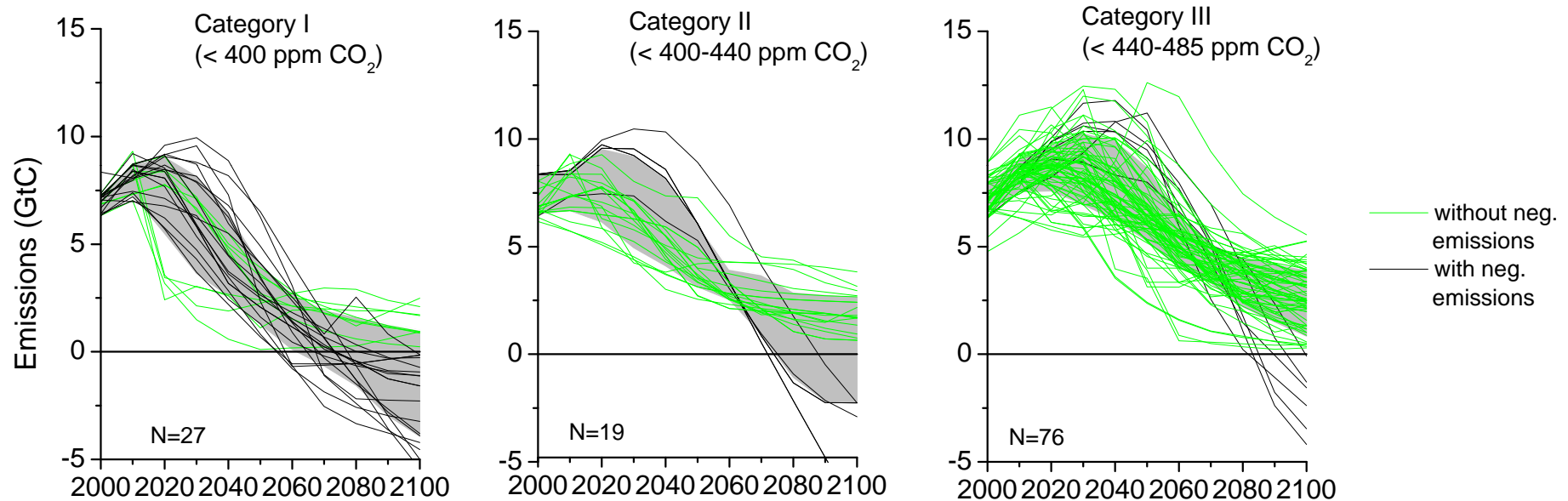


# Do we share enough information in Low Carbon development ?

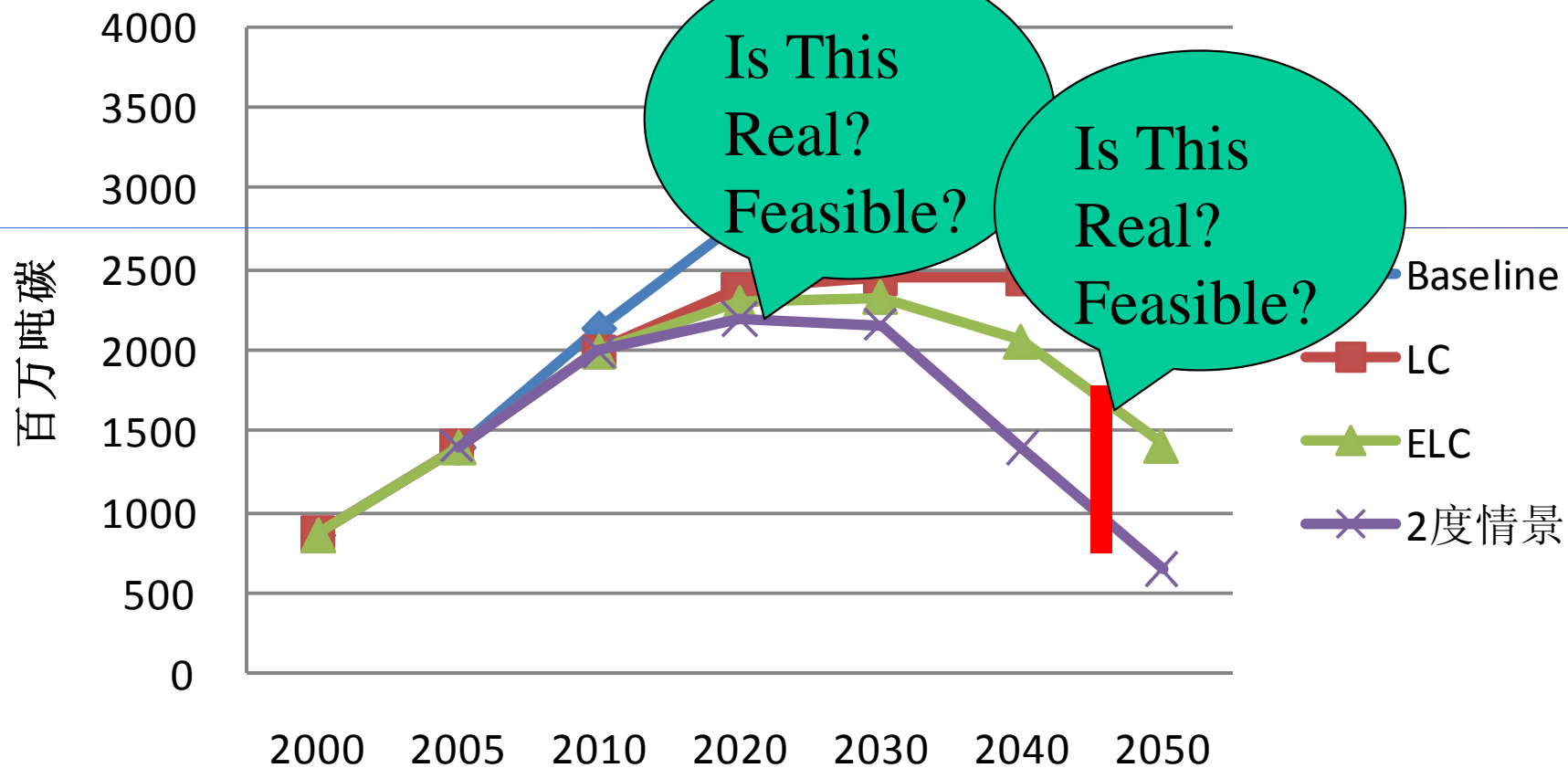
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# Keyword: Transition – mitigation to reach some climate change targets



# CO2 排放量



## *Go much behind the pictures*

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Present in detail for key factors

Join modeling forums/workshops/projects

Make study on key factors: economy structure change, carbon pricing, roadmap for new technologies, CCS etc.

Make data transparency

Publication/public available

Keep a good modeling research team for long time

## Products output in major sectors, Low Carbon and ELC

	Unit	2005	2020	2030	2040	2050
Steel	Million ton	355	610	570	440	360
Cement	Million ton	1060	1600	1600	1200	900
Glass	Million cases	399	650	690	670	580
Copper	Million ton	2.6	7	7	6.5	4.6
Ammonia	Million ton	8.51	16	16	15	12
Ethylene	Million ton	5.1	7.2	7	6.5	5.5
Soda Ash	Million ton	14.67	23	24.5	23.5	22
Casutic	Million ton	12.64	24	25	25	24
Paper	Million ton	62.05	110	115	120	120
Fertilize	Million ton	52.2	61	61	61	61
Aluminum	Million ton	7.56	34	36	36	33
Paper	Million ton	46.3	50	50	50	45
Calcium c	Million ton	8.5	10	8	7	4

# 2050年的低碳住宅 舒适和节能

## 太阳能利用

光伏电池

(25-47% 的家庭拥有屋顶光伏电池，  
转换效率接近30%)

生态生活教育

减少10-20% 能源需求

屋顶植被

高效照明  
【如 LED照明】

减少50%照明需求，  
普及率 100%

太阳热利用

普及率: 20-60%  
(目前 6%)

能源检测系统  
(家用电器)

高效绝热

减少 60% 采暖需求，  
普及率70%

超高效空调

COP =8,  
普及率 100%

热泵采暖

COP=5  
普及率 30-70%

燃料电池

普及率 0-20%

待机电源耗电

降低1/3，  
普及率100%

向公众提供经济和环境  
信息促使大家成为  
低碳消费

高效家用电器

减少能源需求，支持舒适和安全生活方式



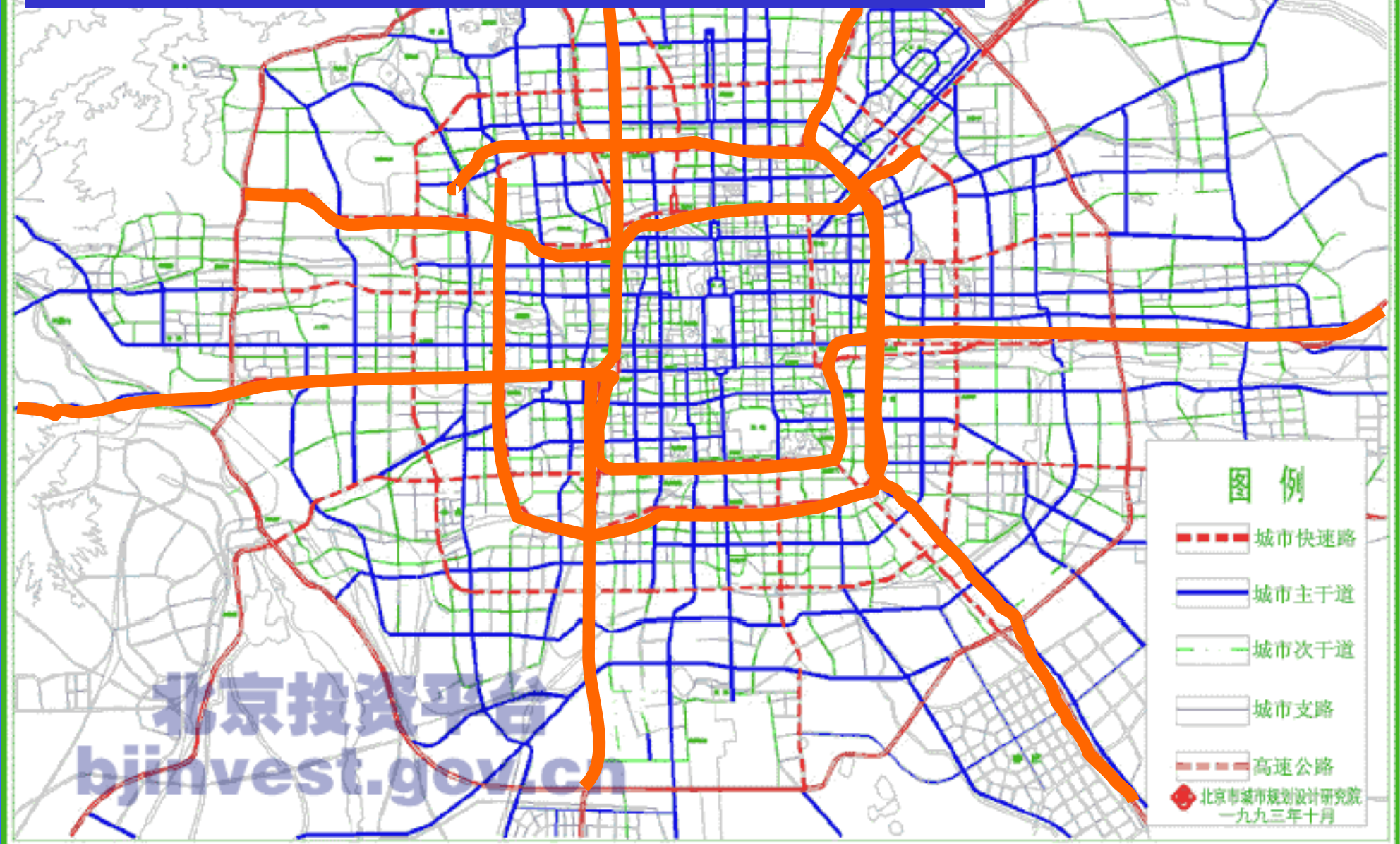
# Stockholm: bicycle is coming back





# 北京市区道路网规划方案

Rapid bus: using existing rapid road







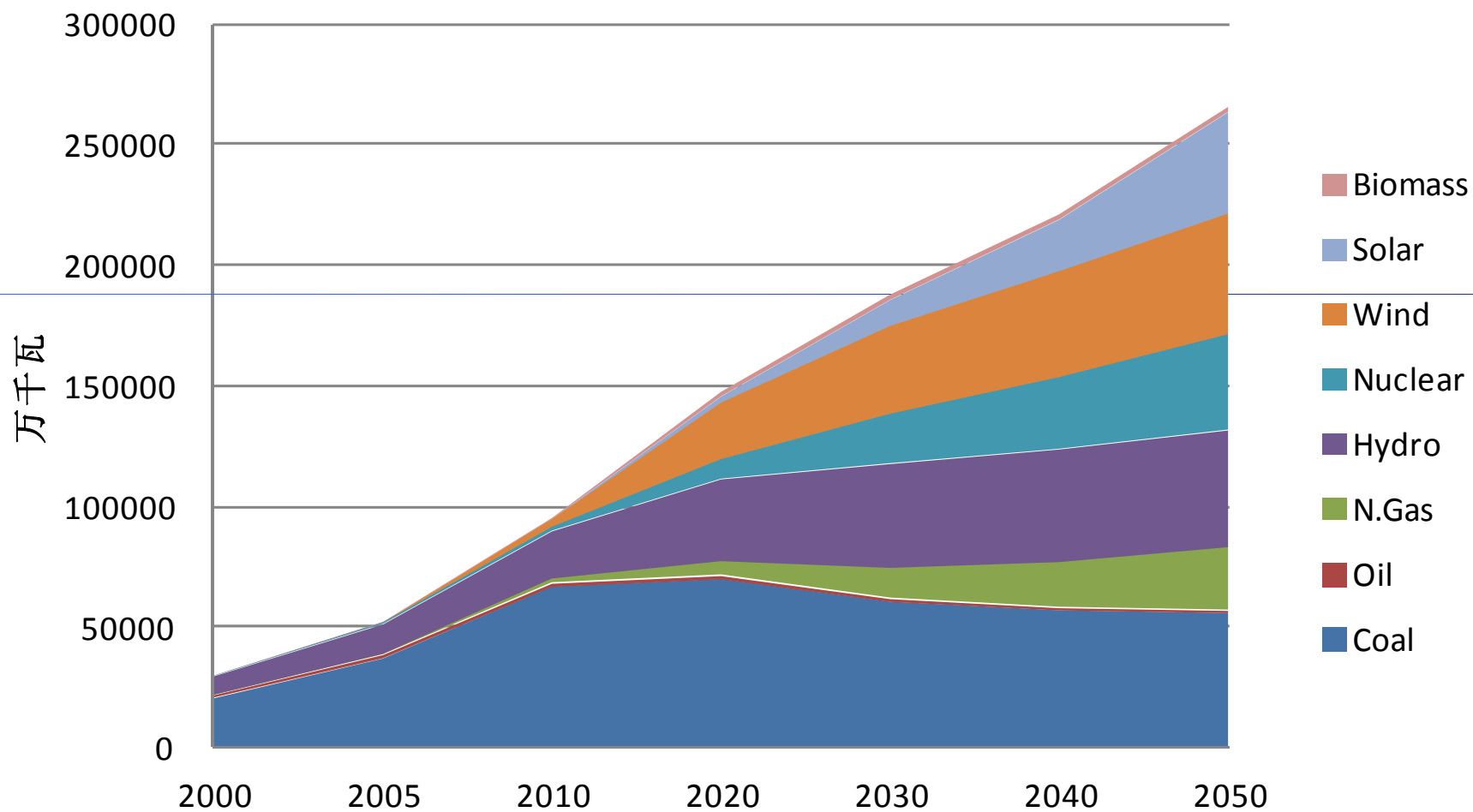
# POWER\_BOX by Baosteel

2kW wind

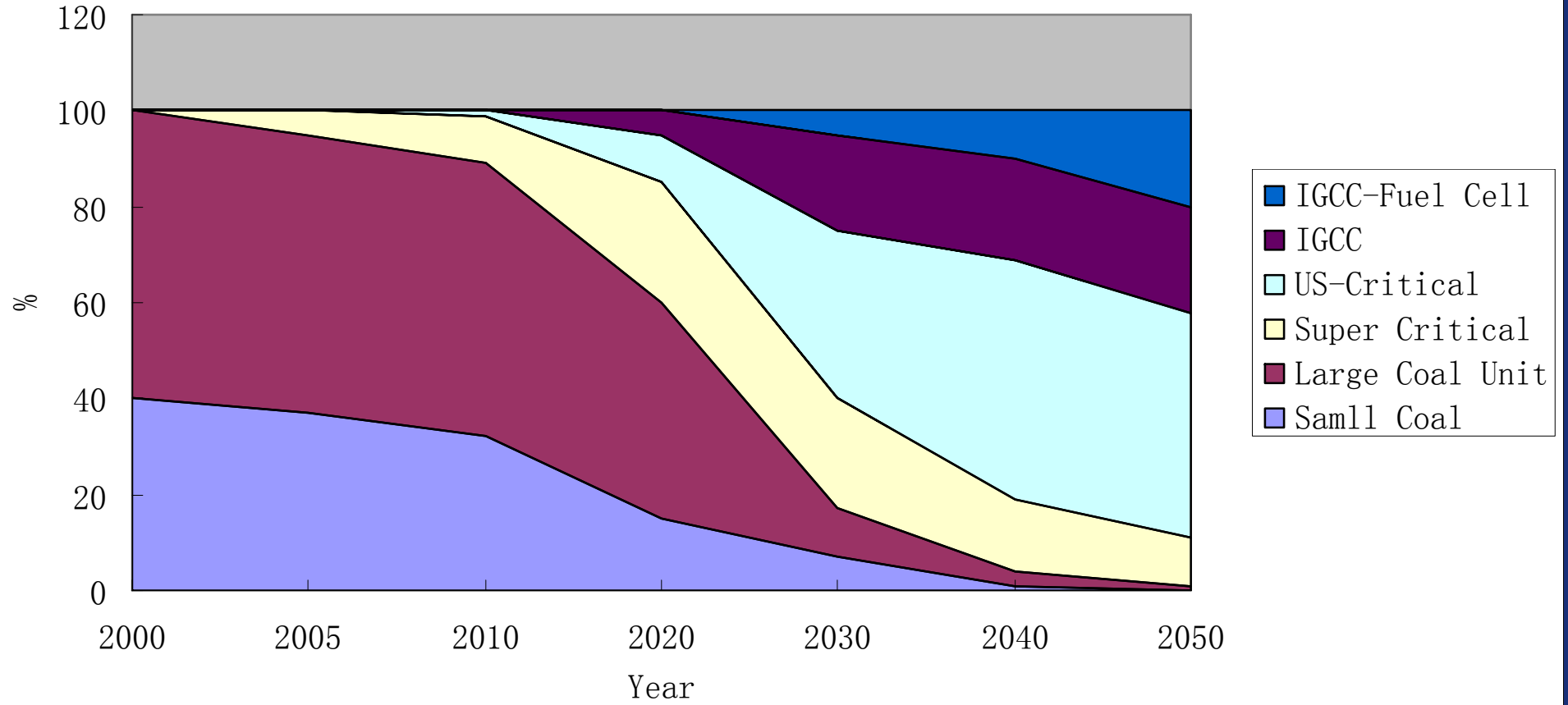
10kW Solar PV



# Power Generation Capacity

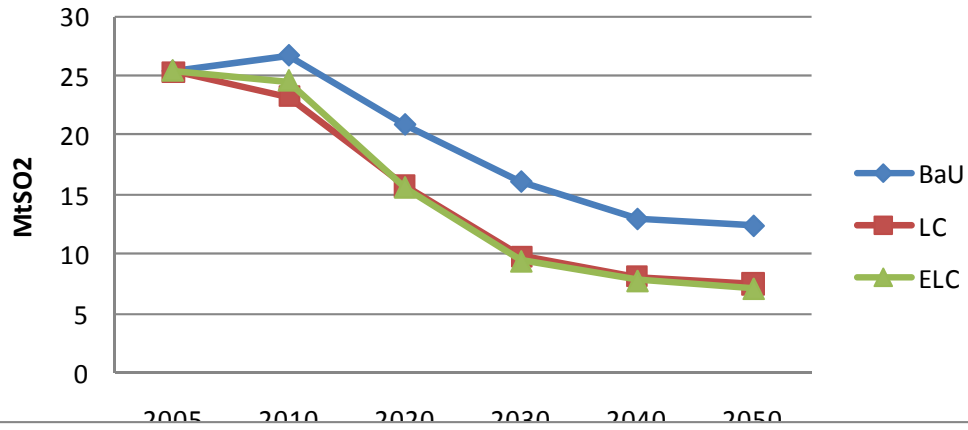


CCS future

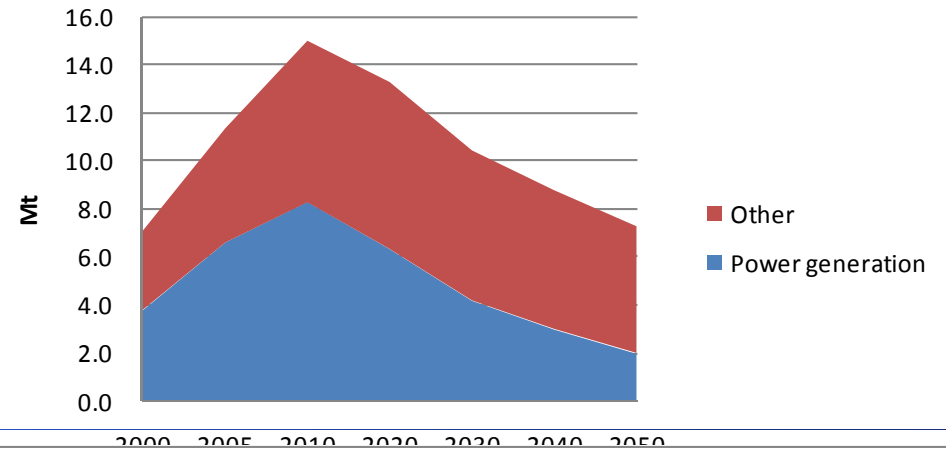




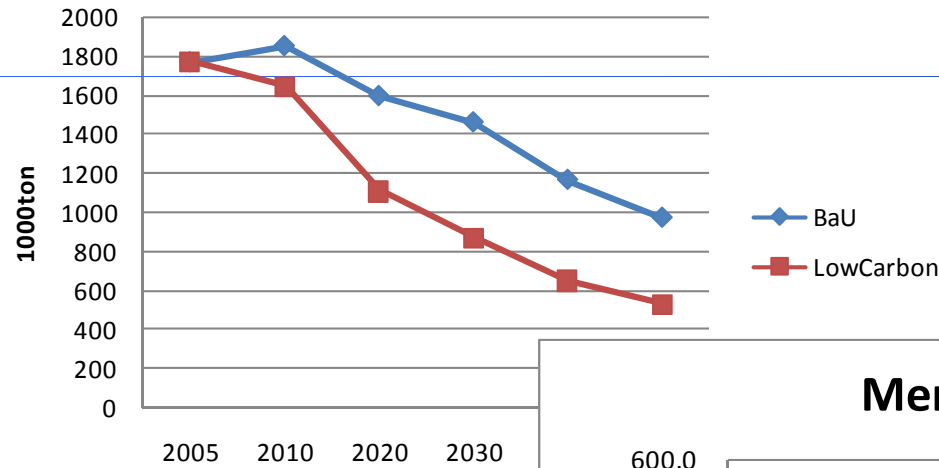
### SO2 Emission



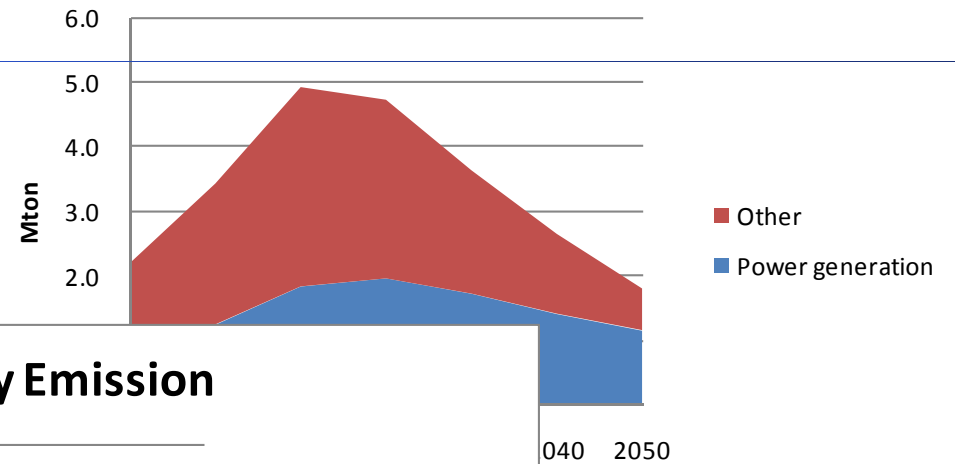
### NOx Emission in China, ELC scenario



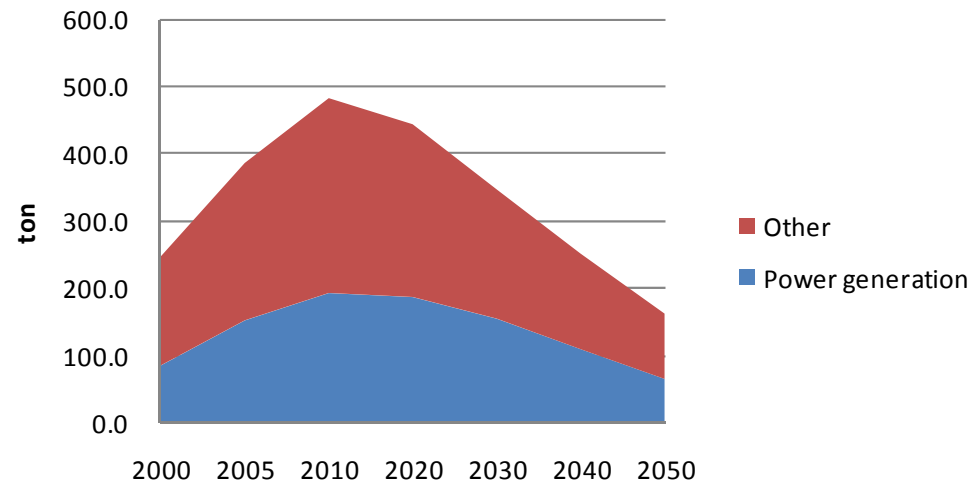
### Black Carbon Emission in China



### PM2.5 Emission



### Mercury Emission



# A Snapshot of Selected China Energy Options Today: Climate and Energy Security Impacts and Tradeoffs in 2025

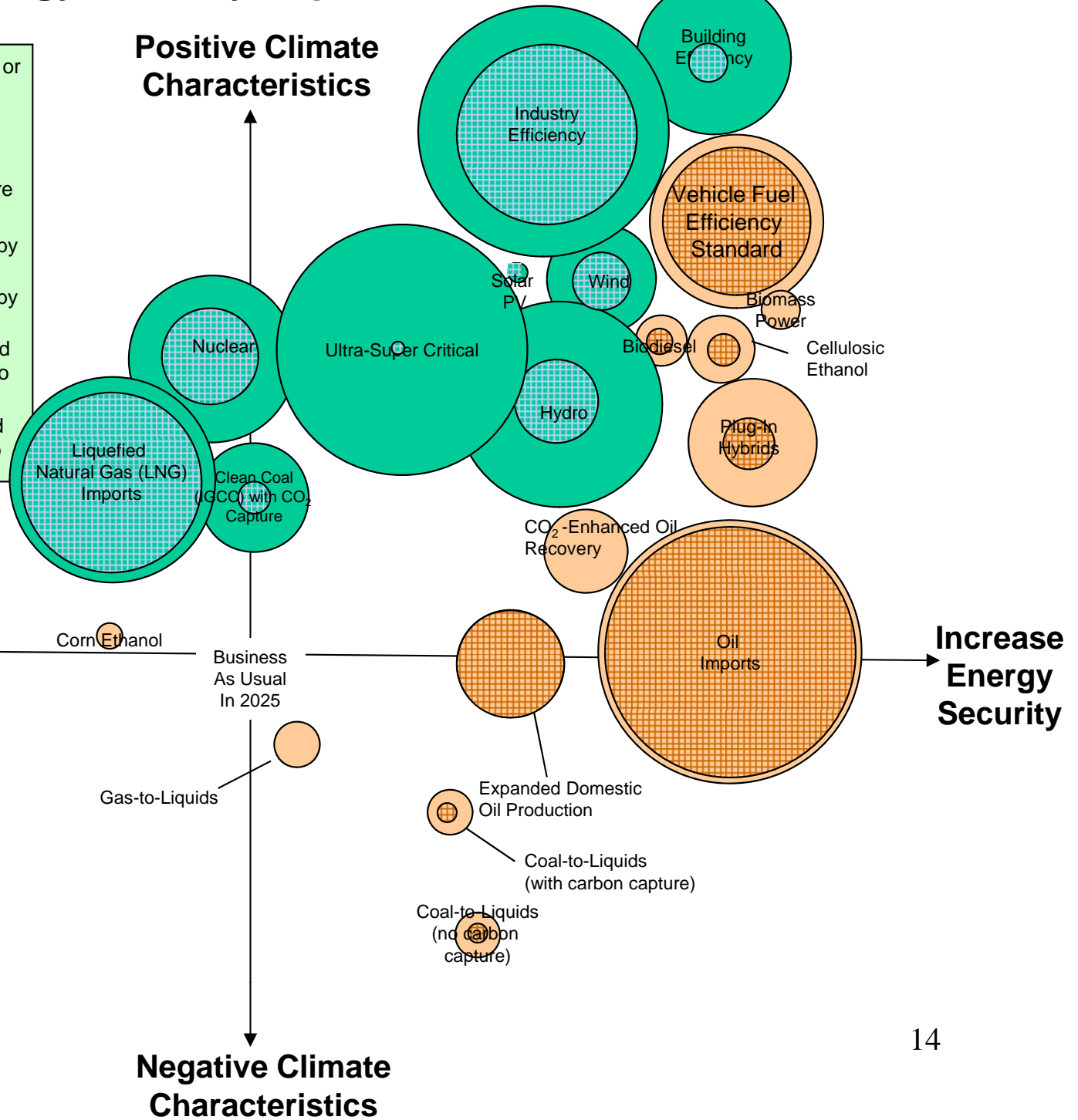
Bubble size corresponds to incremental energy provided or avoided in 2025. The reference point is the "business as usual" mix in 2025. The horizontal axis includes sustainability as well as traditional aspects of sufficiency, reliability, and affordability. The vertical axis illustrates lifecycle greenhouse gas intensity. Bubble placements are based on quantitative analysis and ERI expert judgment.

- Power Sector (this size corresponds to 40 billion kWh) by comparing low energy scenario and BaU
- Power Sector (this size corresponds to 40 billion kWh) by comparing low energy scenario and policy BaU
- Transport Sector (this size corresponds to 200 thousand barrels of oil per day) by comparing low energy scenario and BaU
- Transport Sector (this size corresponds to 200 thousand barrels of oil per day) by comparing policy BaU scenario and BaU

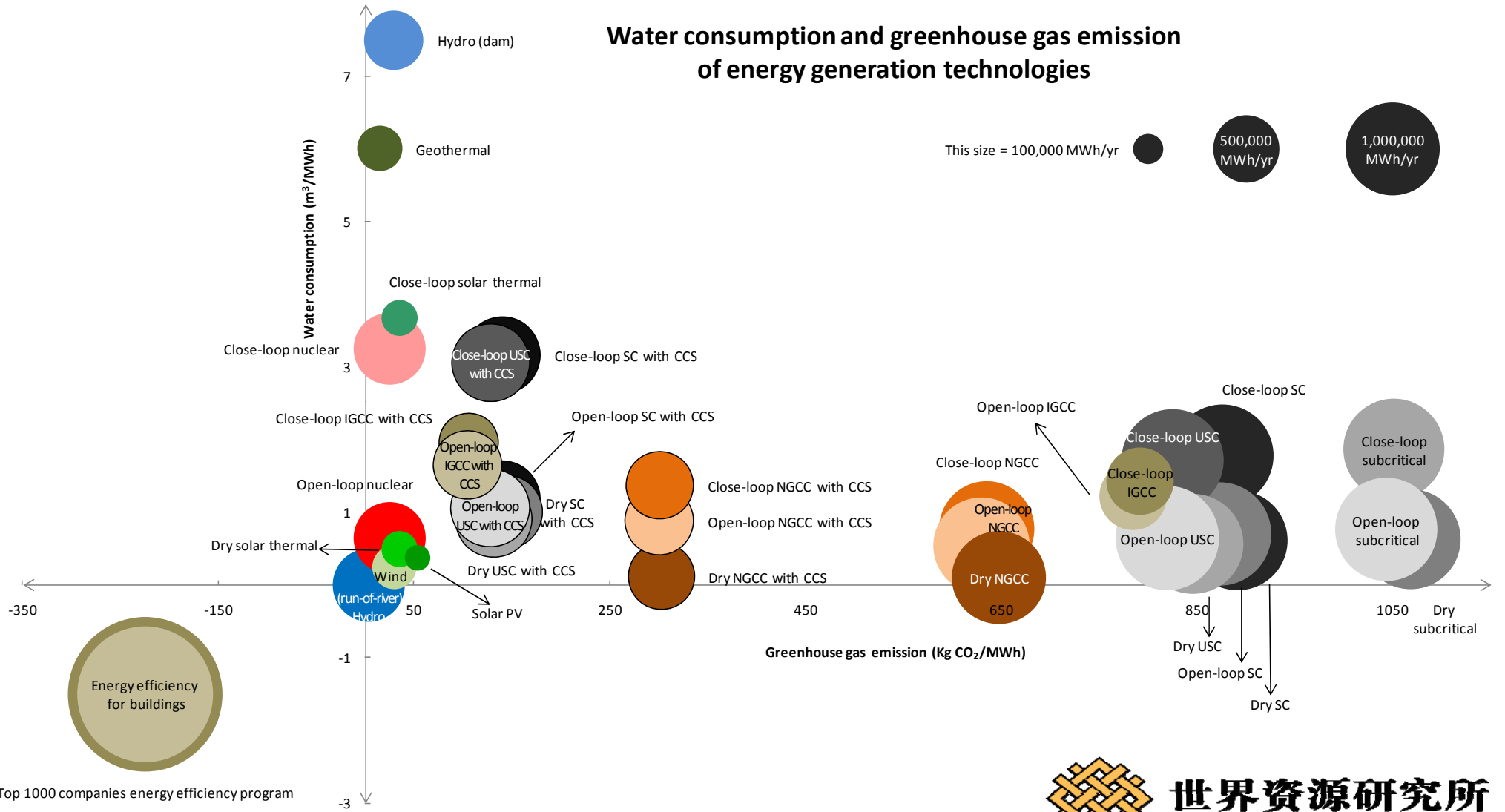
**Reduce Energy Security**

For specific details on the assumptions underlying the options on this chart, go to [www.wri.org/usenergyoptions](http://www.wri.org/usenergyoptions)

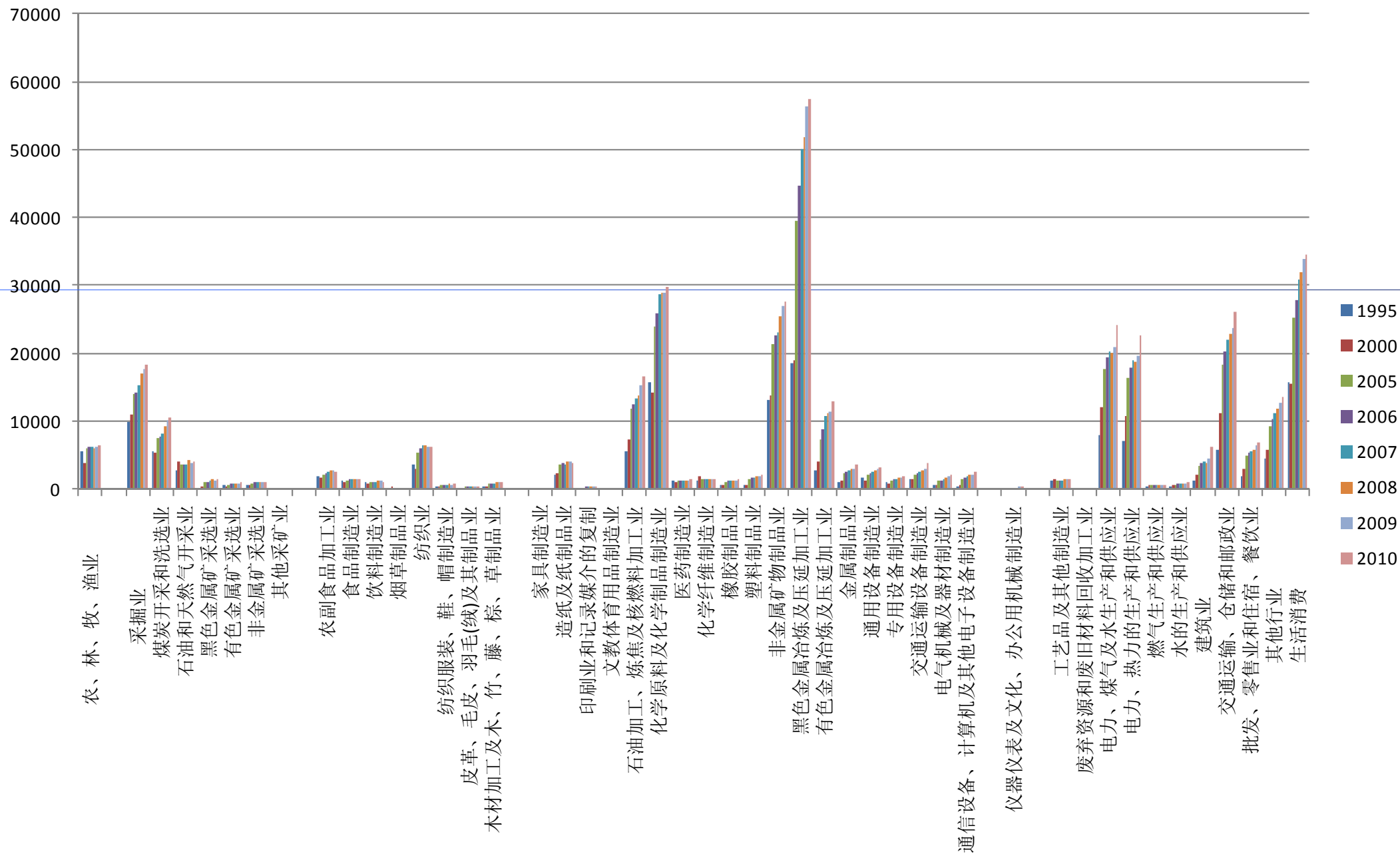
Revised 7/10/2008



# Water consumption and greenhouse gas emission of energy generation technologies

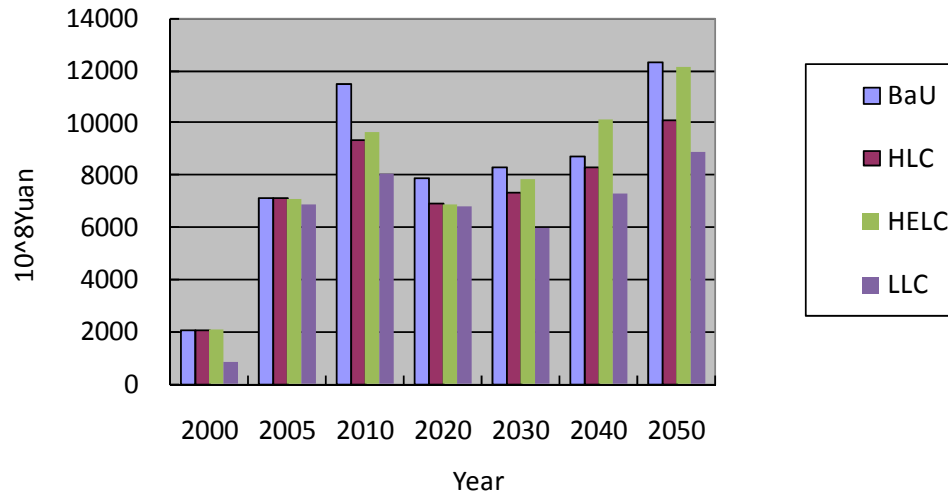


# 分部门能源消费量, Energy demand by sector, 1995-2010

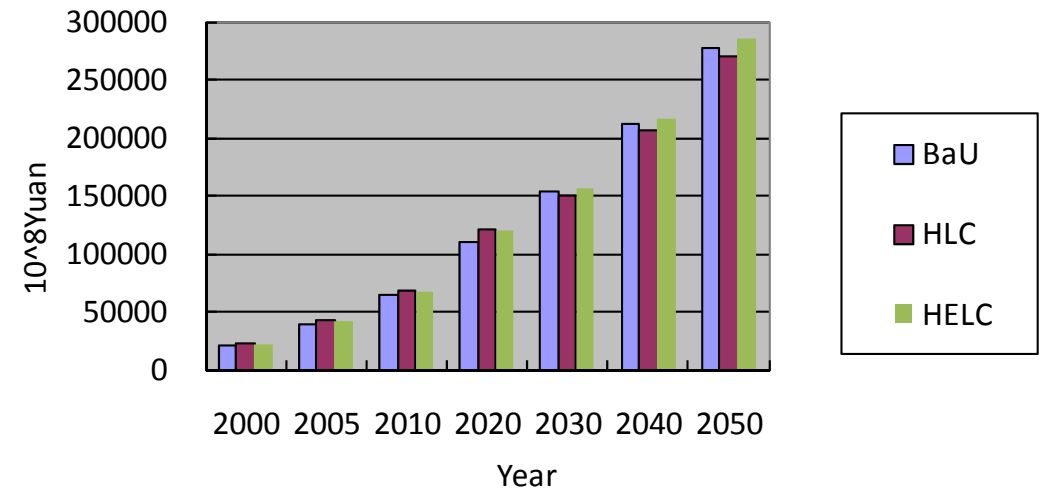




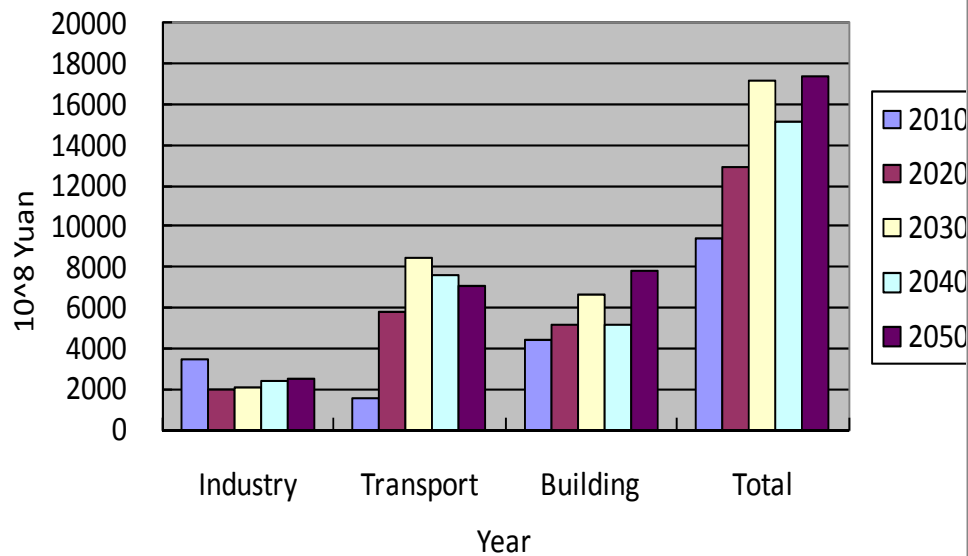
### Investment in Energy Industry in China



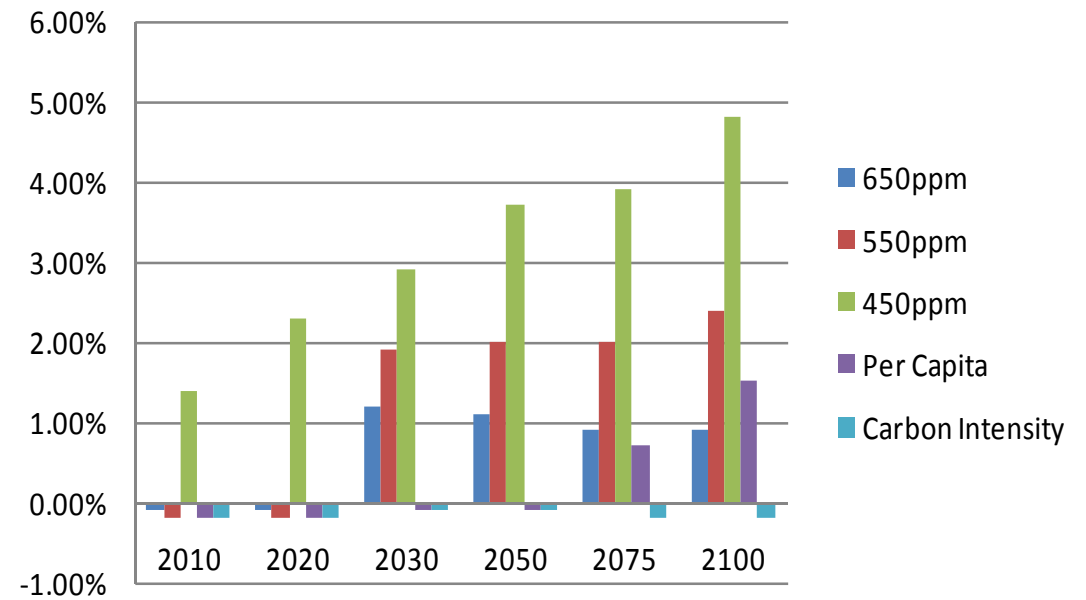
### Energy Expenditures in China



### Additional Investment in end use sectors in ELC



### GDP Loss, %



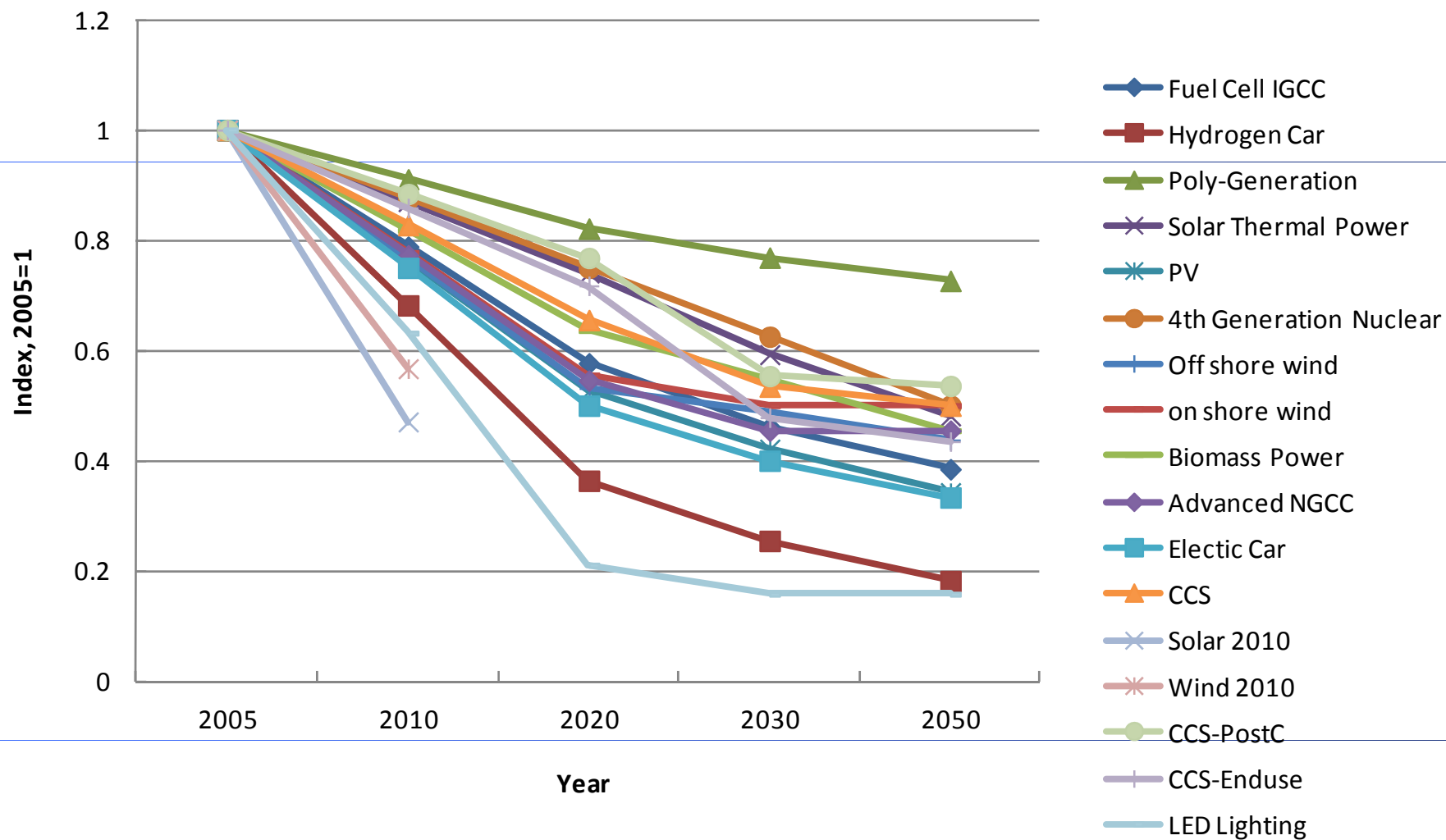
## Good News: Rapid GDP growth could provide strong support

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- By 2015, GDP in China could reach 75 trillion Yuan (in current value)
- Newly added accumulated GDP is 450 Trillion Yuan
- Cumulated GDP is 860 Trillion Yuan
- All the investment need in all modeling study is much small

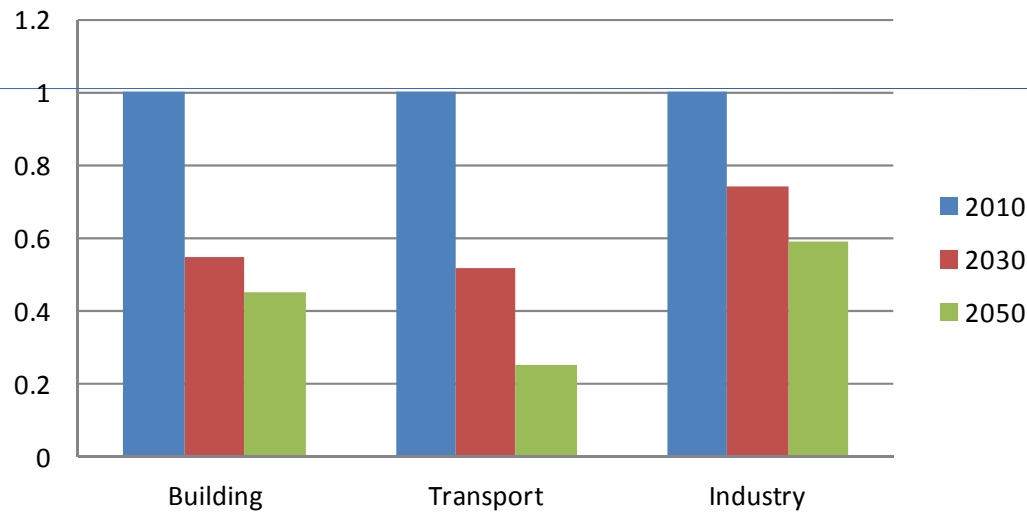
# What is the role of technologies in the mitigation?

## Technology learning curve

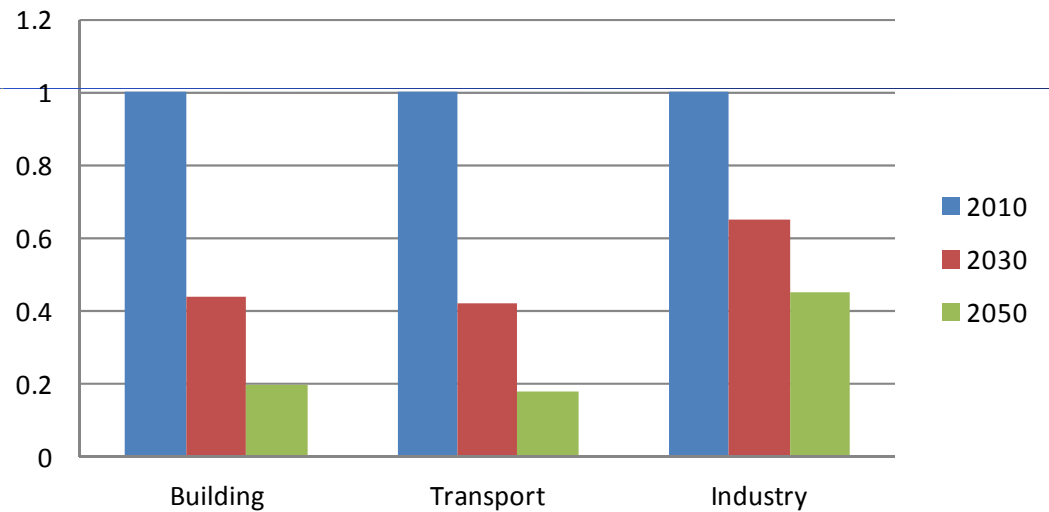


# What is the role of technologies in the mitigation?

## Energy efficiency improvement index



## CO2 emission improvement index





## Renewable Energy

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- Renewable Energy Planning 2006: wind 30GW, Solar 2GW by 2020
- 2009 Energy Bureau: Wind 80WG
- 2010 Energy Planning: Wind 150 GW, Solar 20GW by 2020
- Now: Wind 200GW to 250GW, Solar 50WG
- Based on the conclusion from Chinese Academy for Engineering, grid in China could adopt these renewable energy power generation in short term.

## Natural Gas Scenarios

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- In 2010, Natural Gas use 107.2BCM, while 12.2BCM imported.
- In our low carbon scenario: by 2030, 370BCM
- NEA's planning: 260BCM by 2015