Energy Transition in China Toward to 2050

Jiang Kejun

Energy Research Institute, China
We Need Rapid Transition: Put that into 13th Five Year Plan

Primary Energy Demand in China, 2°C scenario A

- Bio-Diesel
- Ethanol
- Biomass
- Power
- Solar
- Wind
- Nuclear
- Hydro
- N.Gas
- Oil
- Coal
PM$_{2.5}$ Concentration is much higher than standard

PM$_{2.5}$ concentration of 74 cities in 2013

If WHO recommended standard, Emission from energy activities will be 0.

- 2013年京津冀地区所有城市PM$_{2.5}$年均浓度均超标，区域内PM$_{2.5}$年平均浓度达106µg/m$^3$，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。
China’s MCS: a proposal

CO2 Emission

- BAU
- LC
- ELC
- 2度1
- 2度2

MCS Targets
Policy roadmap toward to the targets

• Targets setting: 2°C for sure, make effort for 1.5 ºC

• Policy design: no loser policies

• Policies in today: strongest, maybe weak in future

• Technology progress will play key-key role

• Need strong climate change strategy to set up long term targets for 2°C and 1.5 ºC
No Loser Policies

- Purpose: help sectors which are negative impacted to quit without damages

- Increase subsidy to coal related sectors

- Coal phasing out with the subsidy: increase electricity price from coal fired power plants, make sure to get their investment pay back.

- Policies to support unemployment from these sectors

- Subsidy comes from government budget, and additional charge from power sector
Today’s policy: already very strong

• Subsidy for renewable energy: highest period, then will be reduced to be zero in near future

• Subsidy for electric car: highest period, then will be reduced to be zero in near future

• Subsidy for energy saving

• Budget for unemployment in China’s supply side reforming: help more than 3million workers from 2015 to 2017
Policies for 2 and 1.5 targets not necessarily stronger than today

If EU can do, China will also do it.

We can change the world!

Zero emission future is a big opportunities to promote transition of economy in China.
Coal demand in China

Coal demand in China

煤炭消费量

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CO2 Emission Per Capita

- City with Tertiary Sector Oriented
- Integrated Development City
- Industrial City
- Eco-based City
CO2 Emission in Beijing

MtCO2

2015  2017  2020  2025  2030  2040  2050

2017

2019

2021

2023

2025

2027

2029

2031

2033

2035

2037

2039

2041

2043

2045

2047

2049

2051

2053

2055
No carbon pricing needed after 2020
Mitigation Could Increase GDP!

**GDP**

- 1.6% higher for 2 degree scenario in 2050

**Consumption**

- 1.7% higher for 2 degree scenario in 2050
Key policies

• No loser policies: focusing on negative impacted sectors

• Zero-emission cities development strategy

• Carbon neutral industries

• Policies for deep cut without carbon pricing
China’s IPCC report: Assessment of China’s Climate Change and Eco-system, publish in 2021

- Focusing on 2 and 1.5 targets

- Modeling team are invited to submit scenarios for China: database available soon

- Papers are encouraged to be published focusing on China’s scenario, papers from 2012 to 2019 will be included for review