INDC+/NDC
China's Low Carbon and Energy Transition
-Peaking CO2 emission in 2020 to 2022 –

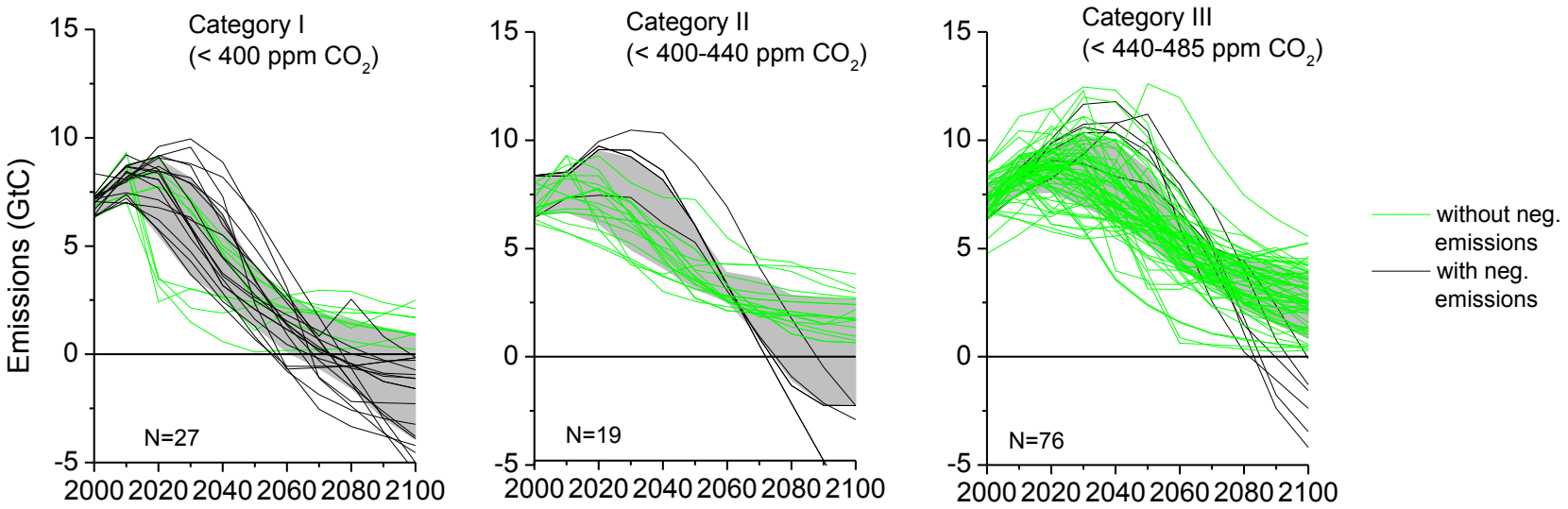
-We NEED Rapid Transition -

Jiang Kejun

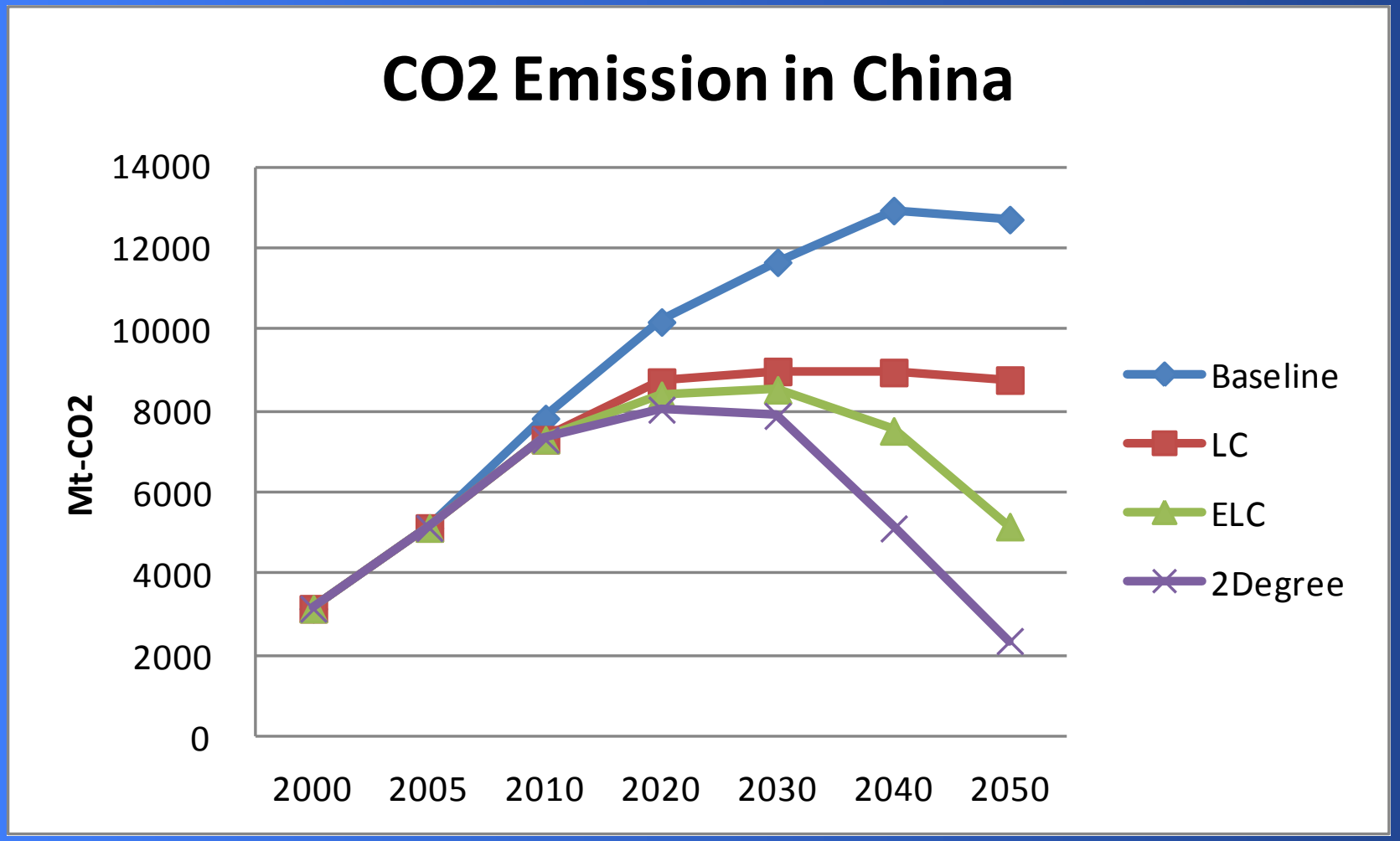
Energy Research Institute
Peking University

Snowmass Workshop, July 20-22

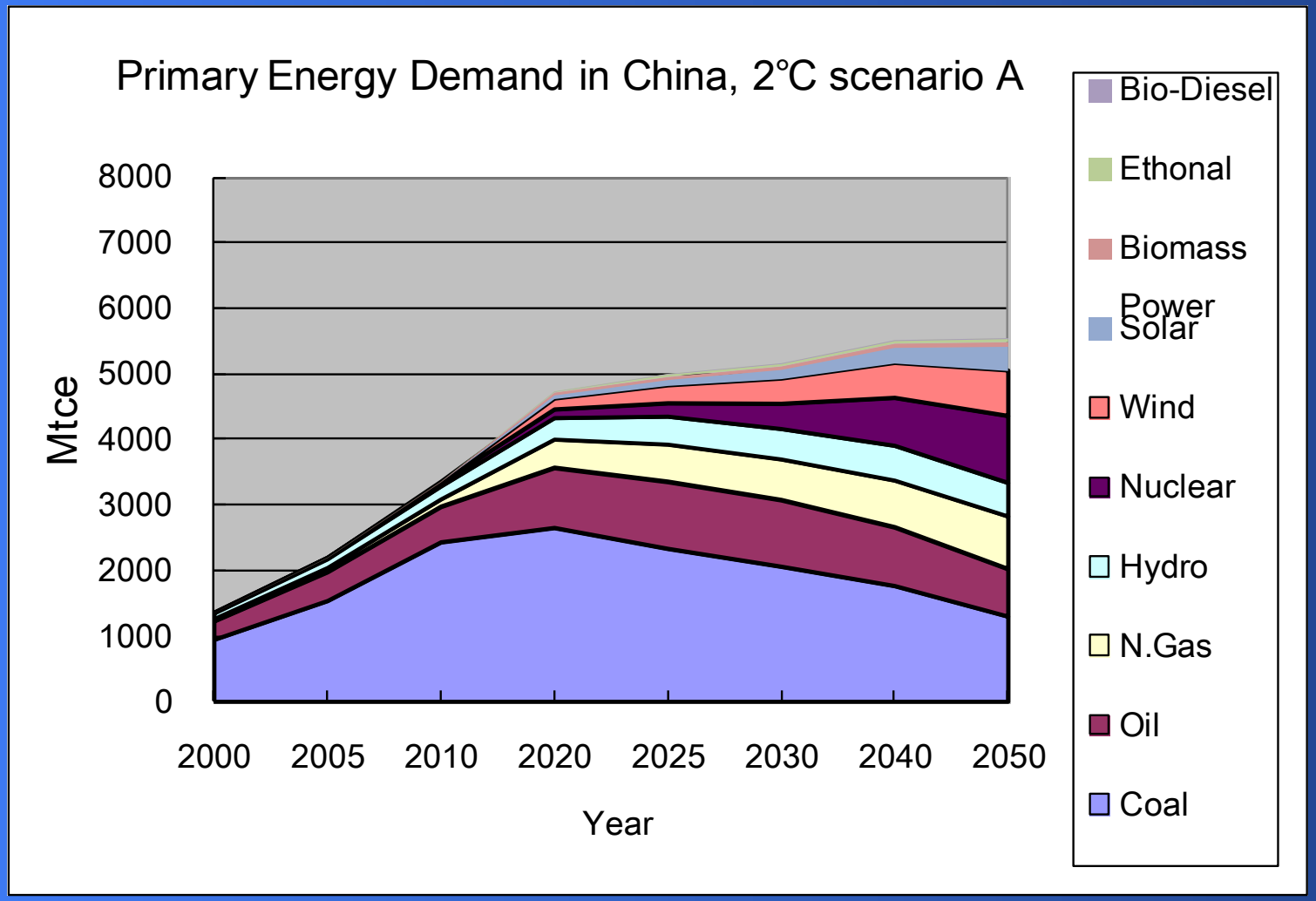
Keyword: Transition – mitigation to reach some climate change targets



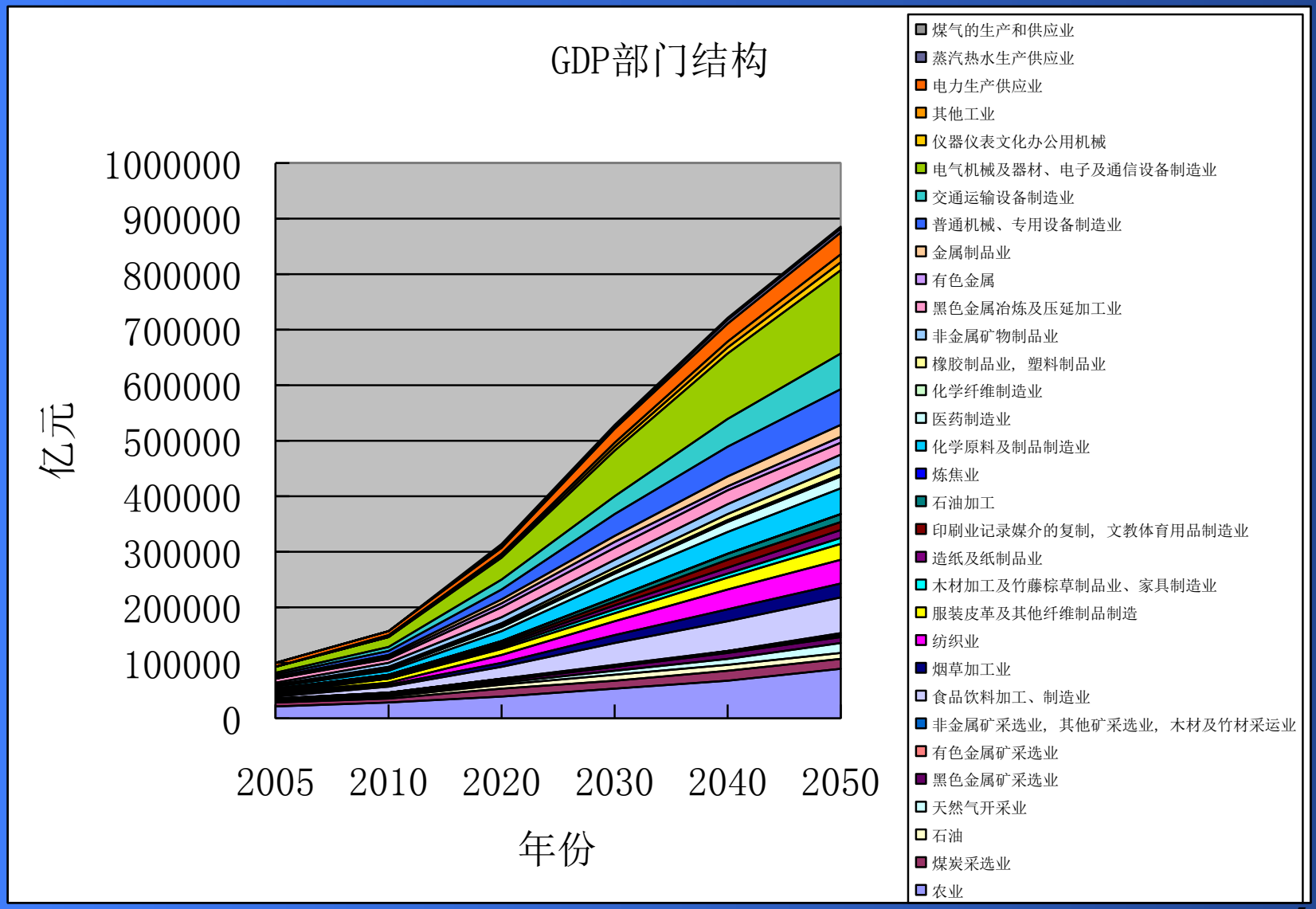
Transformation: CO2 emission, a rapid change

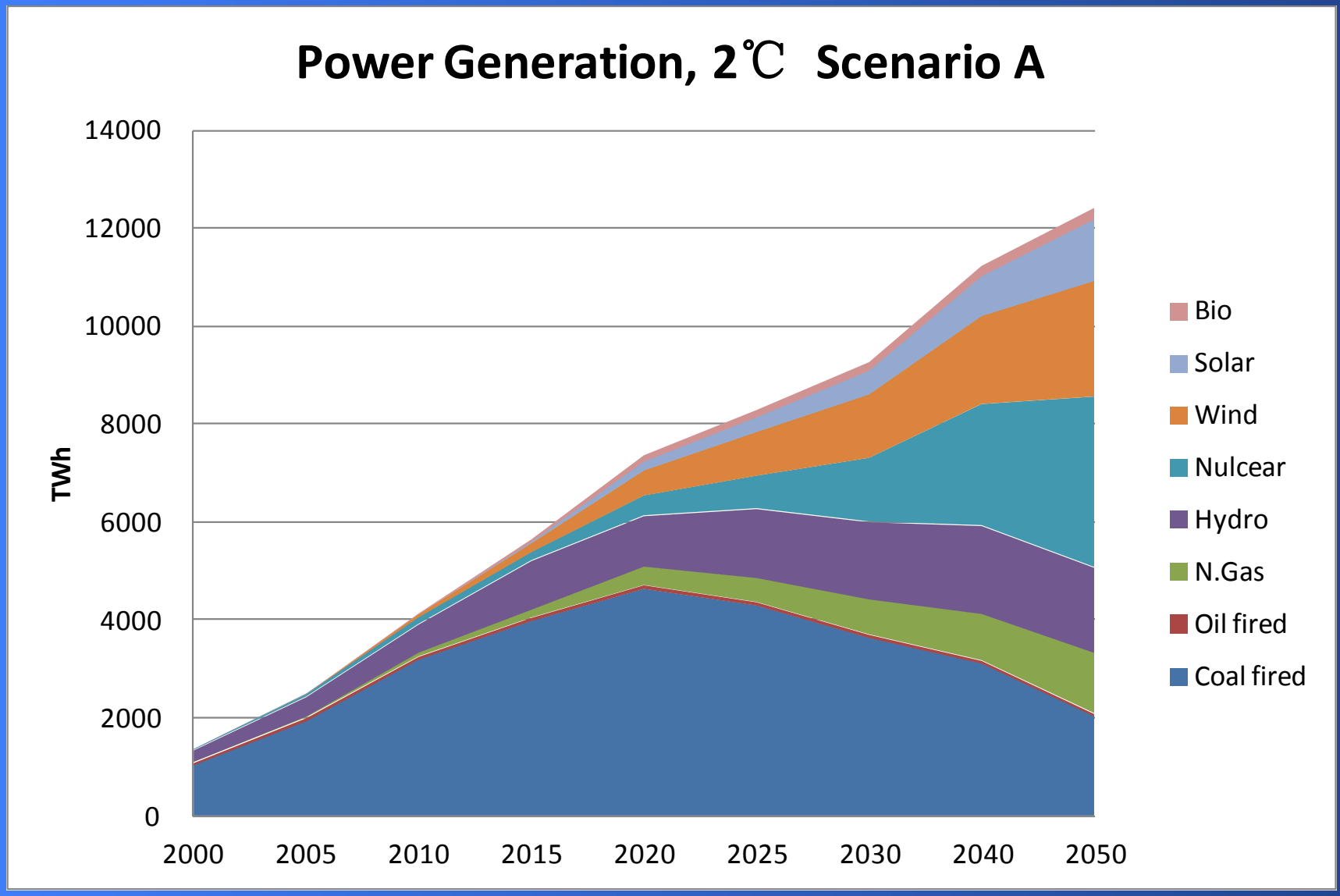


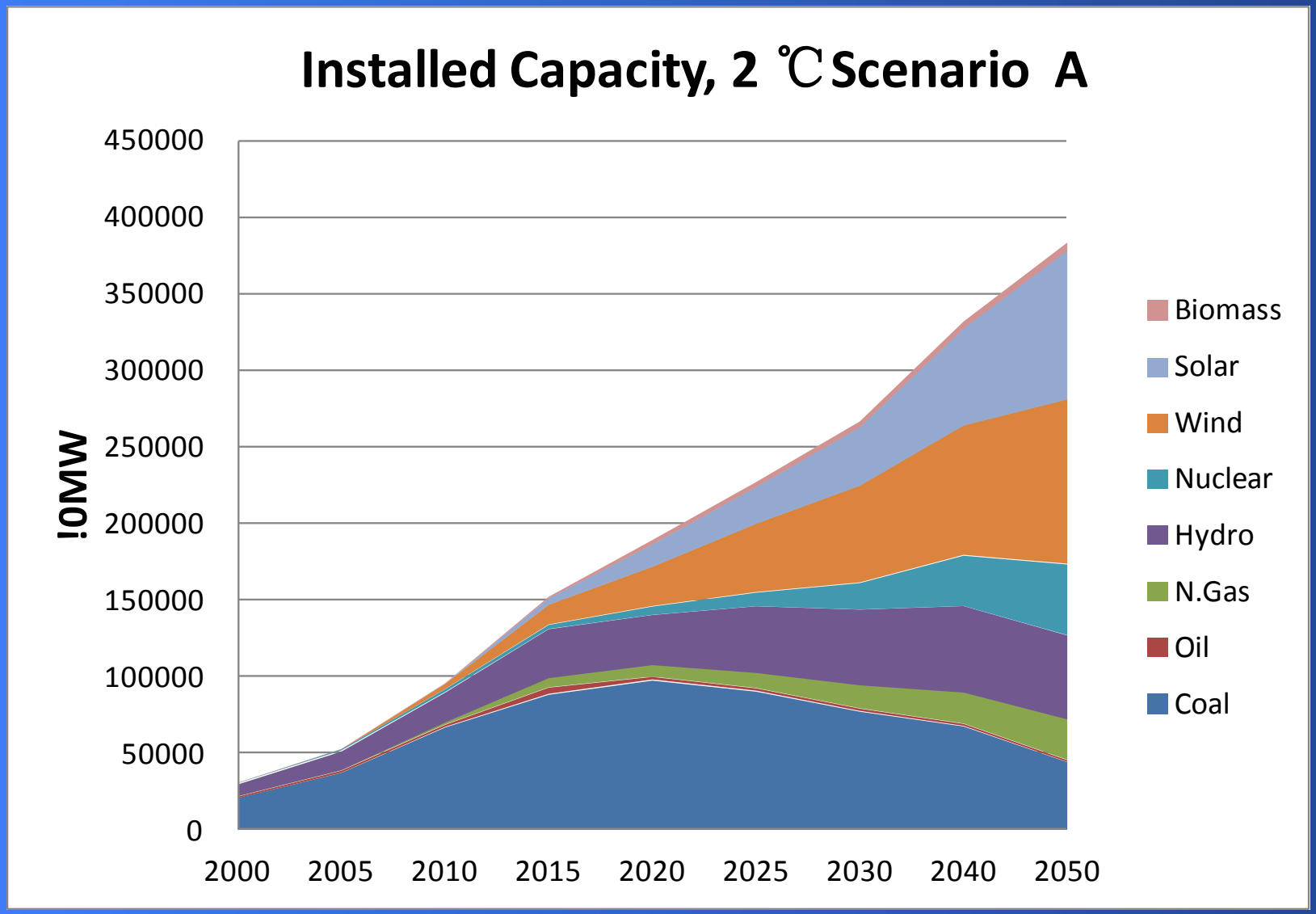
We Need Rapid Transition: Put that into 13th Five Year Plan Primary Energy Demand

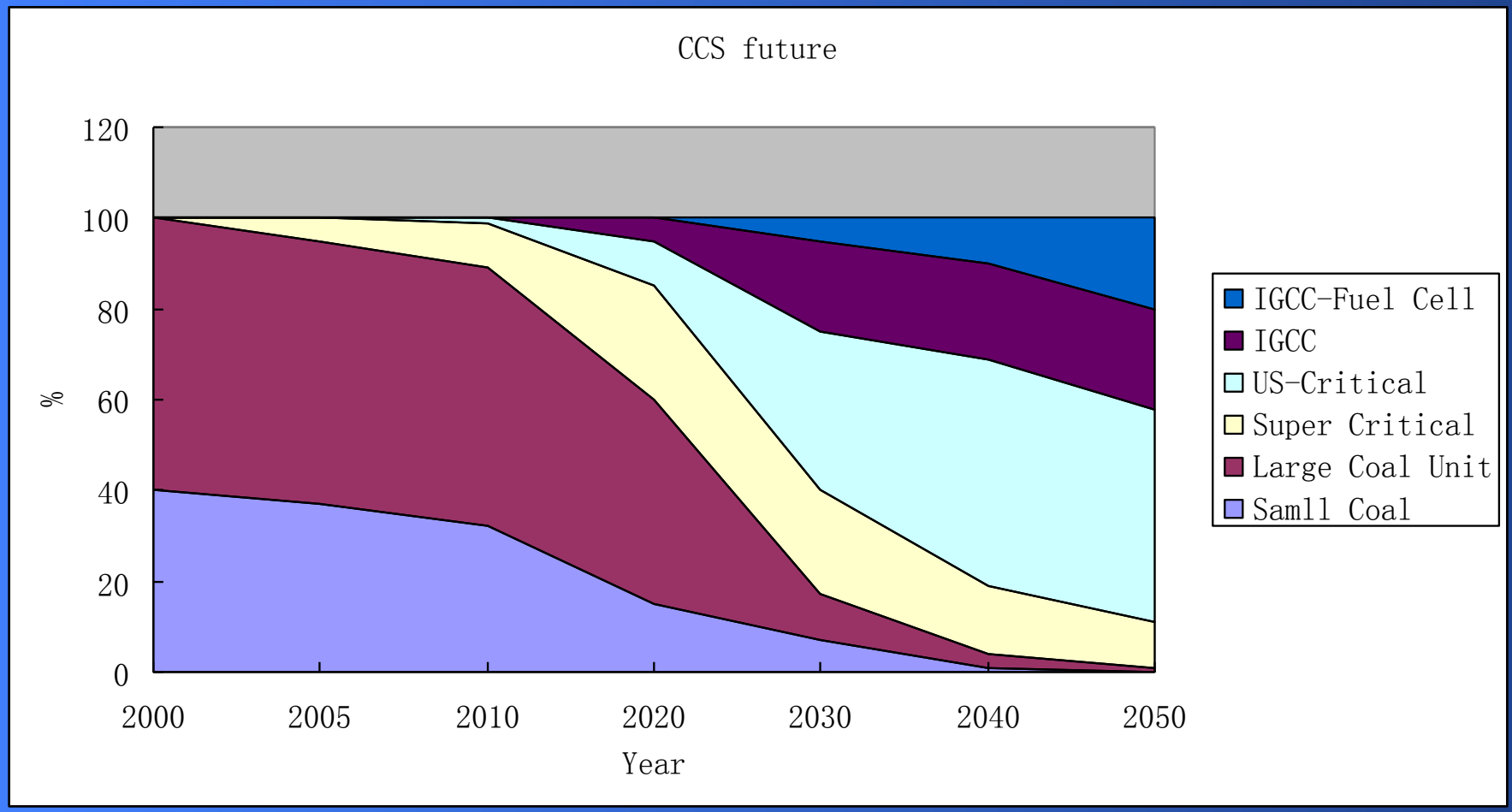


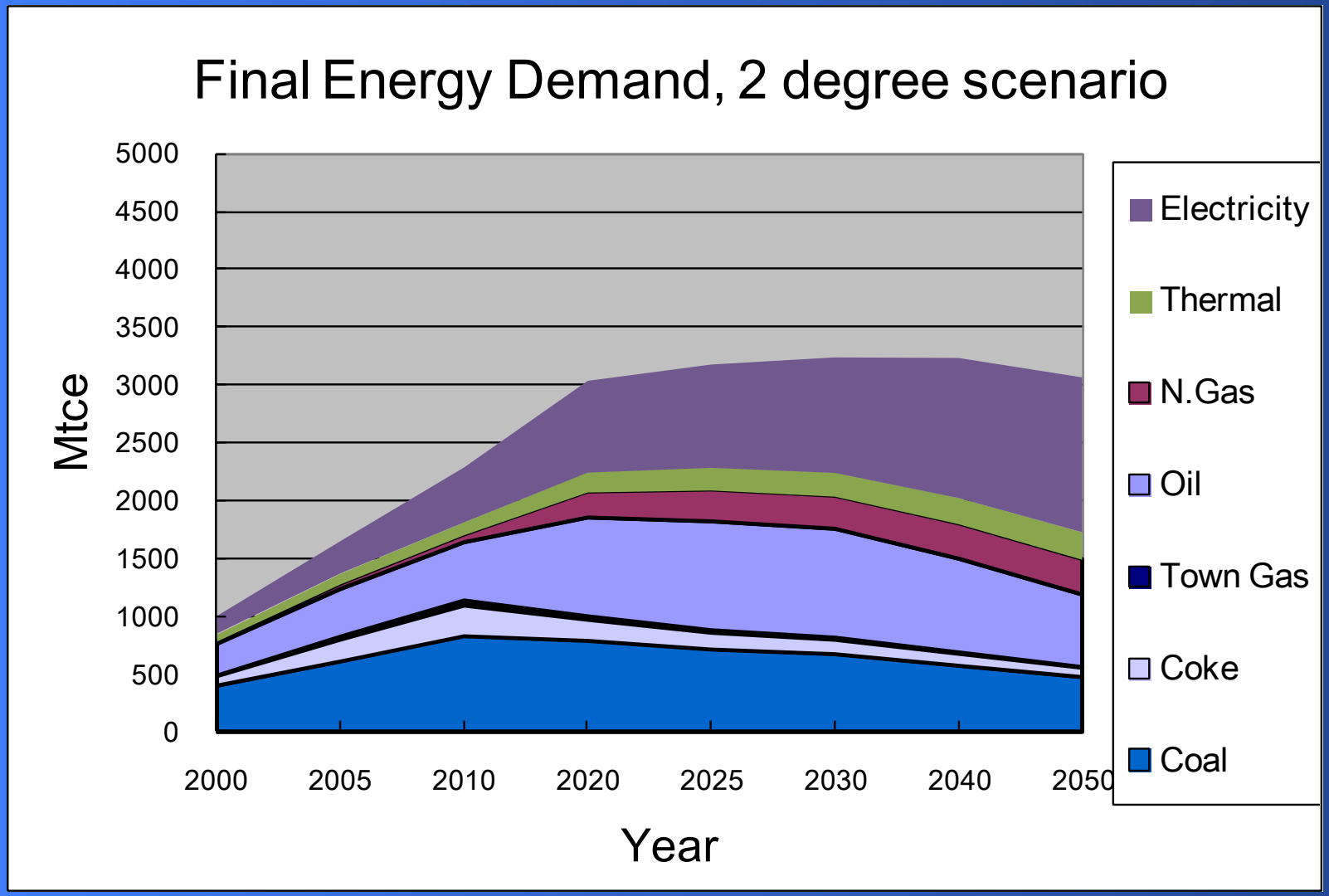
GDP by sectors



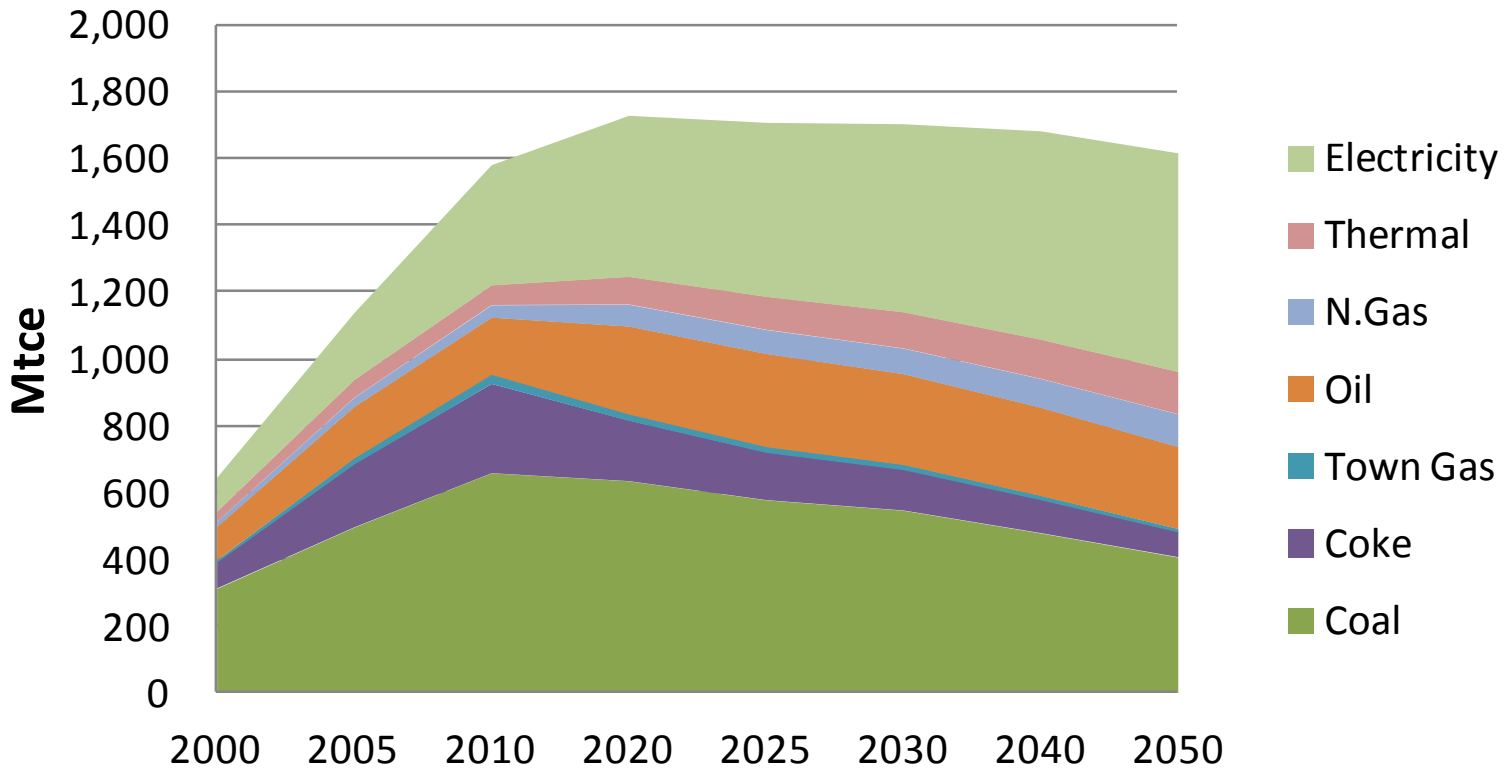

Power Generation, 2℃ Scenario A
TWh
14000
12000
10000
8000
6000
4000
2000
0
2000
2005
2010
2015
2020
2025
2030
2040
2050
Bio
Solar
Wind
Nulcear
Hydro
N.Gas
Oil fired
Coal fired

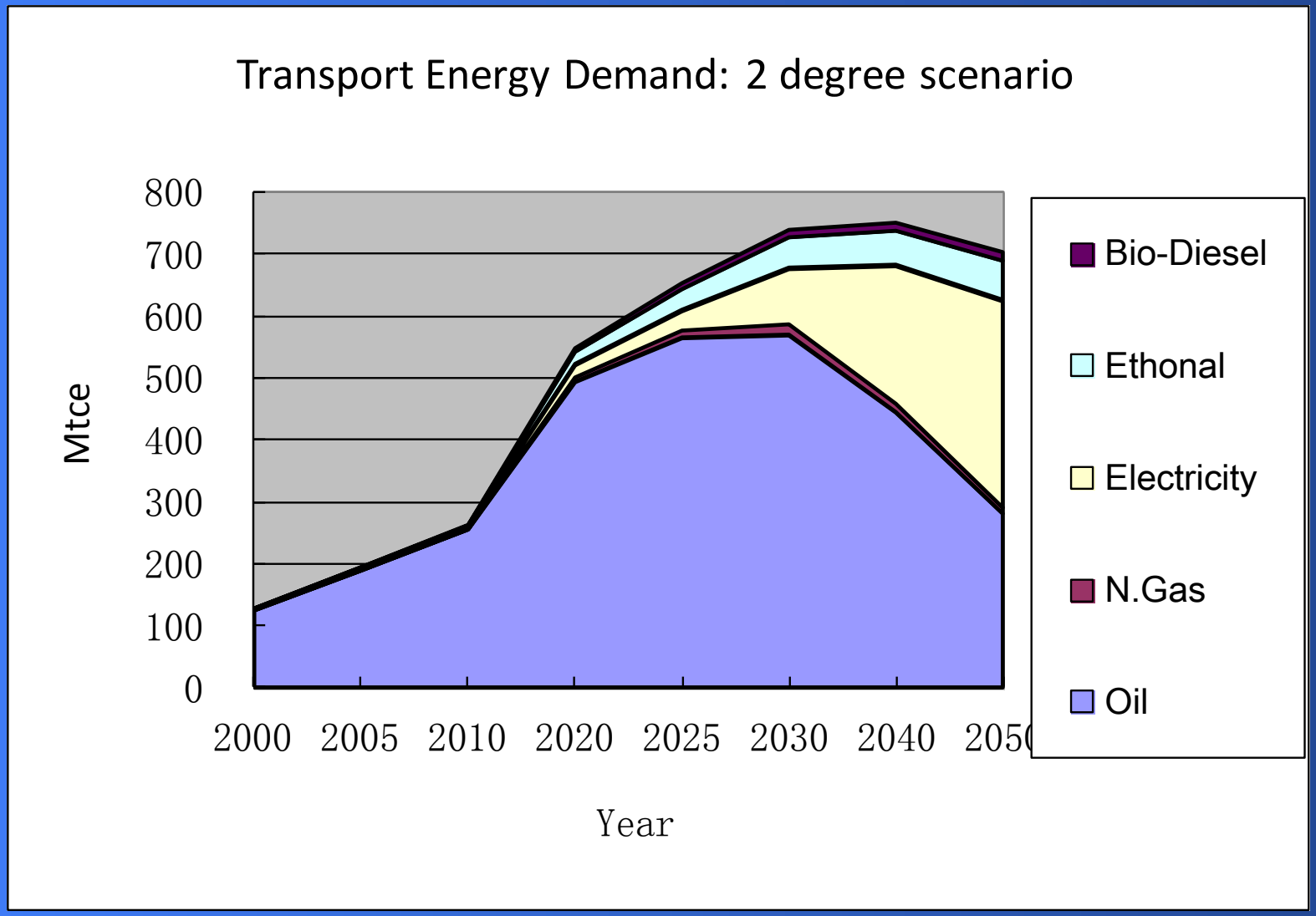

Installed Capacity, 2 ℃ Scenario A
MW
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
2000
2005
2010
2015
2020
2025
2030
2040
2050
Biomass
Solar
Wind
Nuclear
Hydro
N.Gas
Oil
Coal


CCS future
120
100
80
60
40
20
0
%
2000
2005
2010
2020
2030
2040
2050
Year
IGCC-Fuel Cell
IGCC
US-Critical
Super Critical
Large Coal Unit
Samll Coal

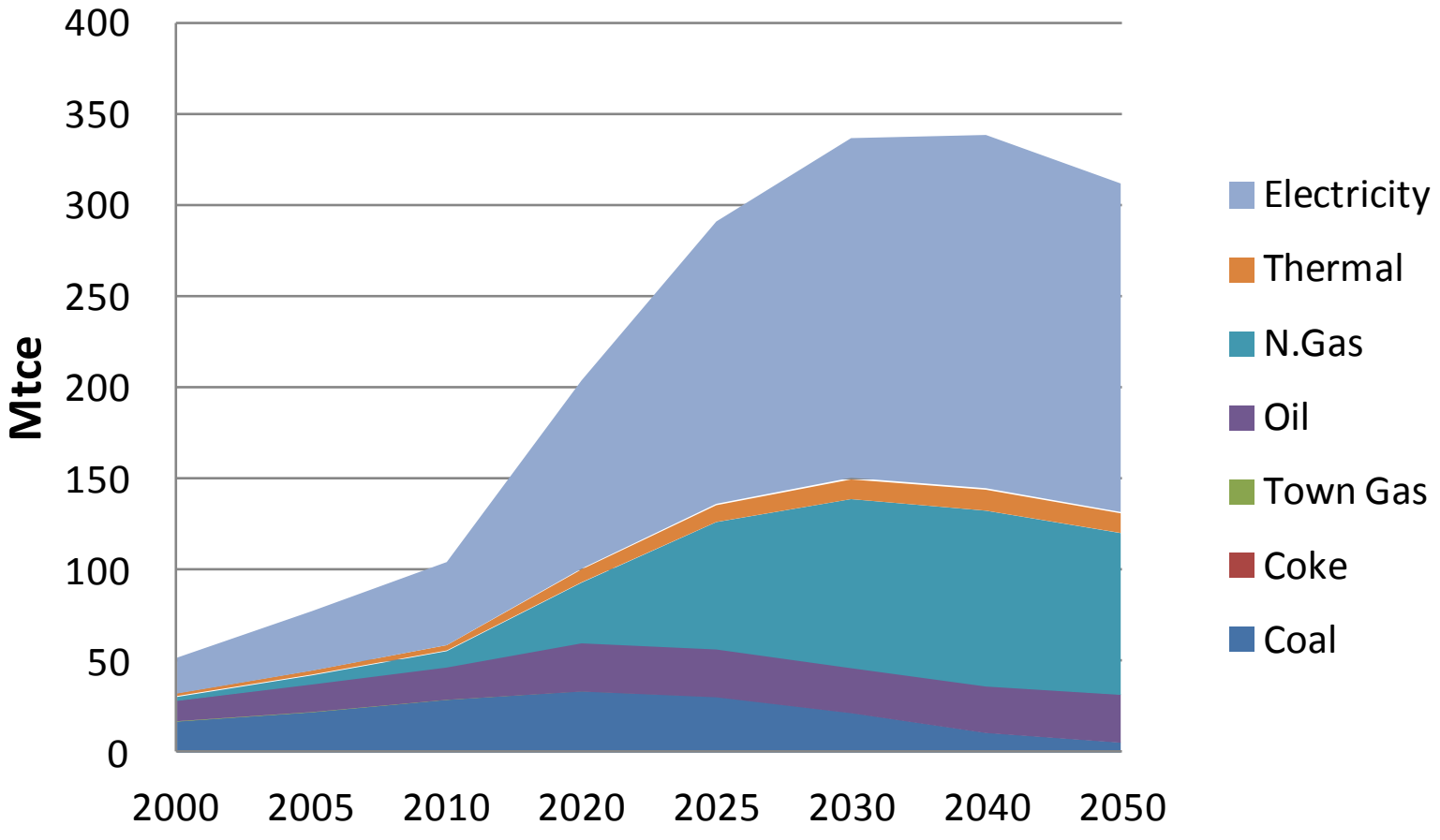

Final Energy Demand, 2 degree scenario
Mtce
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
2000
2005
2010
2020
2025
2030
2040
2050
Year
Electricity
Thermal
N.Gas
Oil
Town Gas
Coke
Coal

Final Energy Demand in Industry, 2℃ Scenario A

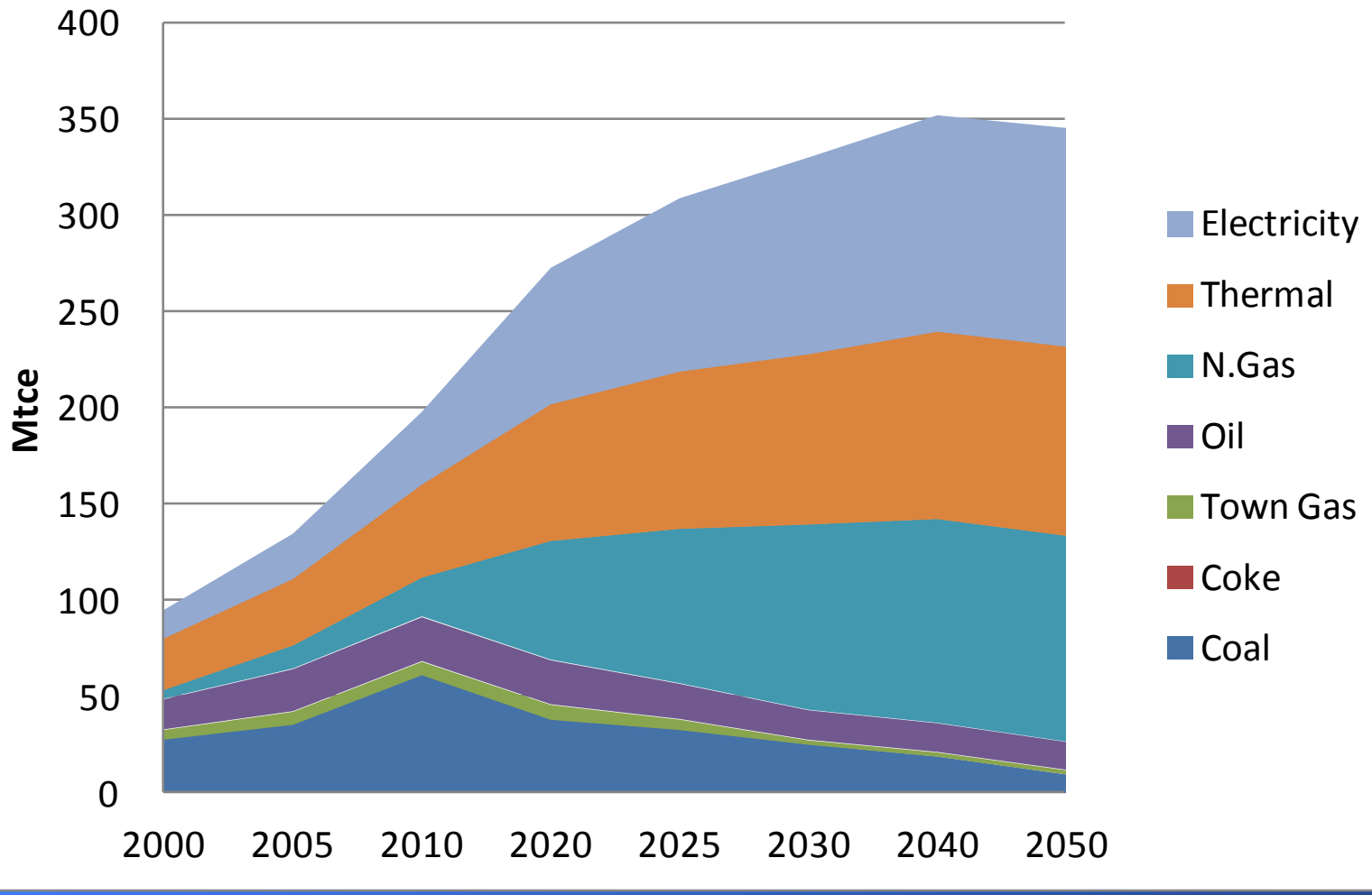


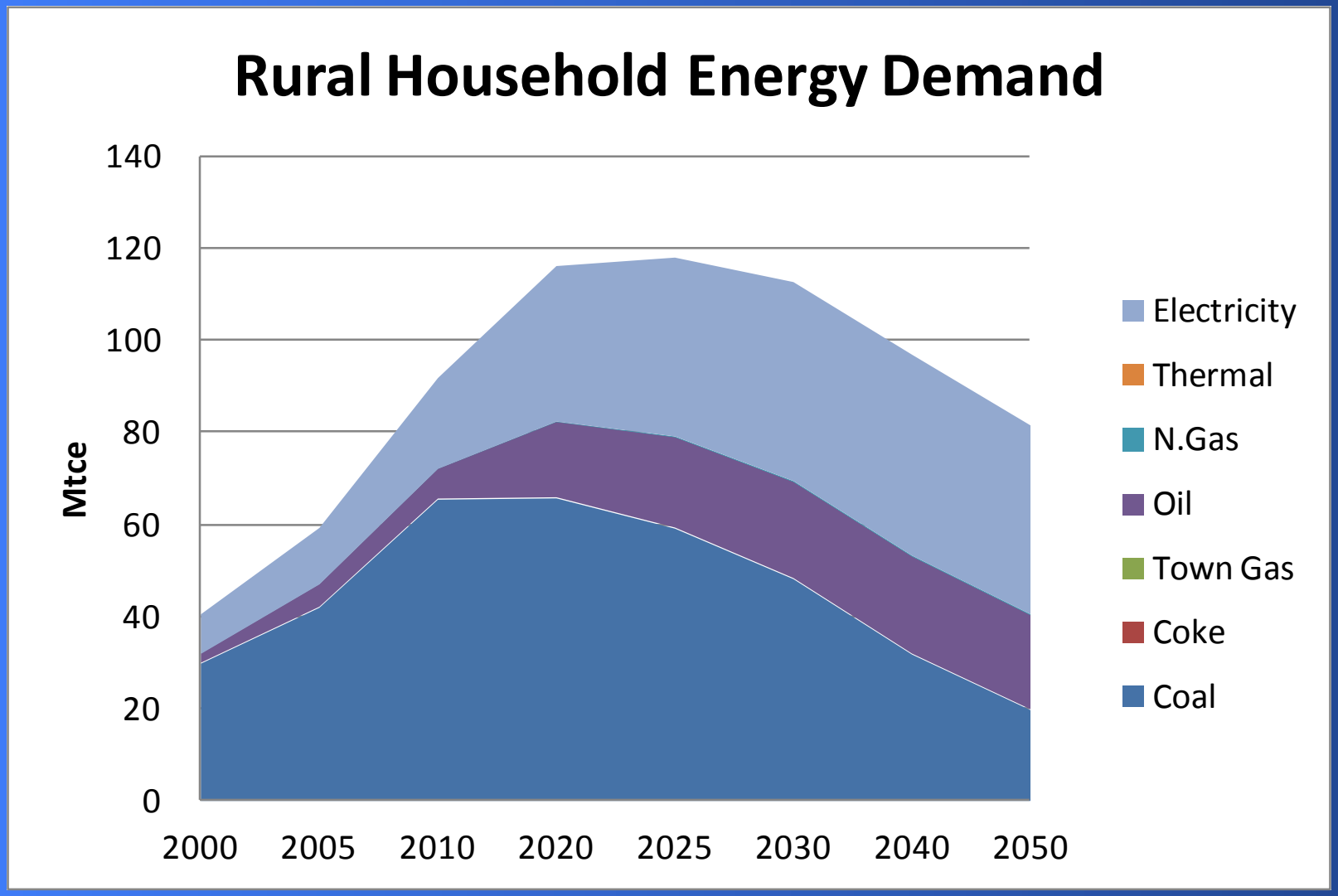

Transport Energy Demand: 2 degree scenario
Mtce
800
700
600
500
400
300
200
100
0
2000
2005
2010
2020
2025
2030
2040
2050
Year
Bio-Diesel
Ethonal
Electricity
N.Gas
Oil

Tertiary Sector Energy Demand

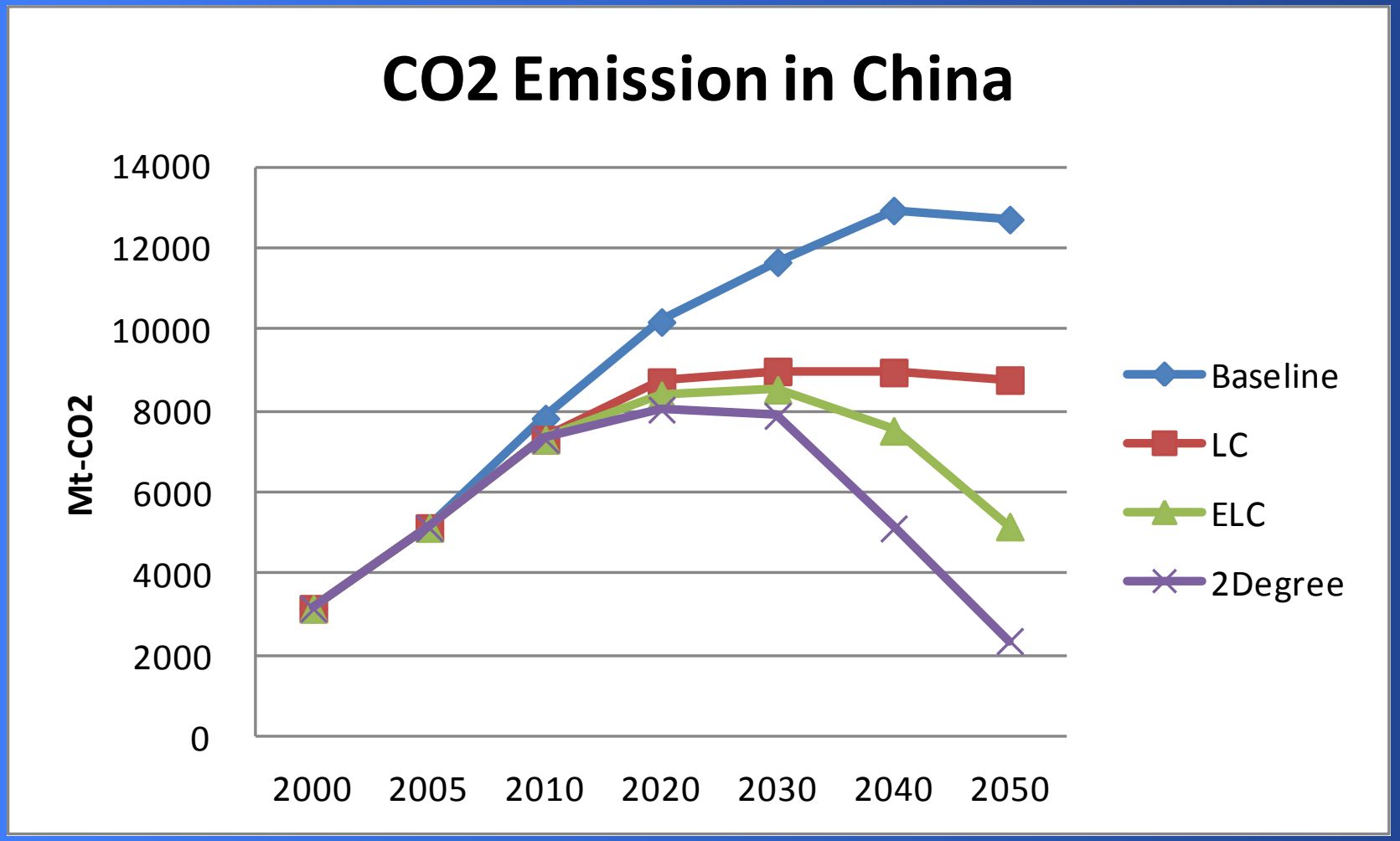


Urban Household Energy Demand




Rural Household Energy Demand
Mtce
140
120
100
80
60
40
20
0
2000
2005
2010
2020
2025
2030
2040
2050
Electricity
Thermal
N.Gas
Oil
Town Gas
Coke
Coal

Transformation: CO2 emission, a rapid change



四、影响电动汽车发展的主要制约因素分析

4. Analysis Major Constraints Factors

- 3.3 电动汽车实现经济性的趋势分析 Trend Analysis on EVs

电动汽车与先进汽油和柴油车成本变化趋势分析					
	2006-2010	2011-2015	2016-2020	2021-2025	2026-2030
电动汽车Evs					
电池充满电时总容量kWh	16	24	48	80	112
电力销售价格（元/kWh）	0.48	0.60	0.75	0.94	1.18
单位里程耗电量（kWh/km）	0.18	0.13	0.08	0.08	0.07
单位里程耗电费用（yuan/km）	0.09	0.08	0.06	0.08	0.08
电动汽车燃料成本（yuan/car）	43200	39067	30104	37694	41299
单位电池容量成本(USD/kWh)	750	375	130	75	30
Evs车电池组成本(yuan/car)	80400	60300	41808	40200	22512
电池组寿命（年）	3.6	5	11	22	22
电池组更换次数（set/year)	4.1	2.8	1.4	0.7	0.7
EVs全寿期电池成本（yuan/car）	413256	226728	99503	67938	38045
EVs全寿期电耗和电池总成本（yuan/car）	456456	265795	129607	105632	79345
每年费用（yuan/car）	30430	17720	8640	7042	5290
先进汽油汽车ICE					
汽油销售价格（yuan/liter)	6.6	8.5	10.2	11.0	11.8
柴油销售价格（yuan/liter)	6.4	8.3	9.9	10.6	11.4
单位里程耗汽油（L/km）	0.050	0.039	0.031	0.024	0.020
单位里程耗柴油（L/km）	0.047	0.038	0.030	0.024	0.020
全寿期行驶里程（km)	500000	500000	500000	500000	500000
先进汽油车燃料成本（yuan/car）	165000	167550	158356	133574	117738
先进柴油车燃料成本（yuan/car）	150400	155333	149317	128100	114170
每年费用	11000	11170	10557	8905	7849
比较（Evs车费用－ICE车费用）	291456	98245	-28749	-27941	-38394

礼品

运动器械

显示全部分类

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60000人收藏，70000人购买，80000人安装！

¥6.90

满五送一 亮昀美LED灯泡e14尖泡蜡

亮昀美led灯泡E27 LED灯具节能灯大螺口球泡光源QPJ014 3W白光 3W单品买五送

¥5.80 直降

已有10077人评价

北京有货

佛山照明 LED灯泡 3W超炫E27暖白光球泡 2支装

¥30.00 直降

已有3205人评价

北京有货

V瓦特沃led灯泡球泡E27大螺口led光源 3W 3w贴片正白 3W （继续狂欢 3w 6.9

¥6.90 直降

已有1181人评价

北京有货

佛山照明 LED灯泡 3W透明全柱E14暖白光尖泡 5支装

¥109.00 直降

已有547人评价

北京有货

VNC3W经济型天花灯LED一体化背景墙射灯 BB4/B05/B06/B09/C08 高光暖白光BB4

¥9.90 直降

尚仕达 LED节能灯泡 超高亮led球泡灯源 3w/5w/7w e27螺口灯 lamp 3W球泡-JDC1

¥5.70 直降

佛山照明 LED灯泡 3W透明全柱E14暖白光蜡尾尖泡 5支装

¥115.00 直降

佛山照明 LED灯泡 7W超炫银E27暖白光球泡 2支装

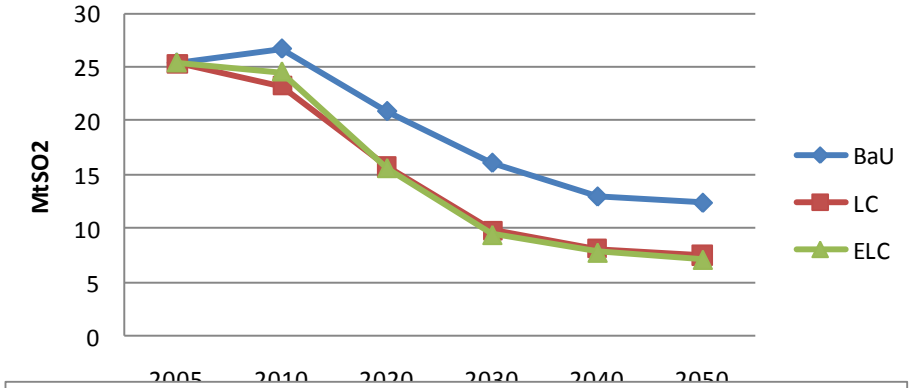
¥76.00 直降

返回顶部

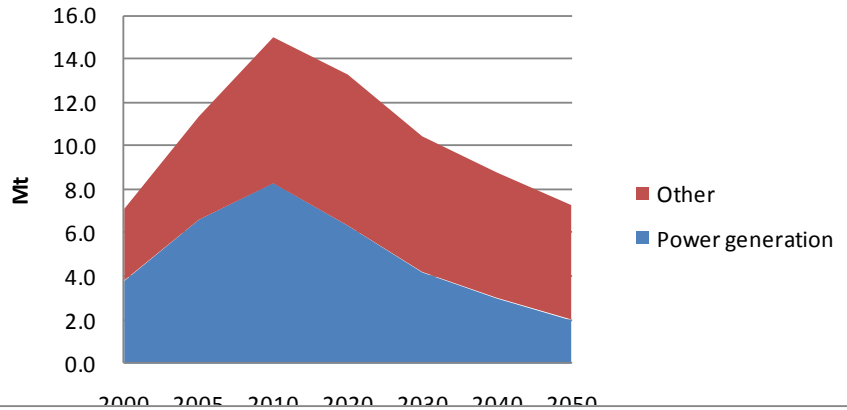

CHANGHONG 长虹
"精结晶·传奇" BCD-186DHA


中国能效标识
CHINA ENERGY LABEL
生产者名称 合肥美菱股份有限公司
规格型号 BCD-186DHA
耗能低
1
2
中 等
3
4
耗能高
5
1级
耗电量（千瓦时/24小时） 0.25
冷藏室容积（升） 132
冷冻室容积（升） 54
依据国家标准：GB 12021.2-2008

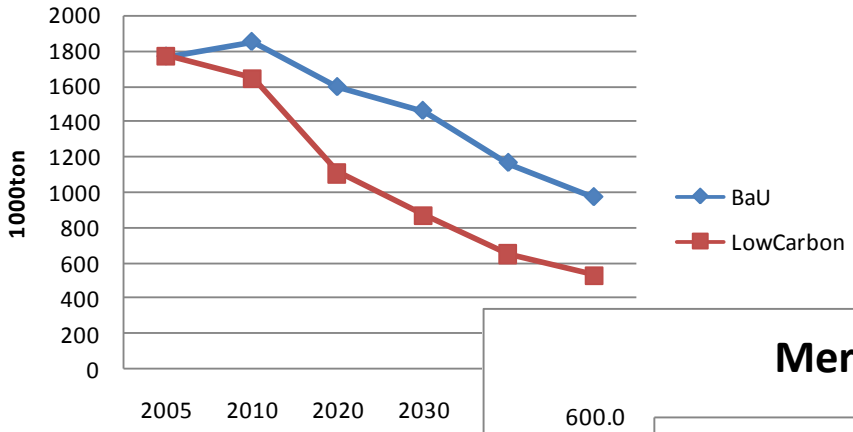
SO2 Emission



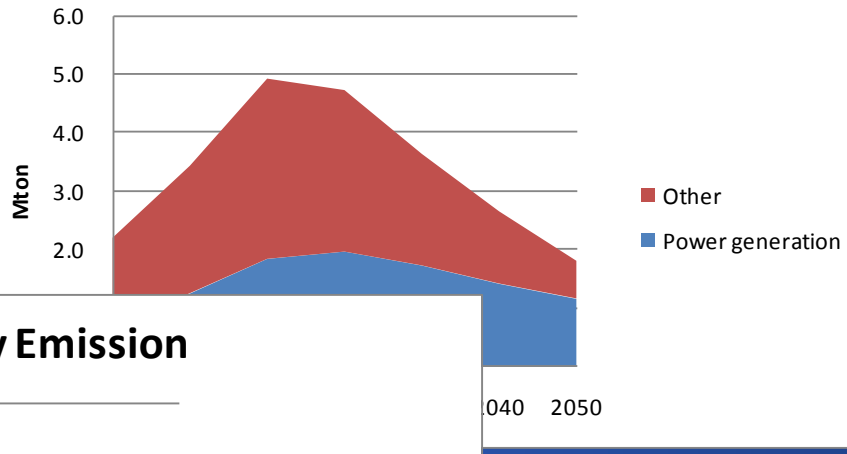
NOx Emission in China, ELC scenario



Black Carbon Emission in China



PM2.5 Emission



Mercury Emission

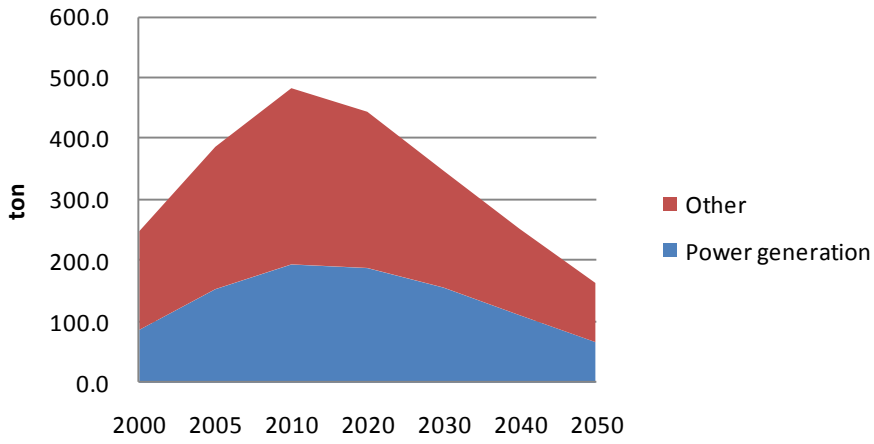
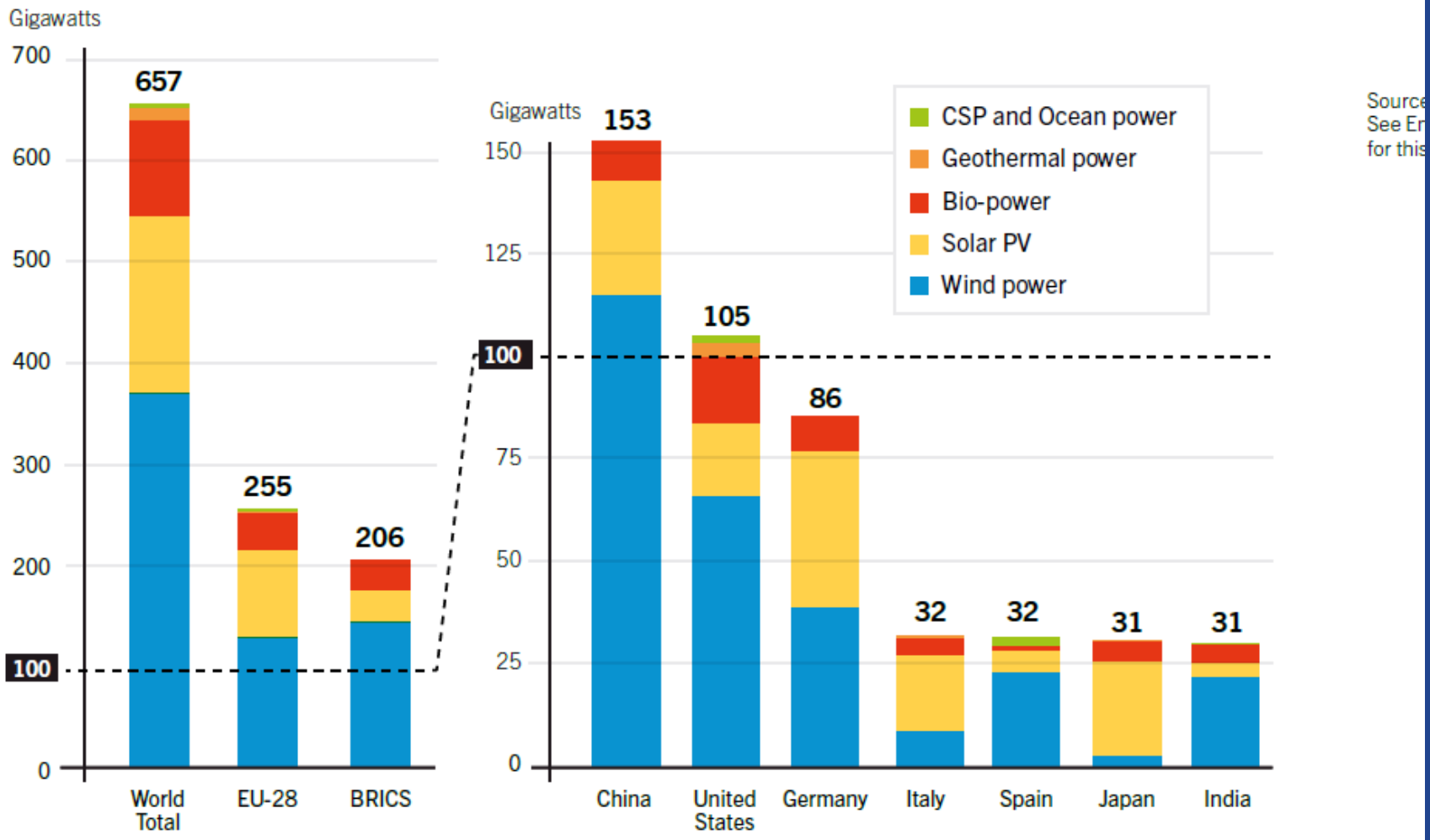
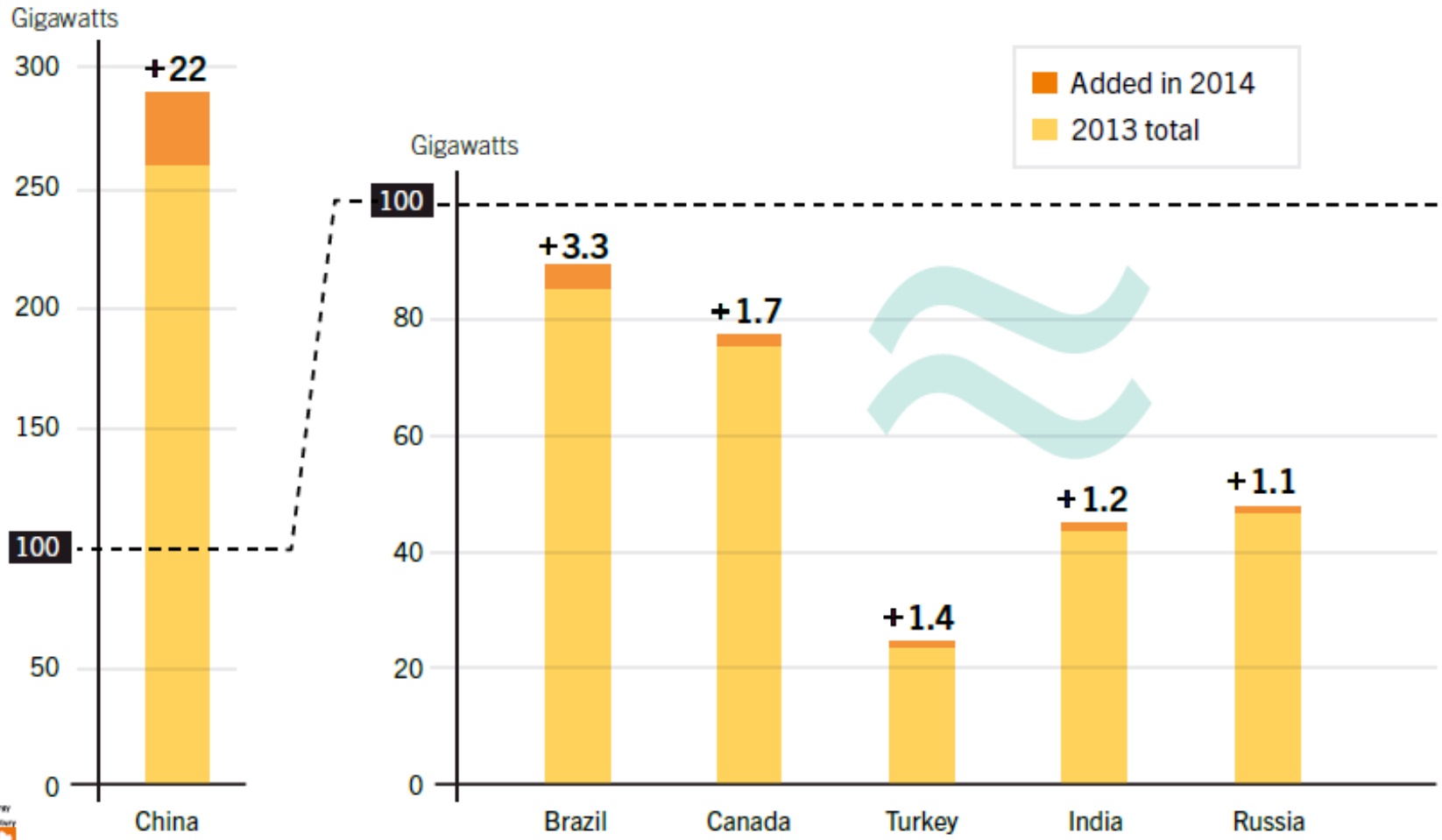


Figure 4. Renewable Power Capacities* in World, EU-28, BRICS, and Top Seven Countries, 2014



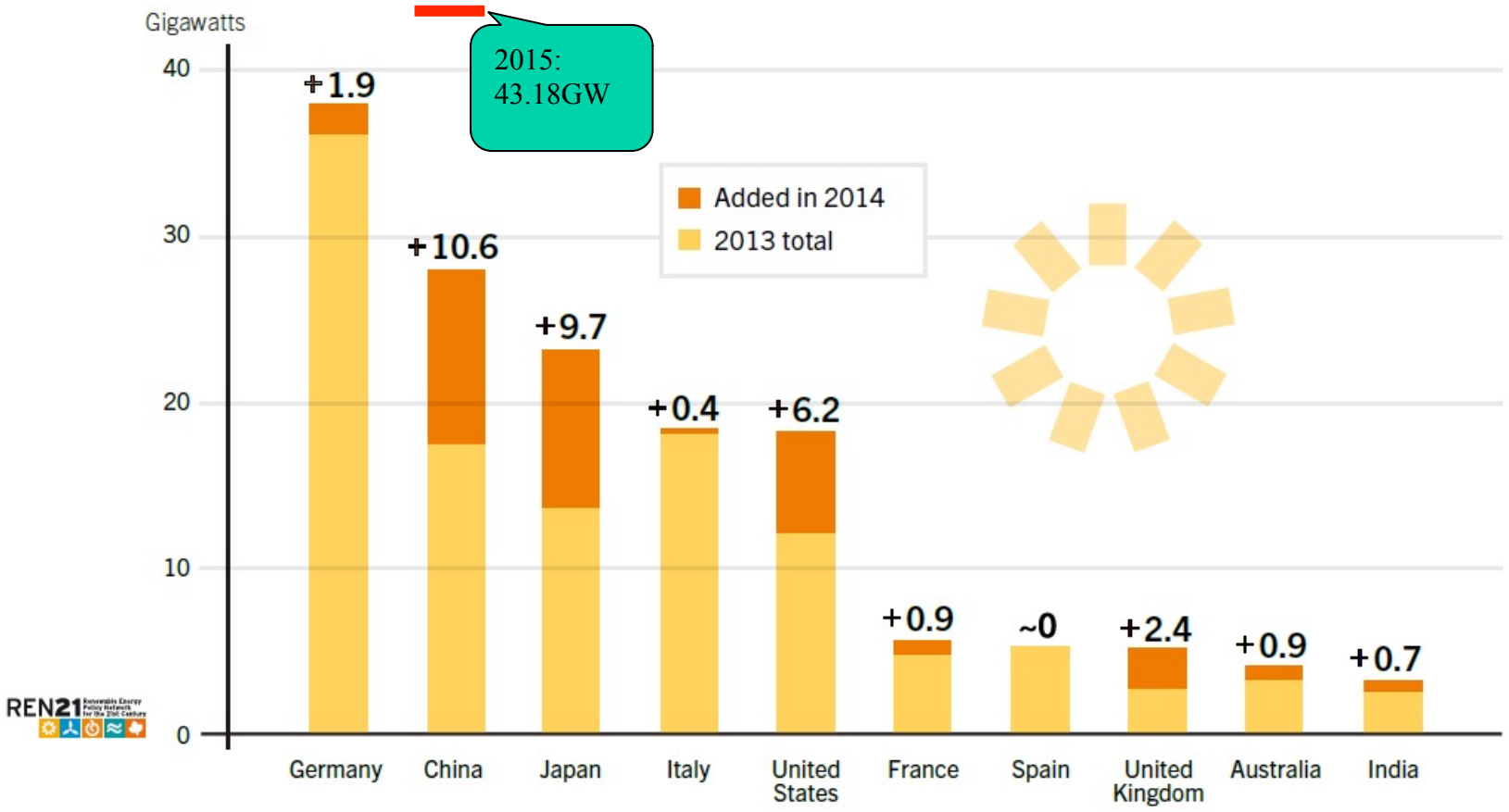
* not including hydropower (See Reference Table R2 for data including hydropower.)

Figure 15. Hydropower Capacity and Additions, Top Six Countries for Capacity Added, 2014

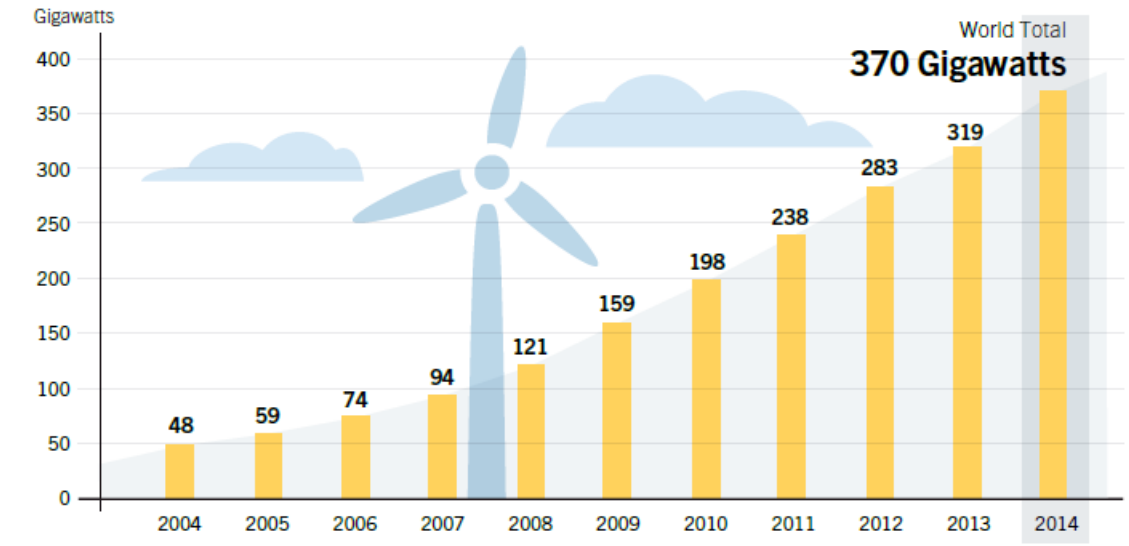


40 GW added in 2014

Solar PV Capacity and Additions, Top 10 Countries, 2014



Wind Power Global Capacity, 2004–2014



51 GW ADDED in 2014

Wind

generated more than

20%

of electricity in several countries, including:

Denmark, Nicaragua, Portugal, and Spain

Wind Power Capacity and Additions, Top 10 Countries, 2014

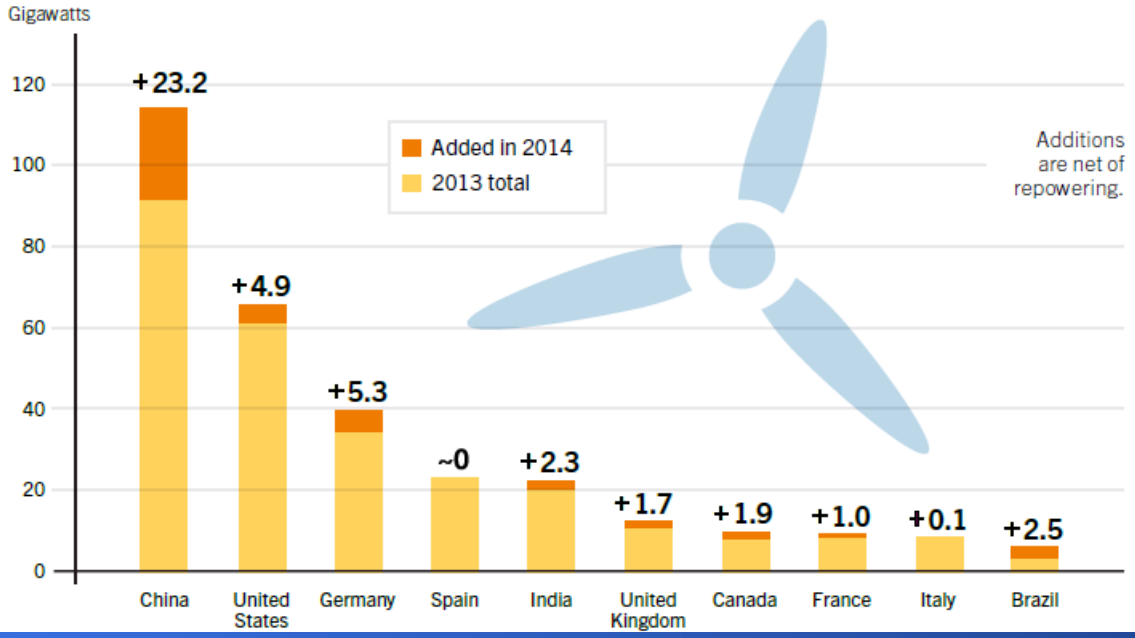


Figure 19. Solar Water Heating Collectors Global Capacity, Shares of Top 10 Countries and Rest of World, 2013

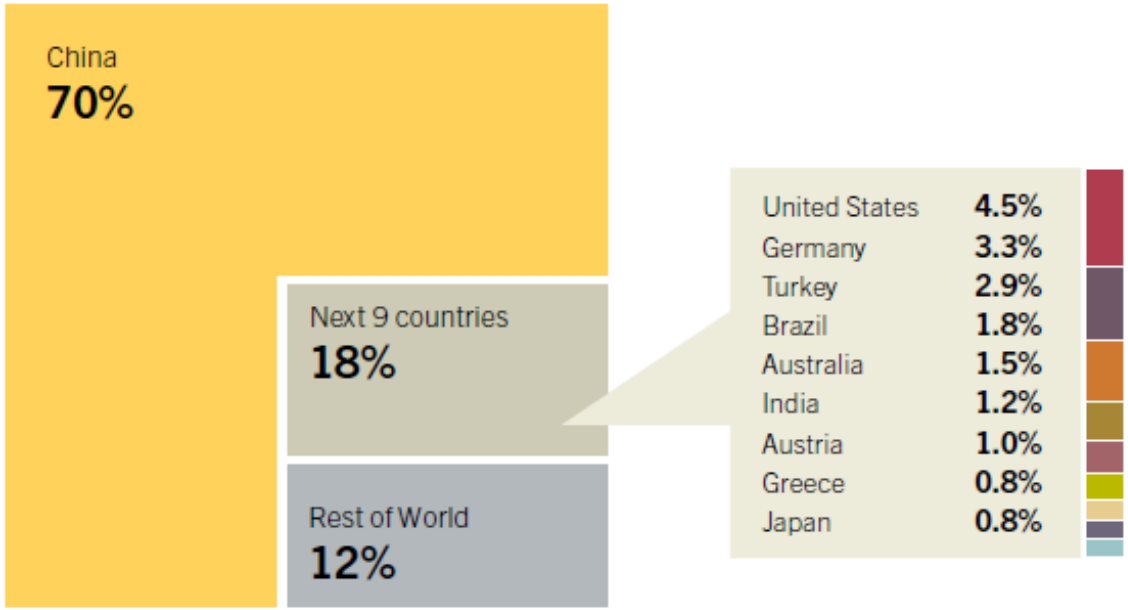


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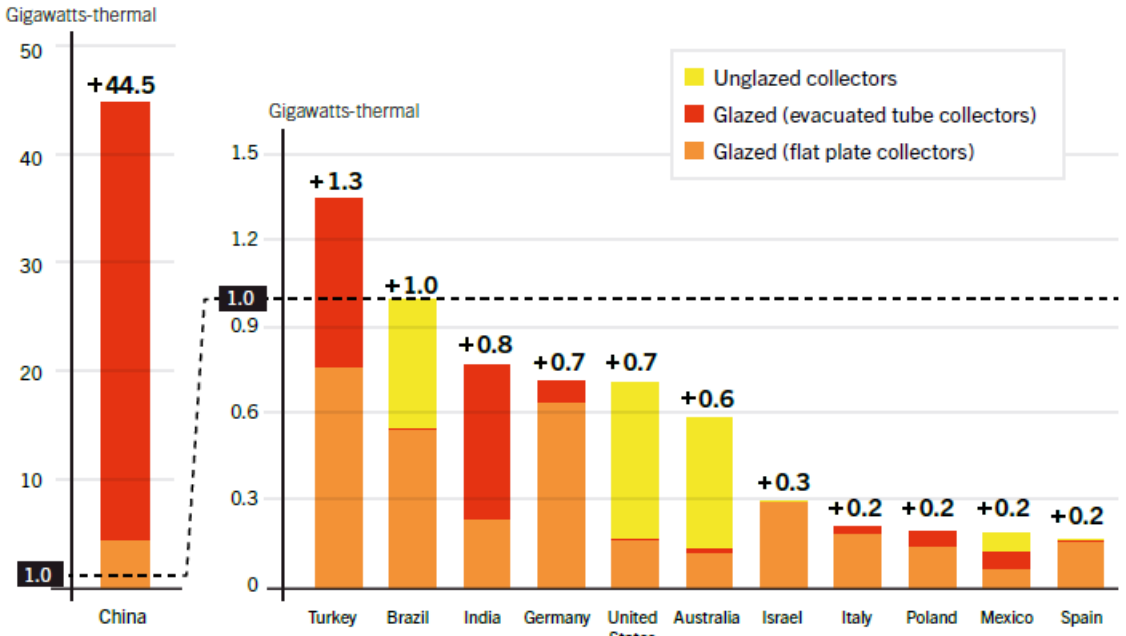
Figure 20. Solar Water Heating Collectors Additions, Top 12 Countries for Capacity Added, 2013



Additions represent gross capacity added.

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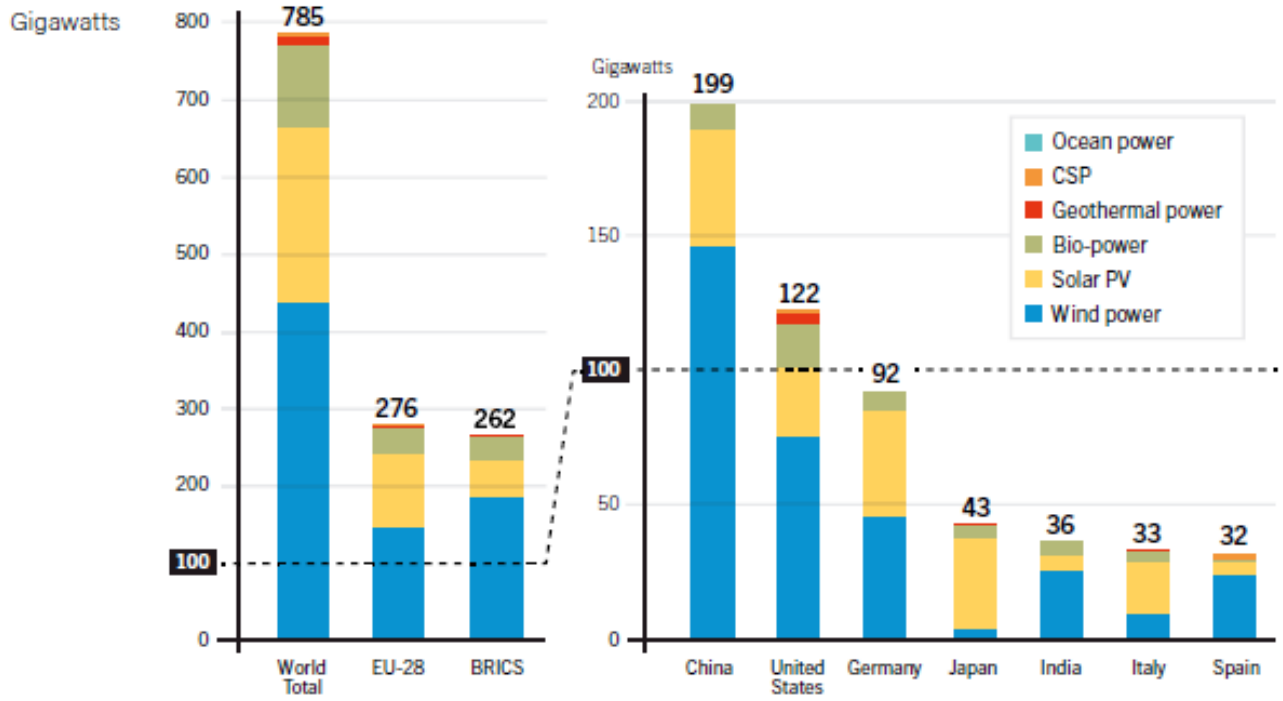
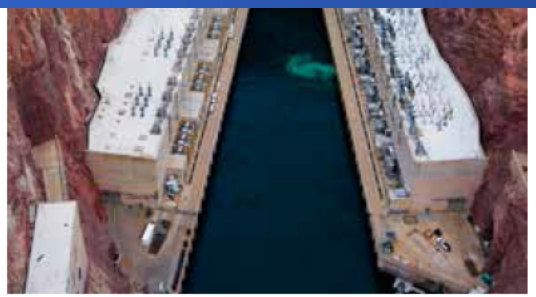
Renewable Power Capacities, in World, EU-28, BRICS and Top Seven Countries, End-2015



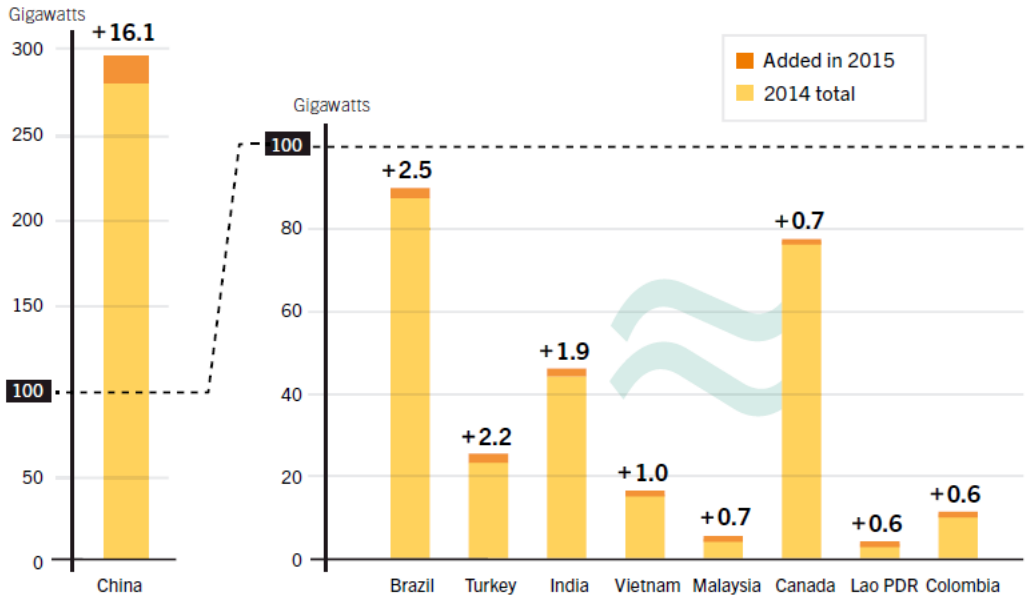
**Not including hydropower (see Reference Table R2 for data including hydropower). The five BRICS countries are Brazil, the Russian Federation, India, China and South Africa.*

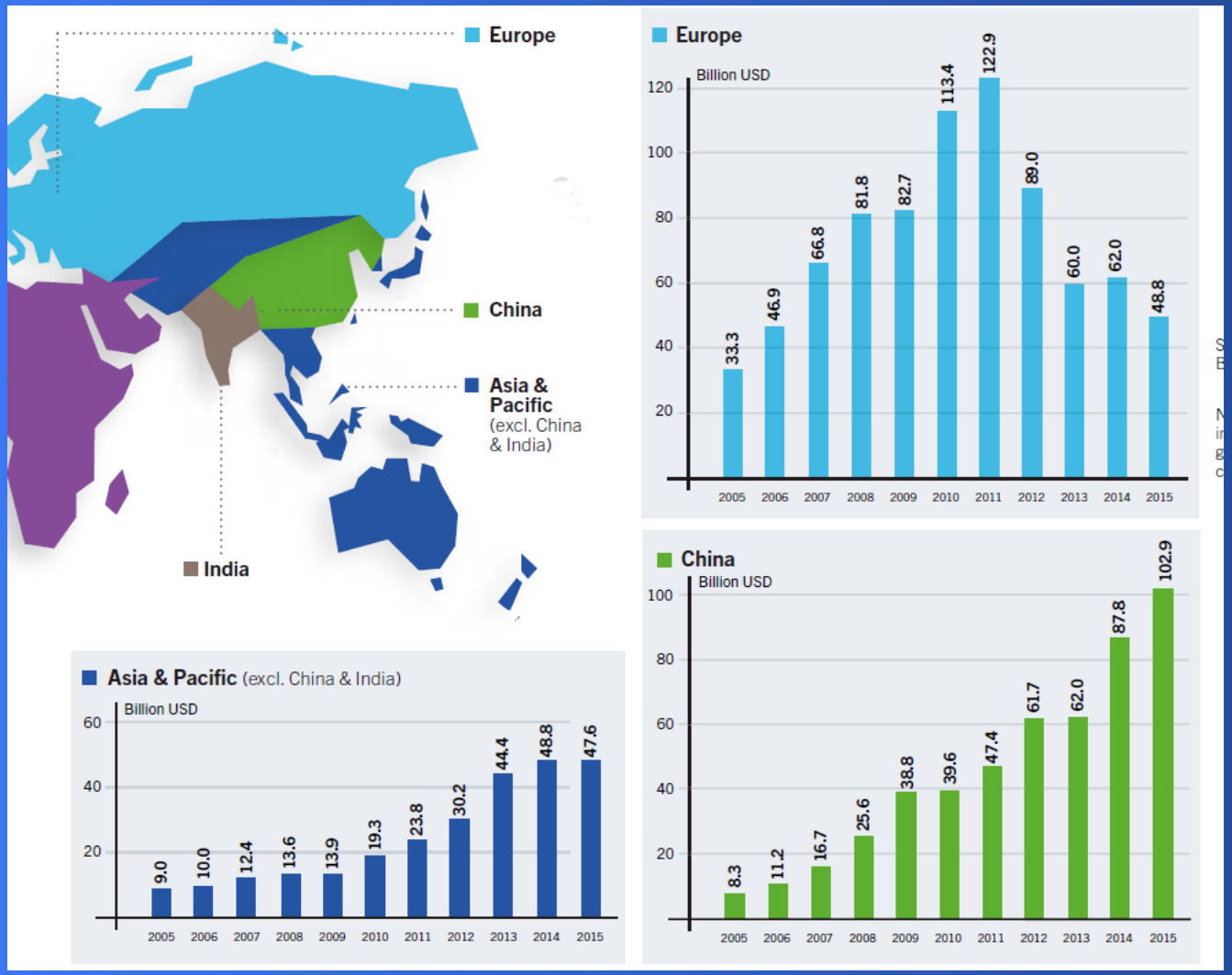
GLOBAL CAPACITY REACHED

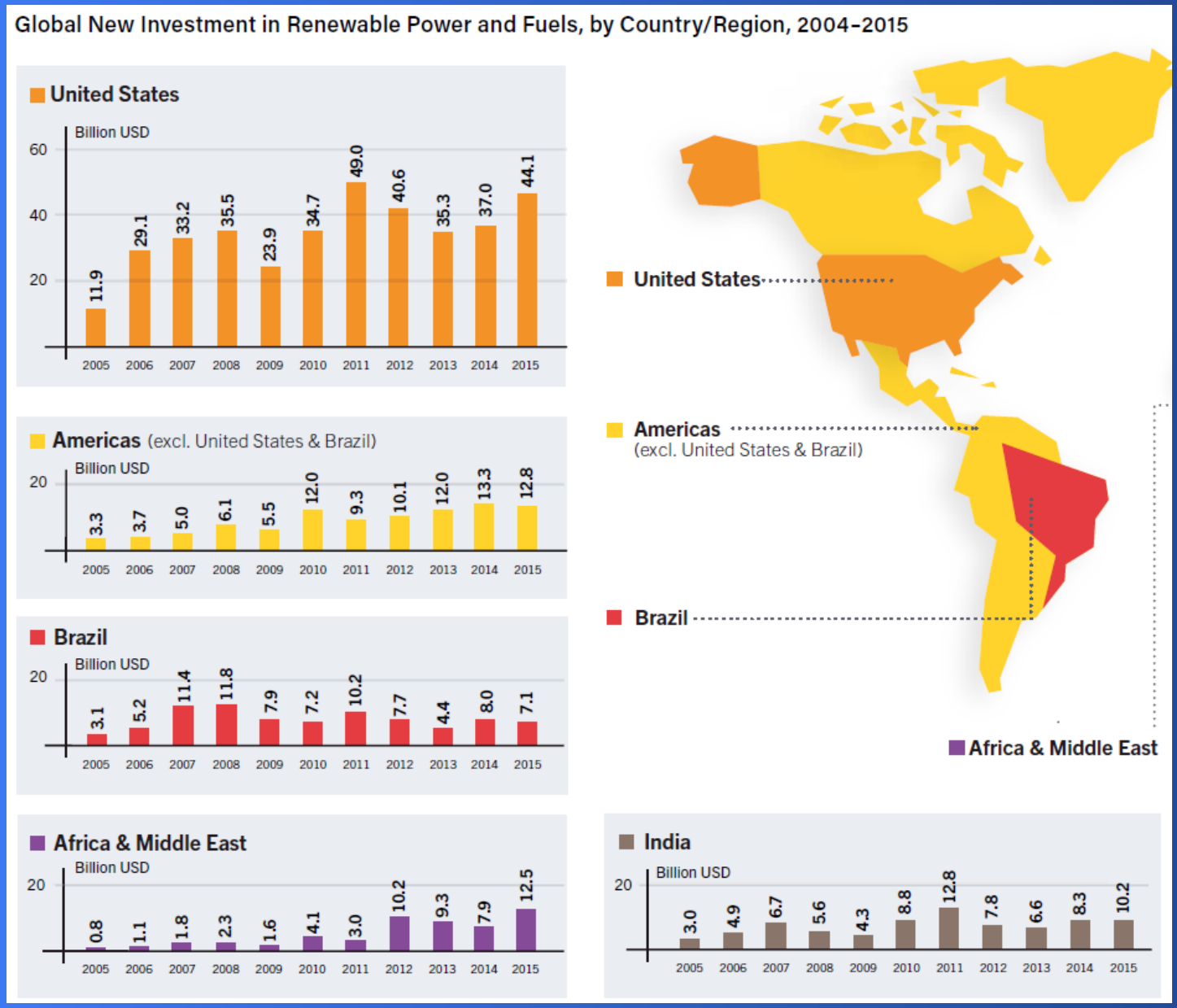
1,064 GW

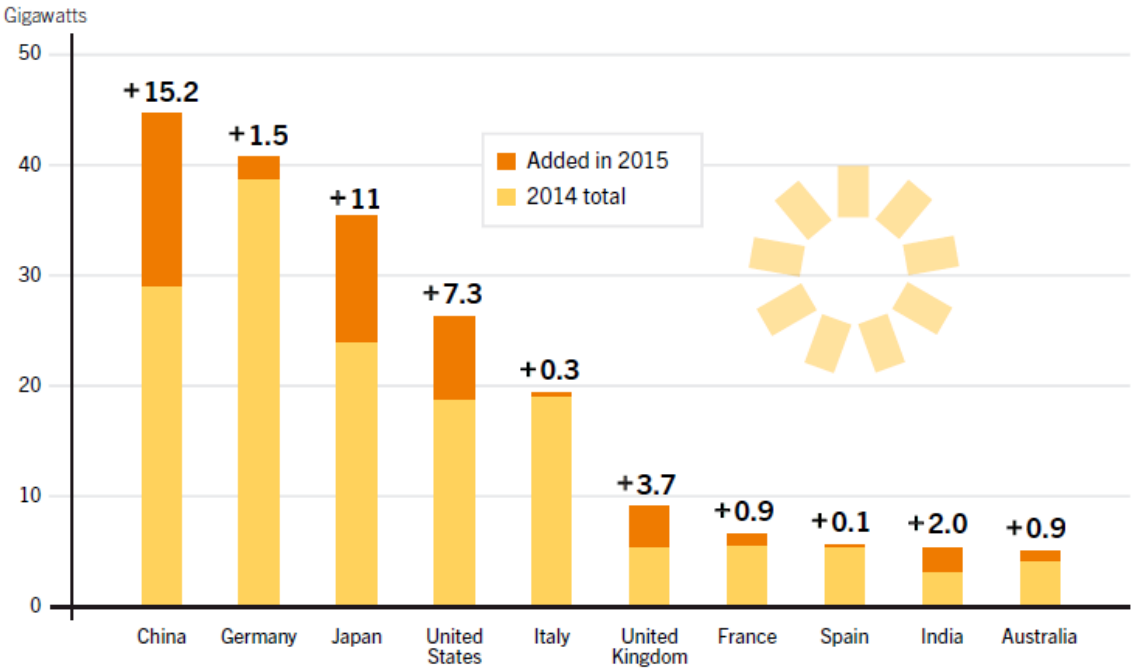


Hydropower Capacity and Additions, Top Six Countries for Capacity Added, 2015




Europe
China
Asia & Pacific (excl. China & India)
India
Europe
Billion USD
33.3
46.9
66.8
81.8
82.7
113.4
122.9
89.0
60.0
62.0
48.8
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015
China
Billion USD
8.3
11.2
16.7
25.6
38.8
39.6
47.4
61.7
62.0
87.8
102.9
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015
Asia & Pacific (excl. China & India)
Billion USD
9.0
10.0
12.4
13.6
13.9
19.3
23.8
30.2
44.4
48.8
47.6
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015


Global New Investment in Renewable Power and Fuels, by Country/Region, 2004–2015
United States
Billion USD
60
40
20
11.9
29.1
33.2
35.5
23.9
34.7
49.0
40.6
35.3
37.0
44.1
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015
Americas (excl. United States & Brazil)
Billion USD
20
3.3
3.7
5.0
6.1
5.5
12.0
9.3
10.1
12.0
13.3
12.8
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015
Brazil
Billion USD
20
3.1
5.2
11.4
11.8
7.9
7.2
10.2
7.7
4.4
8.0
7.1
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015
Africa & Middle East
Billion USD
20
0.8
1.1
1.8
2.3
1.6
4.1
3.0
10.2
9.3
7.9
12.5
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015
United States
Americas
(excl. United States & Brazil)
Brazil
Africa & Middle East
India
Billion USD
20
3.0
4.9
6.7
5.6
4.3
8.8
12.8
7.8
6.6
8.3
10.2
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015



50 GW
ADDED IN 2015

What's the future of China's low carbon policy: a big picture

- Economic structure optimization policies
- Energy efficiency policies
- Renewable energy/nuclear power generation oriented policies
- CCS
- Low carbon consumption/ lifestyle
- Land use emission reduction policies: so far relatively poor

INDC+/NDC
for China, and others

INDC of China in Paris

- Peak CO2 emission in 2030, try to peak earlier
- 60% to 65% carbon intensity reduction by 2030 with comparison with 2005
- 20% non-fossil energy in TPE

INDC+ for China

- Peak CO2 emission in 2030, **try to peak earlier**

  peak 2020-2022

- 60% to 65% carbon intensity reduction by 2030 with comparison with 2005

  70%-75% carbon intensity

- 20% non-fossil energy in TPE

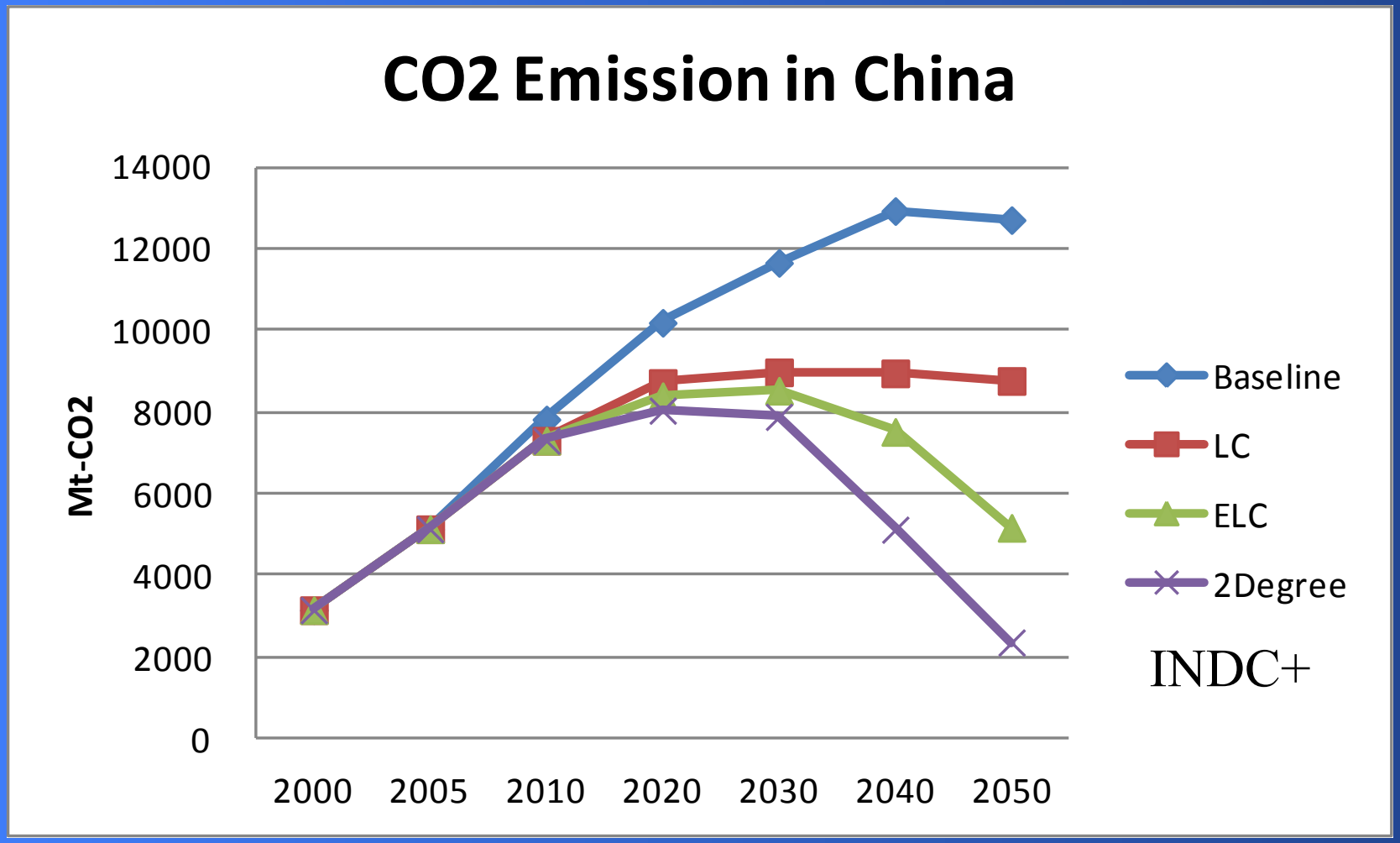
  25%, based on NEA's picture

Copenhagen for China: progress

- 40% to 45% carbon intensity reduction in Copenhagen

- 2005-2010: carbon intensity 22% reduction
- 2010-2015: carbon intensity 21.8% reduction
- 2015-2020: 18% reduction based on the 13th Five Year Plan
- Then it is around 50%

Transformation: CO2 emission, a rapid change



Roadmap for the research-policy interaction

- Research results on INDC+/NDC: June 2016 and after
- Internal discussion keeps going
- Side event at COP 23/24(ERI, IGES and others, MILES)
- Announcement in COP 25 or other events

Roadmap for the research-policy interaction

- Other countries:

  US: 2060 100% reduction,
  2 degree Asia
  Japan:
  EU

- IPCC Special Report on 1.5℃

Put the Roadmap into policy making process: Role of IPAC in ERI

- ERI is an policy supporting unit for government, under DNRC
- All the studies for IPAC will focus on policy implementation

- IPAC team involved in:
  - Five Year Plan's target on energy, carbon, energy efficiency
  - Carbon tax/ETS design: National Tax Bureau/NDRC
  - Energy Planning: NEA
  - Climate Change planning: NDRC
  - Low Carbon City: third phase, 100% renewable energy cities: NDRC
  - Transport Planning: MOT
  - Building Planning on Energy Efficiency: MOHURD
  - Air Quality Policies: MEP/provincial government

The Transition is Feasible and Doable, based on the government action framework

Investment by industrial sectors