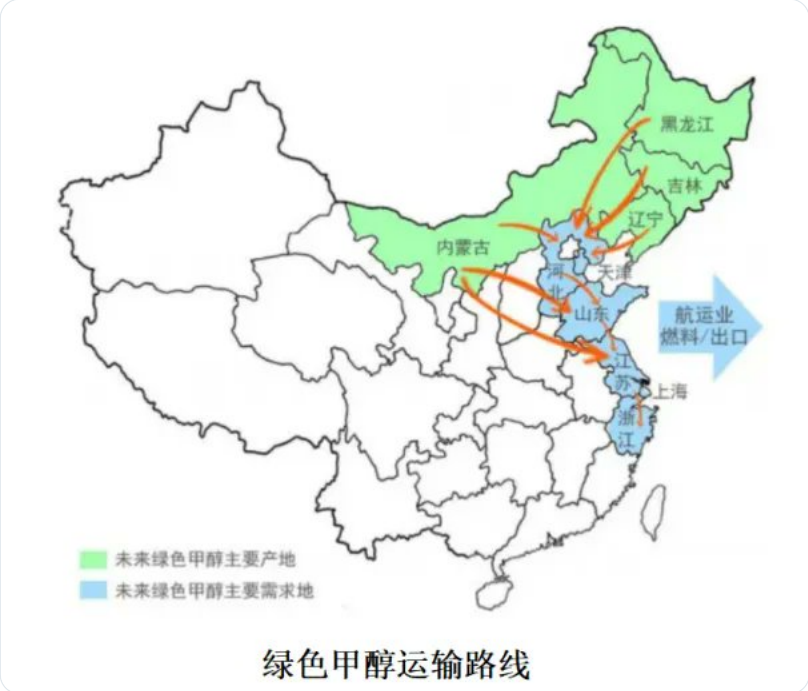
十关注

25-3-28 04:53 来自 微博视频号

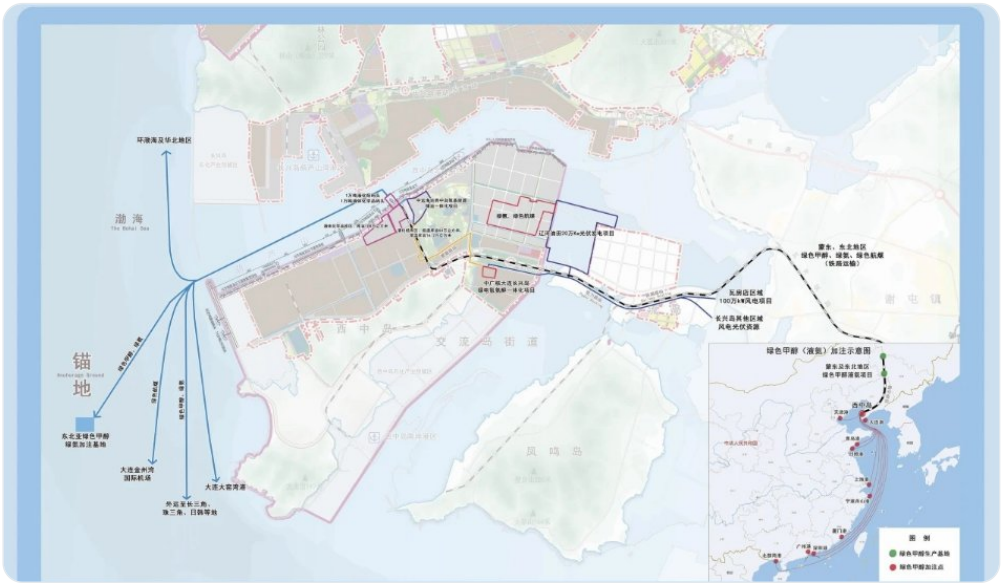
#最硬核的国货购物车#【#我国首型高替代率甲醇燃料船用中速机交付#】3月28日，由中国船舶集团有限公司旗下第七一一研究所完全自主研制的我国首型高替代率甲醇燃料船用中速机成功交付，并新签订8台套甲醇燃料中速机合同订单，标志着我国高端甲醇动力技 术正式由前期研发迈入产业化应用新阶段。#打卡中国船舶# @央企头条 @国资小新 中国船舶的微博视频

Translate content

See Diagram below for where majority of methanol is produced (Northeast + Inner Mongolia) & where they are consumed.
Coastal provinces where the petrochemical bases are & where the ports are.
Domestic usage + export + refueling dual fuel ships

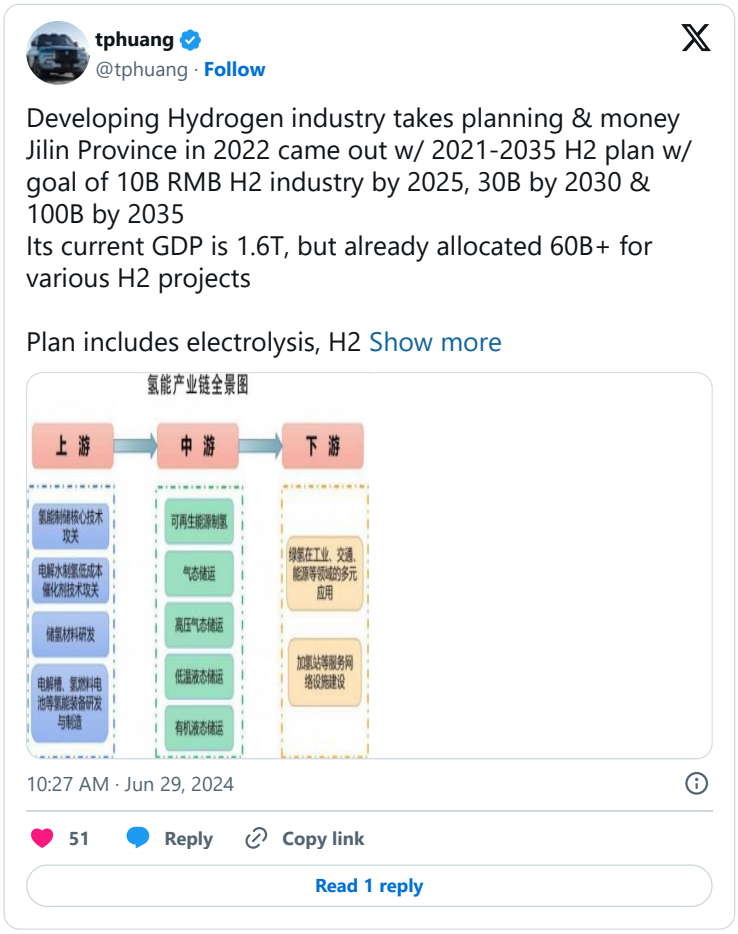


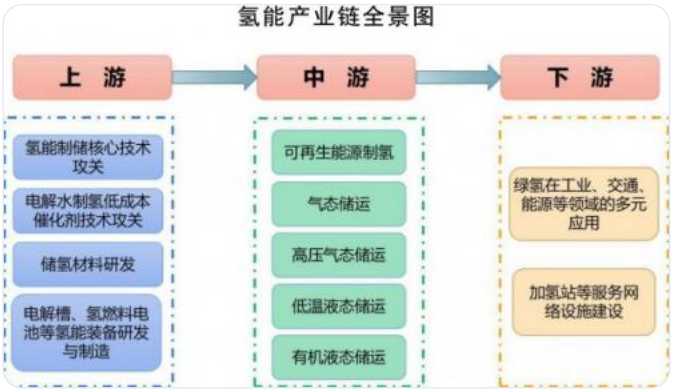
NorthEastern+IM are building pipelines to get green fuel to coastal areas.
Jilin making use of its central location in this network to boost its huge chemical industry.
Dalian is taking advantage of this w/ huge green refueling base in Changxin port + new green chemical base.



These provinces are all developing full Hydrogen industrial chain from electrolysis, storage & fuel cell to production & transport to using it in chemical industries, transportation & metallurgy.

Can this revitalize the Northeast?





As I stated here, Shanghai & other Chinese ports like Dalian & Shenzhen are all looking to become major trading hubs for green fuel & chemicals.

If world moves from fossil fuel to green fuel. Energy sector high value service jobs are moving to China

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Through govt planning, private entrepreneurship & competition ->
China is breaking through on its energy security issues.
Well on its way to electrifying land transport + moving marine & air transport to green H2 based fuel
+ leading the way in H2 derivatives for chem industry

• • •