



ASIA CLEAN ENERGY FORUM 2026

Beyond Transition: Building Secure, Resilient, Inclusive, and Intelligent Energy Systems

8-11 June | ADB Headquarters, Metro Manila, Philippines

Can We Move Faster for the Hydrogen Leading Future?

- A Beautiful World with Zero-Carbon Industry -

IPAC: Kejun Jiang, Chenmin He, Pianpian Xiang,

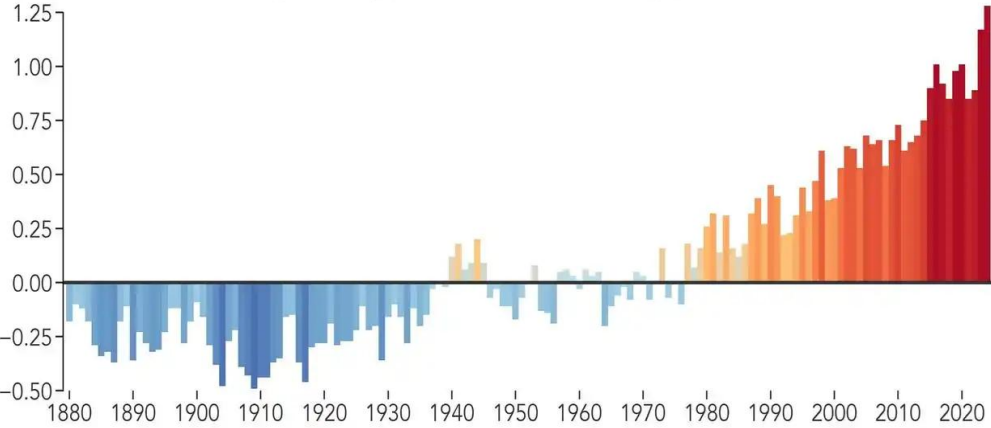
IMAGE: Anteneh G Dagnachew, Stephanie Solf,

Samira I. Ibrahim, Harmen-Sytze de Boer

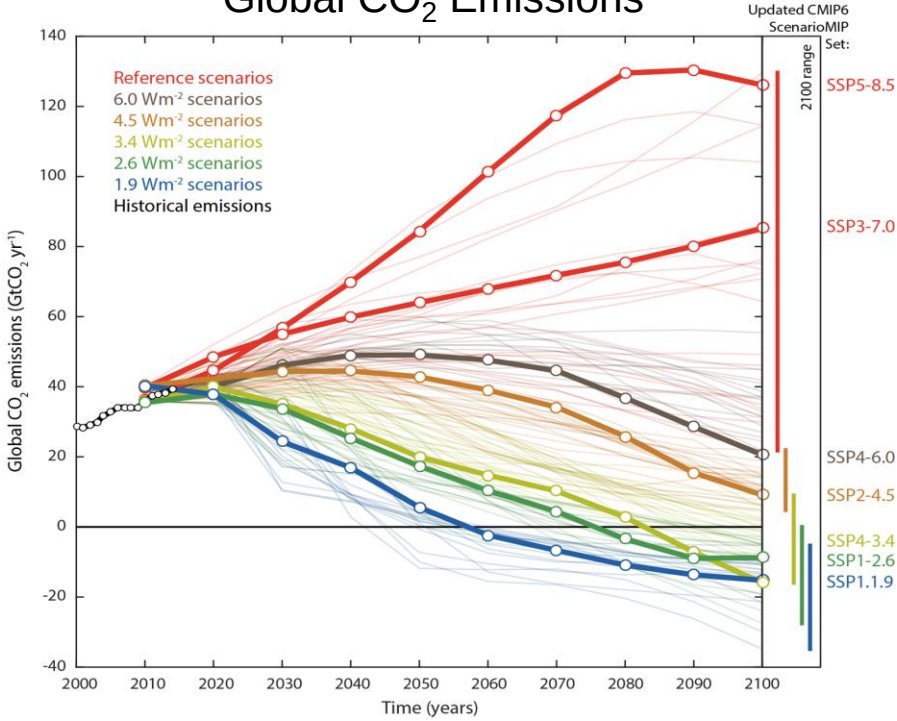
9 June 2026

2024 Was the Warmest Year on Record

Global Temperature Anomaly (°C compared to the 1951-1980 average)

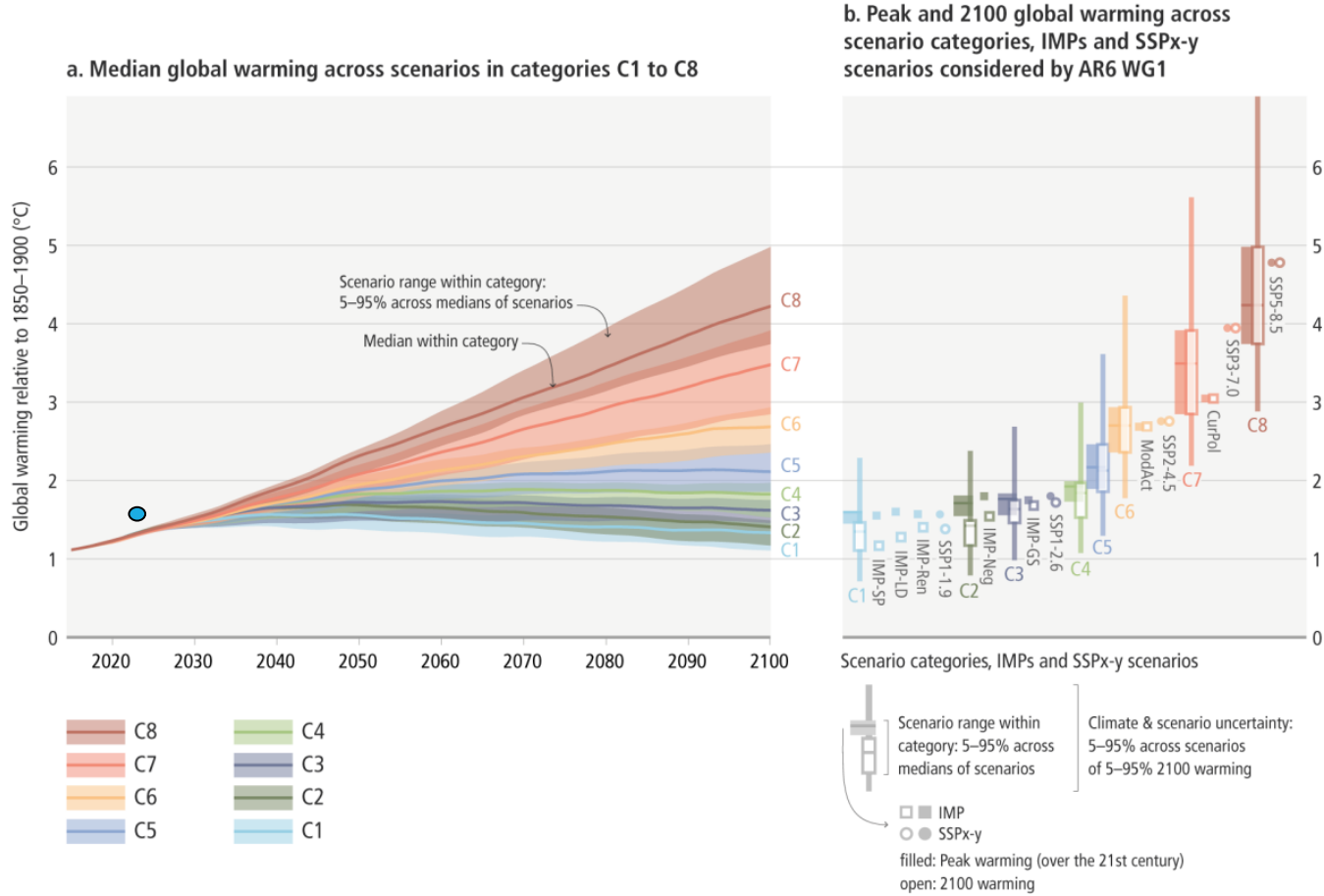


Global CO₂ Emissions



(IPCC 1.5C special report)

The range of assessed scenarios results in a range of 21st century projected global warming.

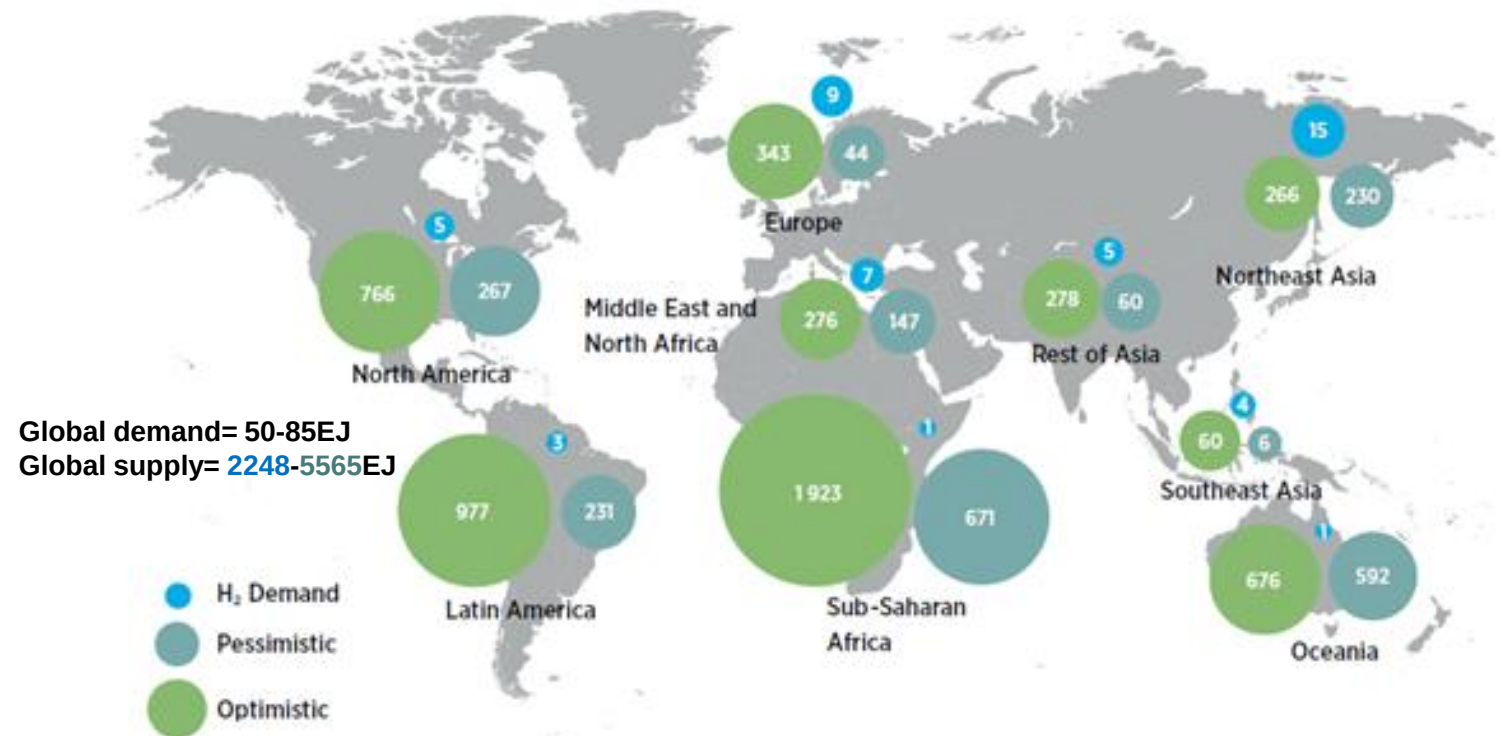


(IPCC AR6)

Hydrogen supply and demand

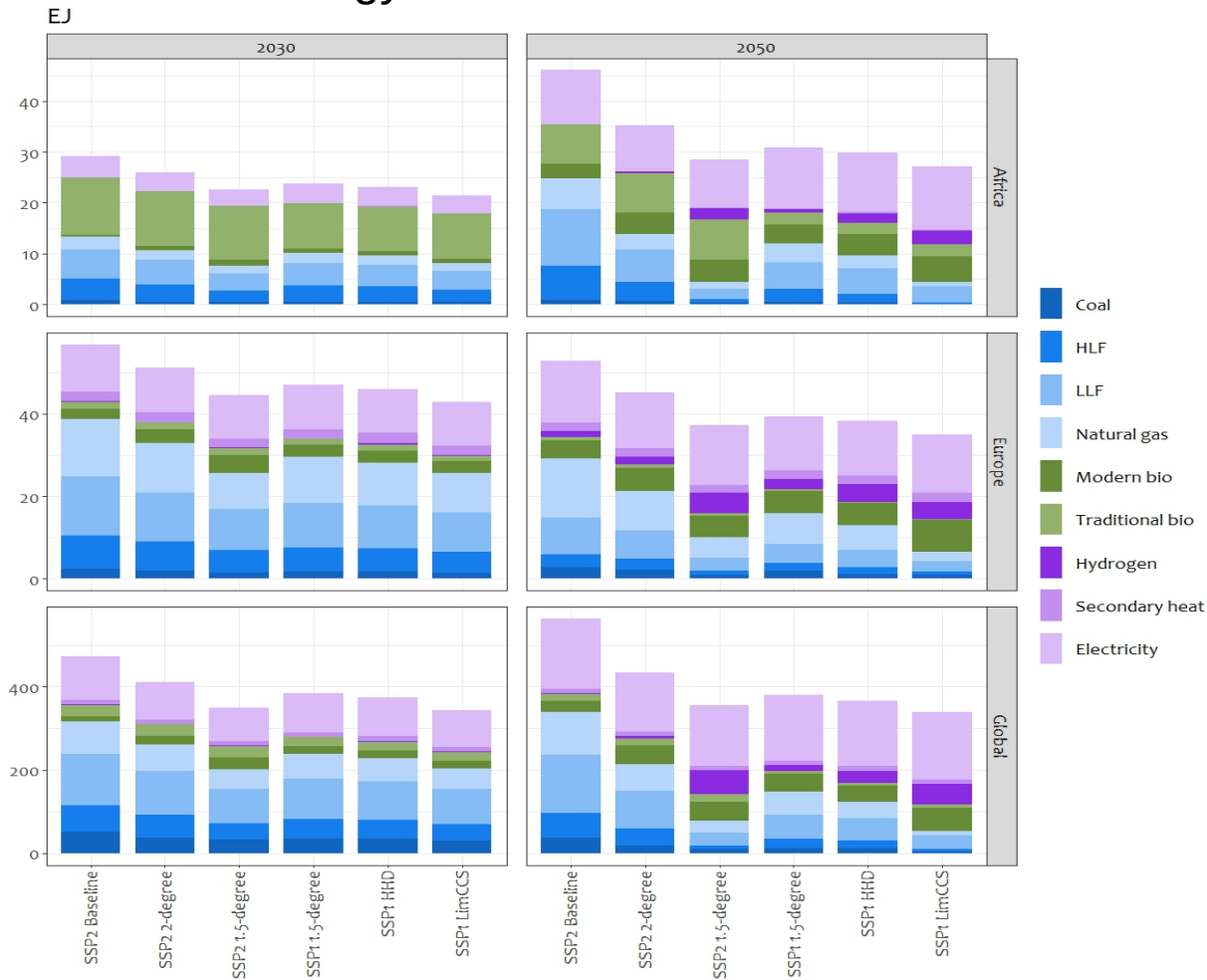
Hydrogen supply potential in 2050

Global supply potential
exceeds global demand
by several factors



(IRENA 2022)

Final energy demand in 2050



pbl.nl

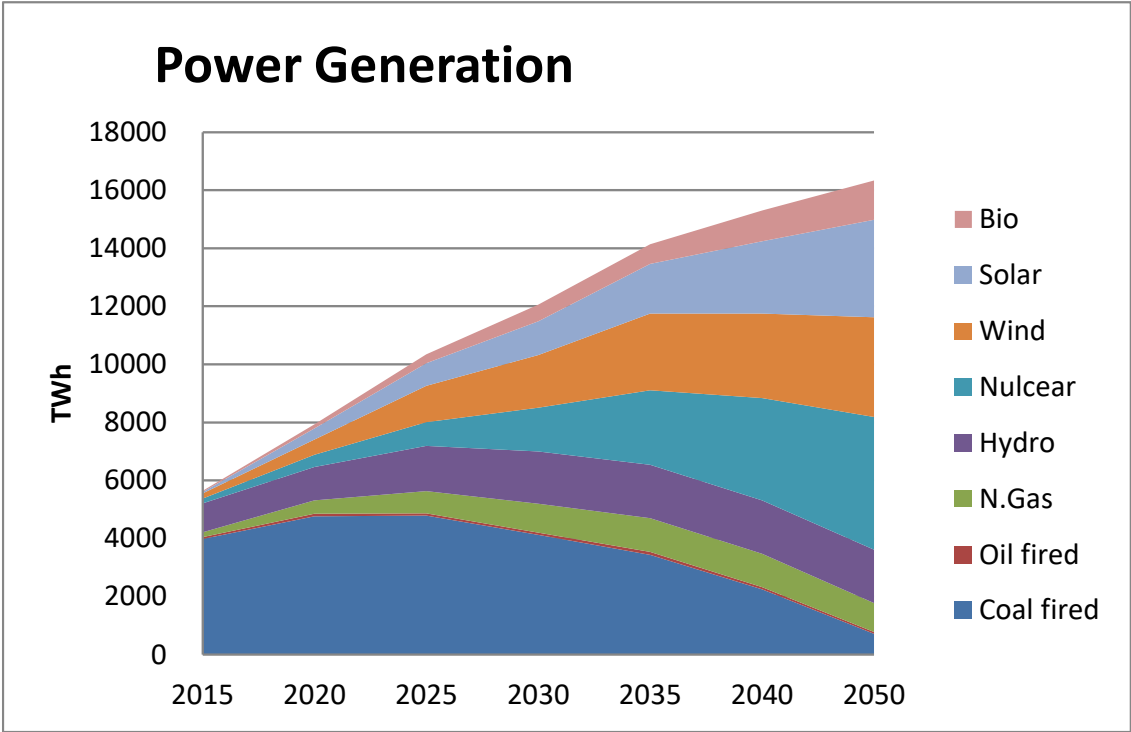
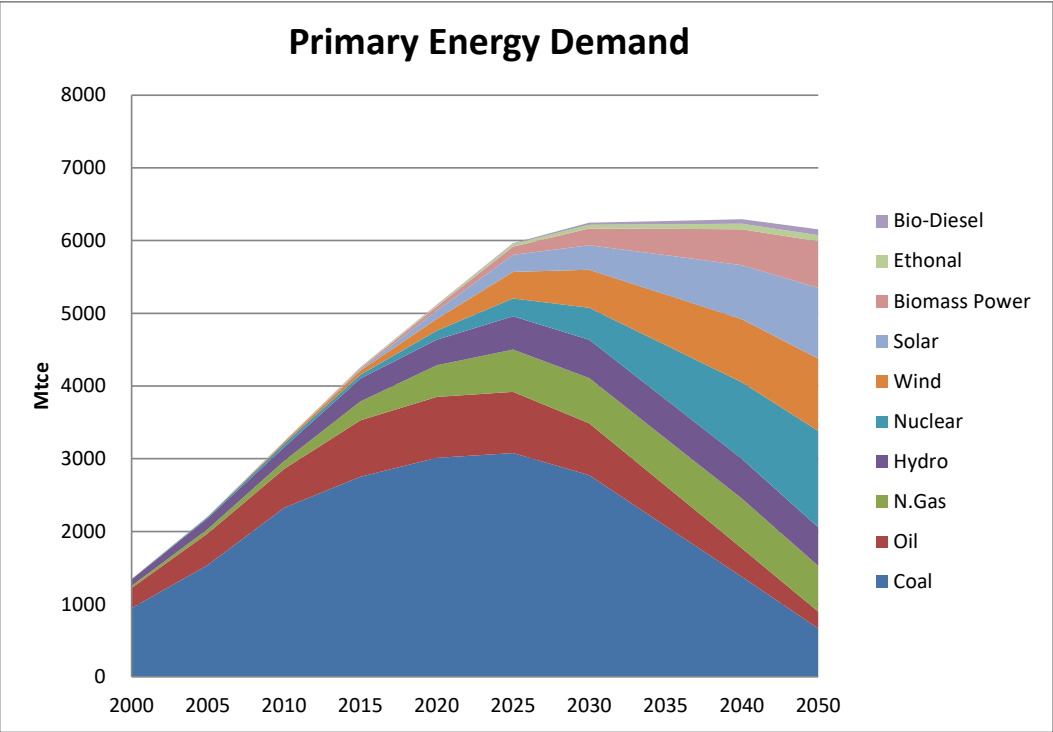
- A considerable increase in hydrogen in climate mitigation scenarios

Hydrogen demand in end-use sector



- From traditional uses to new applications in industry, buildings and transport

Energy Transition in the Carbon Neutrality Target in China



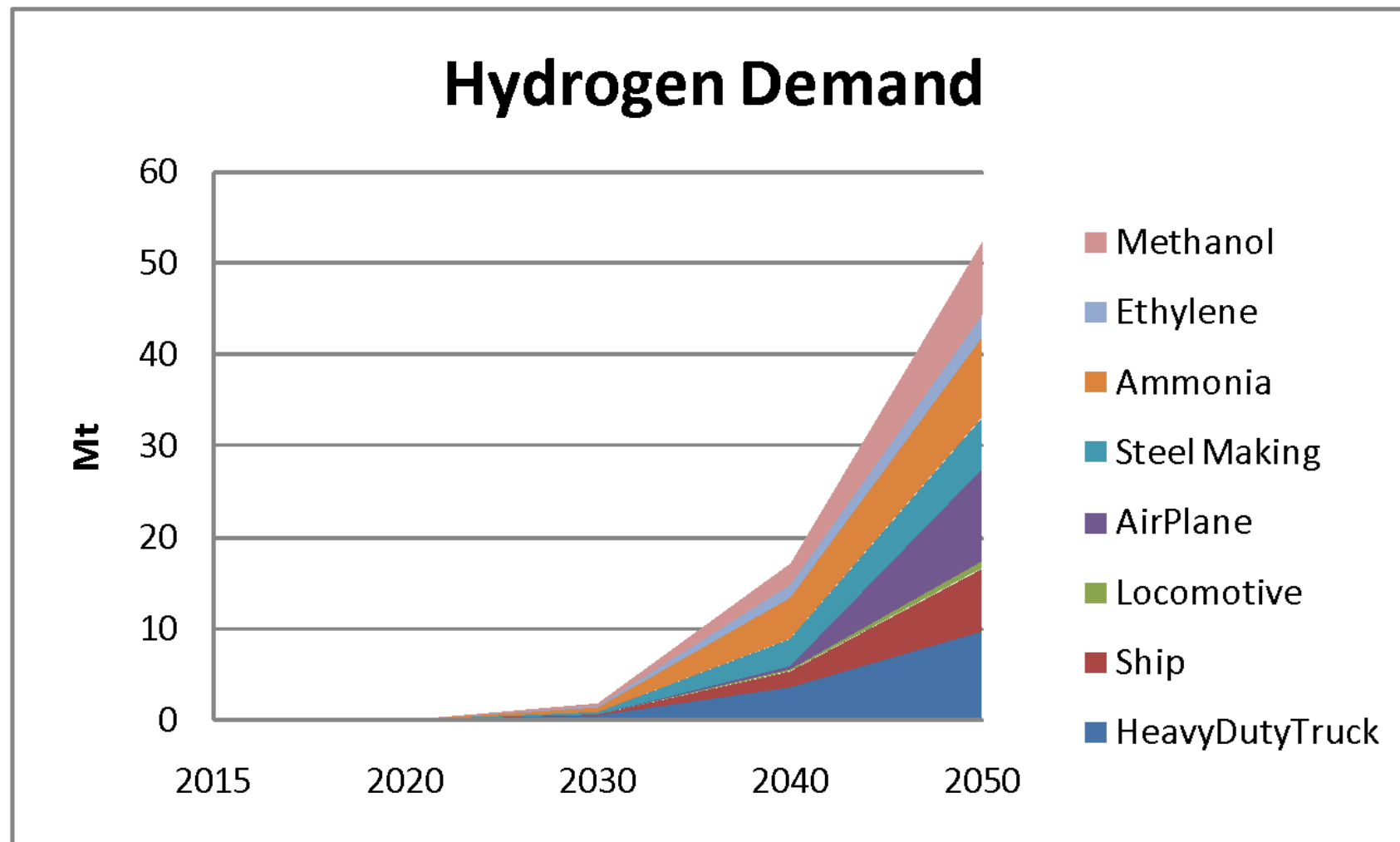
(IPAC model scenario results)



Gravity energy storage

Chemical battery electricity storage





(IPAC model scenario results)

Significant Transition in Industry Sectors and Transport: Hydrogen Based Processes

- Steel making
- Ammonia
- Benzene
- Ethylene
- Methanol
- Clinker
- Heavy duty transport and air plane

Steel making process transformation

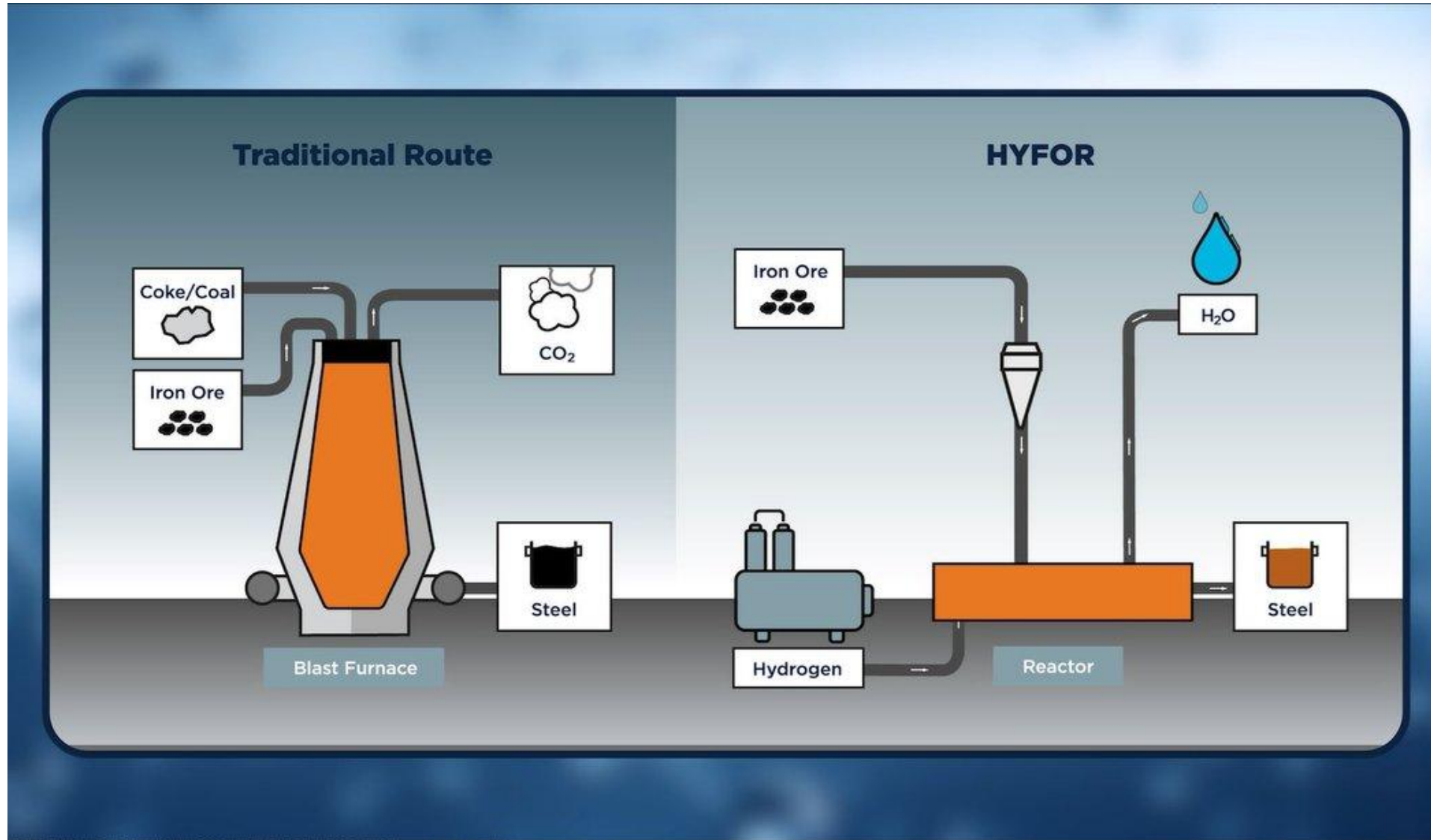
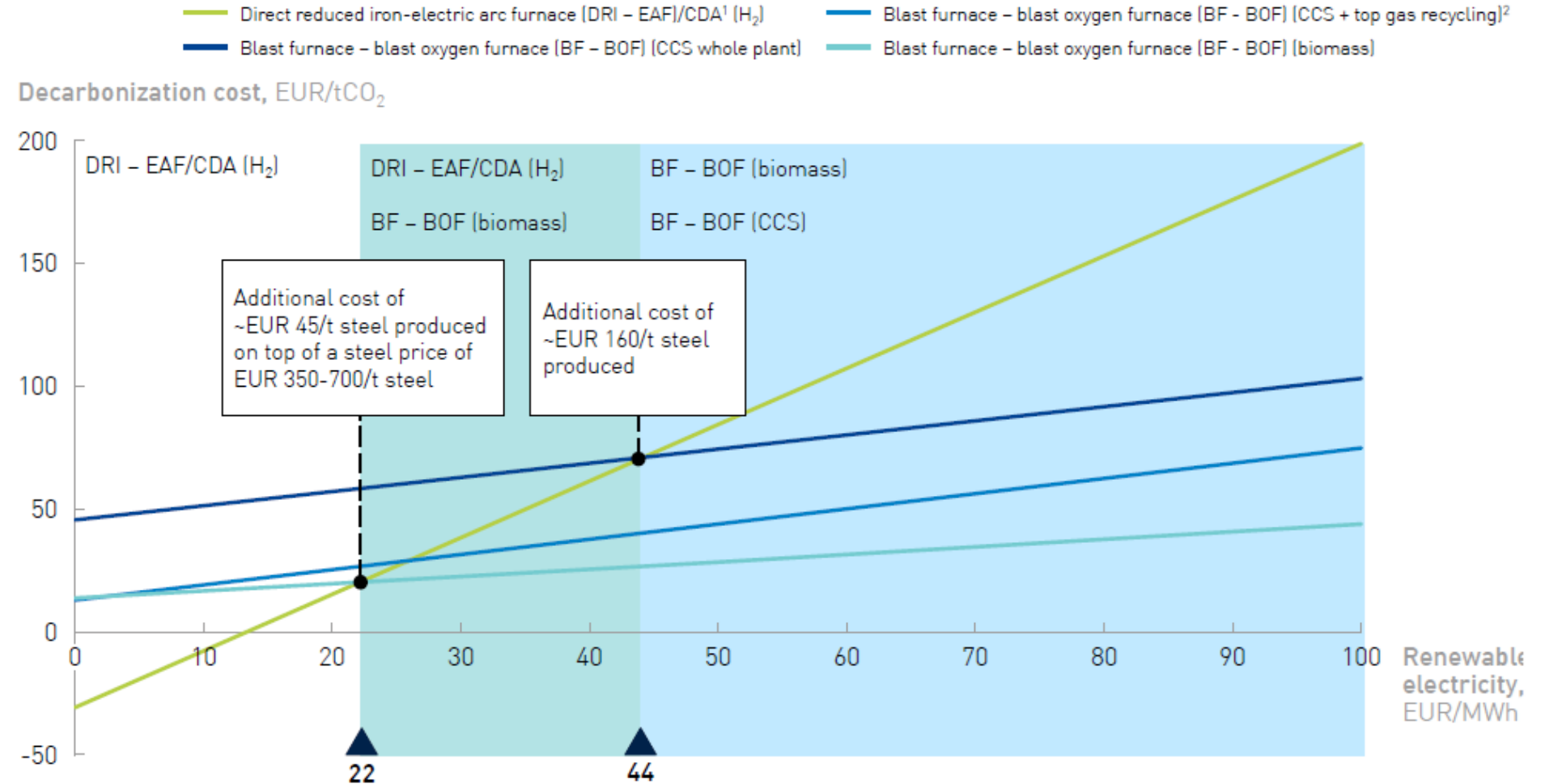
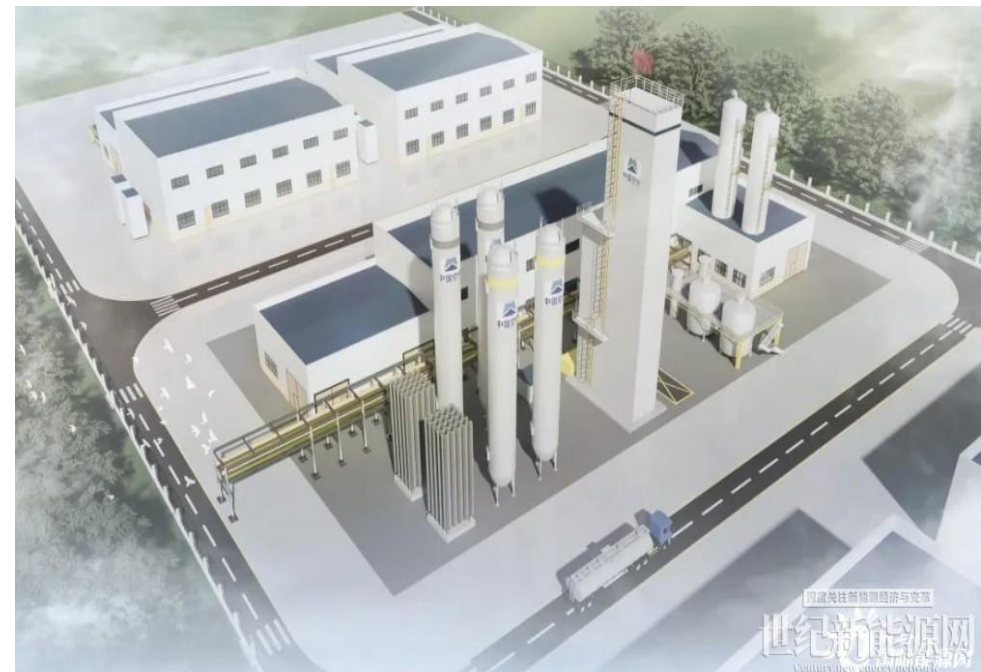


EXHIBIT 19: COST COMPARISON OF DECARBONIZATION TECHNIQUES IN THE STEEL INDUSTRY DEPENDING ON ELECTRICITY PRICES

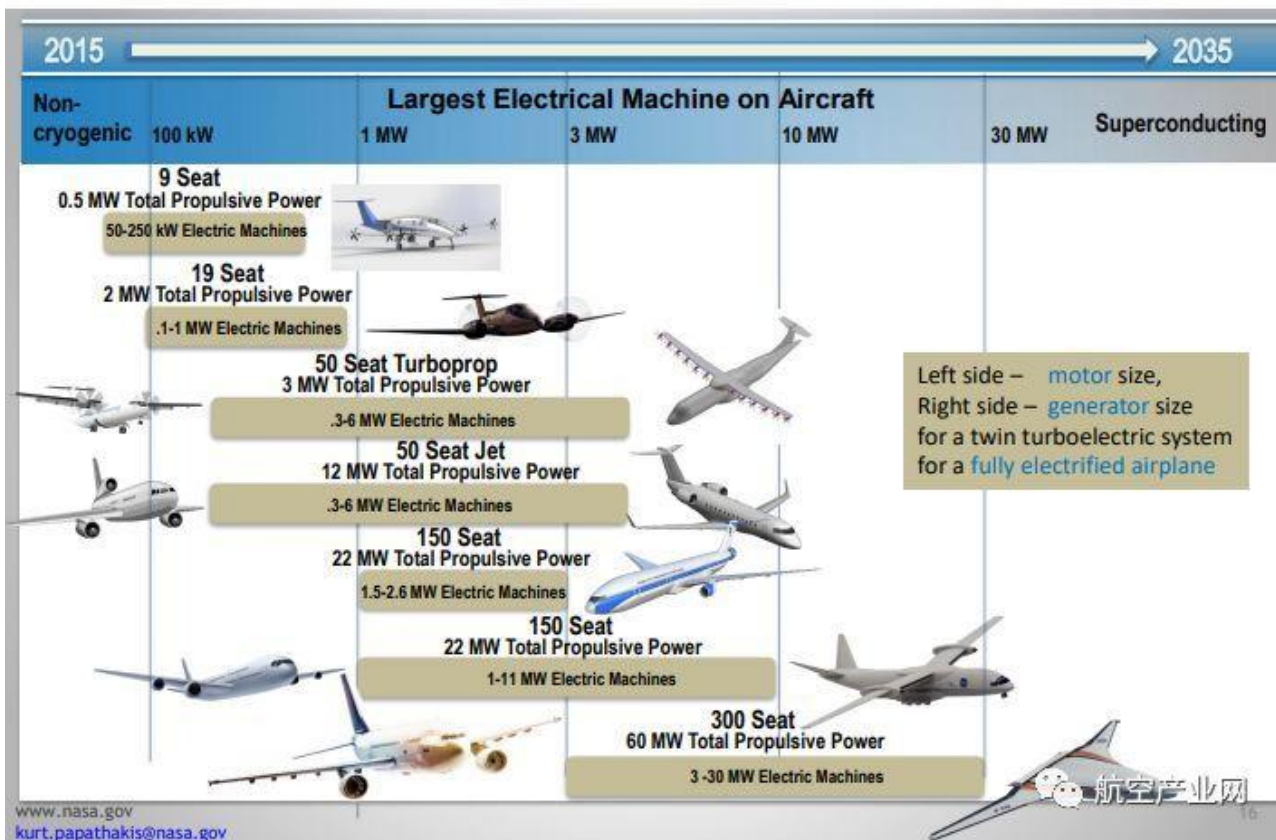
Once the electricity price lower than EUR 2.2 cent/KWh, the DRI process would become costly competitive.



The hydrogen-based industry can
achieve distributed industrial production
large-scale (1 million tons capacity)
to small-scale ammonia production
(50,000 - 100,000 tons)



Where do we go from here?



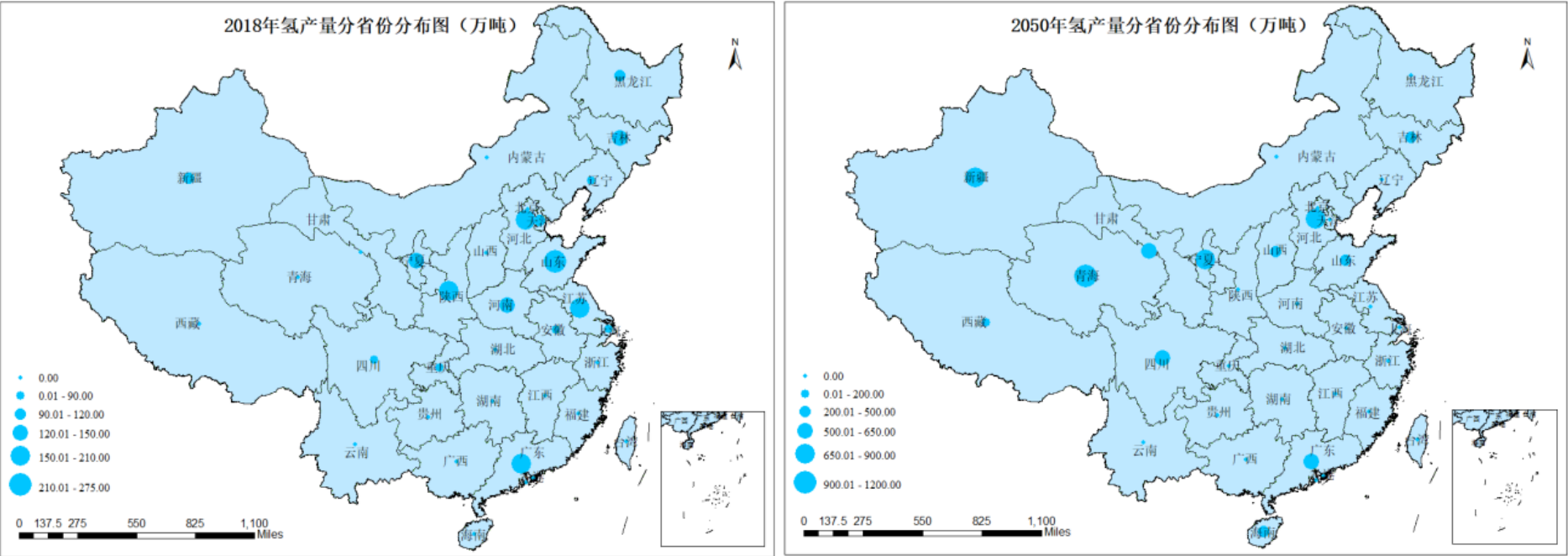
Hydrogen shared bicycle



Provinces with solar power generation price lower than 0.15yuan/kWh

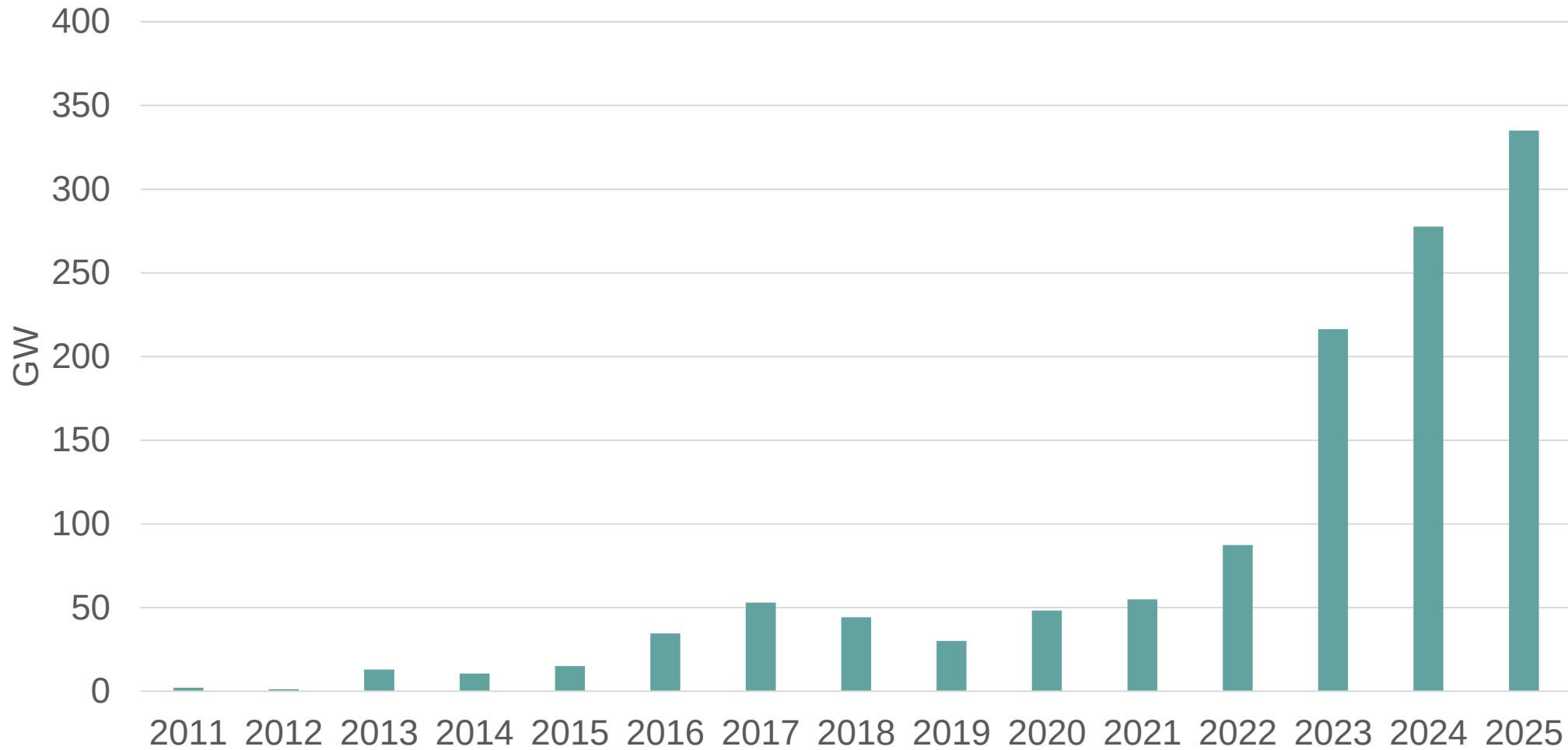
	Installed Capacity (GW)	Power generation (TWh)	Hydrogen output (Mt)
Beijing	2.6	3.12	0.07
Tianjin	3	3.6	0.08
Hebei	45	54	1.23
Liaoning	32	38.4	0.87
Jilin	35	42	0.96
Heilongjiang	30	36	0.82
Shandong	50	60	1.36
Shanxi	50	60	1.36
Shannxi	40	48	1.09
Hainan	8	9.6	0.22
Inner-mongolia	600	900	20.46
Ningxia	600	900	20.46
Gansu	1200	1800	40.91
Qinghai	1500	2250	51.14
Xinjiang	2000	3000	68.18
Total	6195.6	9204.72	209.20

Spatial reallocation of hydrogen production in China

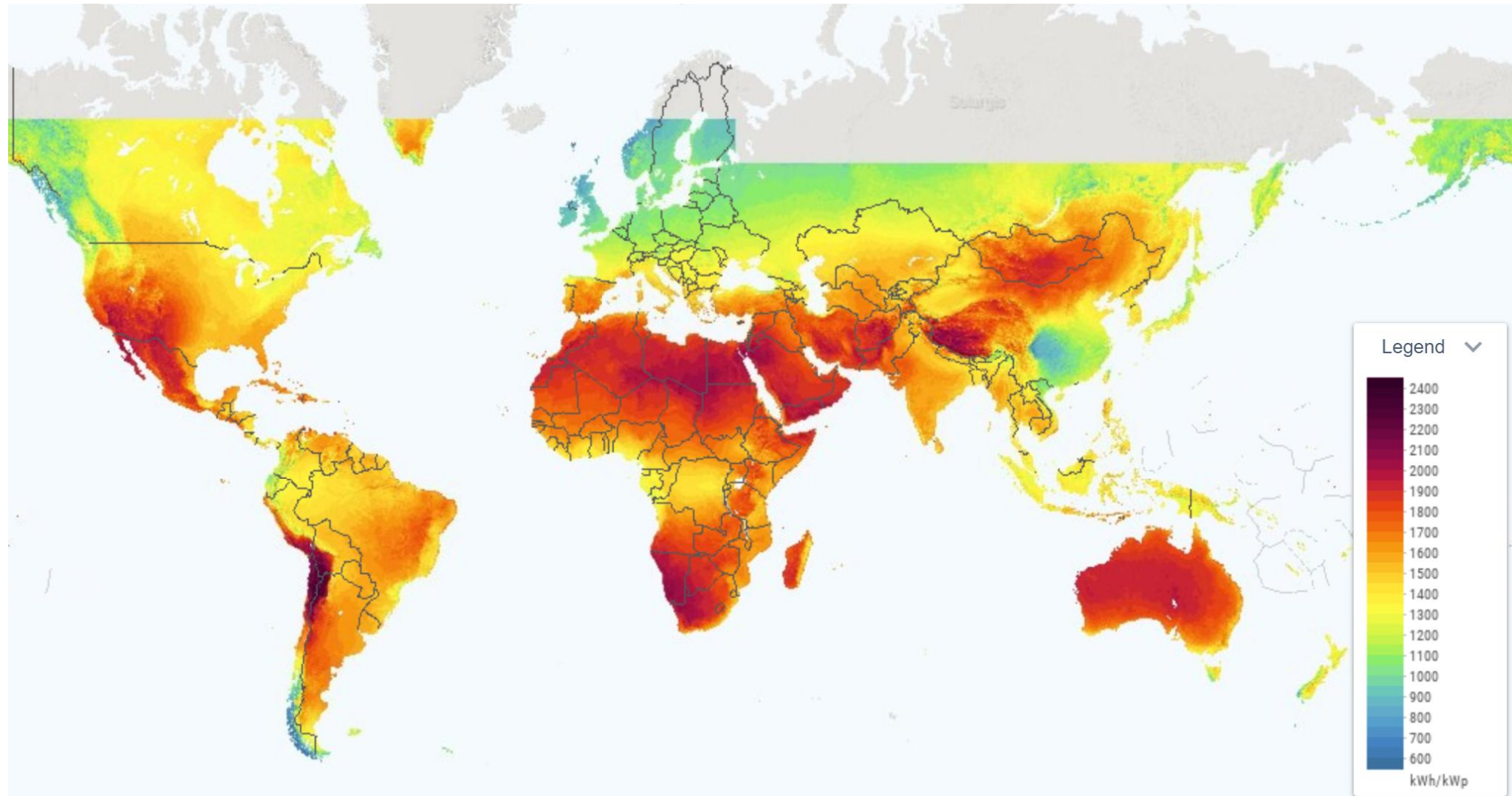


(IPAC model scenario results)

Annual newly installed PV capacity in China



Global Solar Resource



Thanks for your attention !

Questions and comments are welcome!



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Zhejiang University of Technology

Zhejiang International Cooperation Base for
Science and Technology on Carbon
Emission Reduction and Monitoring

Research fields:

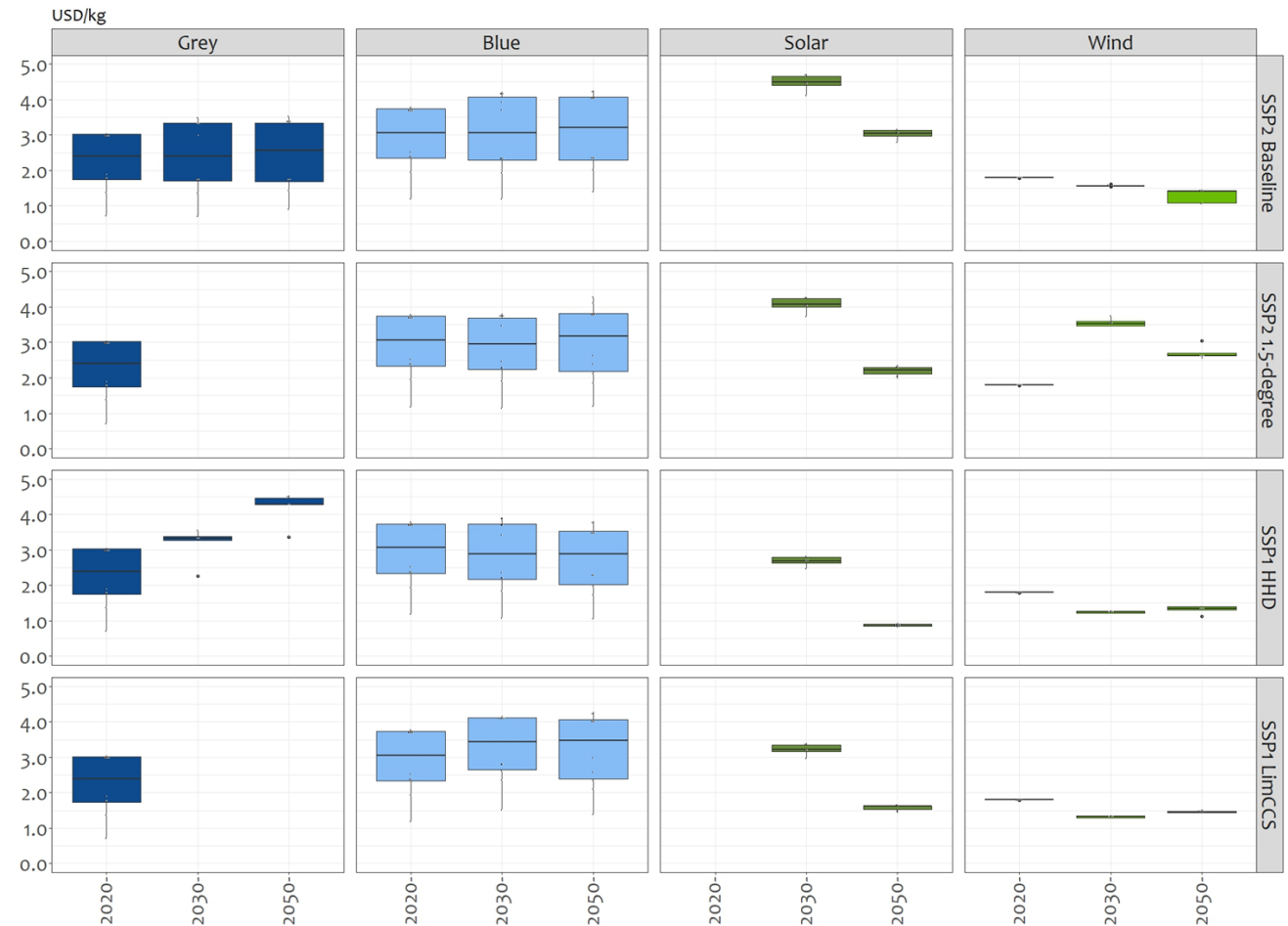
- climate change mitigation and low-carbon target pathway
- synergistic analysis of climate mitigation and sustainable development
- energy-water nexus analysis
- integrated assessment model development
- energy and environmental policy assessment

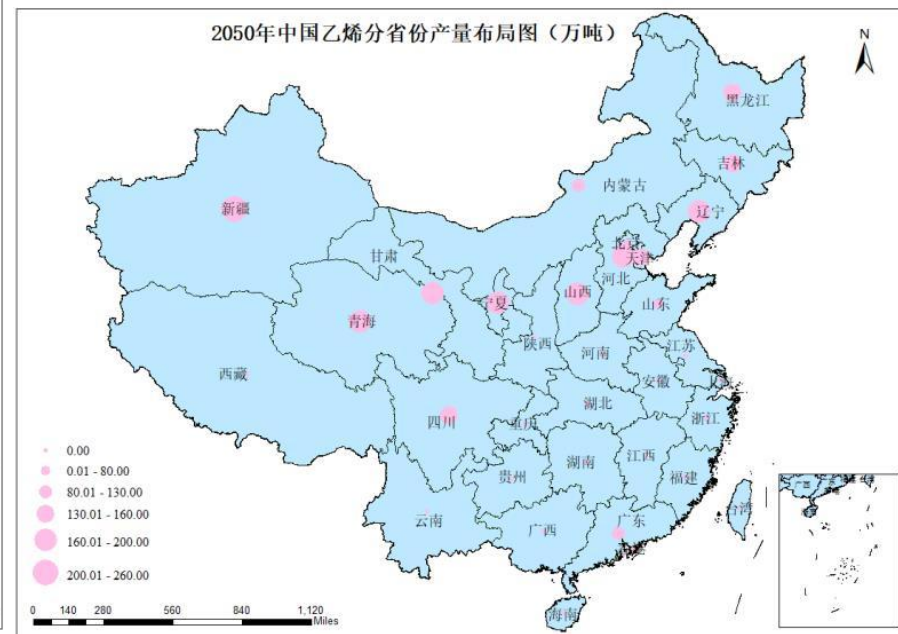
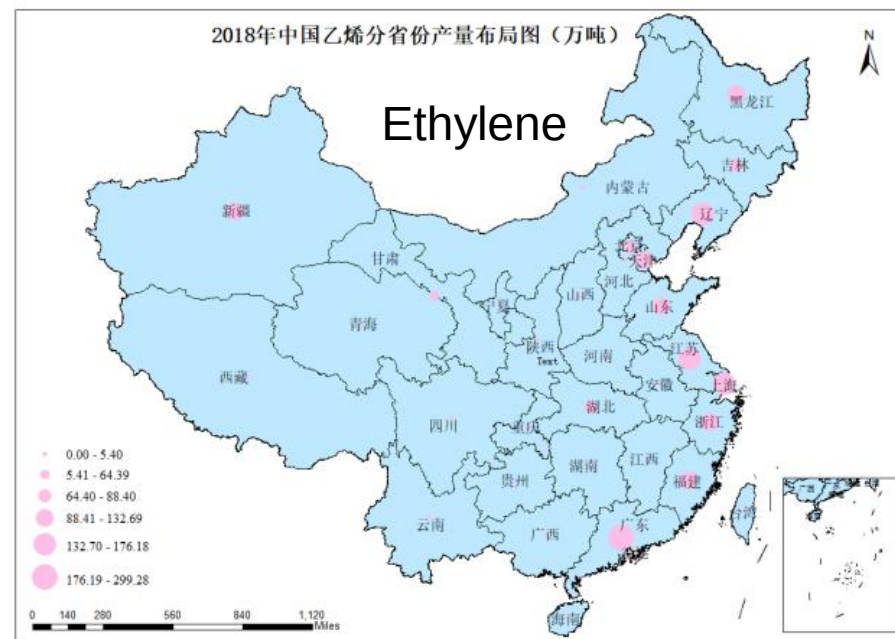
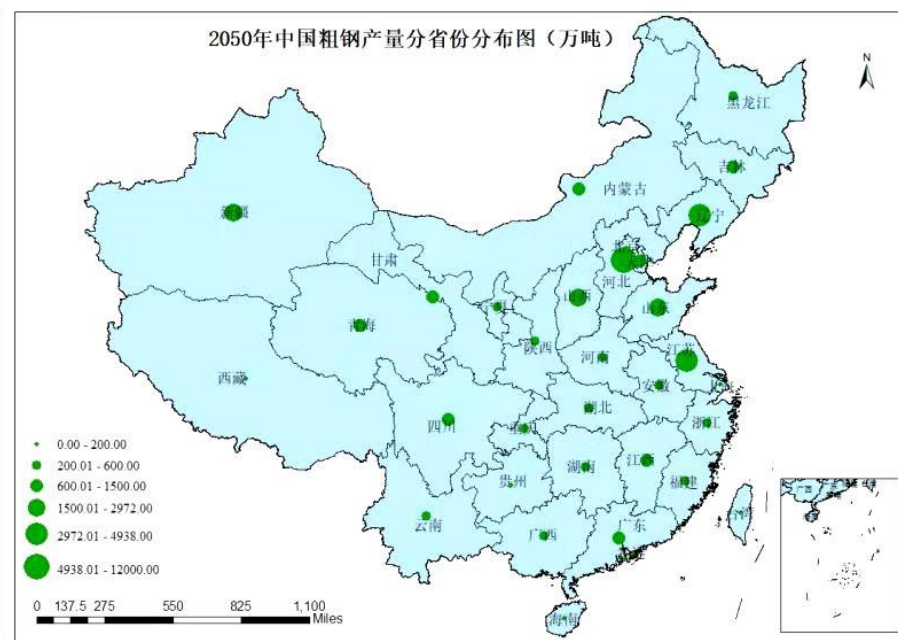
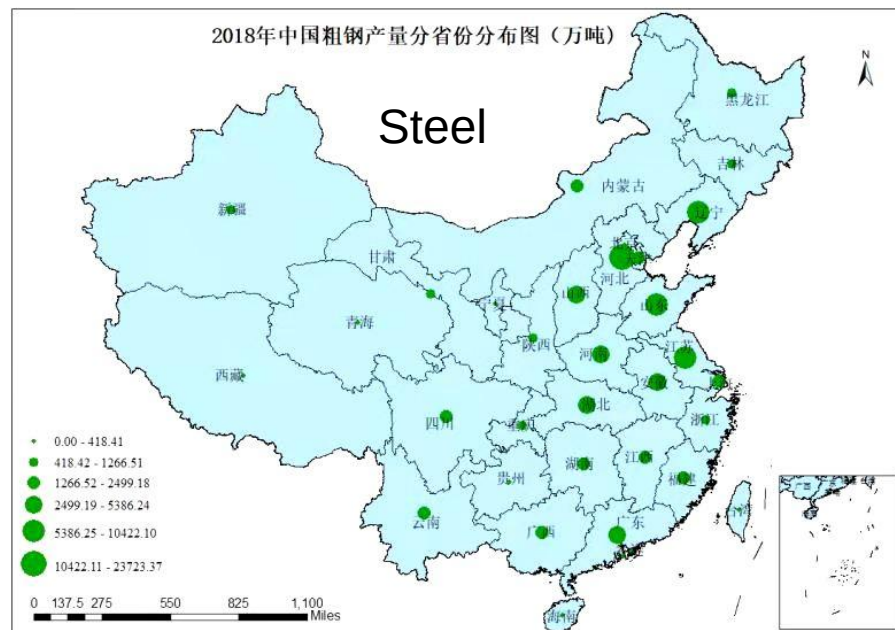


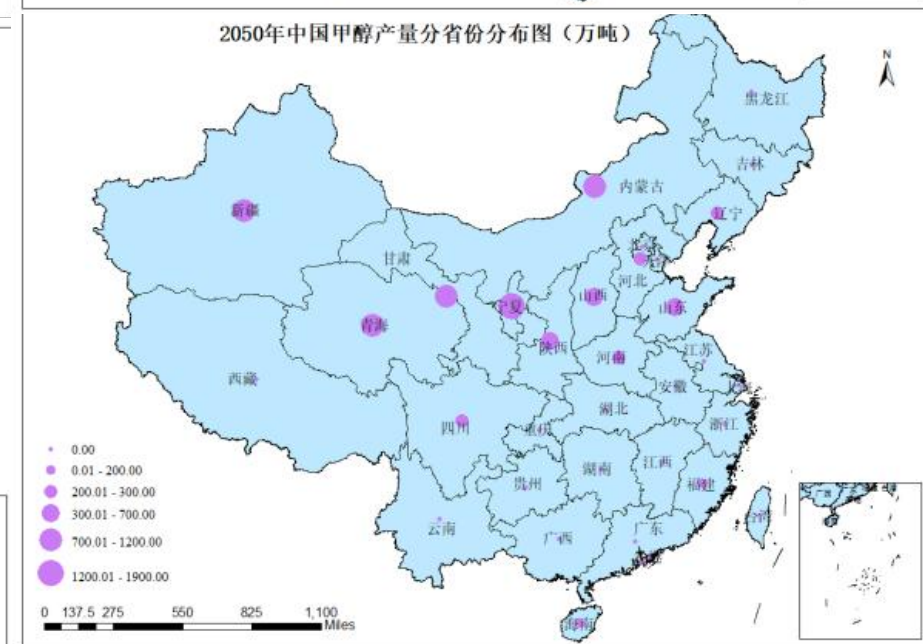
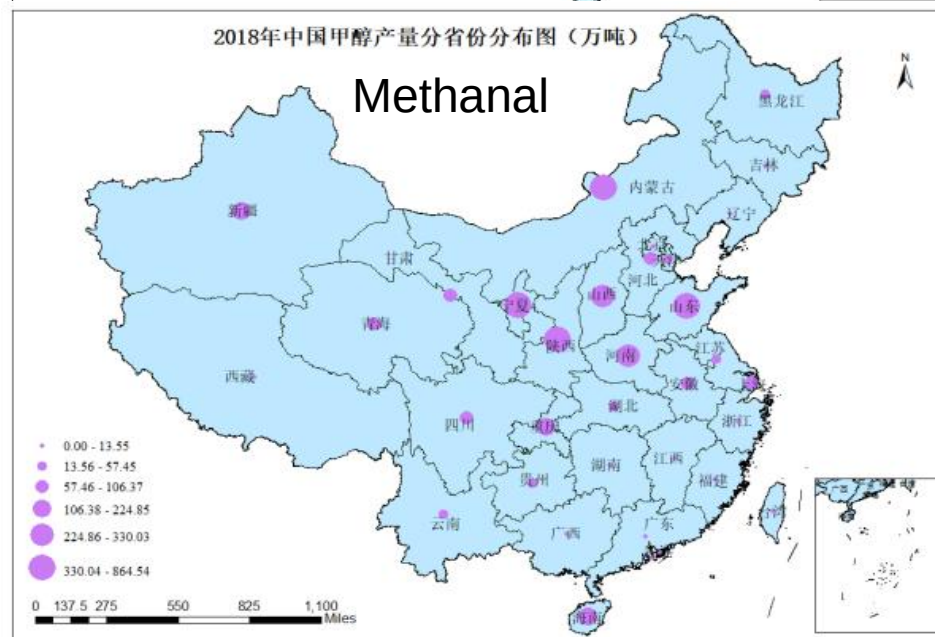
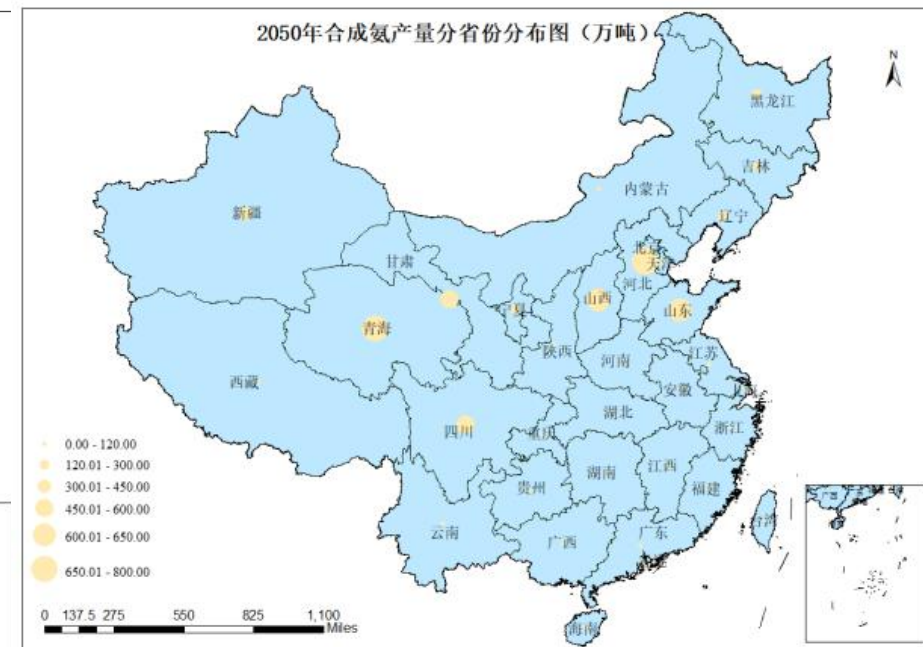
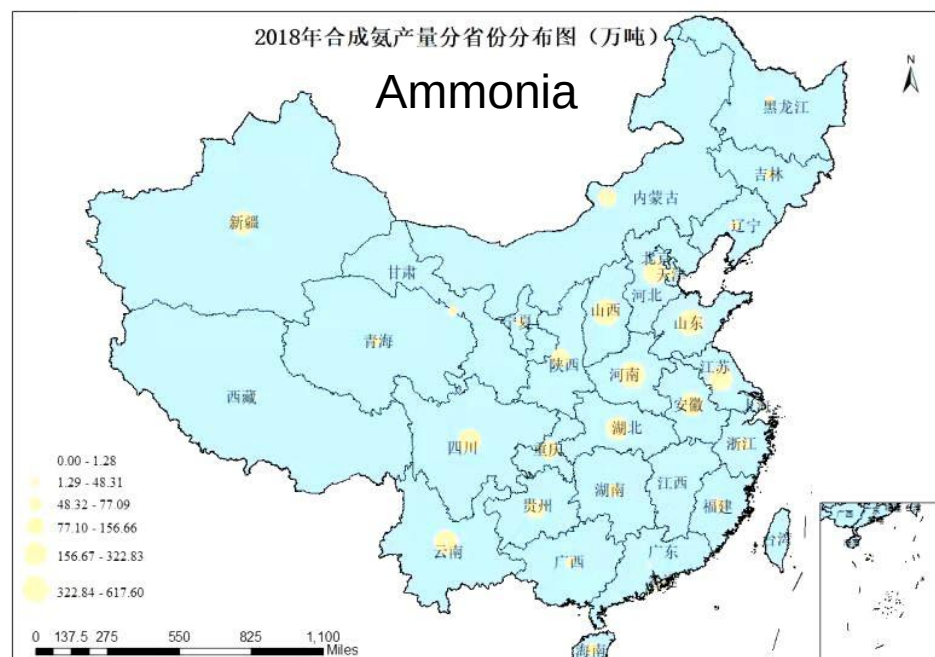
Hydrogen supply and demand

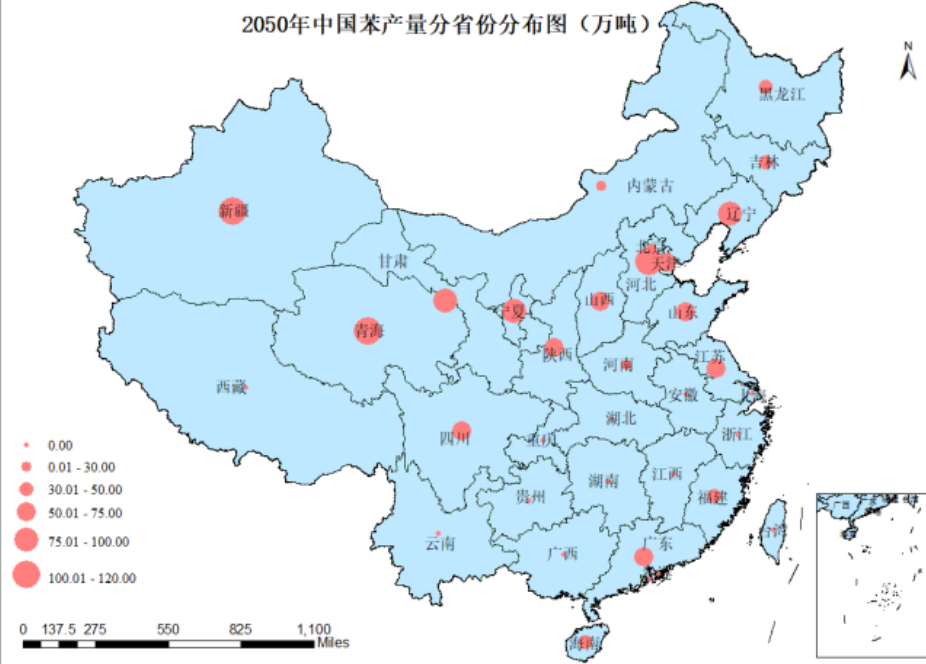
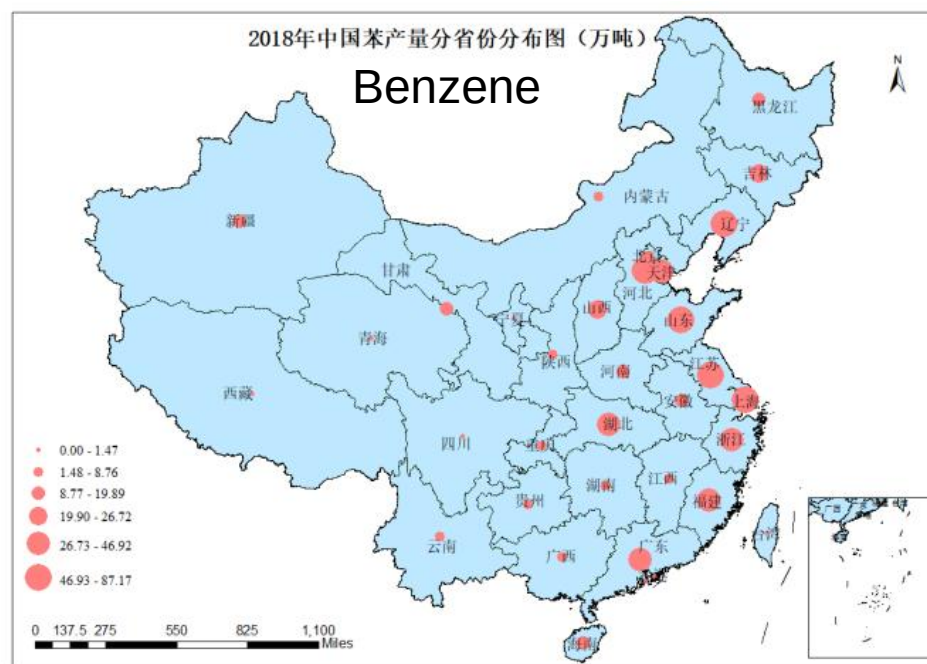
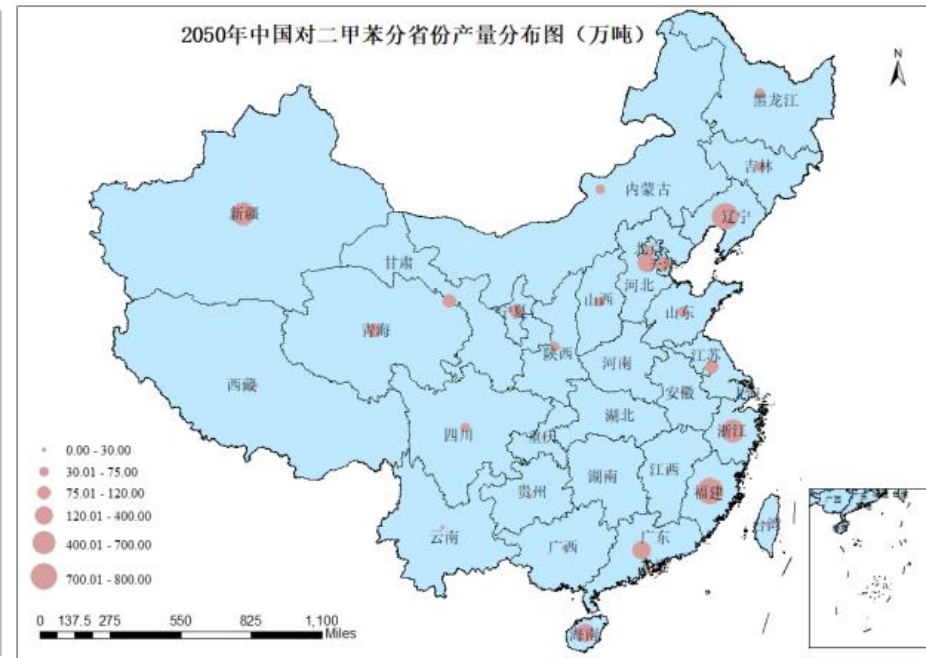
- The cost depends on various developments, hence large uncertainty
- Green is too expensive in baseline
- Green hydrogen production from solar and wind becomes increasingly competitive under stricter climate policy

Levelised cost of hydrogen (LCOH) under scenarios in Africa









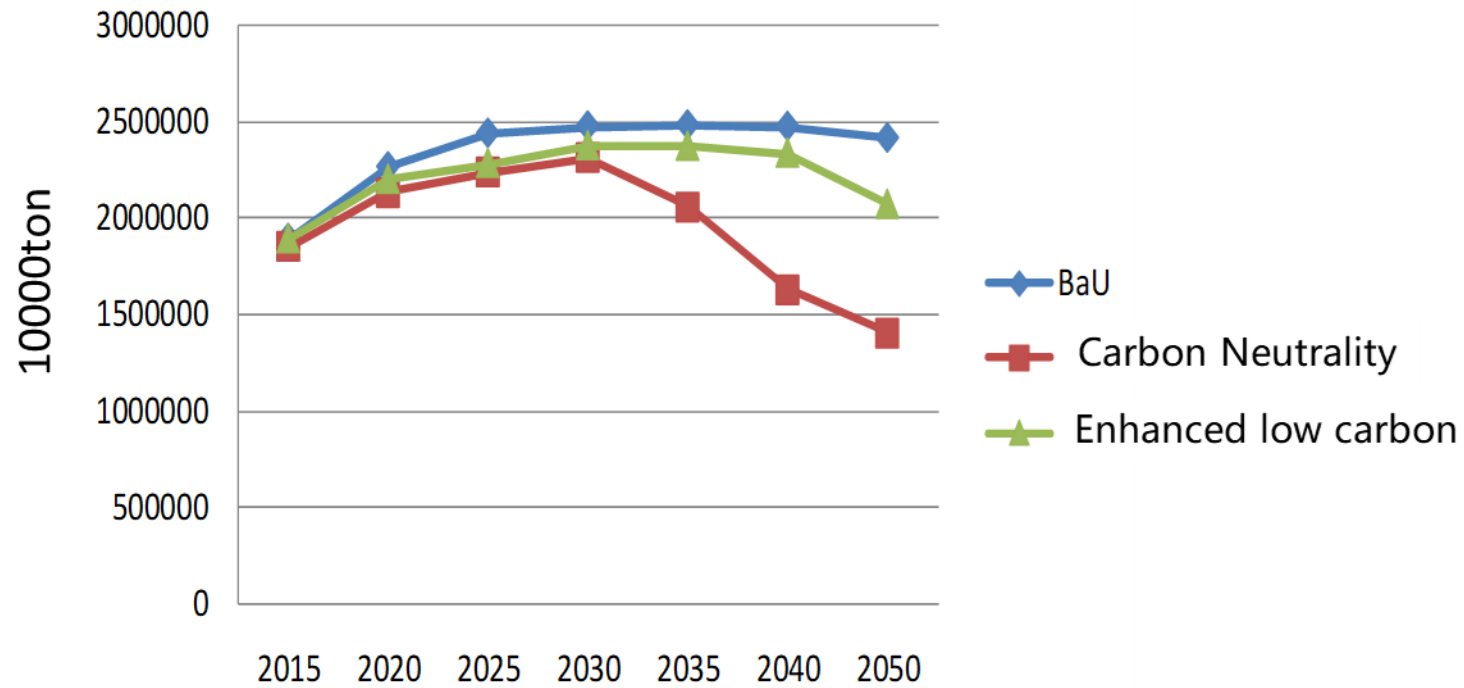


- Nuclear power: third generation
- With price to grid 0.42yuan/kWh, same with coal fired power
- In near 0.35yuan/kWh

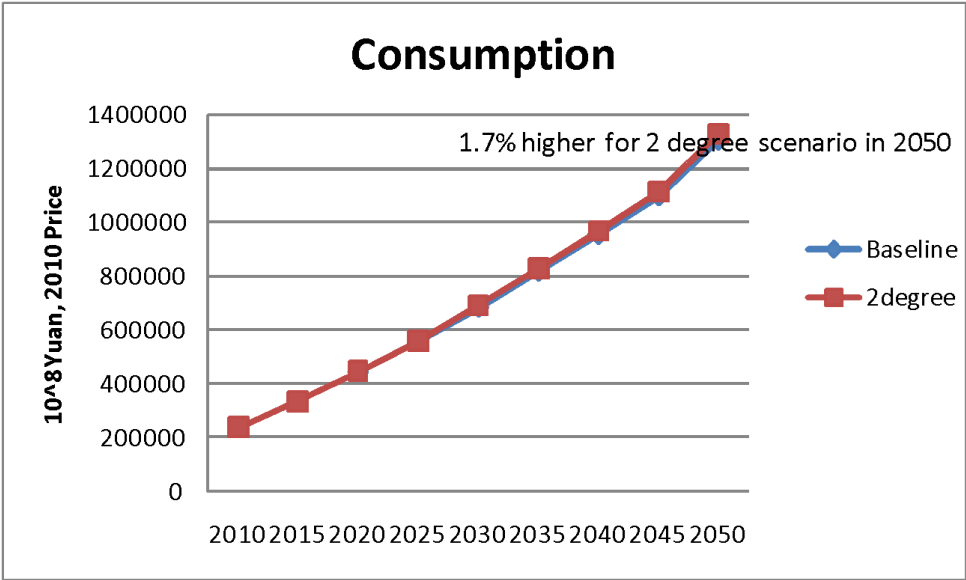
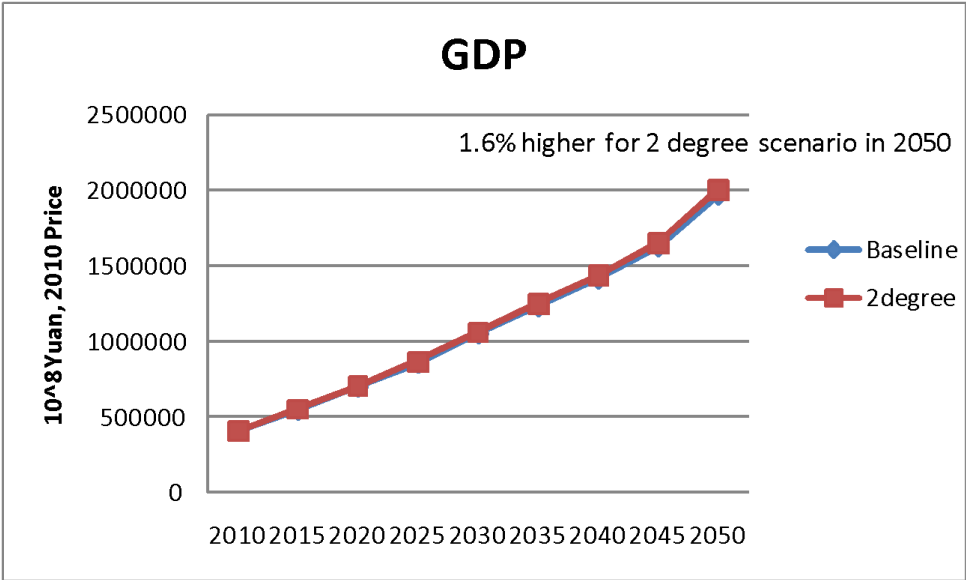


Small reactor, HTGC, nuclear fusion

Water demand from energy use in China



Mitigation would increase GDP!



Next generation of food supply

- No cotton production
- Half agriculture land needed by 2050
- 75% animal husbandry reduction
- Food and meat comes from chemical industry by hydrogen and CO₂

Man made protein

