ERI's Research Activities in 2014

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Energy Research Institute

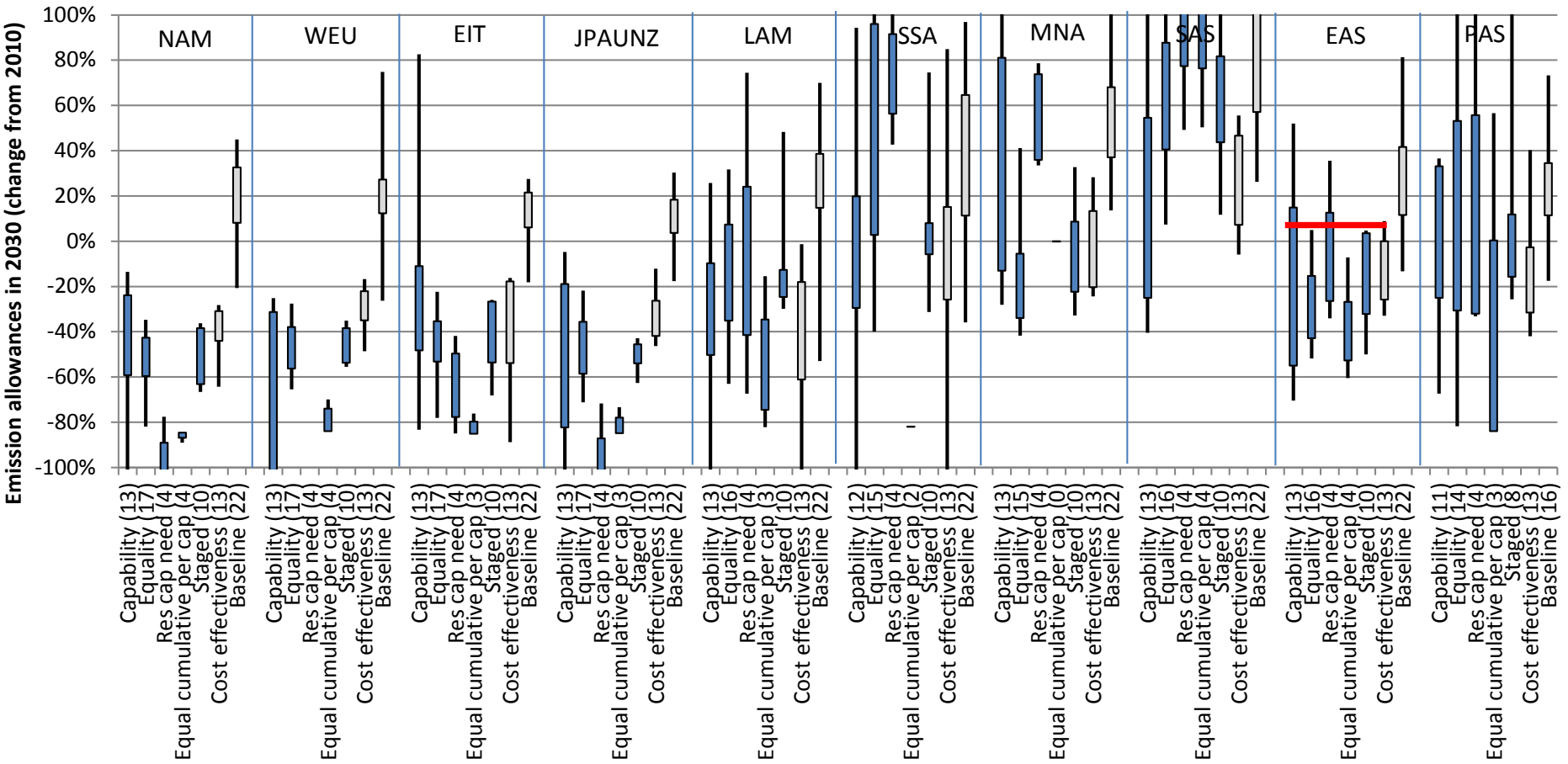
20th AIM International Workshop

Jan. 23-26, 2015

Tsukuba

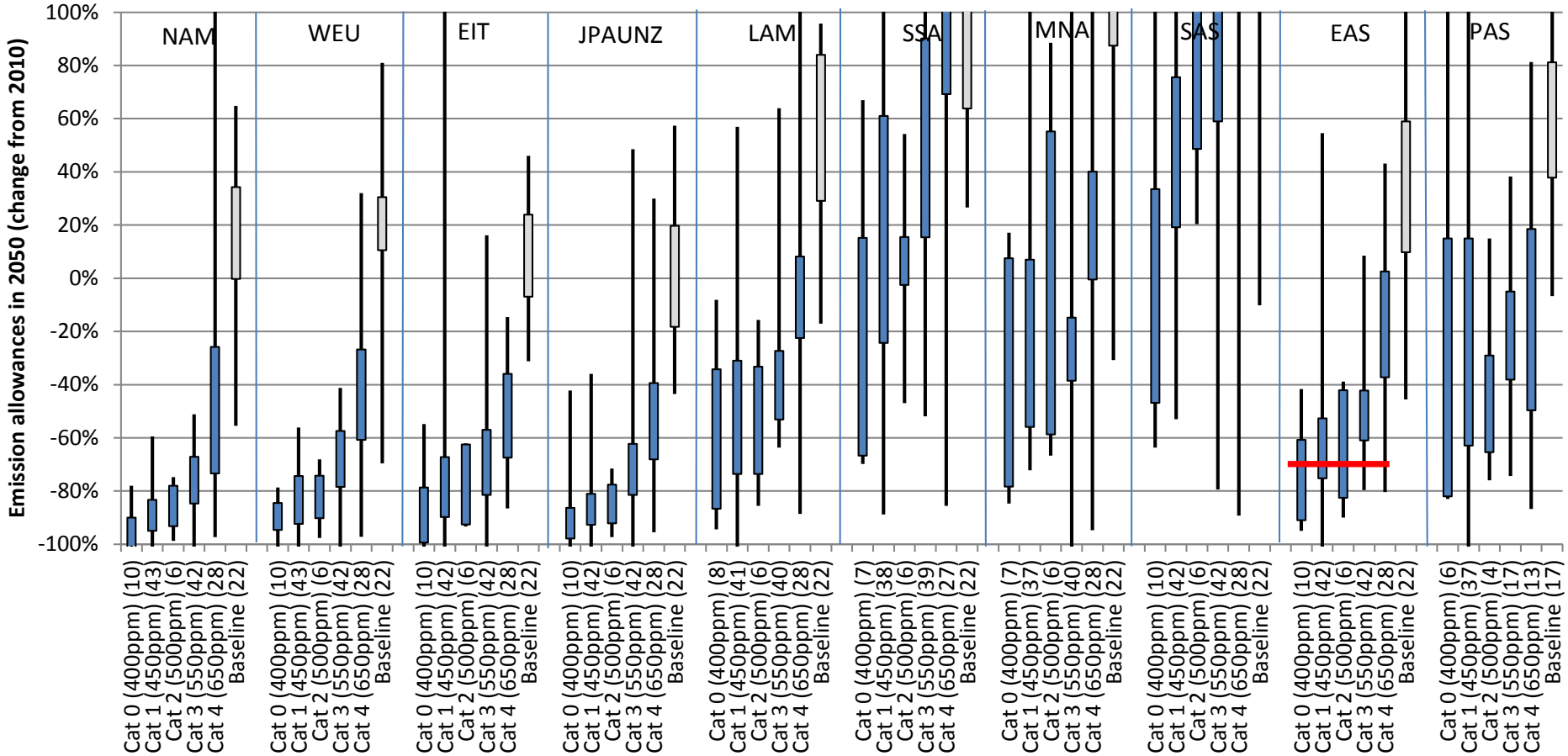
Modeling activities in 2014

- feasibility for 2 degree scenario: multiply 2 degree scenarios
- air pollution control policies assessment, co-benefit with GHG emissions
- carbon pricing assessment: carbon tax, emission trading
- Provincial/City studies: Beijing Low Carbon Development Strategy, Guiyang Energy Planning
- Coal peaking study
- Energy Scenario for Building, Transport
- LIMIT, IAMC, EMF30, MILES



排放分担，2030和2010年相比，十个地区

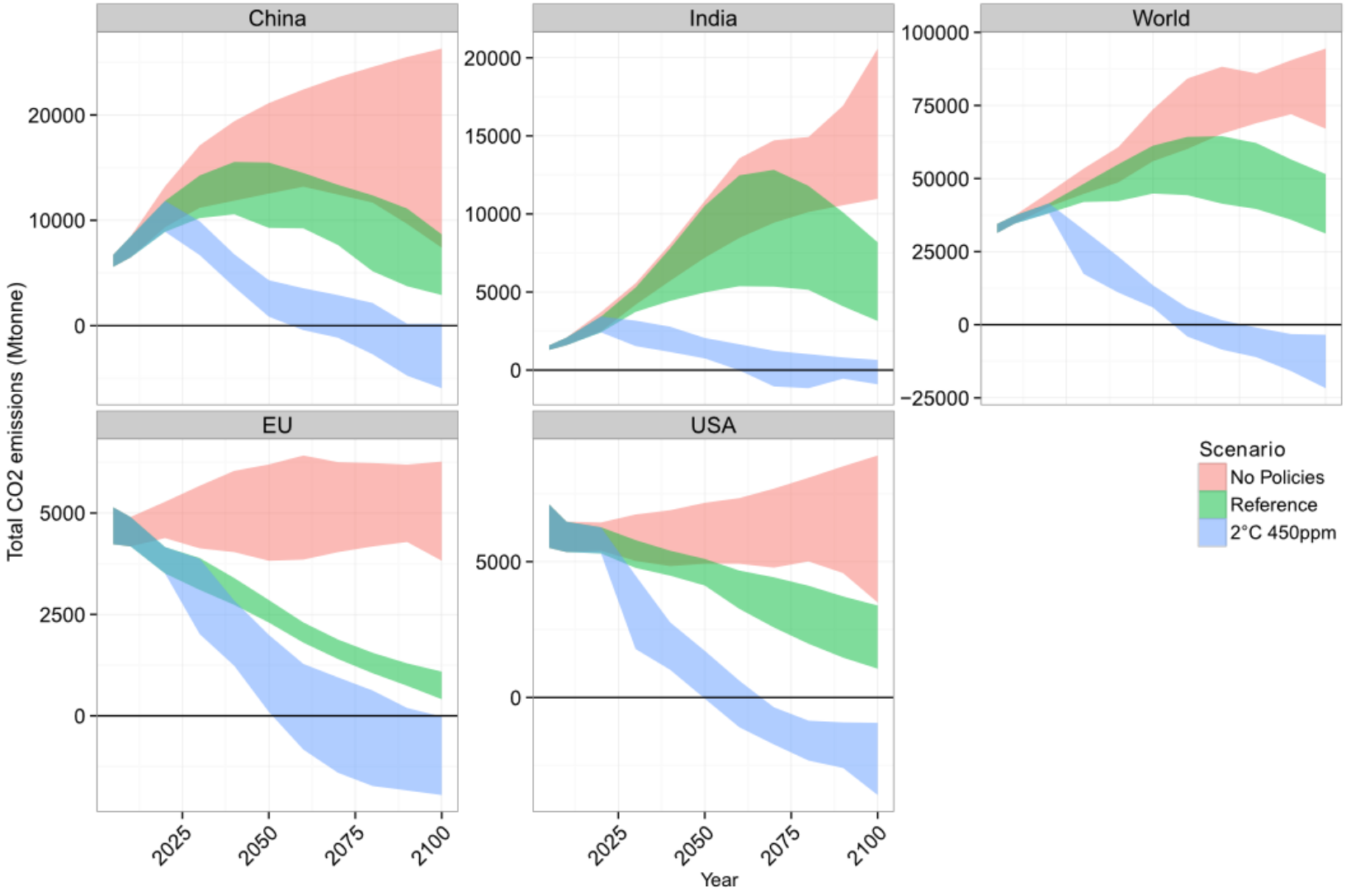
Figure 2. Emission allowances by allocation category for Cat 1, i.e. 425-475 ppmCO2e, in 2030 relative to 2010 emissions (min, 20th percentile, 80th percentile, max). Number of studies in brackets. GHG emissions (all gases and sectors) in $GtCO_2e$ in 1990 and 2010 were OECD90 13.4, 14.2, EIT 8.4, 5.6, ASIA 10.7, 19.9, MAF 3.0, 6.2, LAM 3.3, 3.8 .

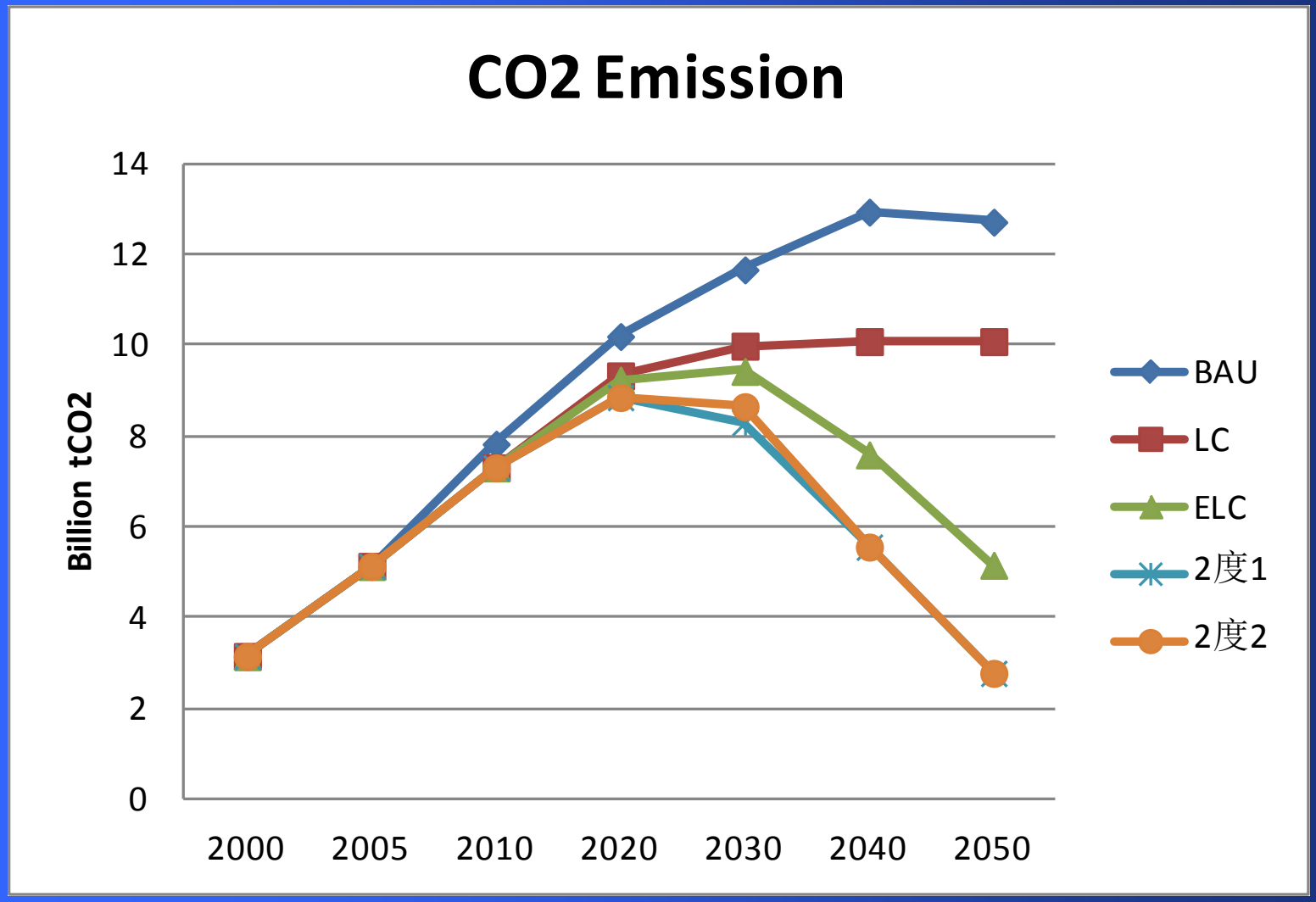


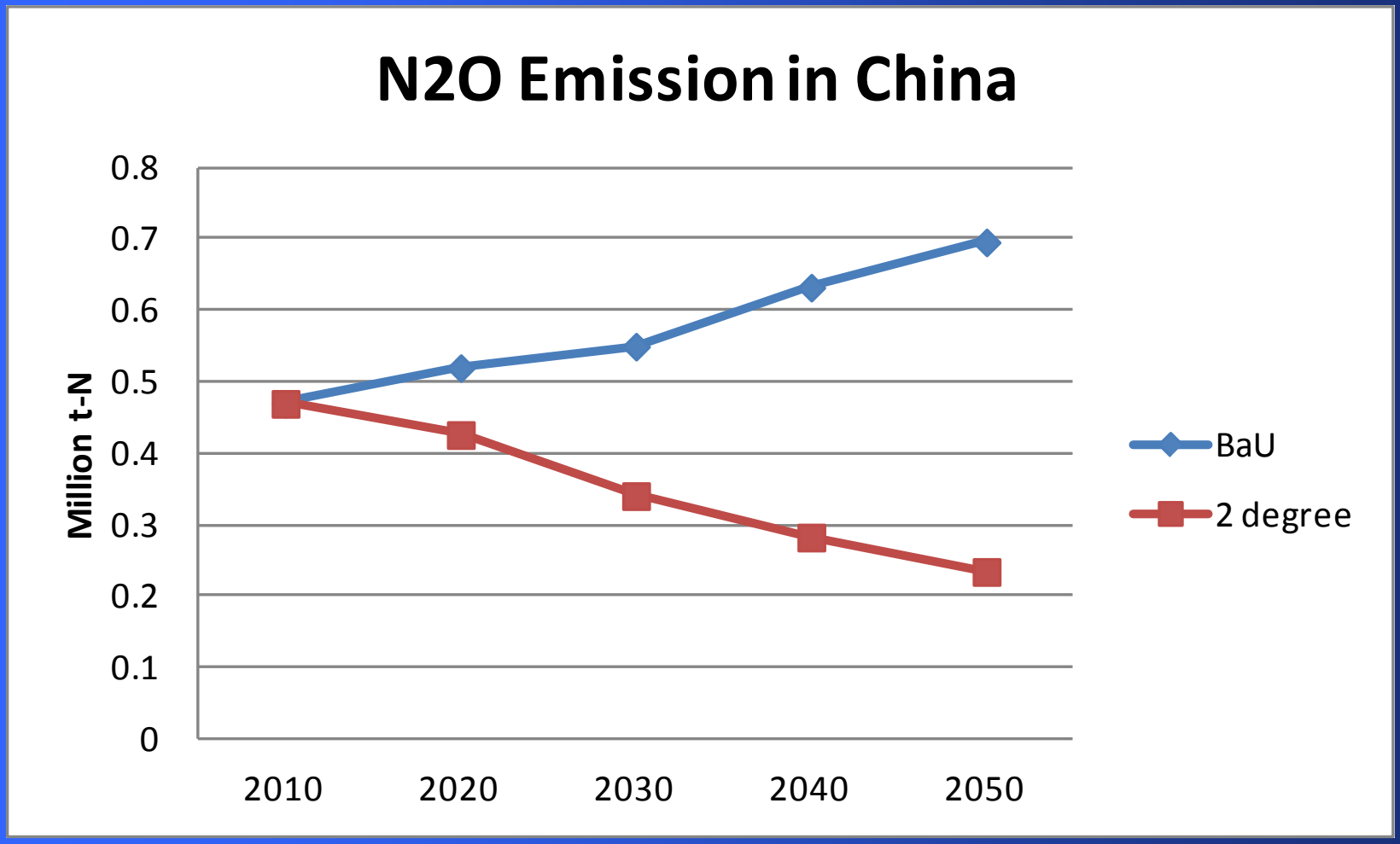
排放分担，2050和2010年相比，十个地区

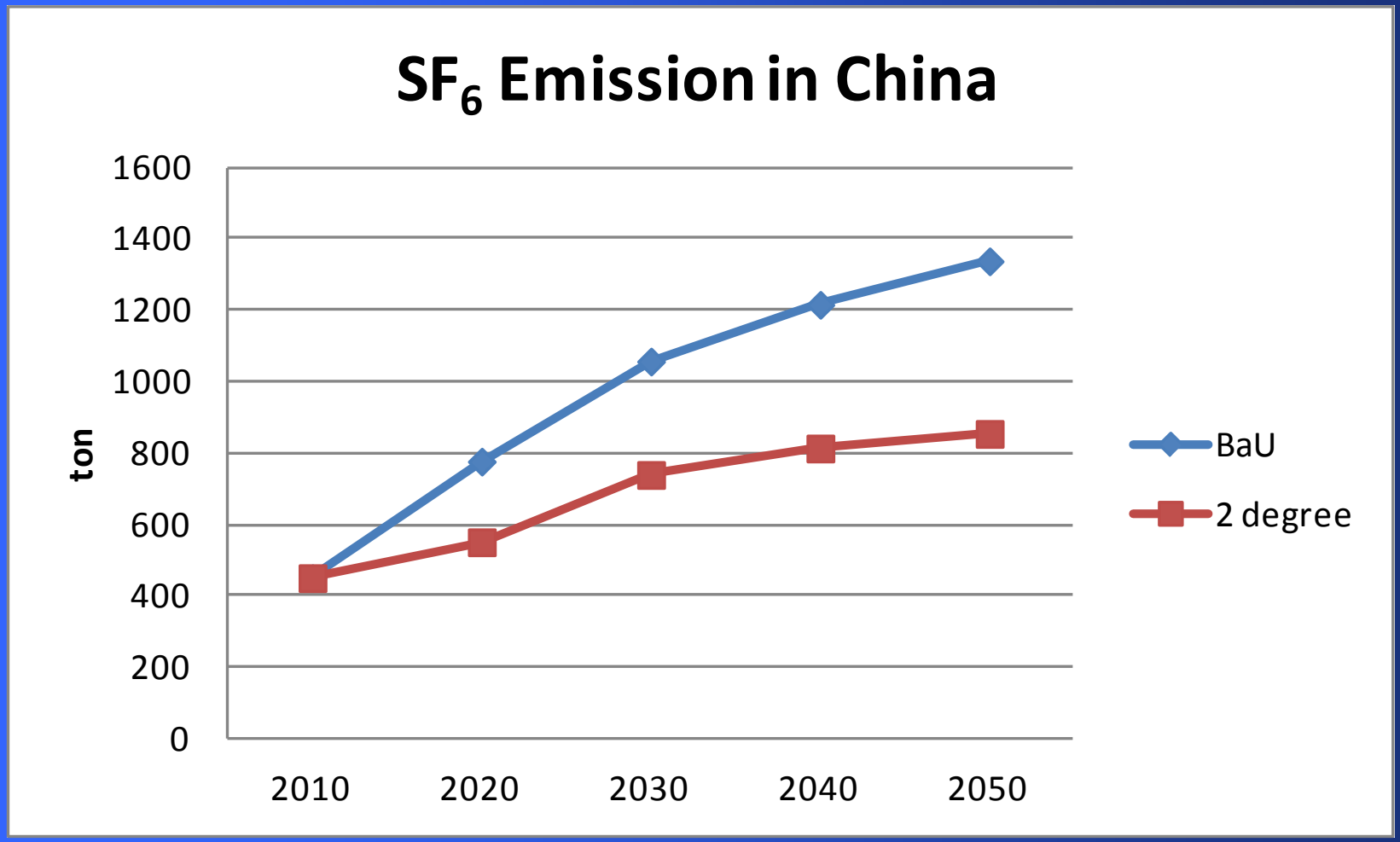
Figure 3. Emission allowances for various concentration levels in 2050 relative to 2010 emissions (min, 20th percentile, 80th percentile, max). Number of studies in brackets. GHG emissions (all gases and sectors) in $GtCO_2e$ in 1990 and 2010 were OECD90 13.4, 14.2, EIT 8.4, 5.6, ASIA 10.7, 19.9, MAF 3.0, 6.2, LAM 3.3, 3.8

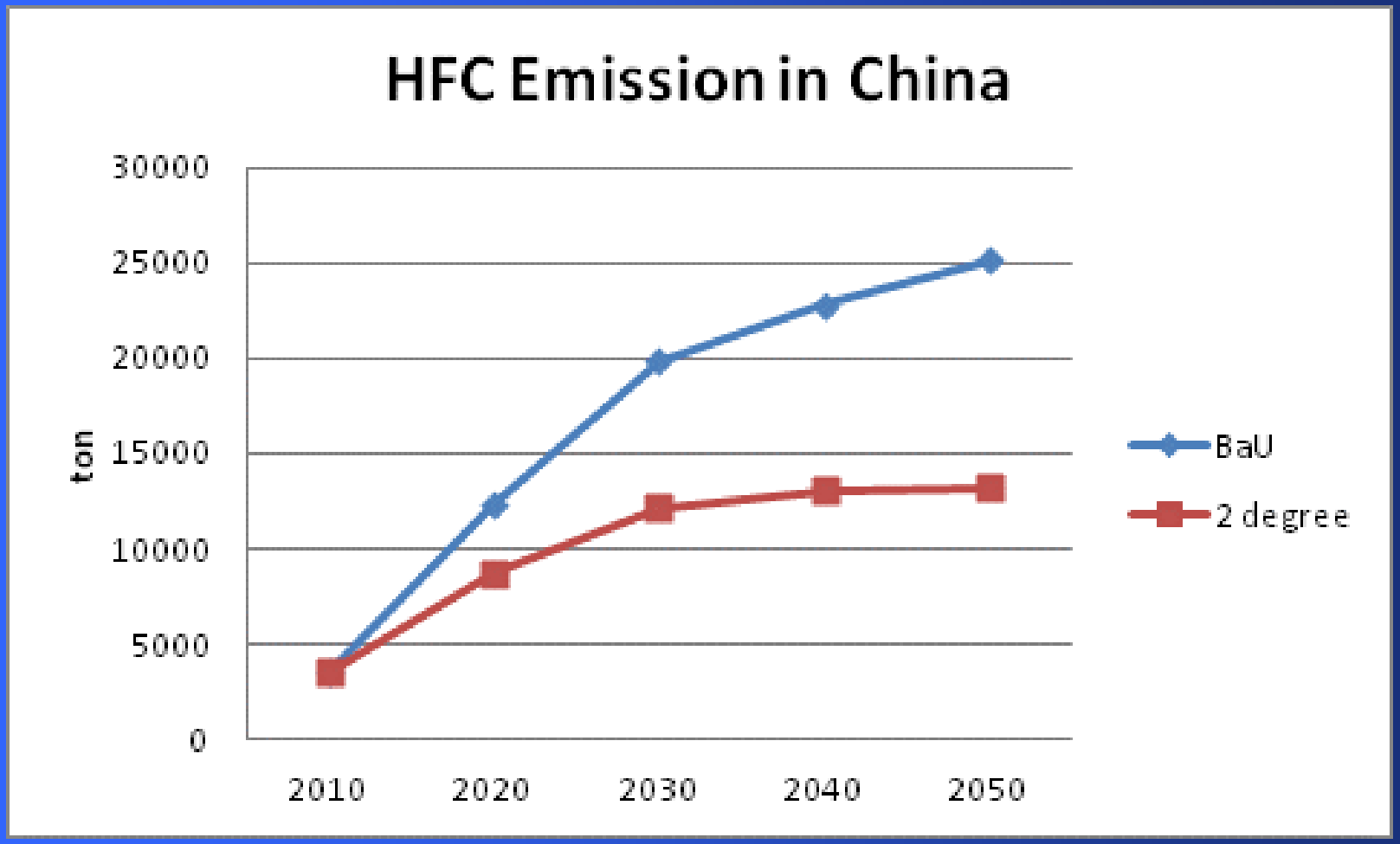
LIMIT Project finding

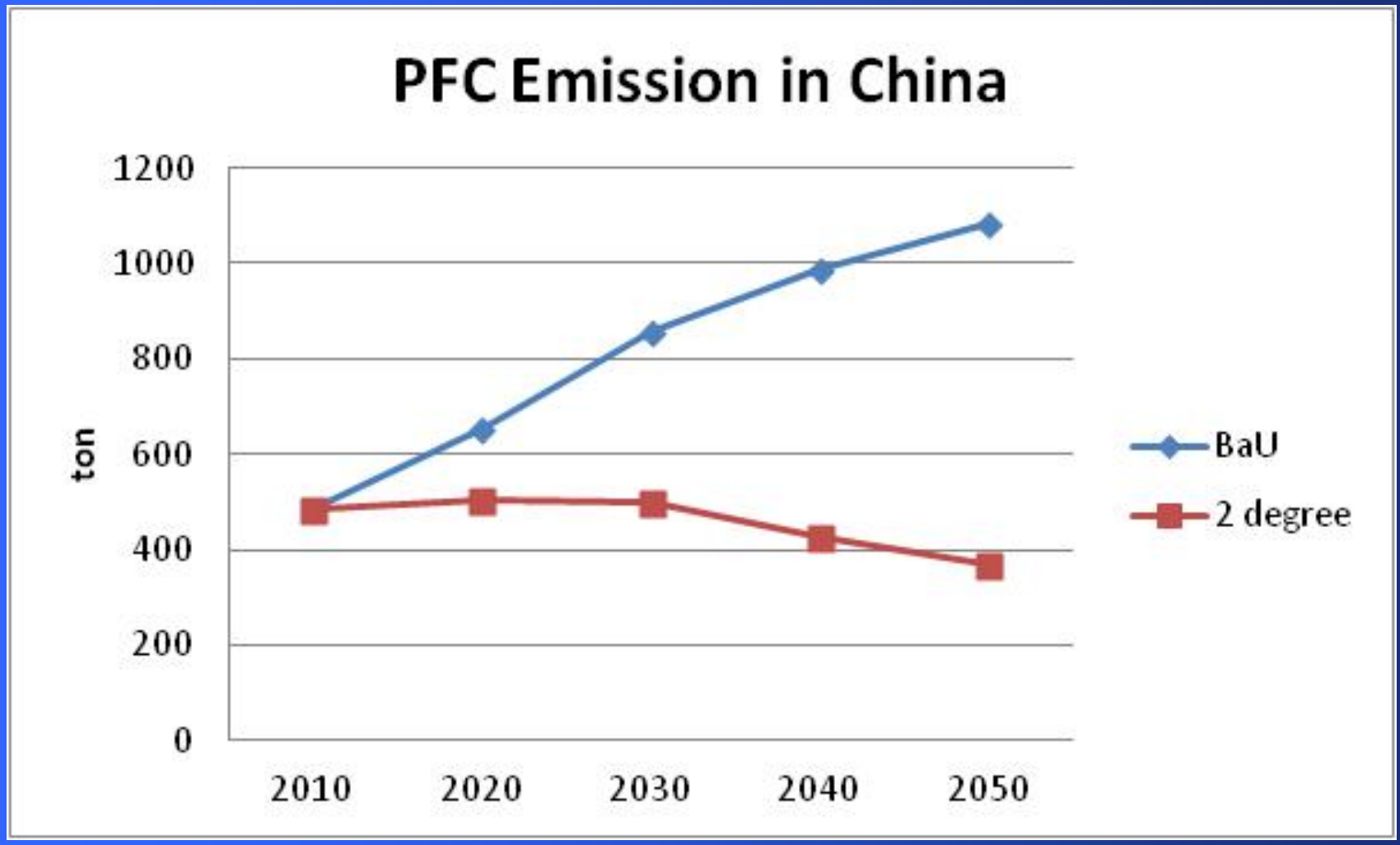


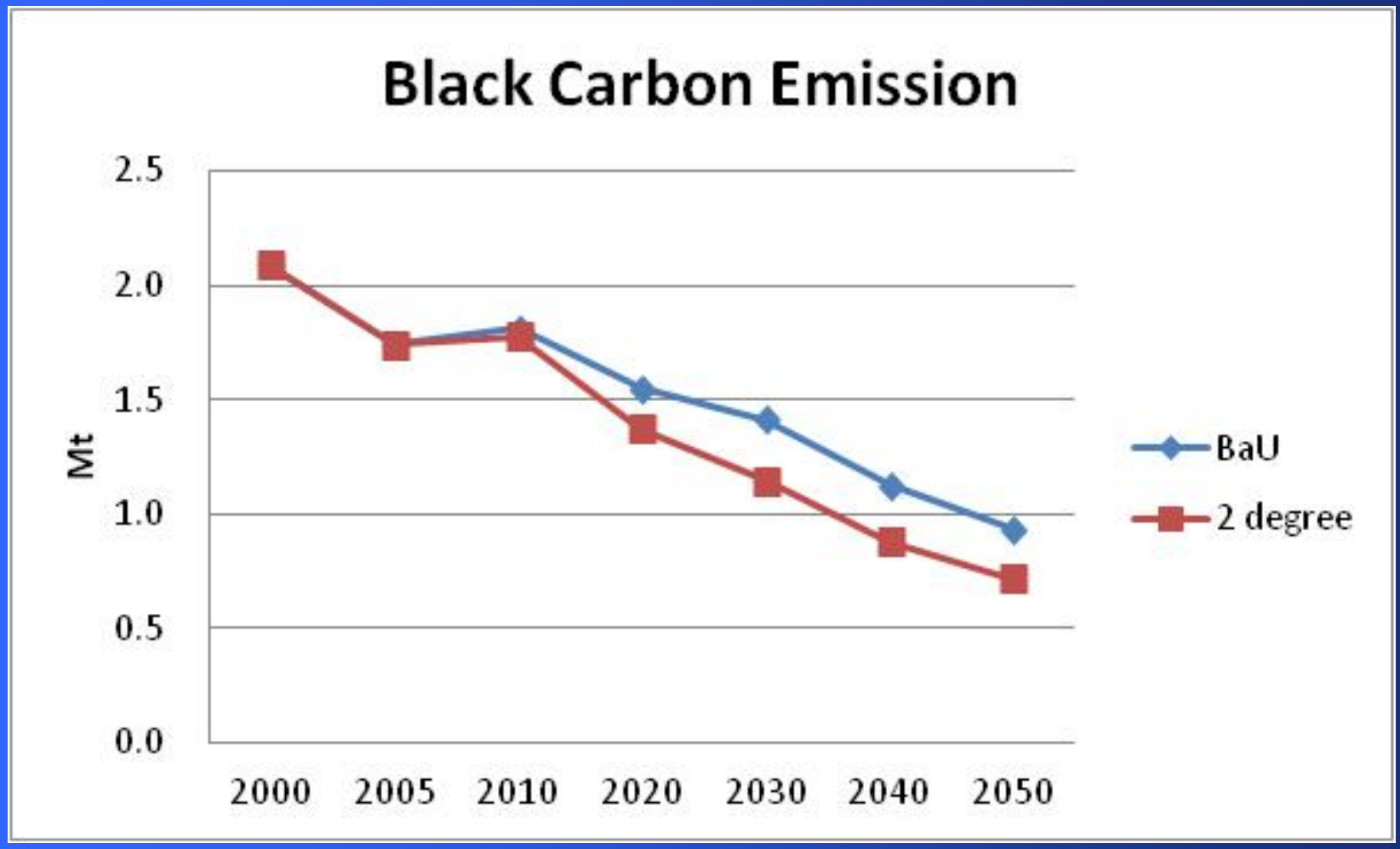

CO2 Emission
Billion tCO2
14
12
10
8
6
4
2
0
2000
2005
2010
2020
2030
2040
2050
BAU
LC
ELC
2度1
2度2


N2O Emission in China
Million t-N
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
2010
2020
2030
2040
2050
BaU
2 degree

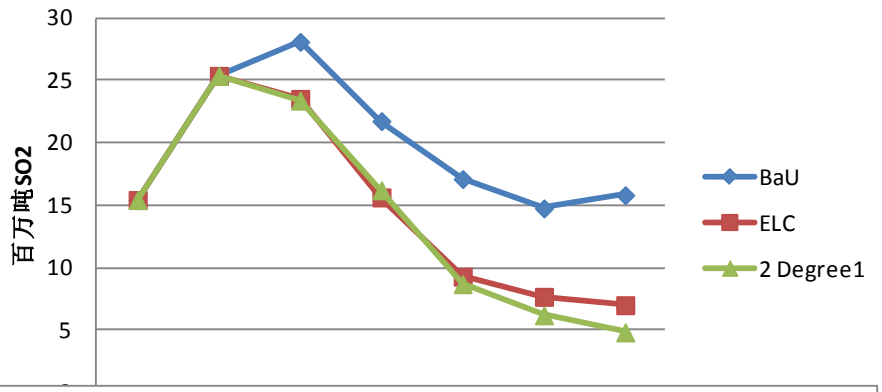

SF6 Emission in China
ton
1600
1400
1200
1000
800
600
400
200
0
2010
2020
2030
2040
2050
BaU
2 degree


HFC Emission in China
30000
25000
20000
15000
10000
5000
0
ton
2010
2020
2030
2040
2050
BaU
2 degree

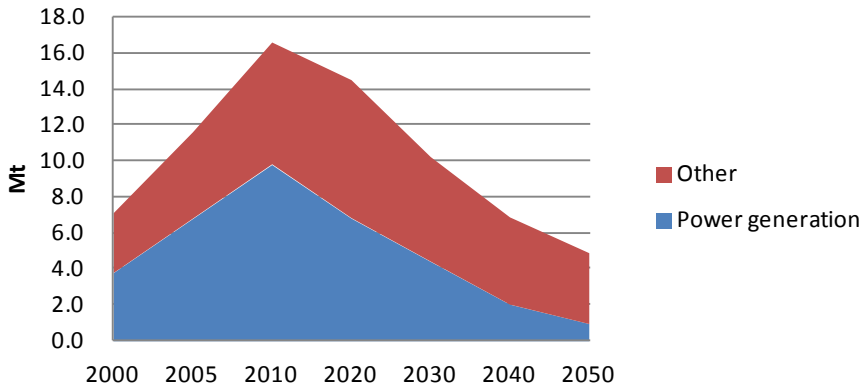

PFC Emission in China
1200
1000
800
600
400
200
0
ton
2010
2020
2030
2040
2050
BaU
2 degree


Black Carbon Emission
2.5
2.0
1.5
1.0
0.5
0.0
Mt
2000
2005
2010
2020
2030
2040
2050
BaU
2 degree

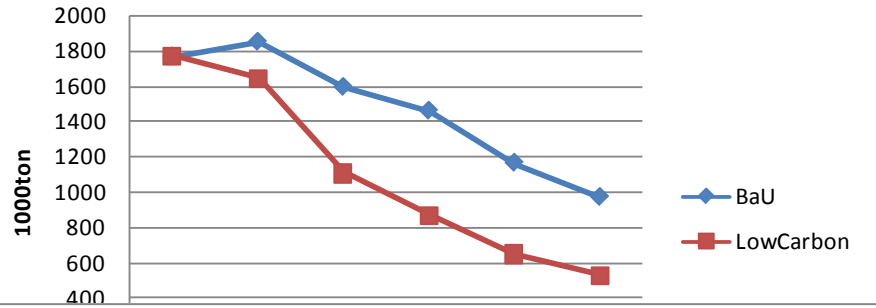
SO2排放



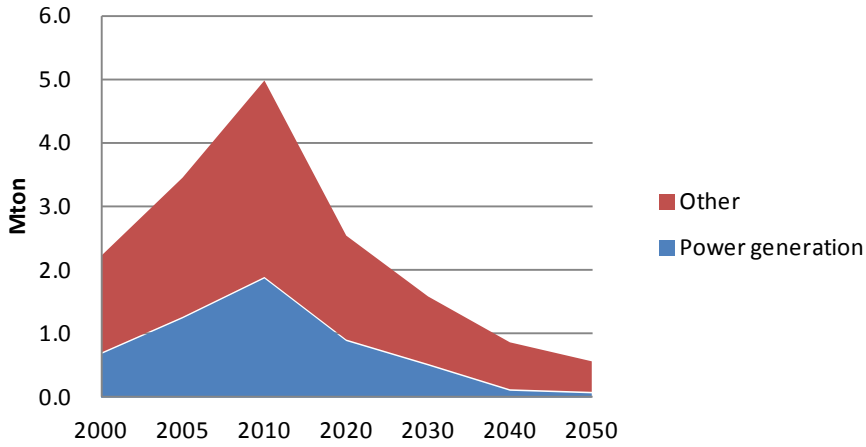
NOx Emission in China, 2 degree scenario



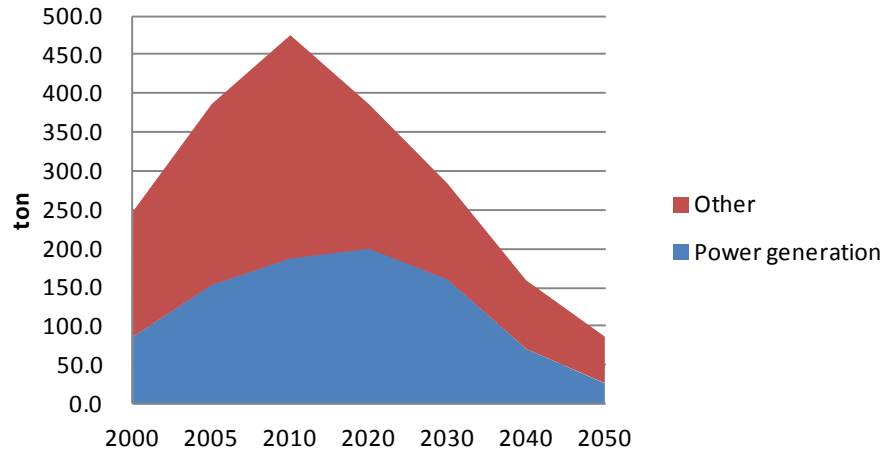
Black Carbon Emission in China



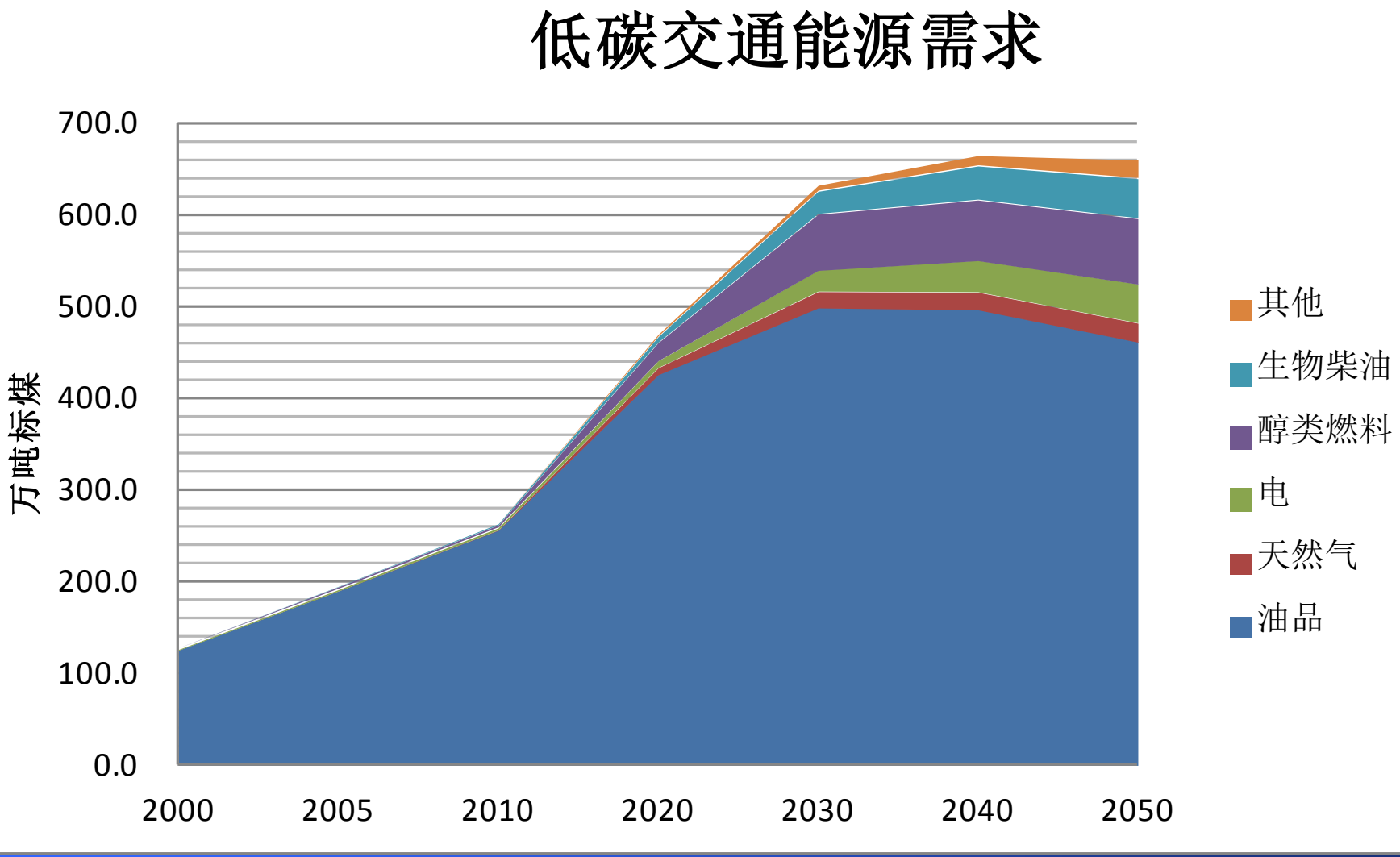
PM2.5 Emission



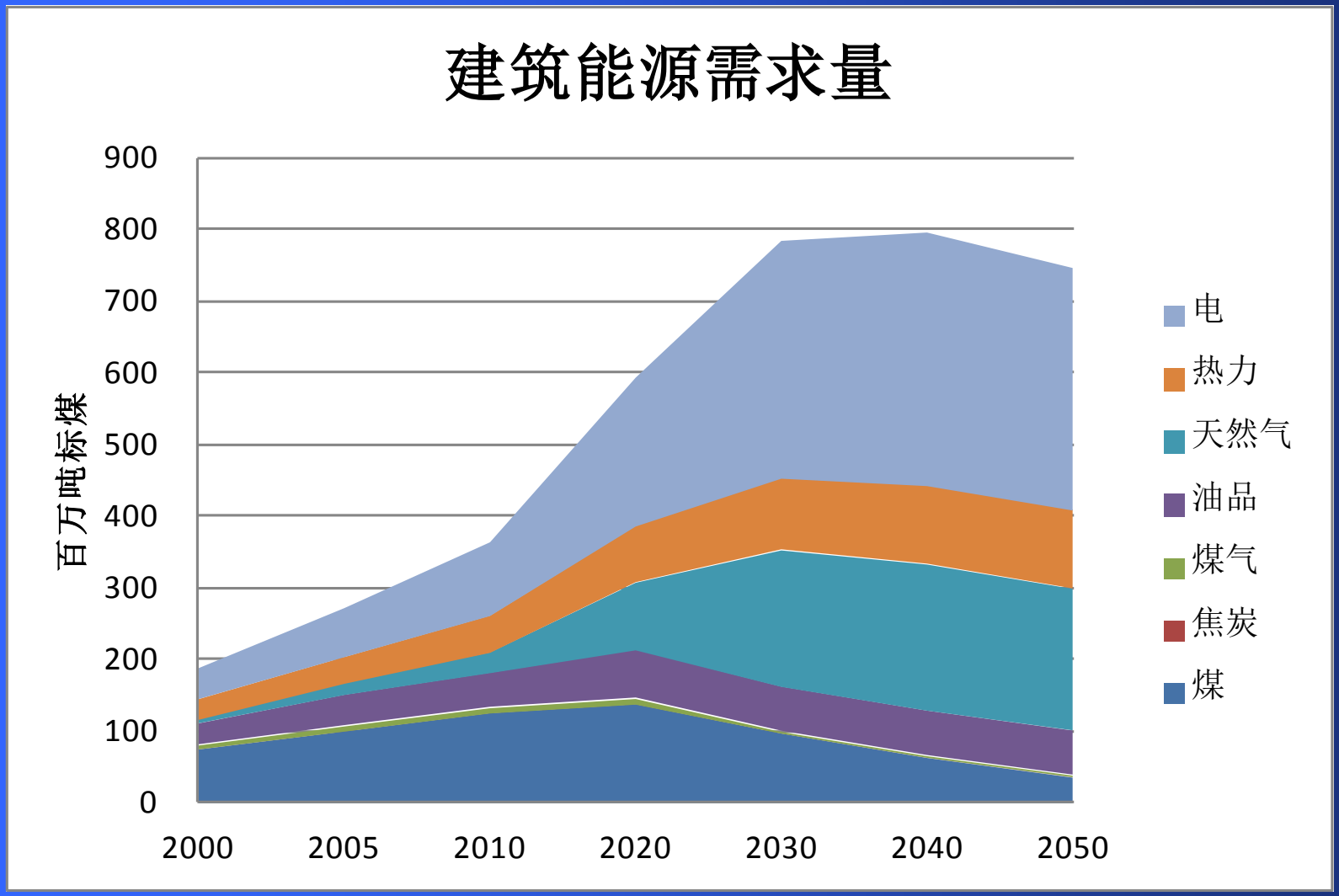
Mercury Emission



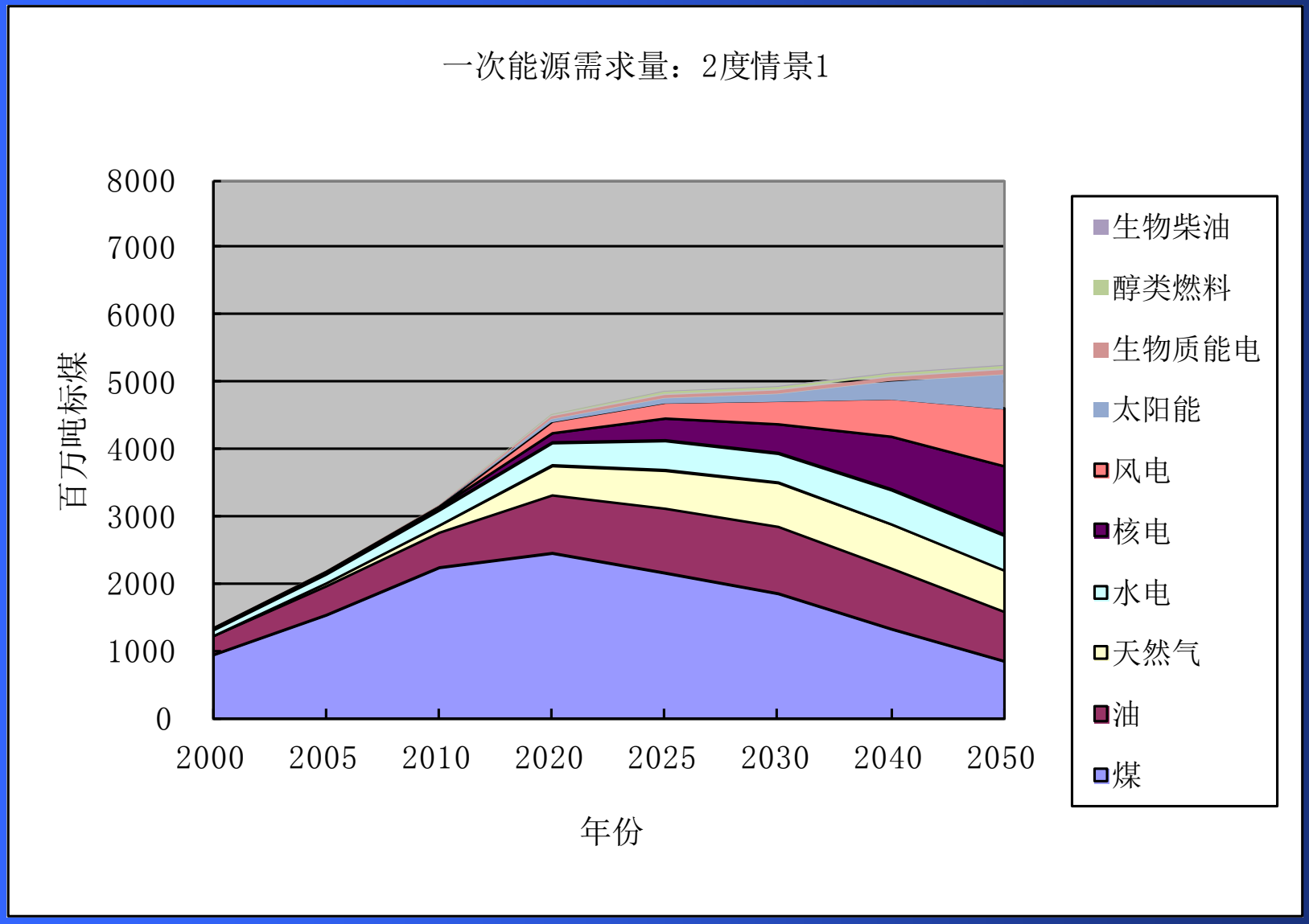
Energy Demand in Transport under the 2 degree scenario



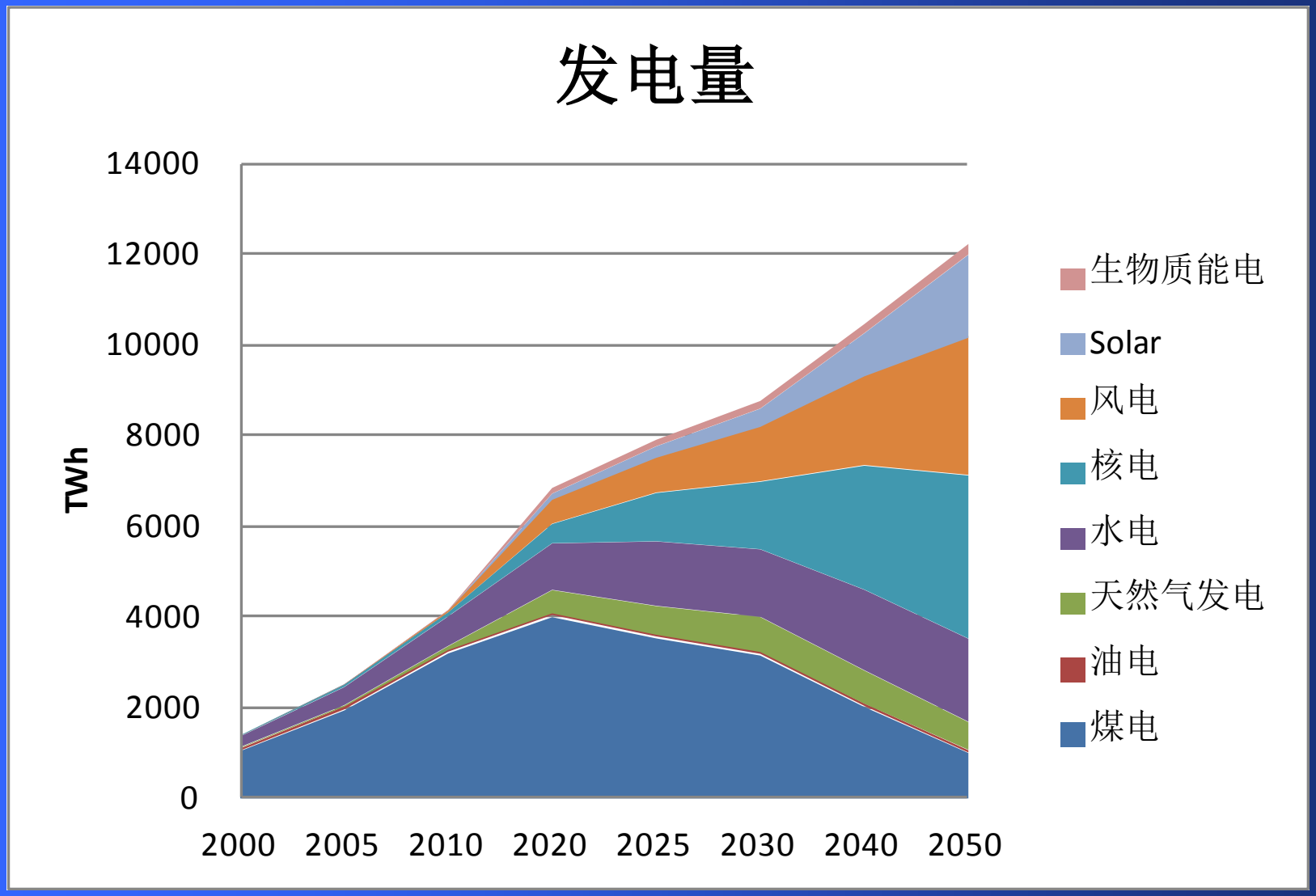
Energy Demand in Building under the 2 degree scenario

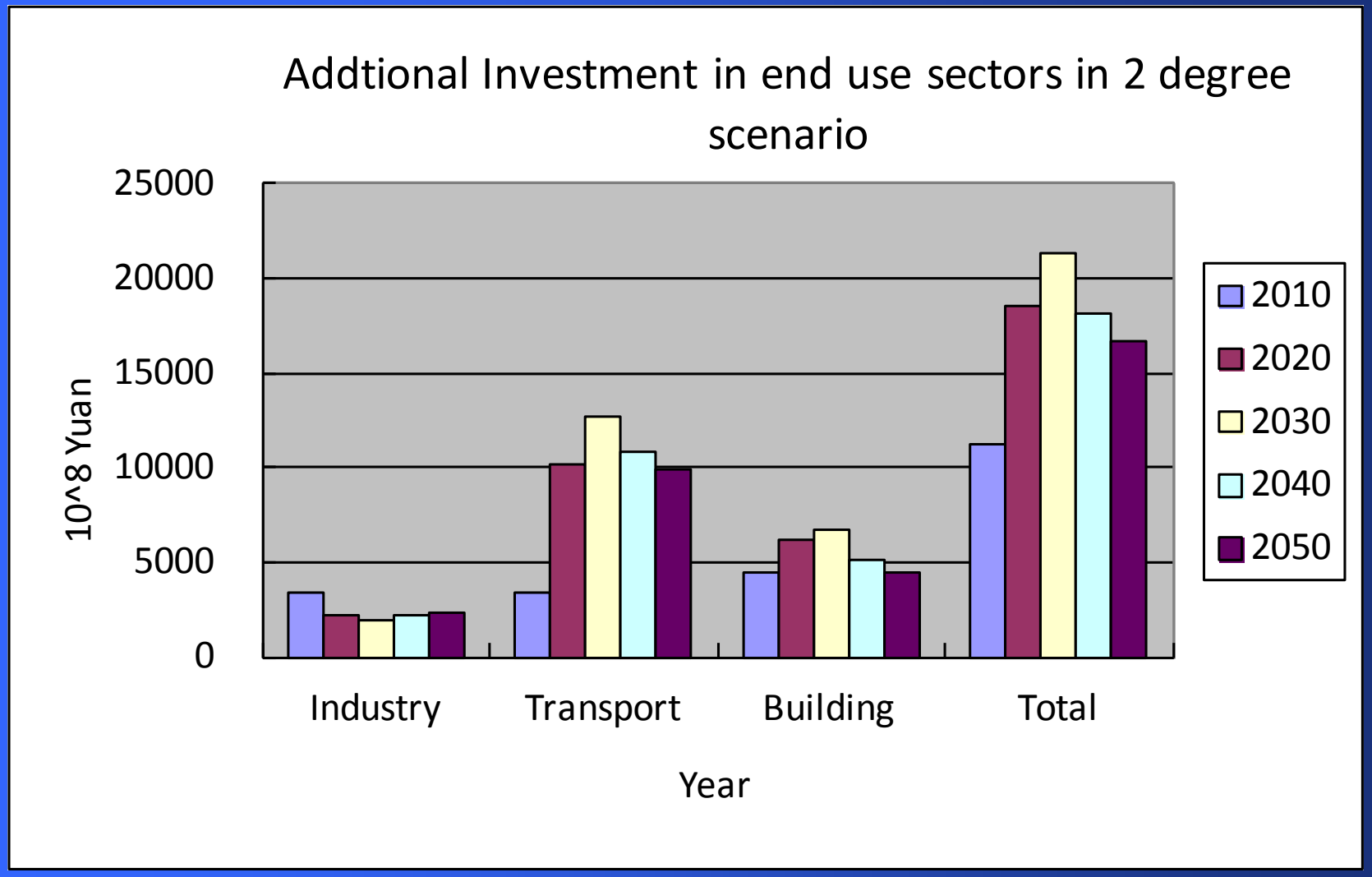


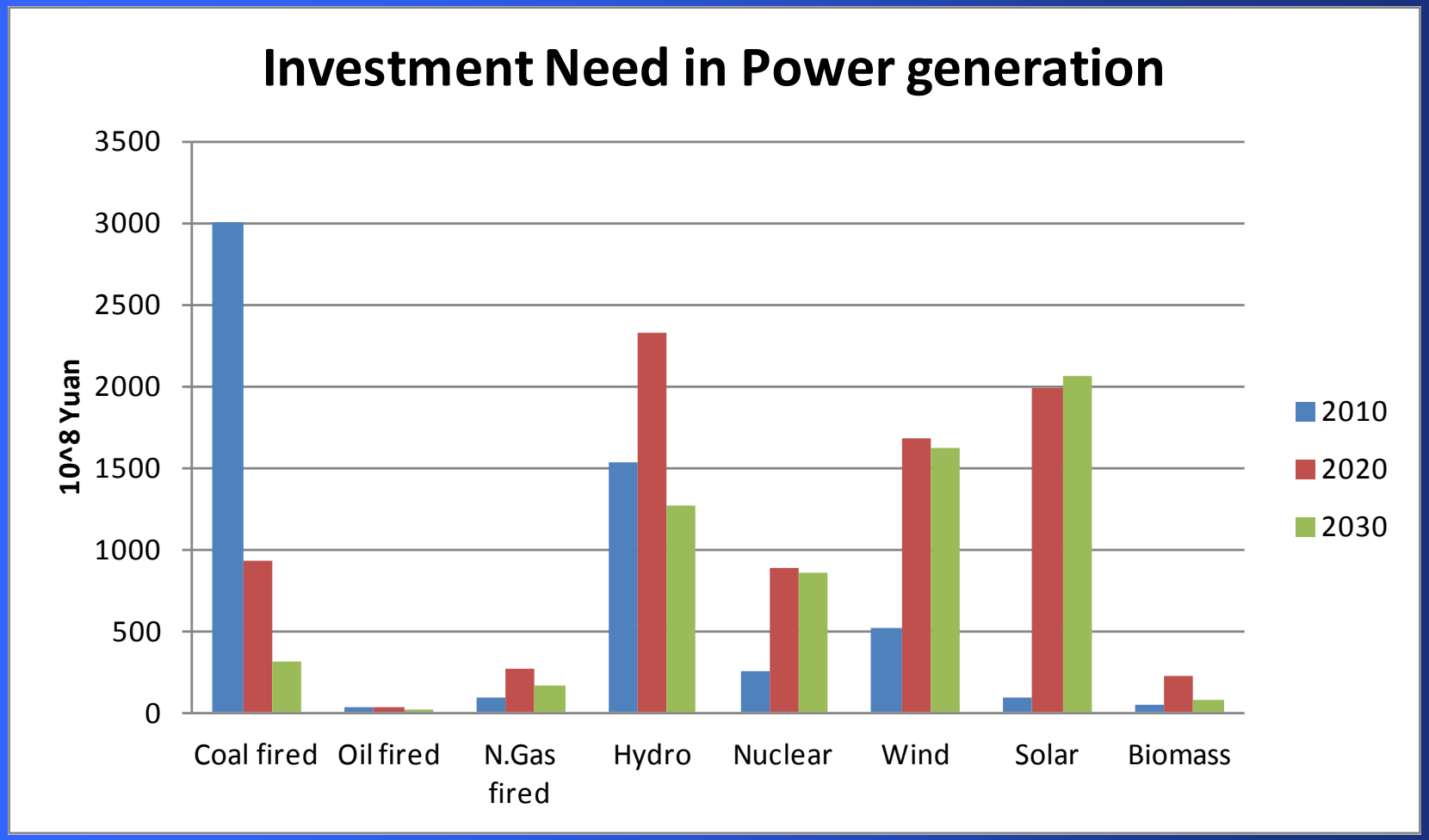
Primary Energy Demand: 2 degree scenario 1



Power Generation




Addtional Investment in end use sectors in 2 degree scenario
25000
20000
15000
10000
5000
0
10^8 Yuan
Industry
Transport
Building
Total
Year
2010
2020
2030
2040
2050


Investment Need in Power generation
10^8 Yuan
3500
3000
2500
2000
1500
1000
500
0
Coal fired
Oil fired
N.Gas fired
Hydro
Nuclear
Wind
Solar
Biomass
2010
2020
2030

Recent Finding

- China is possible to reach CO2 emission peak in 2020 to 2022, at around 9billion t-CO2, energy related activities
- Air pollution control policy could bring China to peak CO2 emission before 2025
- Coal will reach peak around 2015 to 2016
- China’s economy is in significant changing, may need 2-4 years for re-balance
- China’s changing will have strong impact on other countries’ mitigation and development

Our 2015 research activities

- More feasibility analysis for 2 degree sceanrio
- Carbon tax implementation analysis
- Regional analysis for both CO2 and air quality
- Rural energy development scenarios: case studies
- IAMC, EMF30, MILES, CD-Link
- 2 Degree Asia