ASSOCIAZIONE ITALIANA ECONOMISTI DELL'ENERGIA

AIEE

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Energy Efficiency and future strategies of the energy industry

December 16th 2022

7th AIEE Symposium on Energy Security
Virtual Conference

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What does REA Mean?

- Independence
- Unique background
- Integrated approach

What does REA mean?

REA is an independent advisory and engineering company specialized in providing consulting services in the field of renewable energy, utilities and infrastructures, with main focus on RES electricity generation, power markets, green technologies and waste & water services.

Member of trade and lobby associations

AIAS

ELETTRICITÀ FUTURA
imprese elettriche italiane

Technical Advisor provider for Conto Termico 2.0 controls and Sardinia Region

GSE Gestore Servizi Energetici

REGIONE AUTÒNOMA DE SARDIGNA
REGIONE AUTONOMA DELLA SARDEGNA

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LUISS BUSINESS SCHOOL

University network

Bankable advisor for + 15 leading financial institutions

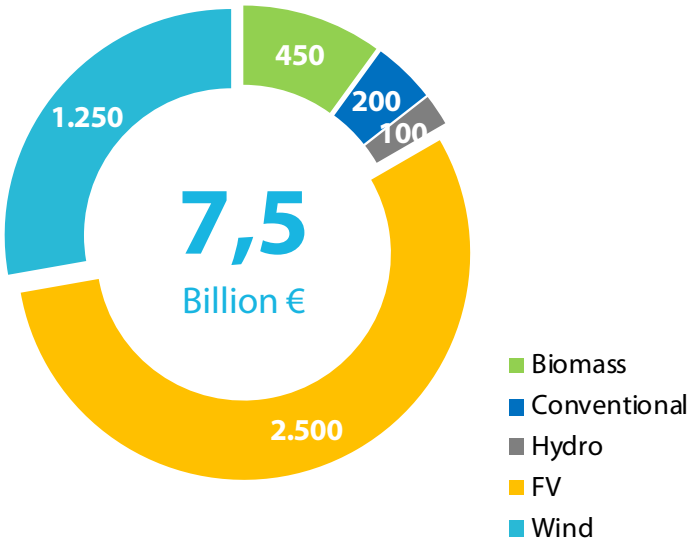
REA - Reliable Energy Advisors

A national advisor with a relevant track-record and multidisciplinary approach

REA client selection of

+200 in energy, waste&water and infrastructures

REA advisory cumulated track-record as of December 2021



2

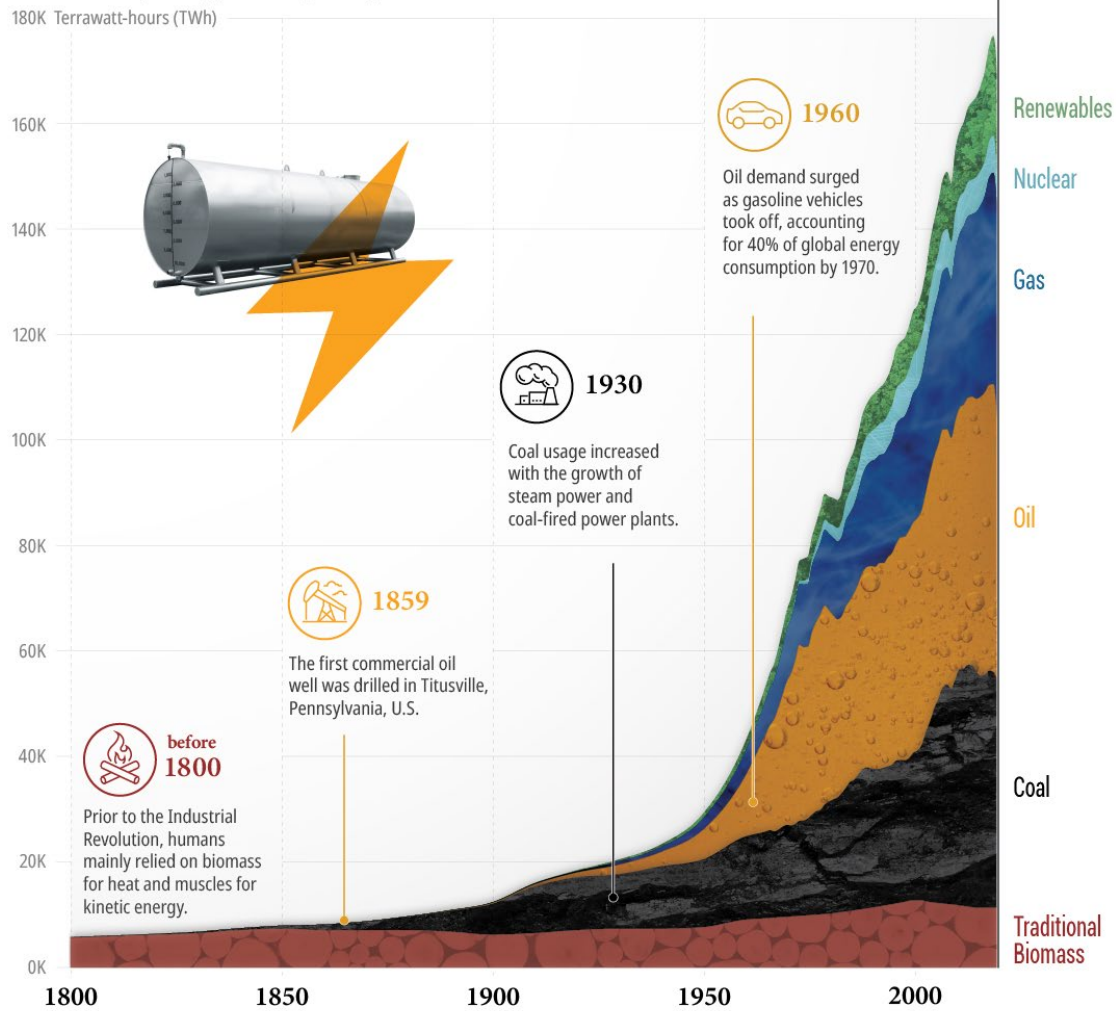
Market Challenges

Energy Transitions

The economic and technological advances over the last 200 years have transformed how we produce and consume energy.

Here's how the global energy mix has evolved since 1800.

Global Primary Energy Consumption by Source 1800-2020



Source: Vaclav Smil (2017), BP Statistical Review of World Energy via Our World in Data

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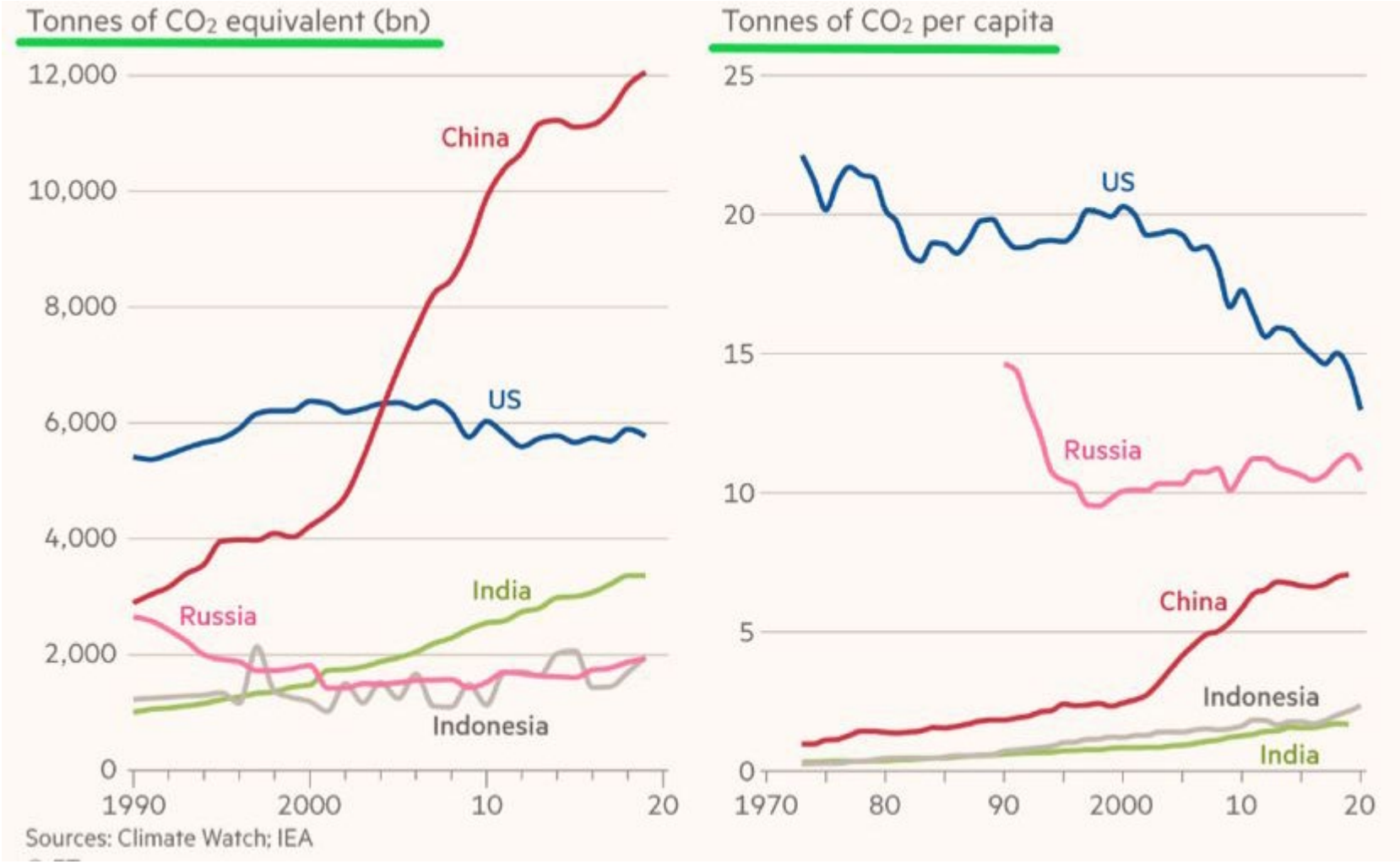
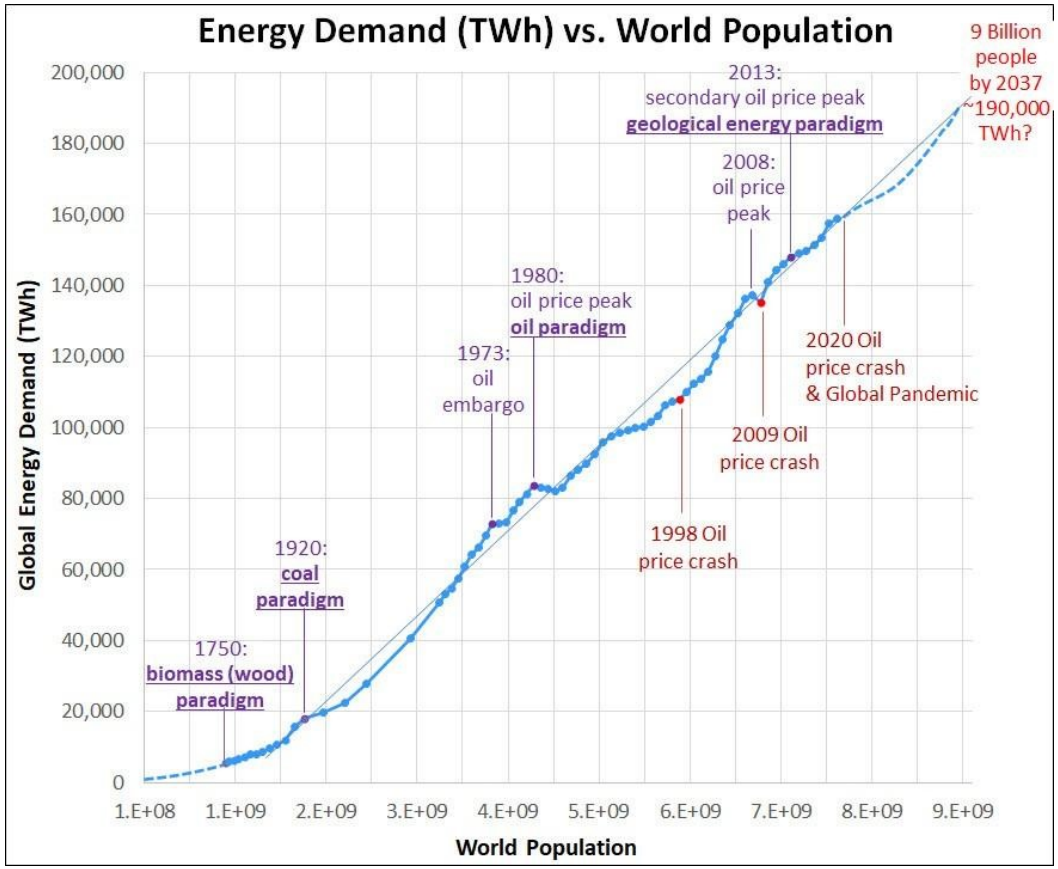
Carbon Emissions compared out of Europe



Energy demand (TWh) vs. World Population

How can we stand up to population growth - and its need/wellness expectation a - in a sustainable way?



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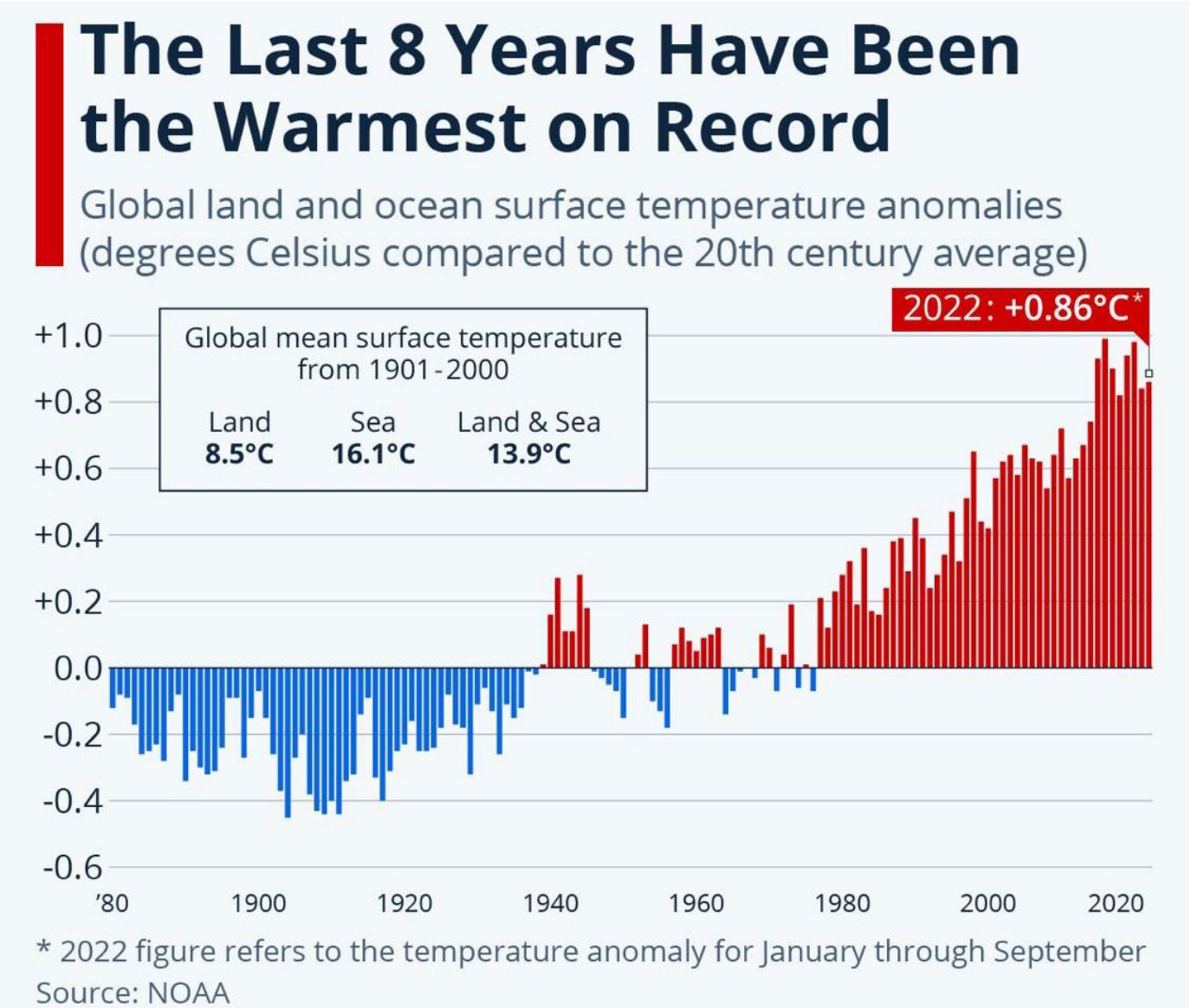
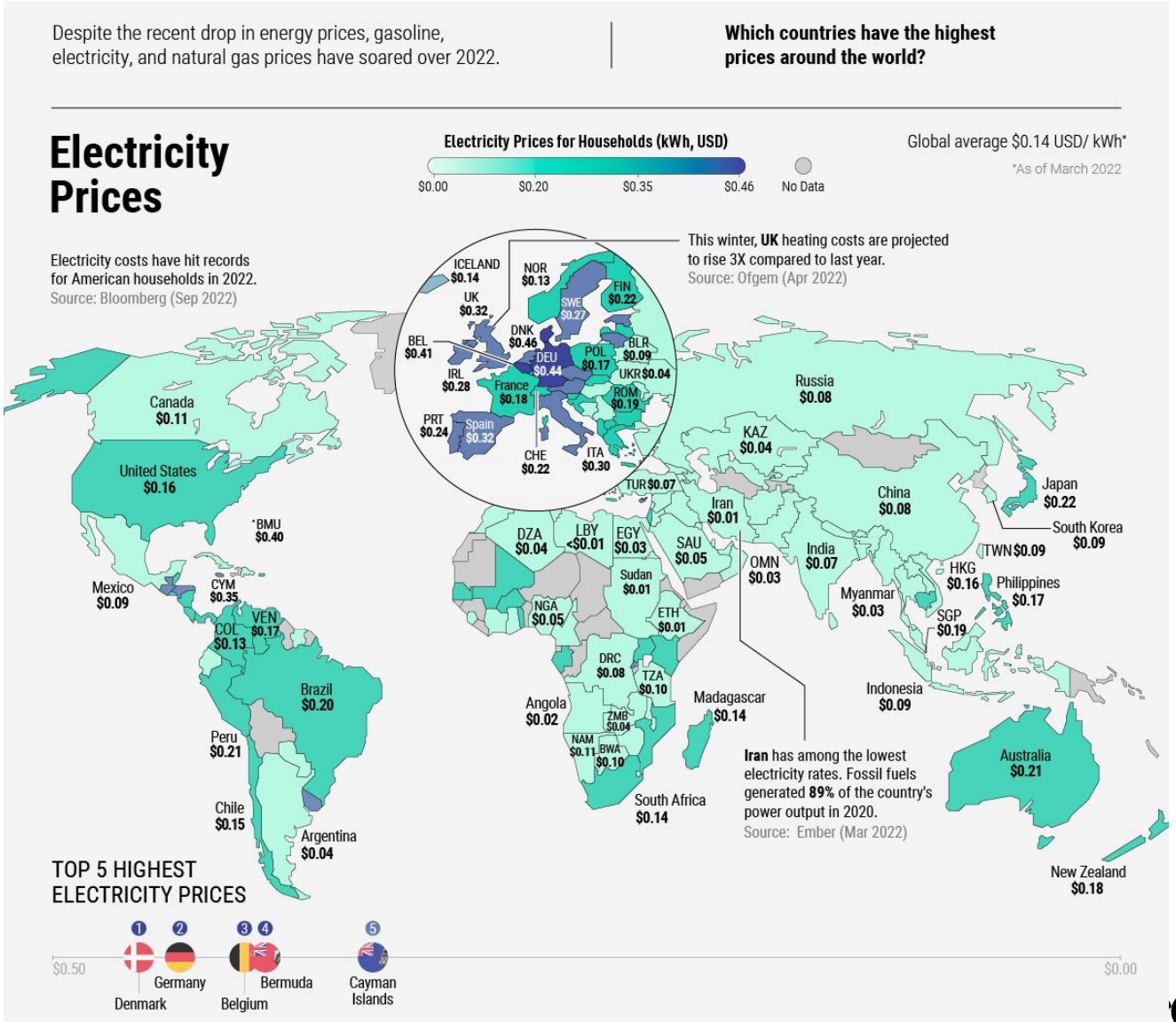
Global Earth Temperatures

There is an unspoken and unseen **" big insurance climate coverage risk"** that is affecting major industries, logistics and infrastructure. Who is paying for it?



Global Energy Prices

The double cost of energy transition (Gas shortage + carbon neutral energy technology promotion) is concentrating on Euro Zone. How long shall we sustain it?



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3

Industry Hot Spots

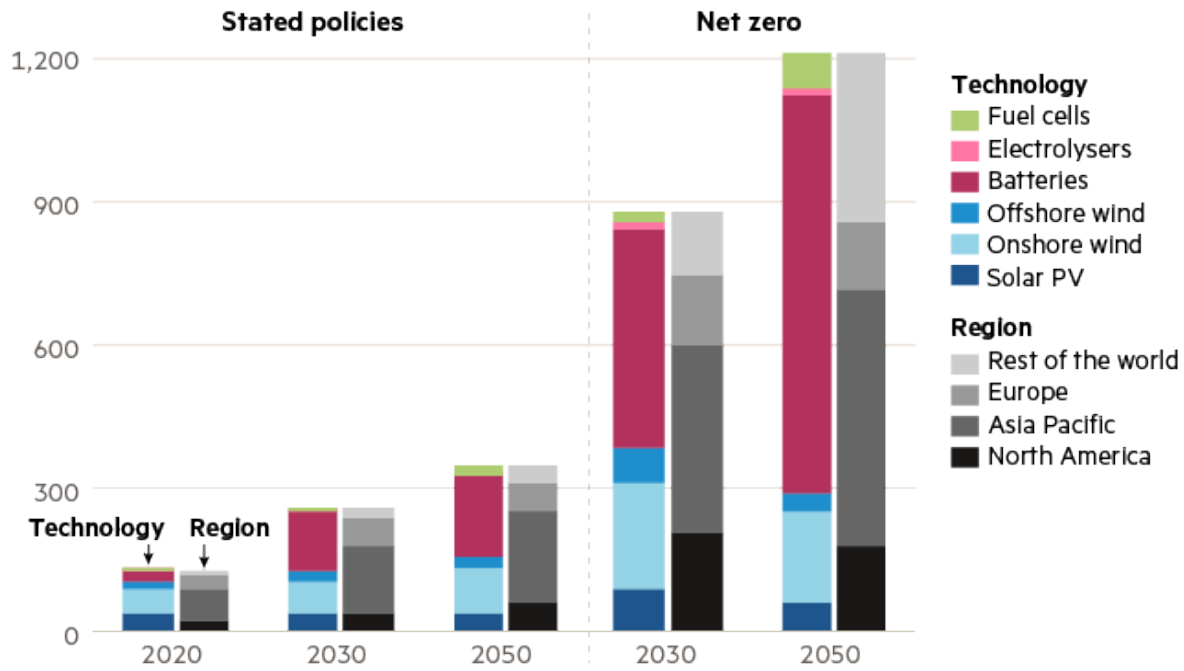
Explosive investment growth decade expected in Clean Techs

The world will require a huge acceleration in the supply of clean electricity in the next decade.

But there will also need to be vast improvements in energy efficiency, in reducing leaks of methane, a potent greenhouse gas, and in innovation, especially in the hard-to-abate sectors.

Clean Techs will turn into the new "**financial bull**"

Estimated market size of selected technologies under alternative scenarios (2020, $bn)



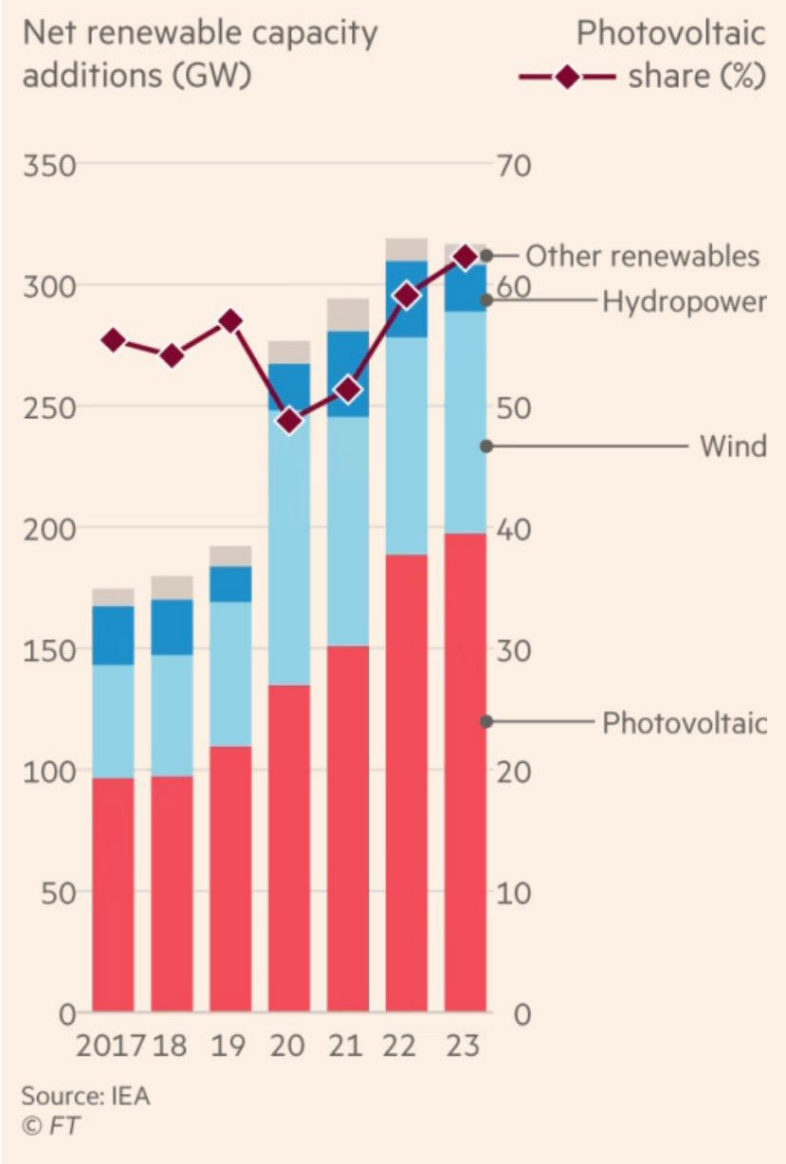
Source: IEA World Energy Outlook 2021
© FT

Renewables strike record each year

Renewables have become n.1 sector for electricity capacity investment marking record after record every year.

The performance is even more notable considering a series of quite new issues throughout the recent period including:
i) supply chain bottlenecks;
ii) inflationary pressures
iii) Financing conditions

What is quite striking is that the huge increment of renewables investement is essentially a solar PV story led by technology costs that has become the **cheapest energy source in most of the countries of the world.**



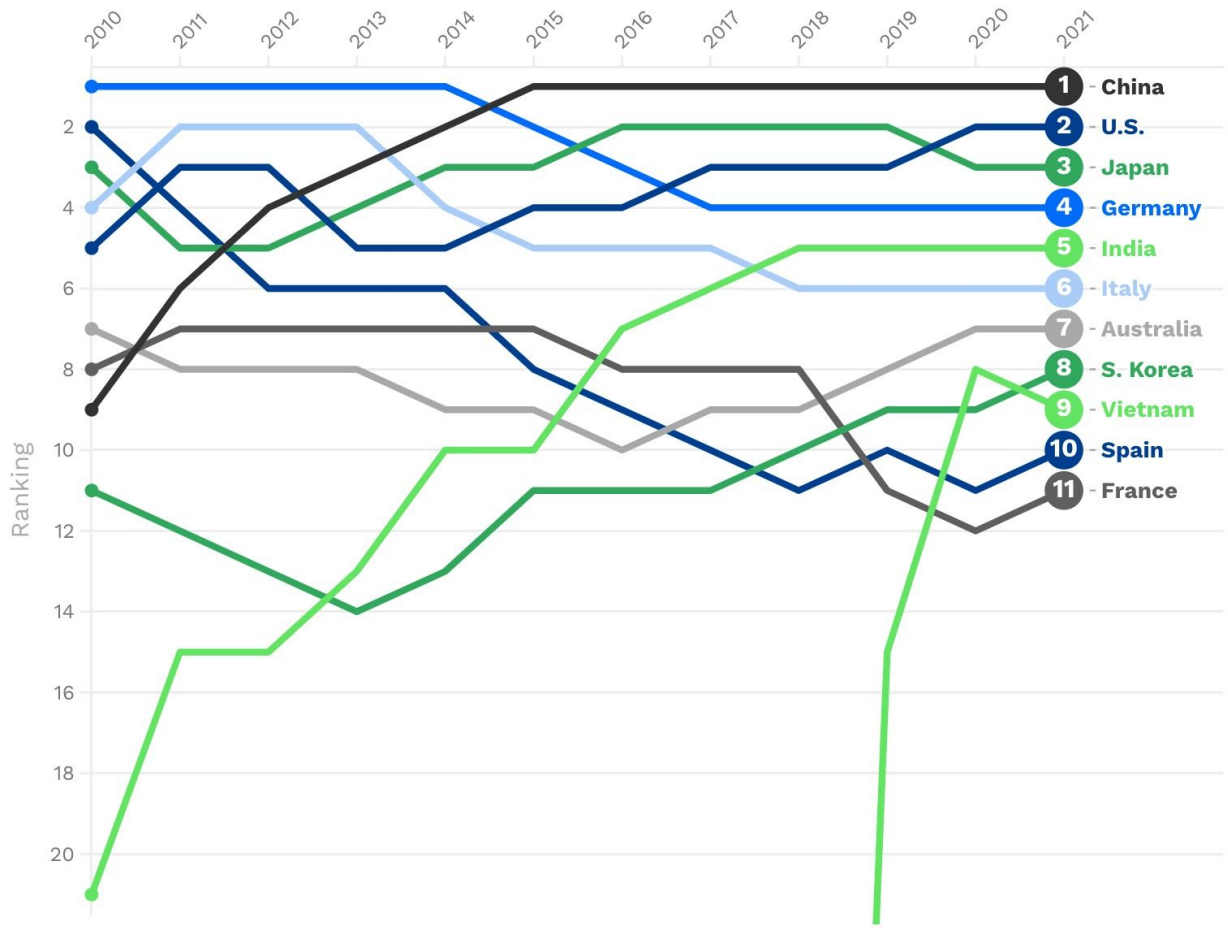
Global Solar race

Regulatory frameworks & Technology costs (LCOE mainly) are still driving country attractiveness for renewable energy sector.

Growth rates are deeply affected by energy & market policies.

"Boom and dust" risks shall affect those systems with unbalanced and ineffective regulatory schemes.

Top countries ranked by solar electricity capacity over time



The Sunny Side of Asia report by Ember, Centre for Research on Energy and Clean Air and Institute for Energy Economics and Financial Analysis • Vietnam joins the chart in 2019 when it cracks the top 20. It's had a shocking rise in the rankings, not even making the top 100 in 2017.

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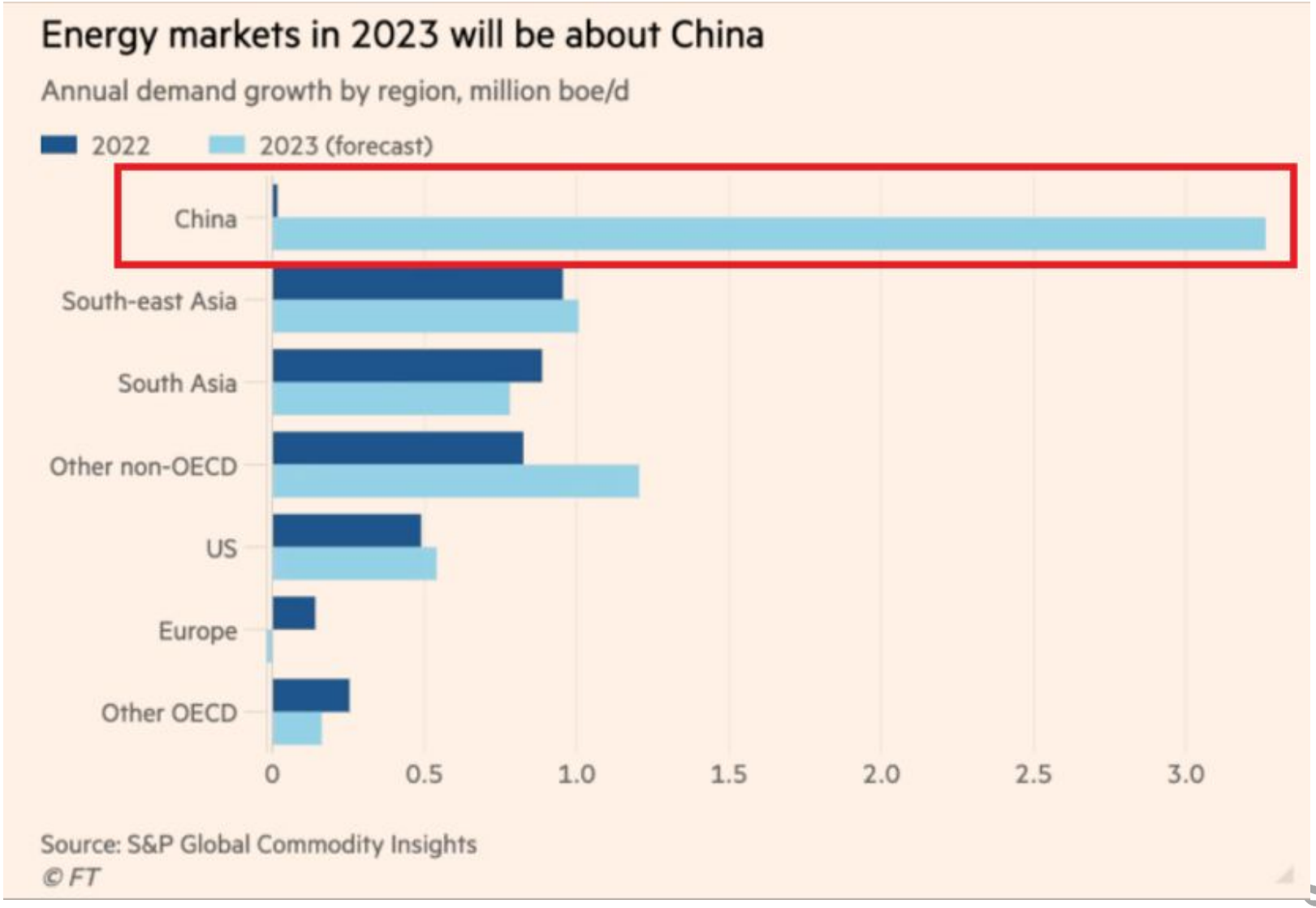
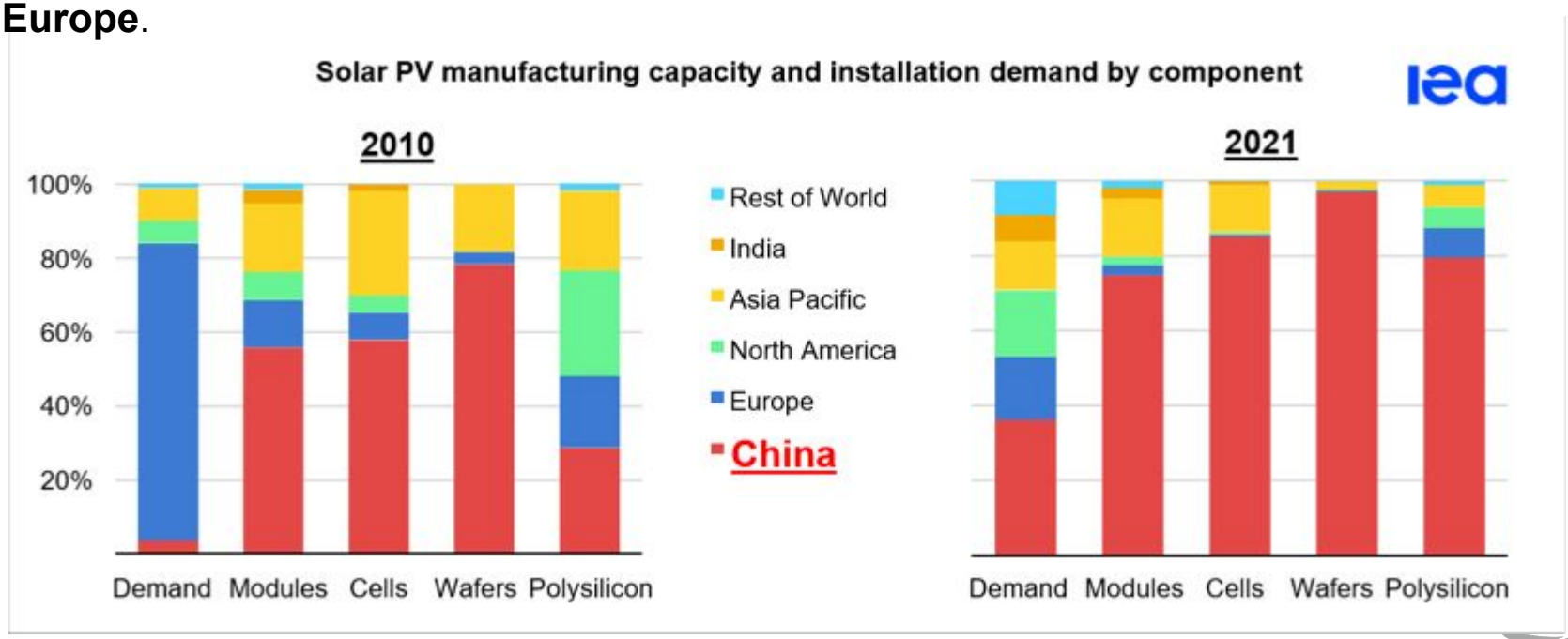
China matters: the demand growth (1)



China matters: the technology supply chain (2)

Solar PV is a succes story in terms of cost decline and deployment. **But** it can be read also a very sad story in terms of industrial strategy if looked from outside China. In 2010 about 70% of the global demand for solar PV was concentrated in Europe.
Today China's share in all the manufacturing stages of solar panels exceeds 80%, a share much higher than equivalent for domestic needs. By investing tens of billions of dollars today **China is home to the world's 10 top suppliers of solar PV manufacturing equipment.**

This has massive implications in terms of **security of supply and dependence across Europe**.



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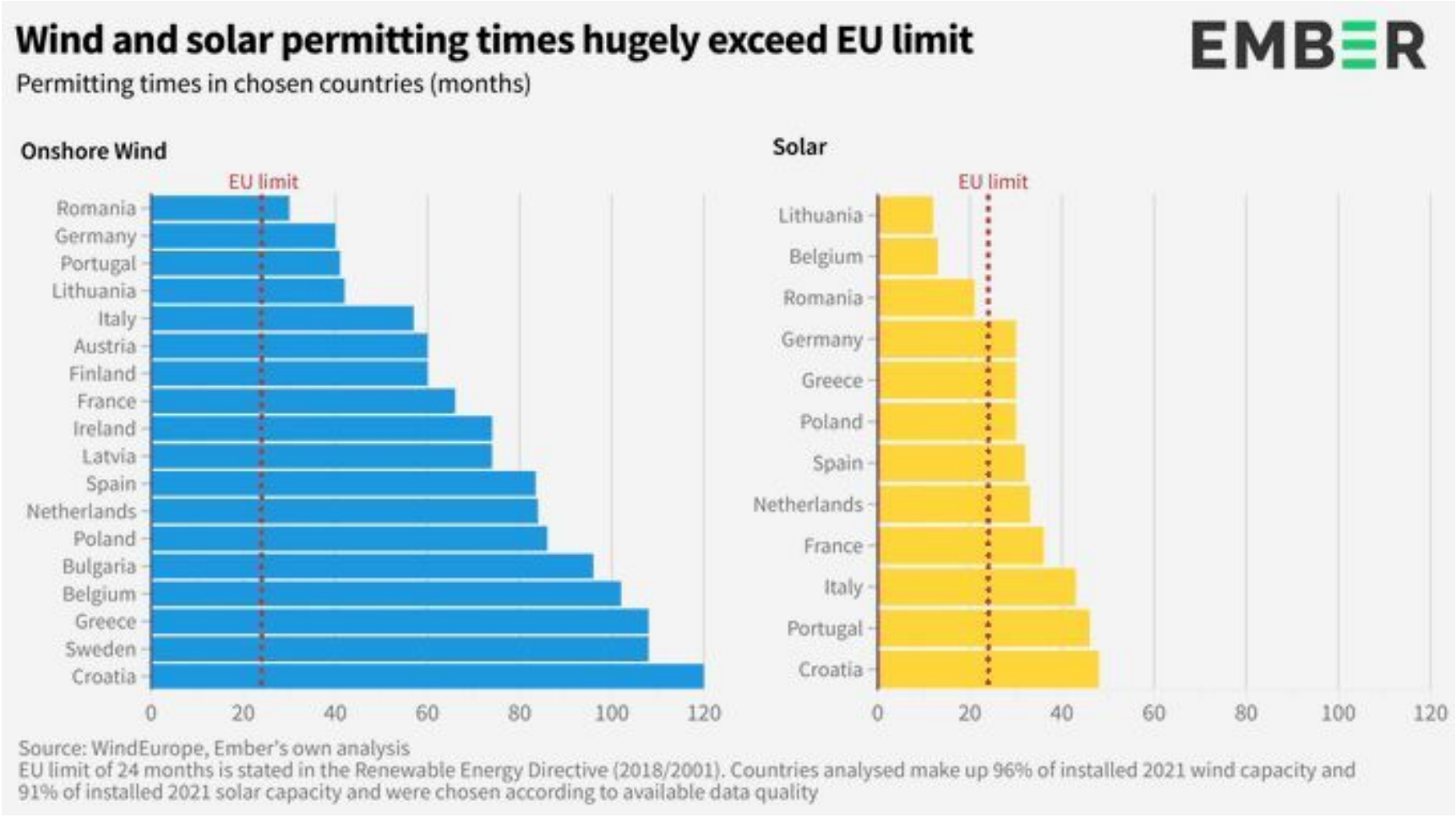
Permits: the time (and the cost) of bureaucracy



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Thank you

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