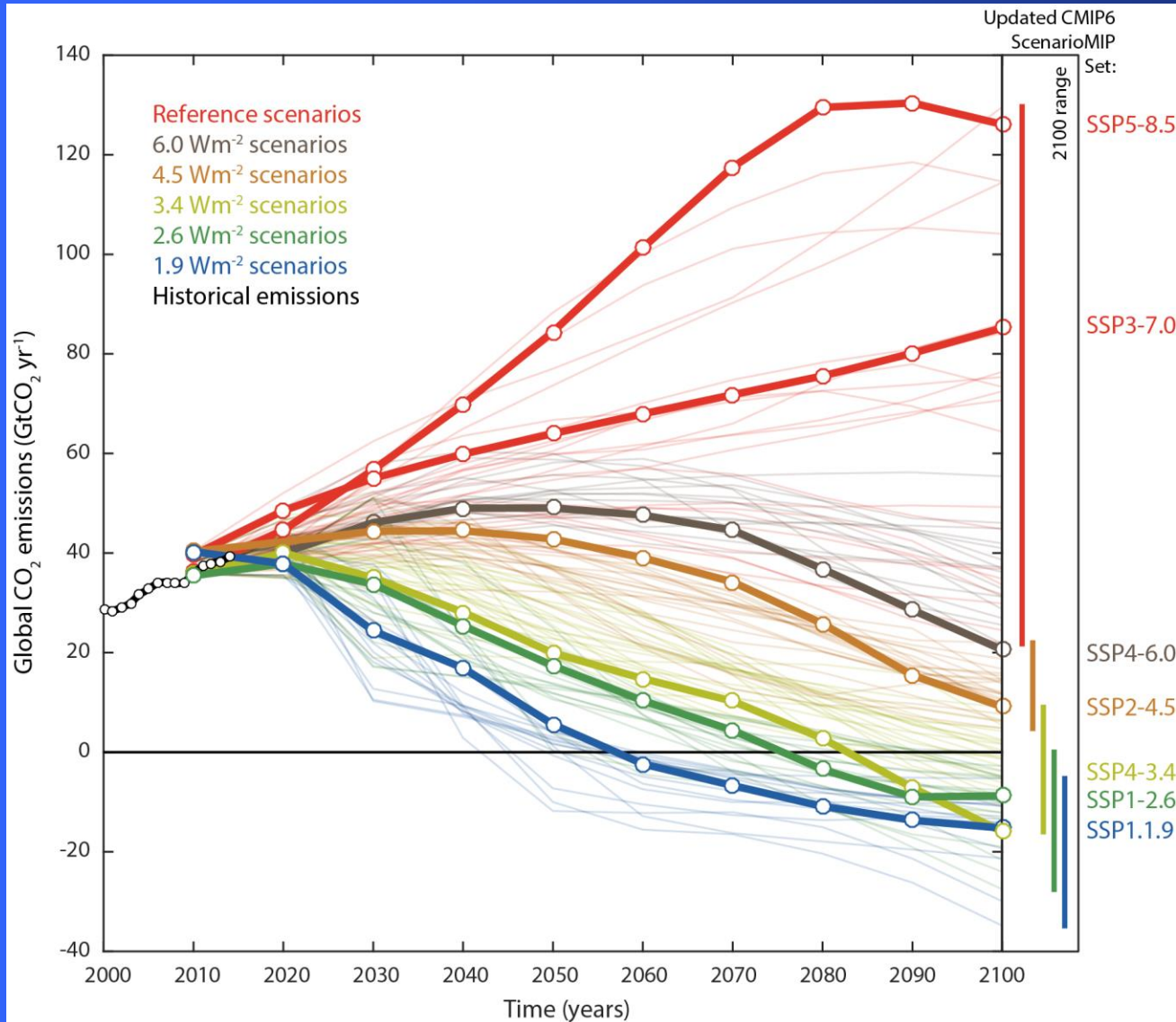


# Going To the 1.5°C Warming target Together

Jiang Kejun  
Energy Research Institute, China

ISAP 2020

# Global CO<sub>2</sub> Emissions, IPCC 1.5C Report



# **We are here: carbon neutral in line with 1.5°C**

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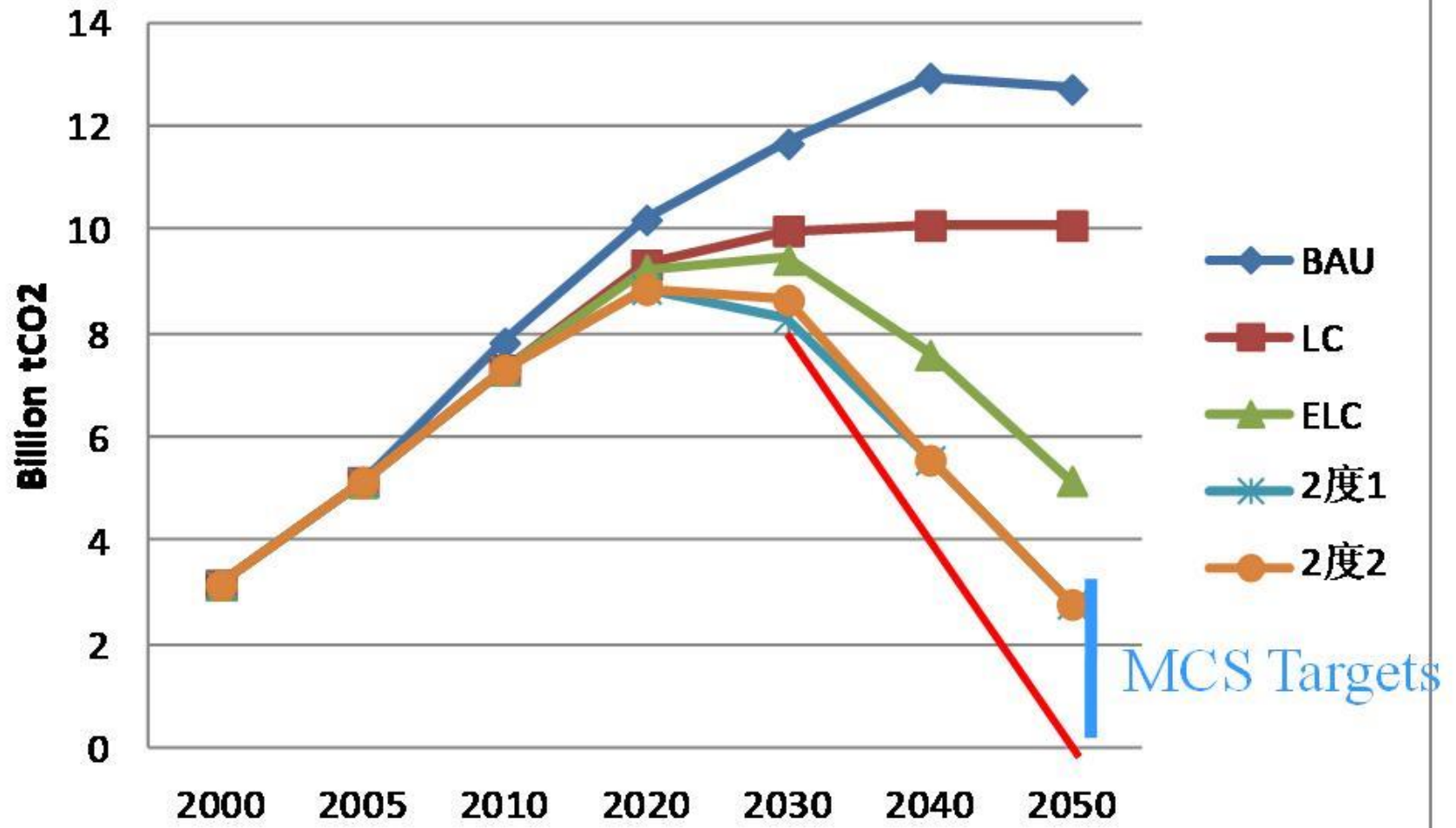
- **EU**
- **Canada**
- **China**
- **Japan**
- **Korea**
- **South Africa**
- **US(coming soon)**

## **We are here: more than 65% CO2 emission countries**

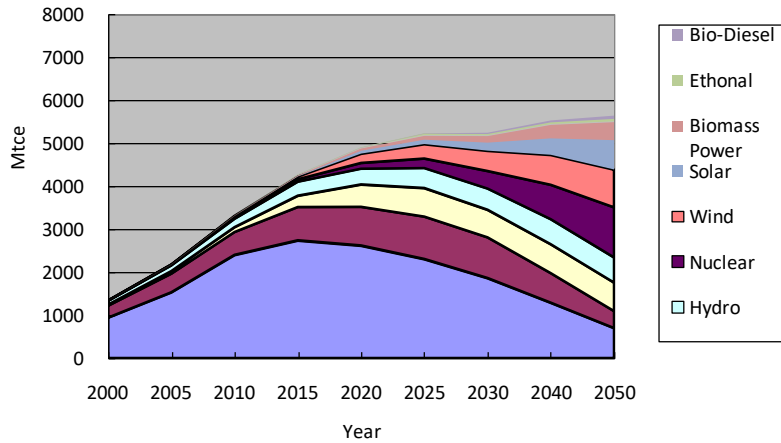
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- **Technology leading countries are targeting on carbon neutral**
- **Companies are setting up target for carbon neutral**
- **Then almost all countries will be carbon neutral**

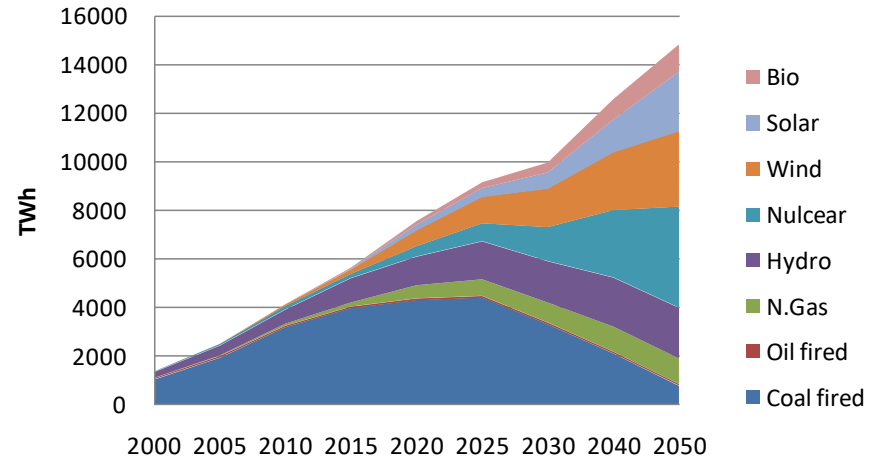
# CO2 Emission



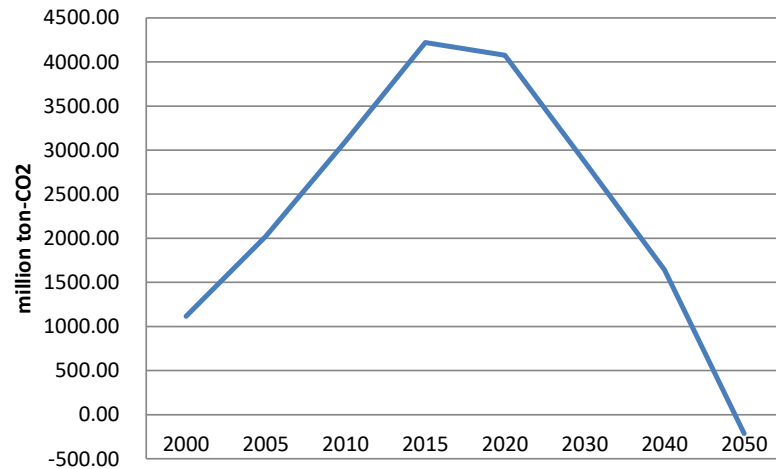
TPE, 1.5°C Scenario



Power Generation, 1.5°C Scenario

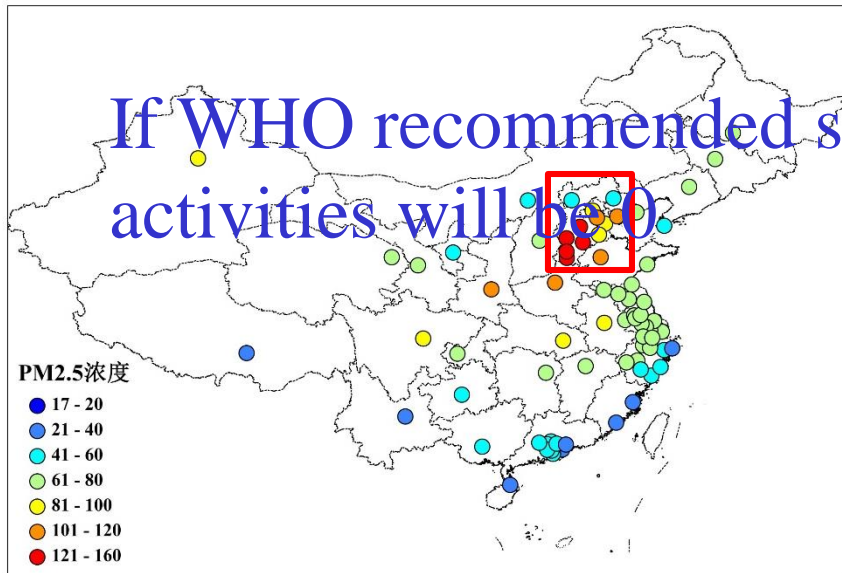


CO2 emission in power sector

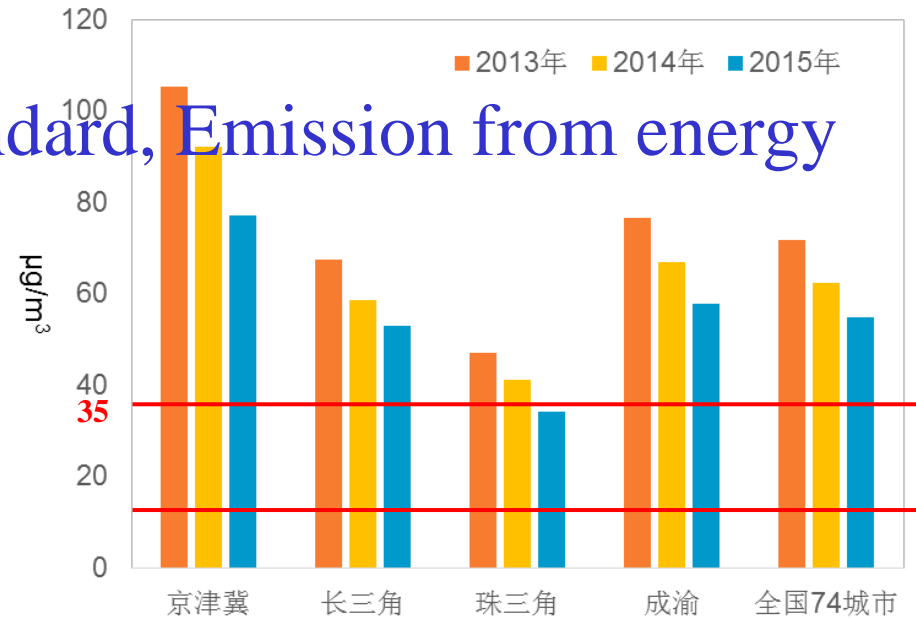


# PM<sub>2.5</sub> Concentration is much higher than standard

## PM2.5 concentration of 74 cities in 2013



## PM2.5 annual concentration from 2013-2015



- 2013年京津冀地区所有城市PM<sub>2.5</sub>年均浓度均超标，区域内PM<sub>2.5</sub>年平均浓度达106µg/m<sup>3</sup>，虽2014、2015年空气质量有所改善，但仍大幅超过国家空气质量二级标准。



# SUSTAINABLE DEVELOPMENT GOALS

**1** NO POVERTY

**2** ZERO HUNGER

**3** GOOD HEALTH AND WELL-BEING

**4** QUALITY EDUCATION

**5** GENDER EQUALITY

**6** CLEAN WATER AND SANITATION

**7** AFFORDABLE AND CLEAN ENERGY

**8** DECENT WORK AND ECONOMIC GROWTH

**9** INDUSTRY, INNOVATION AND INFRASTRUCTURE

**10** REDUCED INEQUALITIES

**11** SUSTAINABLE CITIES AND COMMUNITIES

**12** RESPONSIBLE CONSUMPTION AND PRODUCTION

**13** CLIMATE ACTION

**14** LIFE BELOW WATER

**15** LIFE ON LAND

**16** PEACE, JUSTICE AND STRONG INSTITUTIONS

**17** PARTNERSHIPS FOR THE GOALS

  
SUSTAINABLE DEVELOPMENT GOALS



# Ways from deep cut of GHGs on impacting economy development

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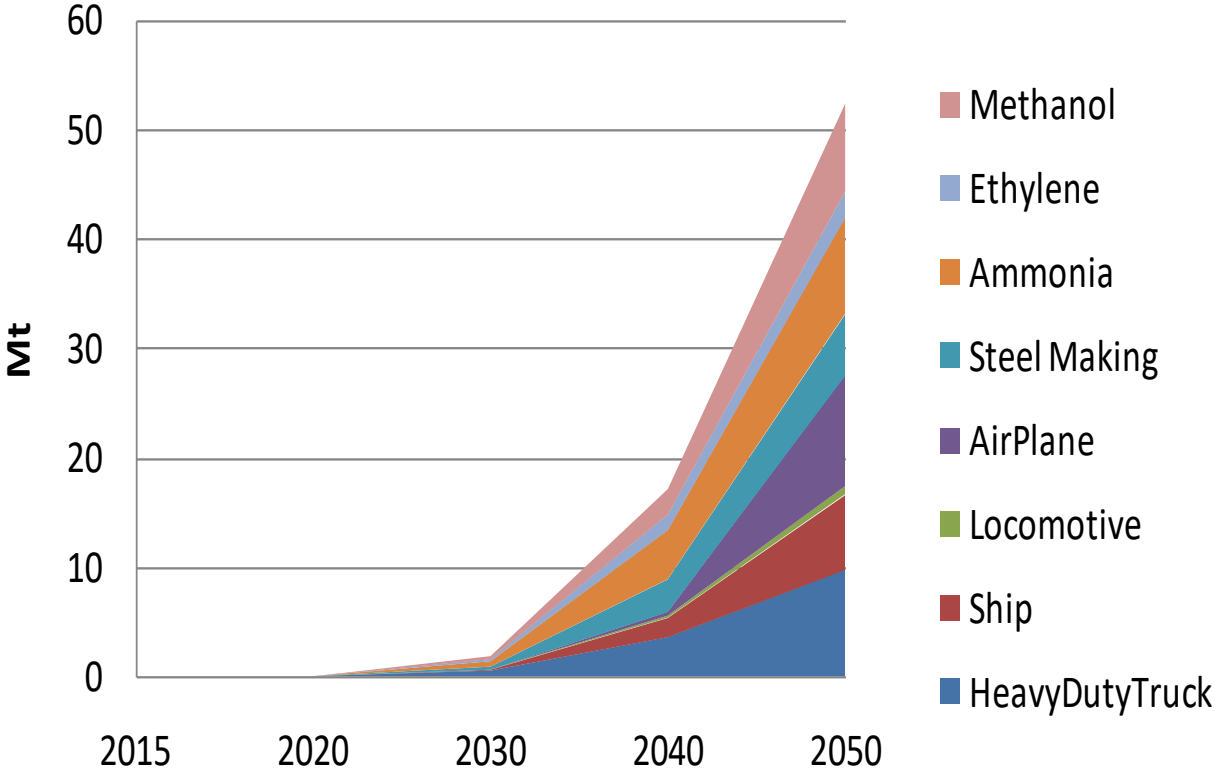
- Overall impact in economic development pattern
- Energy supply industry will have strong transition
- Transition in end use sector
- New manufactures process in some sectors
- Mitigation of GHGs may increase GDP in China
- China's overseas investment are increasing rapidly

# Significant Transition in Industry Sectors and Transport: Hydrogen Based Process

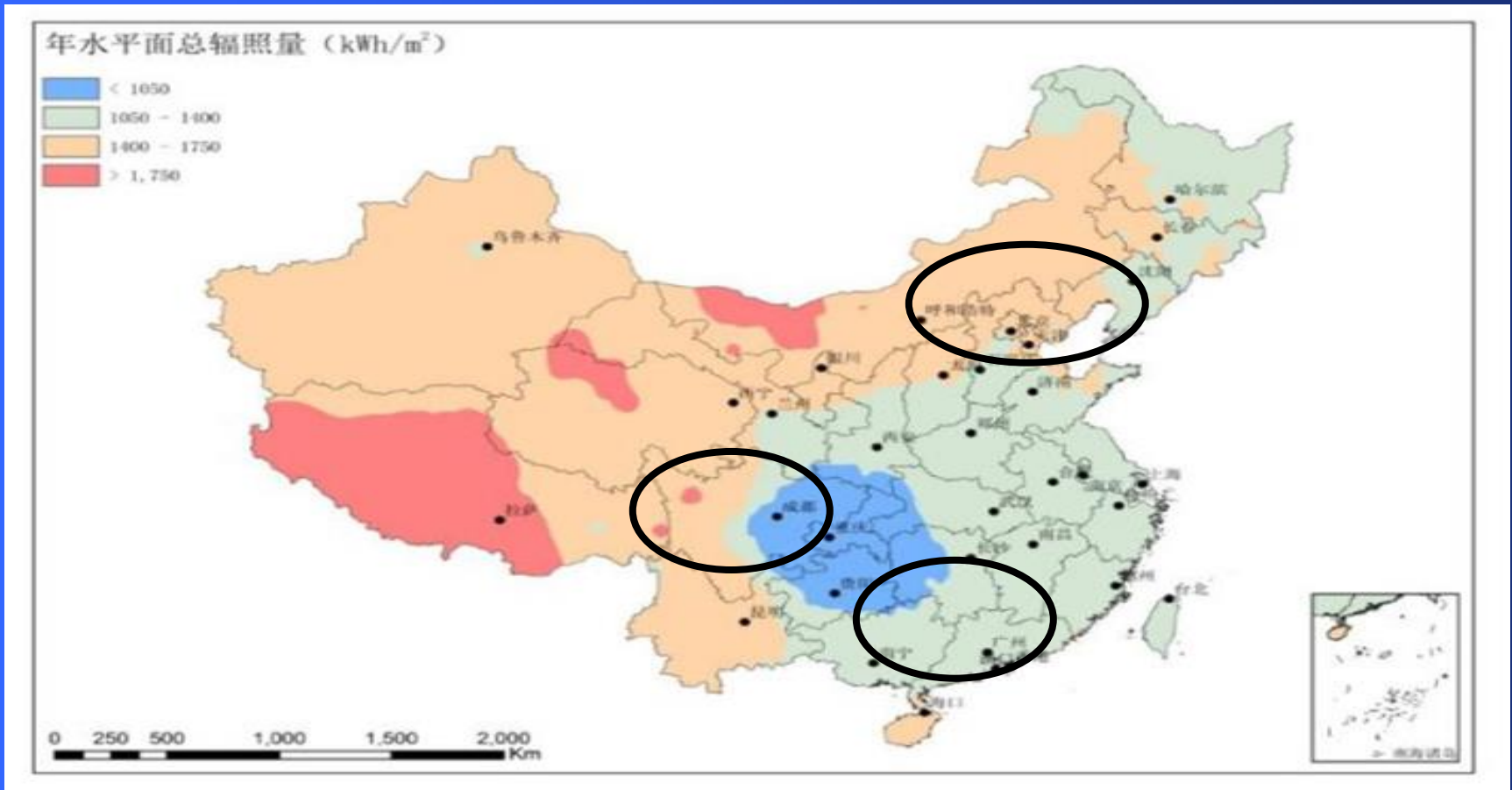
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- **Steel making**
- **Ammonia**
- **Benzene**
- **Ethylene**
- **Methanol**
- **Clinker**
- **Heavy Duty transport and air plane**

# Hydrogen Demand



The Economy development map will be changed by location of very cheap renewable energy or nuclear?



**Figure 13.** Solar PV Capacity and Additions, Top 10 Countries, 2013

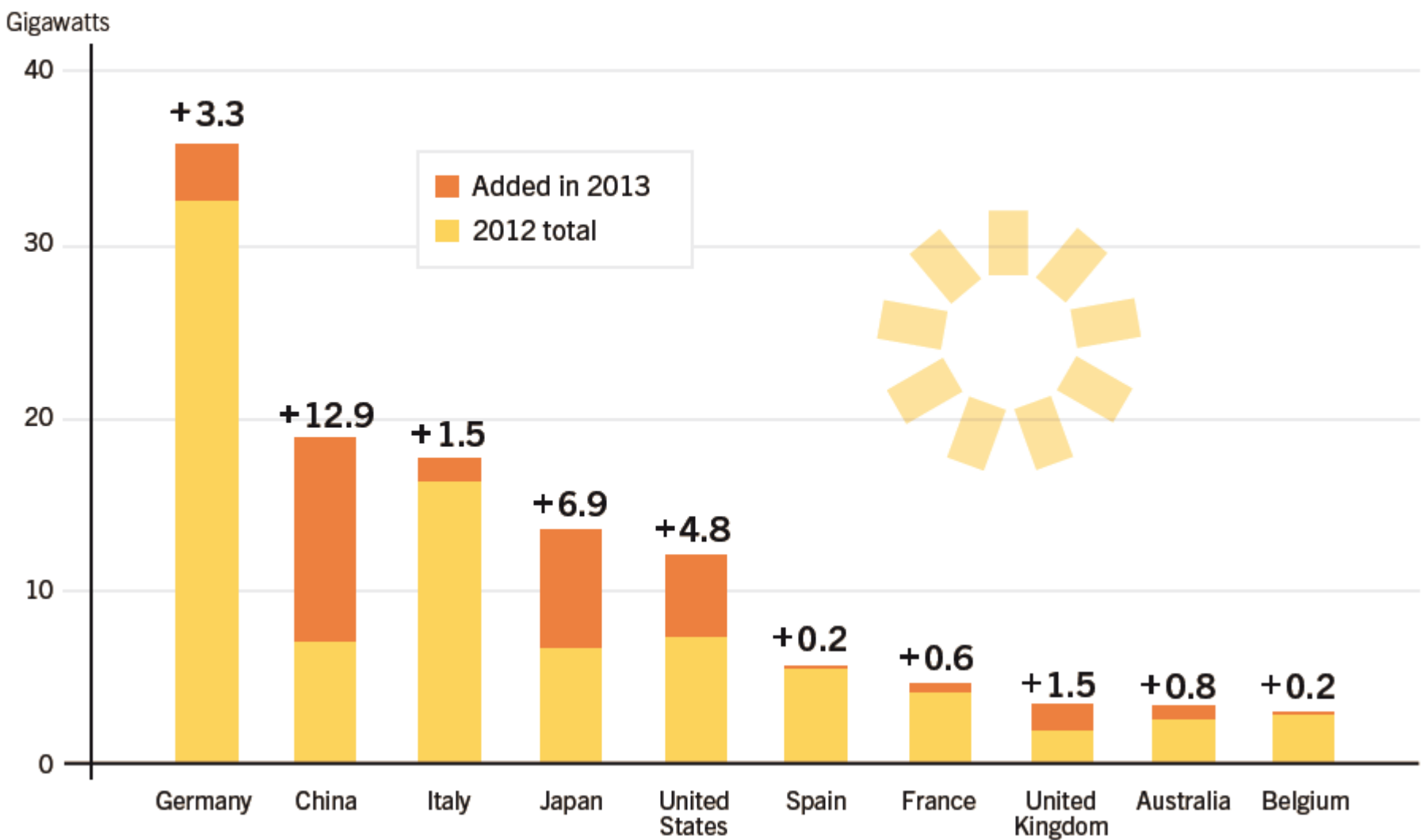
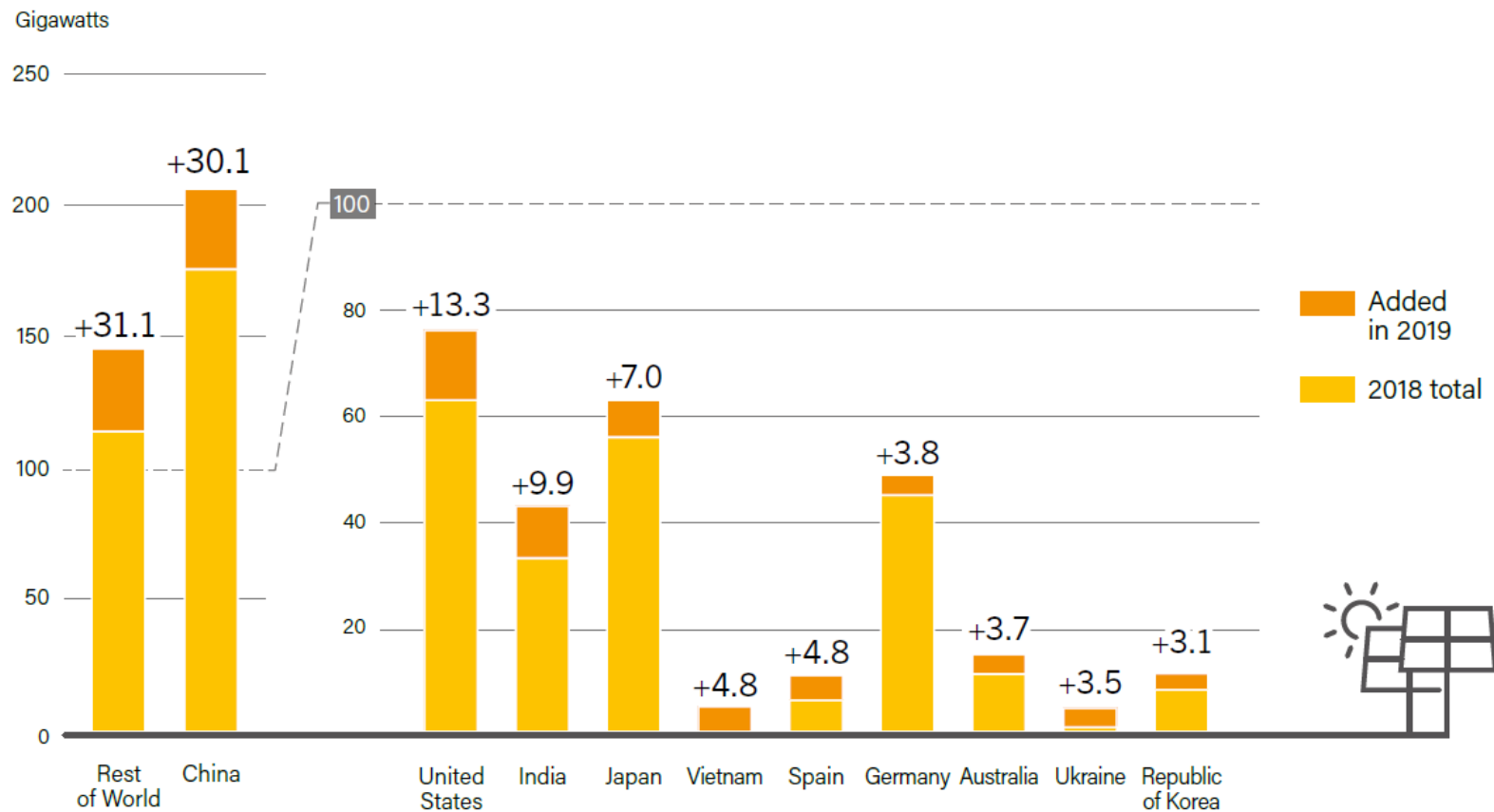


FIGURE 30. Solar PV Capacity and Additions, Top 10 Countries for Capacity Added, 2019



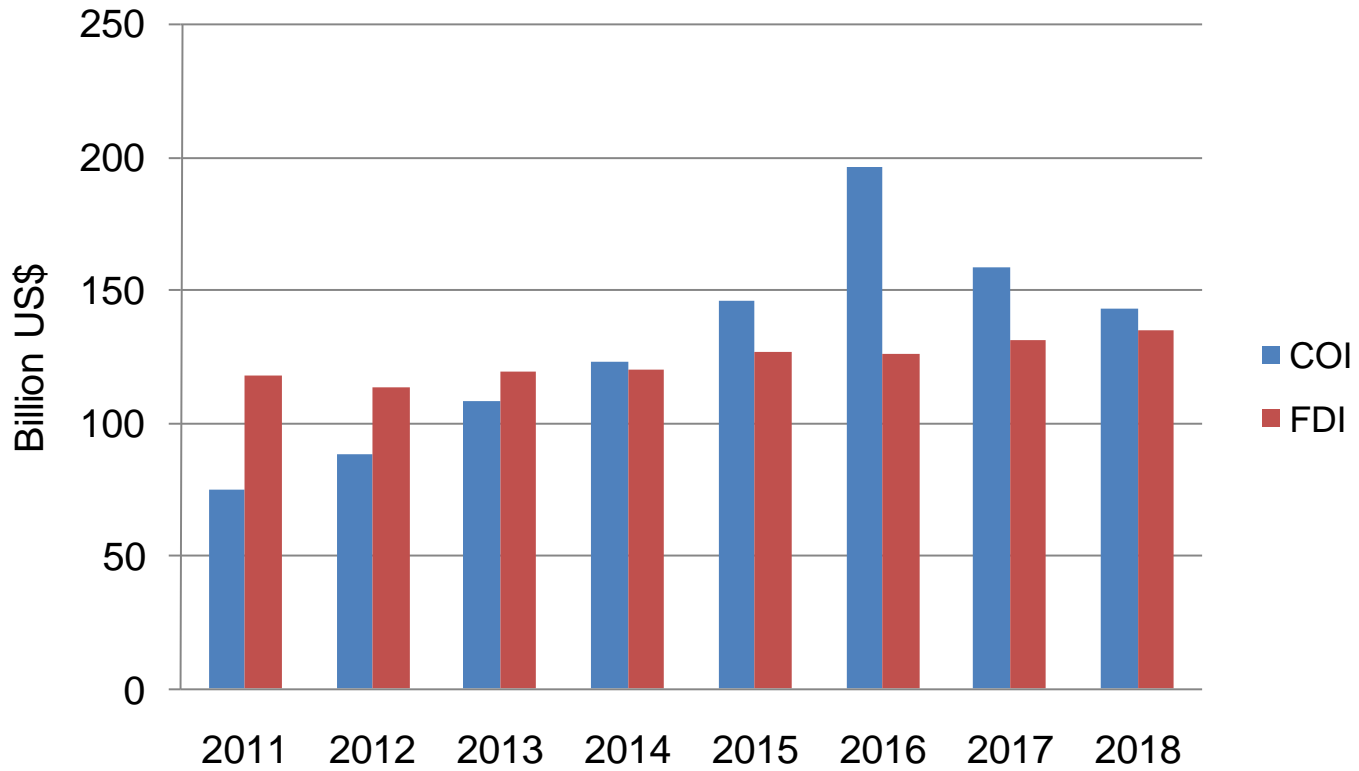
Note: Data are provided in direct current (DC).

Source: See endnote 27 for this section.

# New Battery for vehicles and power storage

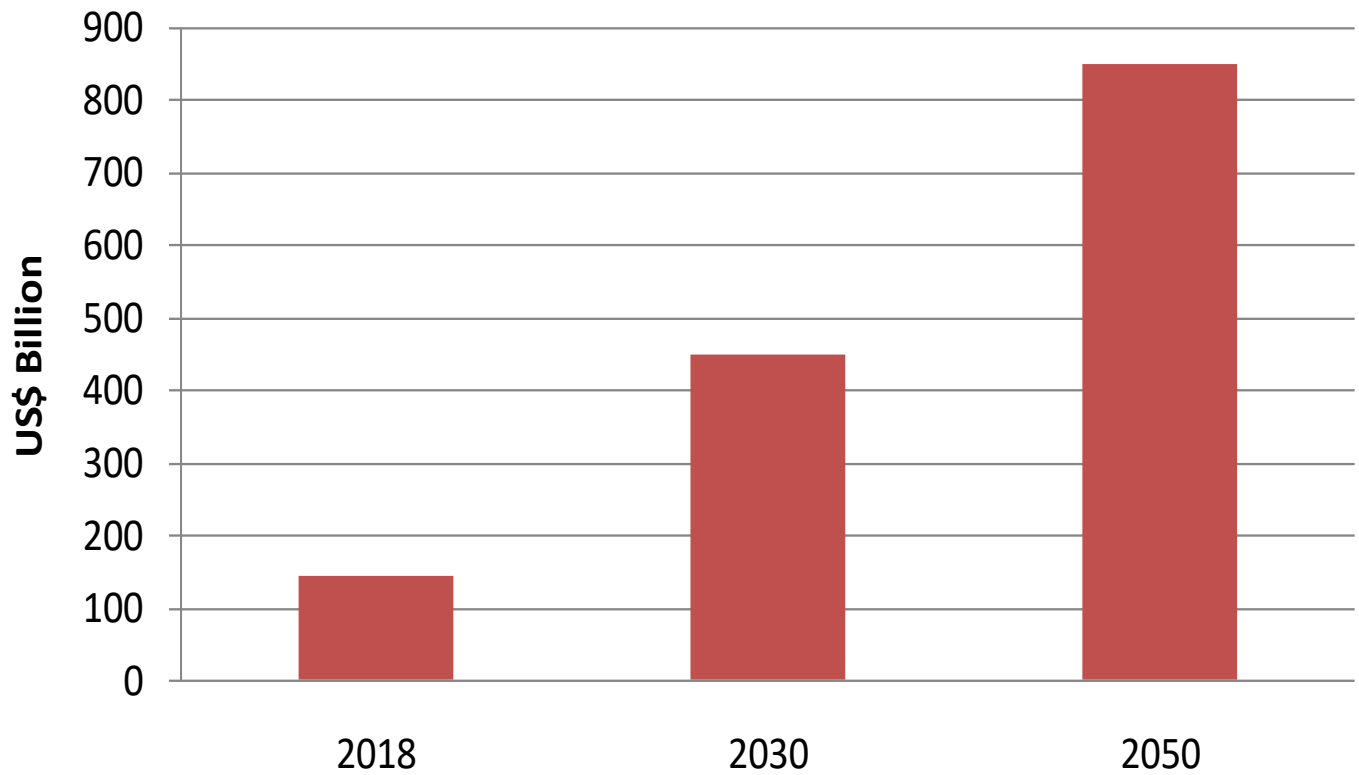


China's COI and FDI

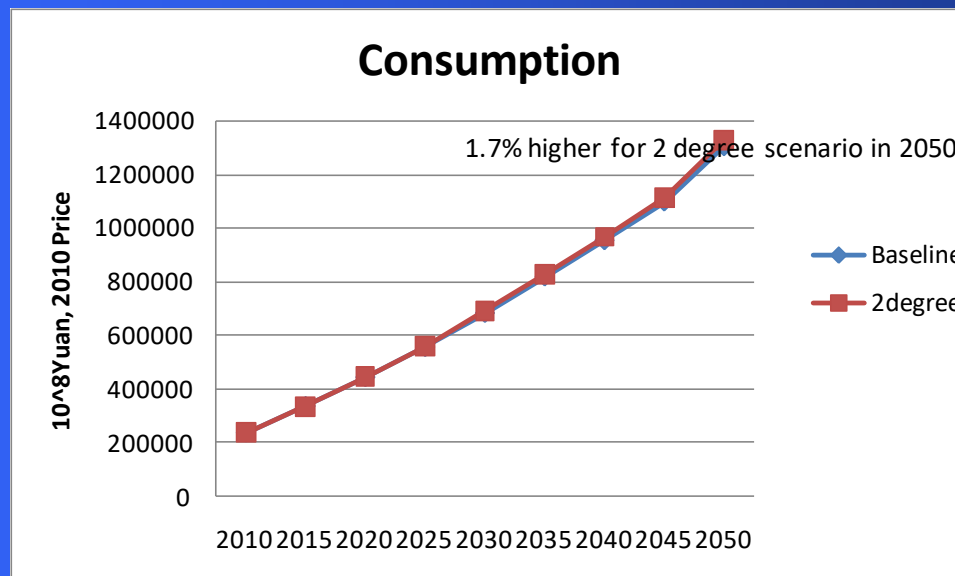
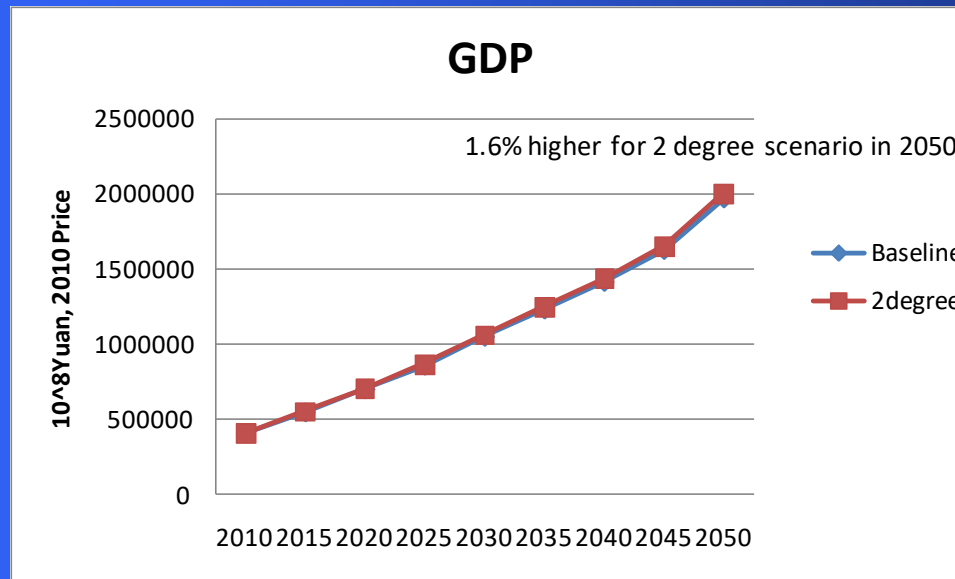




# China's Oversea Investment



# Mitigation Would Increase GDP!



No carbon pricing needed after 2020

But need money for CCS/BECCS

Thanks!