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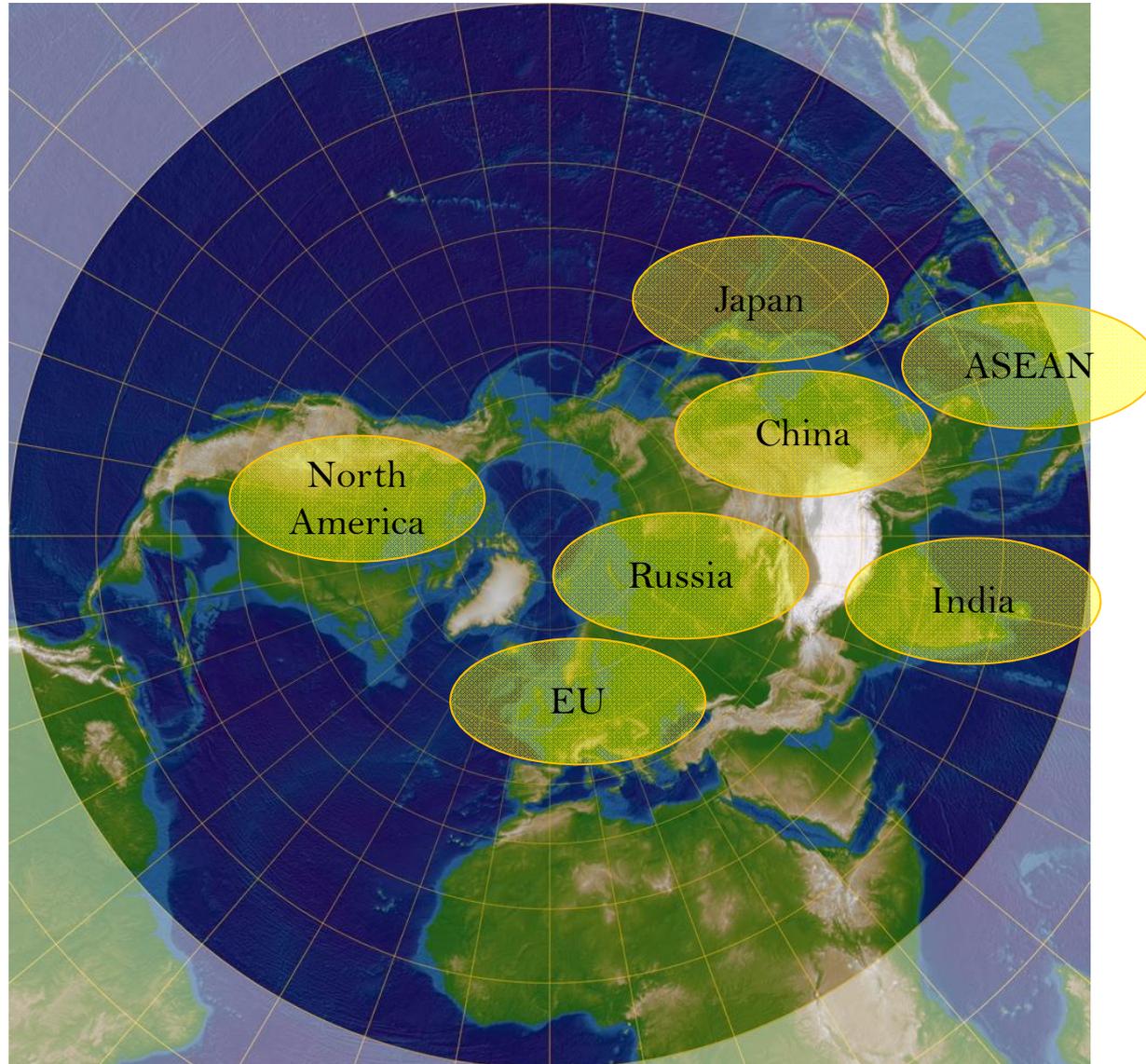
IFRI-CIGS Joint Workshop
Governance and Competitiveness in an Age of Innovation
September 12, 2017, IFRI

Some Topics on Asia and China

Fengjun Duan

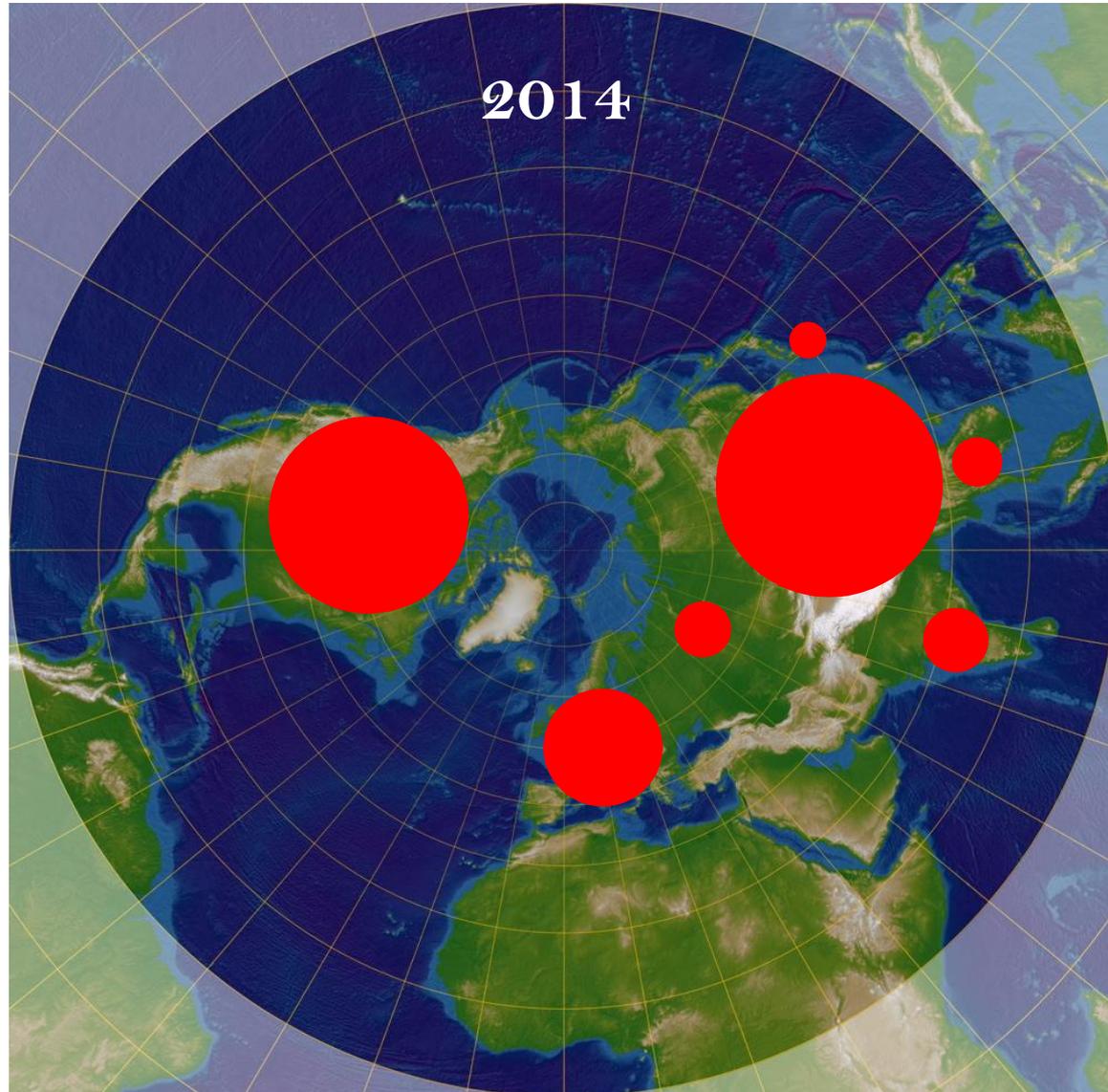
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Map of the Northern Hemisphere



Changing Map of Energy Demand

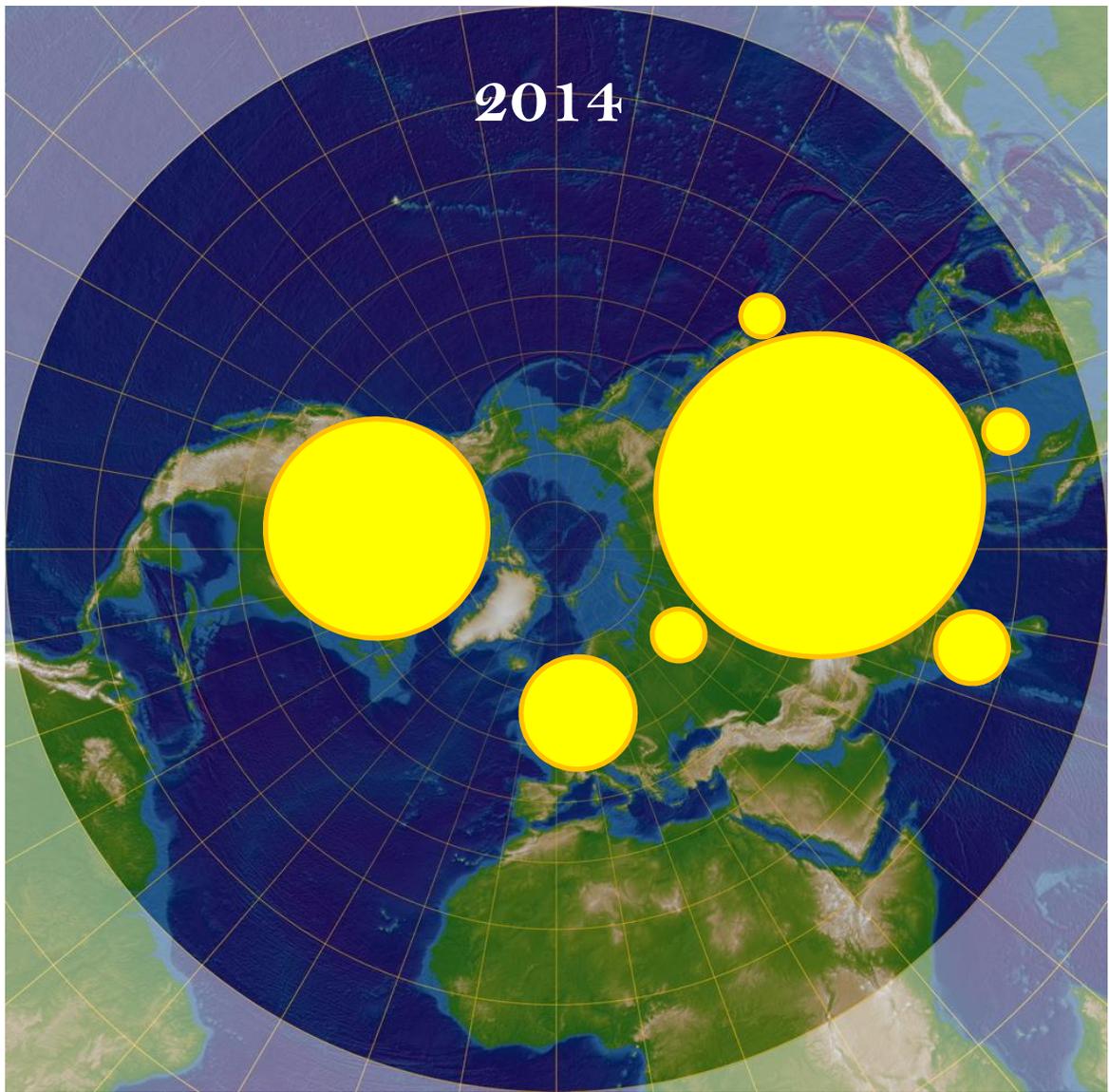
●
1 Billion
TOE



Based on
IEA data

Changing Map of CO₂ Emission

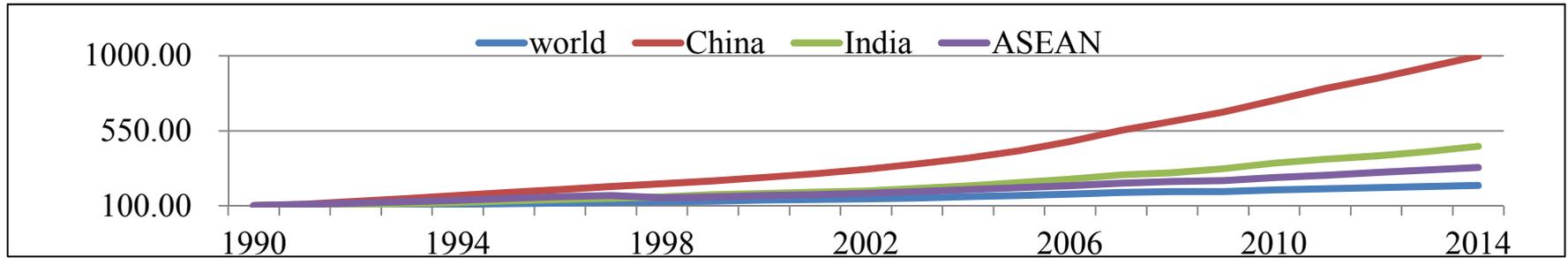
●
1 Billion
tone of
CO₂



Based on
IEA data

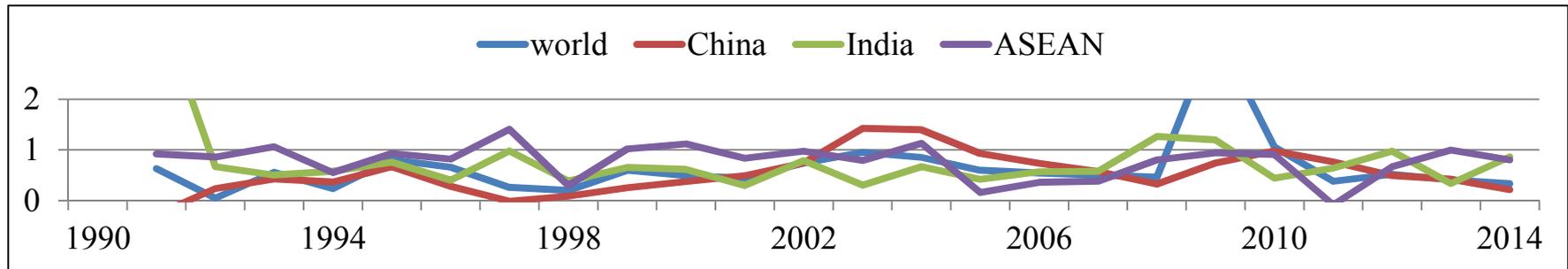
Status of China, India, and ASEAN

Rapid economic growth



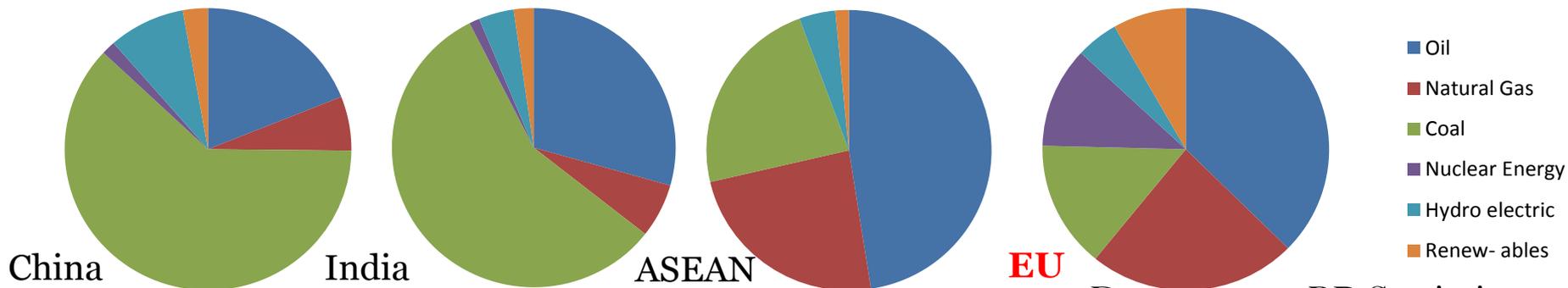
High energy dependency

Data source: IEA Database



Energy mix depending on coal

Data source: IEA Database

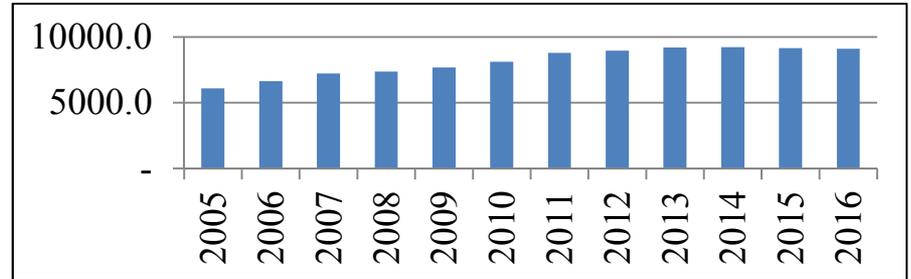


Data source: BP Statistics

Positive Trends in China

Emission Plateau

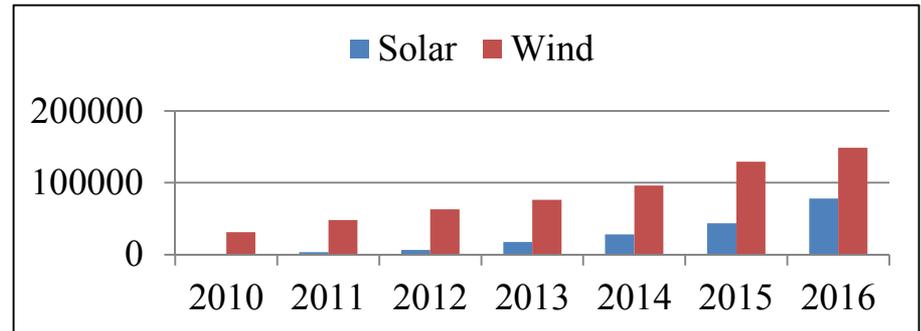
Increase of energy related CO₂ emissions stopped during the past 3 years.



Data source: BP Statistics

Largest RE Deployment

By the end of 2016, 31.7% of global wind and 25.9% of global solar capacity in China



Data source: BP Statistics

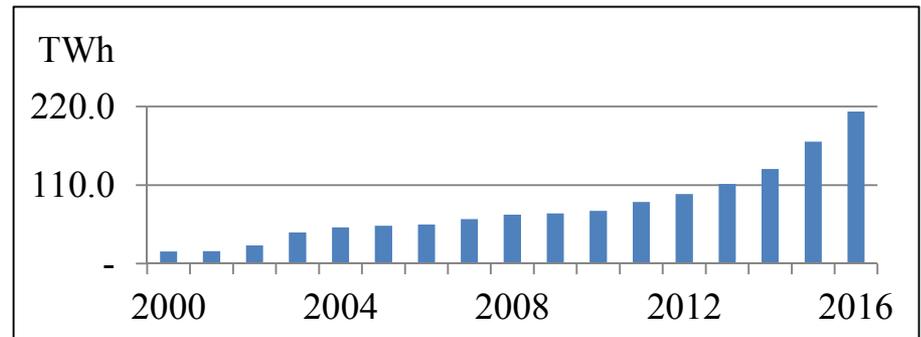
Rapid Nuclear Construction

Reactors connected to grid

2012	2013	2014	2015	2016
1	3	3	8	5

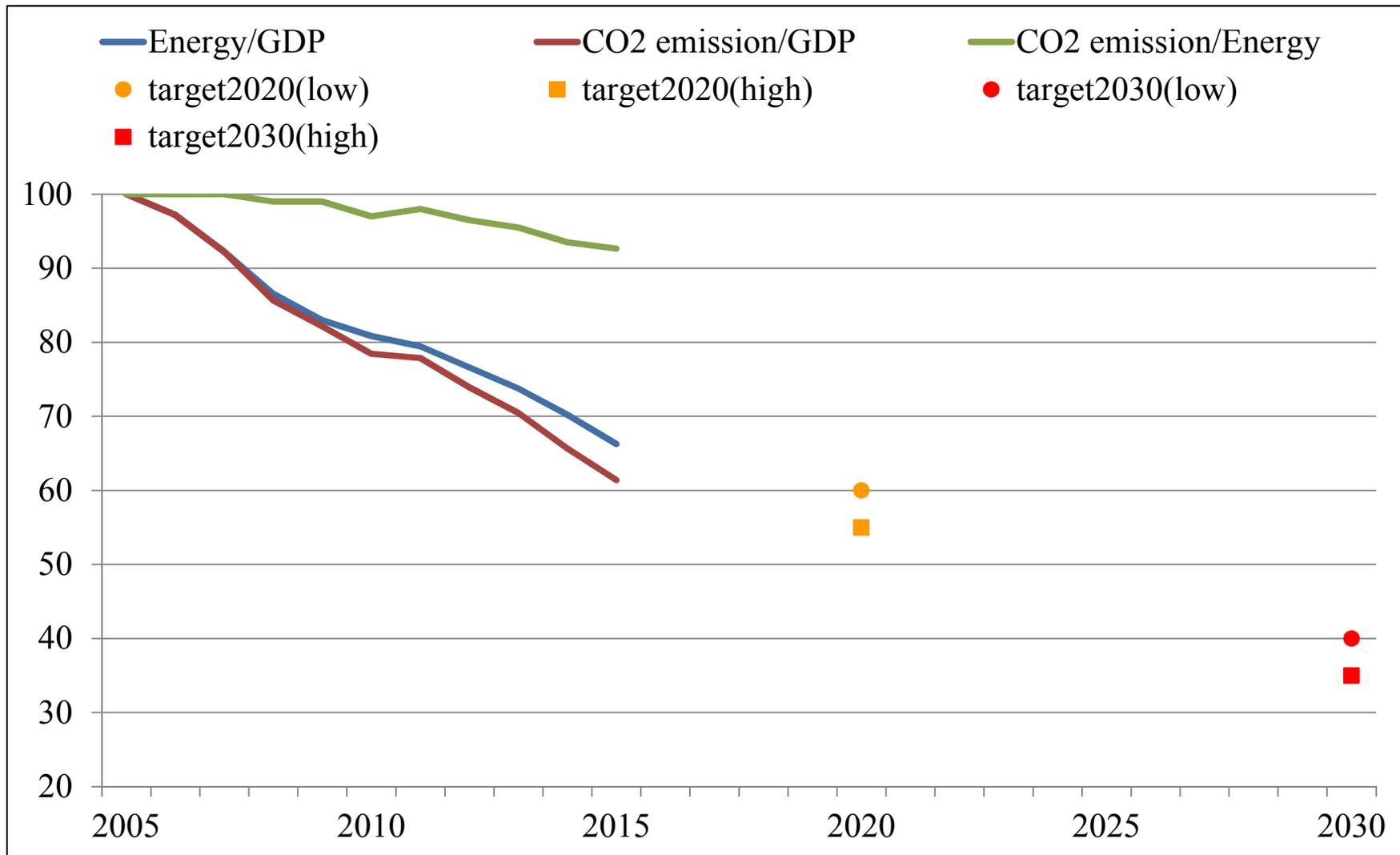
Largest Market of EV

By the end of 2016, more than half of global fleet



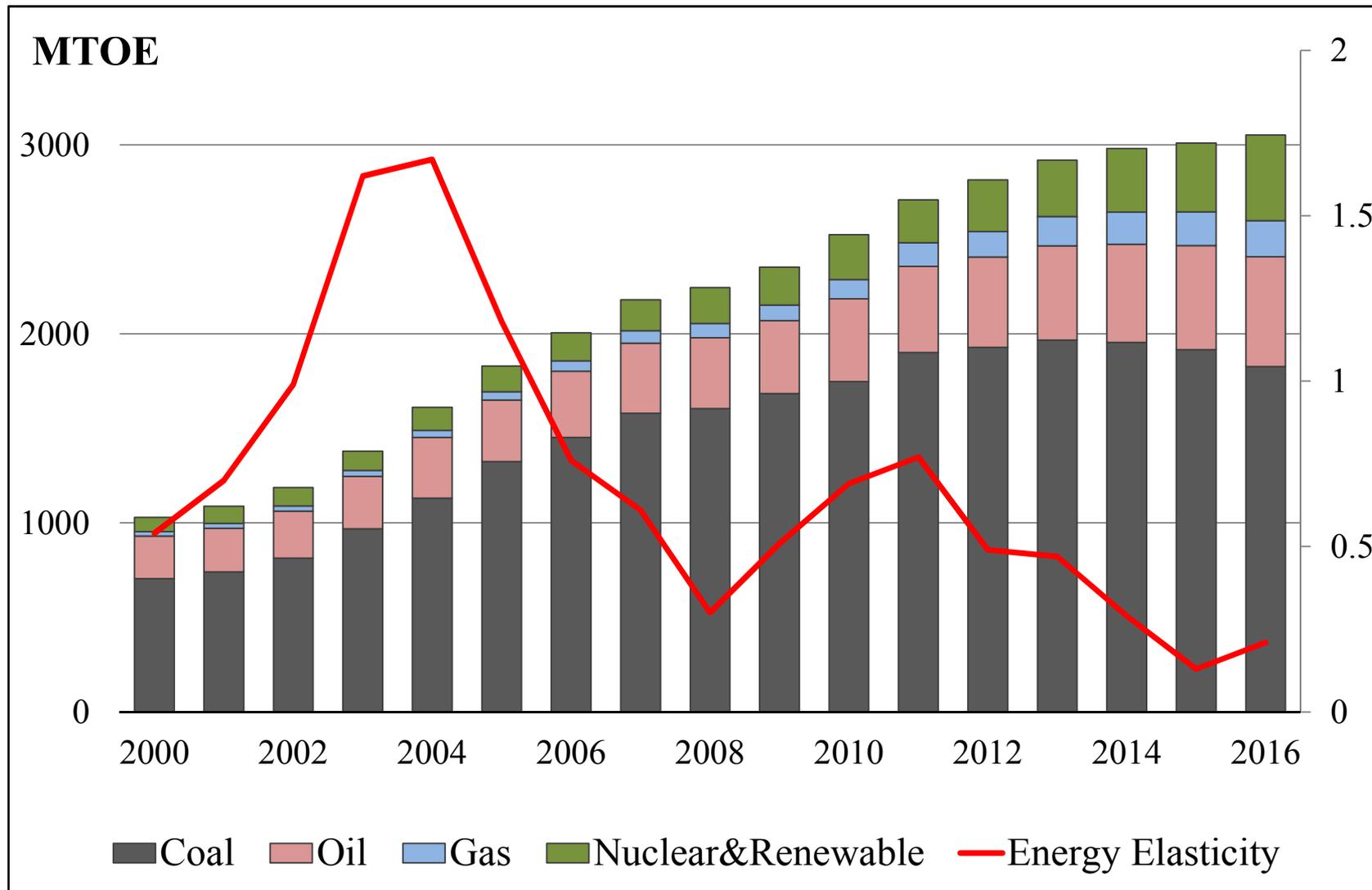
Data source: BP Statistics

Mitigation Targets and Progress in China



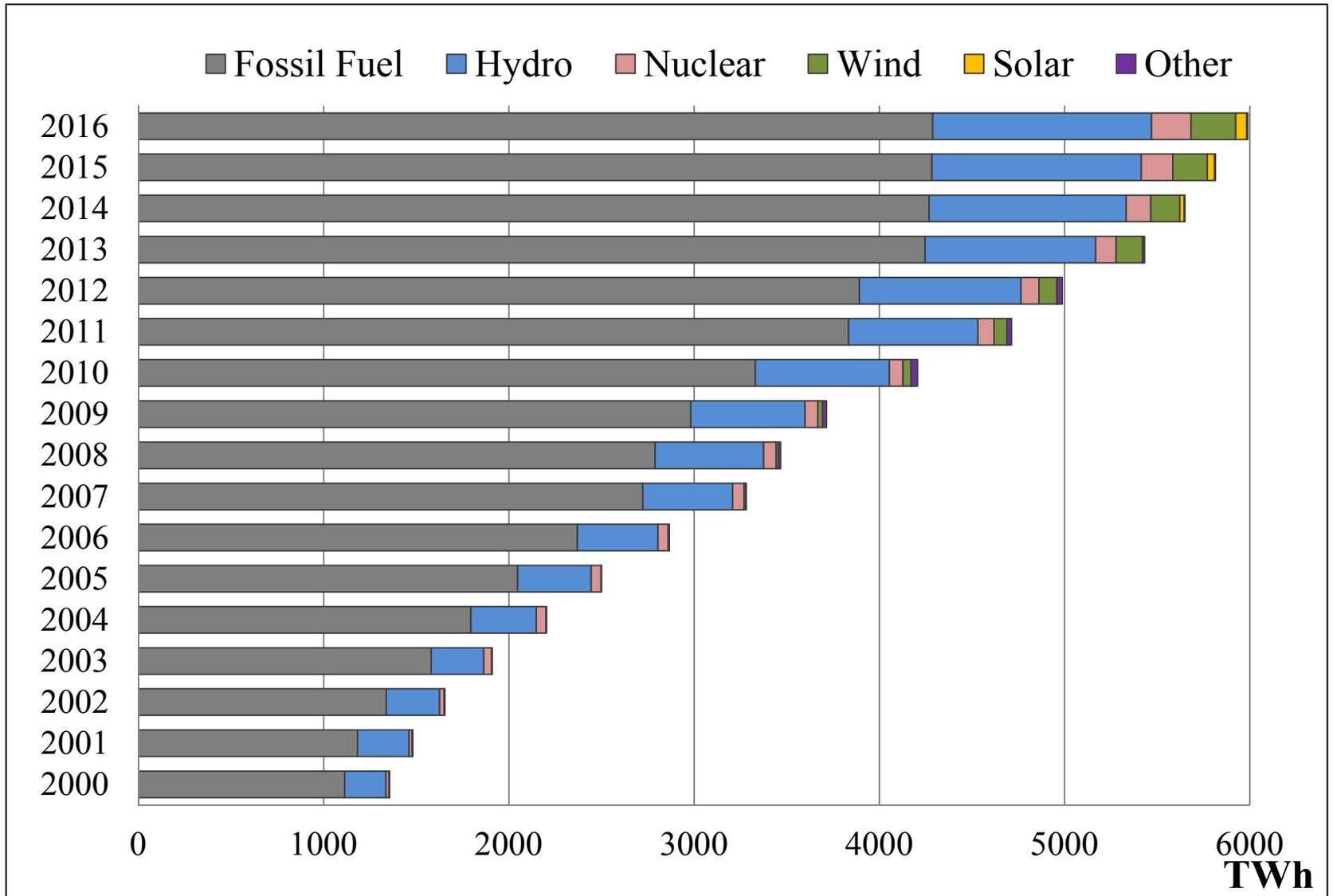
Data source: National Database

Total Primary Energy in China



Data source: National Database

Power Generation in China



Data source: National Database

What Happened?

National Strategy (2011) Low Carbon Economy

Environ. Policy

Regulation

CO₂ intensity

Emission standard

Low carbon tech.

Tech. list

Tax and finance

Circular economy

Demonstration

Energy Policy

Efficiency

Label

Top runner

Tech. list

Energy transition

Limit coal

Promote gas, RE

Promote nuclear

Market reform

Electricity market

Emission trading

Industry Policy

Structural adjustment

Service industry

Phase out capacity

Iron, steel, cement

Aluminum, glass

Coal fired power

Emerging industry

Enviro., ICT, Bio

High level mfr.

New energy

New material

New energy vehicle

Some Innovation

HTGR



UHV



EV



GW USC



What Are on Schedule?

Energy Revolution Strategy (2016-2030)

Supply

Double transition: coal to gas, fossil to zero emission, Non-fossil energy share: 15% in 2020 and 20% in 2030, Solar power: 110GW in 2020 and 500GW in 2030, Wind power: 210GW in 2020 and 500GW in 2030, Nuclear: 58GW in 2020 and 150GW in 2030

Consumption

Electrification promotion, Establish energy consumption right scheme, detailed energy conservation targets and actions in industry, construction, and transportation

Innovation

Double the R&D investment, Establish green financial mechanism, Enhance the low carbon technology standard and certification

Market

Establish electricity, natural gas and emission trading market, Establish market pricing mechanism

New Challenges and Innovations

Challenges

Grid Stability

Overcapacity and Curtailment

Market Mechanism vs. 3E Balance

Innovations

Application of ICT

Distributed Energy Supply Technologies

Energy Storage, Super Grid, Smart Use of EV



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Thank you for your attention!

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