

China's Low Carbon Scenario under global 2 degree target

Toward Policy Making Process

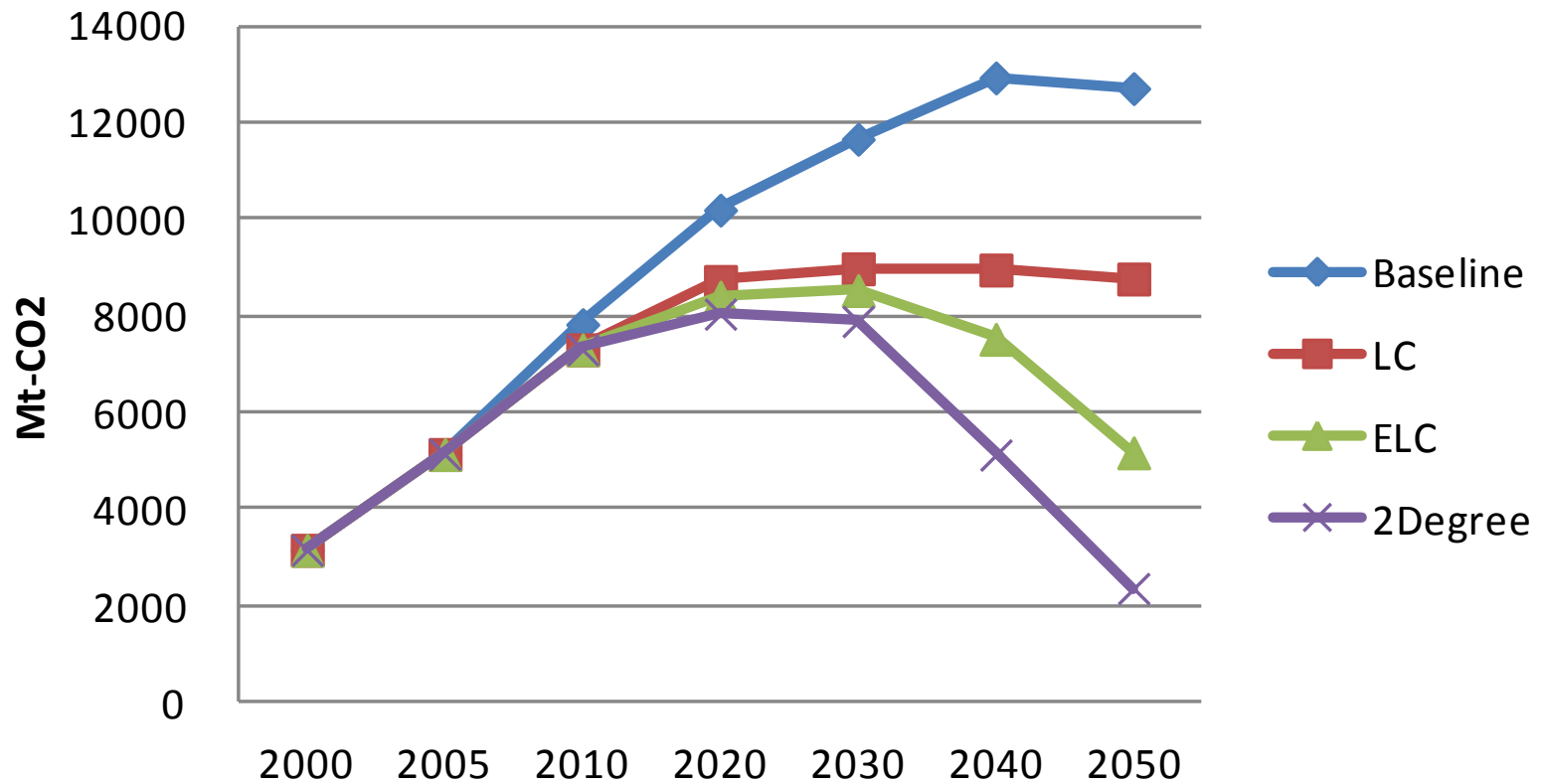
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Energy Research Institute, China

19th AIM International Workshop, Tsukuba, 13-15 Dec. 2012

Transformation: CO2 emission, a rapid change

CO2 Emission in China



What we did in 2013

- Modeling analysis for key factors toward 2 degree target
- National 13th Five Year Plan: key indicators on energy and CO2
- Energy and CO2 policy roadmap in Building: MOHURD study
- Energy and CO2 policy roadmap for Transport: Ministry of Transport
- Carbon Tax regulation design
- Roadmap for CCS in China
- Up-Grading of Chinese Economy: Case study for Yangtze River
- Cap on coal modeling study
- EST cap setting for Tianjin
- EST design for 7 pilot cities
- Energy Plan for Gui Yang city
- IPCC things
- Scenario for China, US, Japan, EU

What's the future of China's low carbon policy: key factors

- 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
- Climate change target: China is key part of that
- Can we pay for it? Cost and benefit

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

太阳热利用

普及率: 20-60%
(目前 6%)

能源检测系统
(家用电器)

高效照明
【如 LED照明】

减少50%照明需求,
普及率 100%

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%

燃料电池

普及率 0-20%

热泵采暖

COP=5
普及率 30-70%

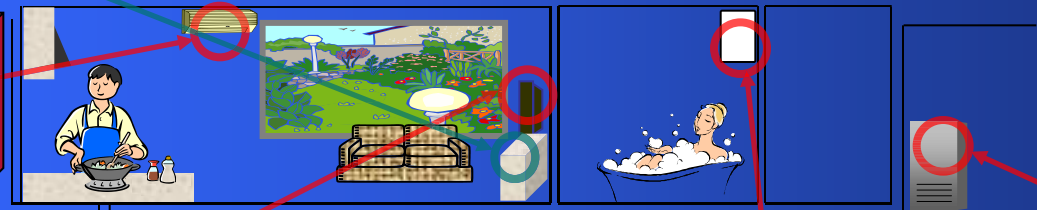
待机电源耗电

降低1/3,
普及率100%

高效家用电器

减少能源需求, 支持舒适和安全生活方式

向公众提供经济和环境
信息促使大家成为
低碳消费



全部商品分类

首页

服装城

迷你挑

团购

夺宝岛

在线游戏

办中银京东卡

全部结果 > “平板电视机”

所有类目

相关搜索：平板电视 | 电视机 | 电视 | 液晶电视 | 平板电脑 | 冰箱

大家电 (313)

“平板电视机” 找到321件相关商品

平板电视 (277)



网购上京东 省钱又放心

荣耀四核

热门搜索：新一代APU 跑

全部商品分类

首页

服装城

迷你挑

全部结果 > “LED平板电视机”

所有类目

“LED平板电视机” 找到253件相关商品

大家电 (253)

平板电视 (248)

家电配件 (5)

品牌：京东方 (BOE)

夏普 (sharp)

长虹 (CHANGHONG)

价格：0-2199 2200-3799 3800-

品类：LED背光电视 LCD背光电视

推广商品



惊爆价

乐华 (ROWA) LED23C310A 23英寸 LED液晶电视 USB+HDMI 液晶显示 ¥999.00



惊爆价



节省250元

热卖

排序：相关性 销量 价格 评论数

库存：全国 仅显示有货 商品类型：



网购上京东 省钱又放心

灯泡

热门搜索：新一代APU

全部商品分类

首页

服装城

迷你挑

全部结果 > “灯泡”

所有类目

相关搜索：节能灯泡 | 节能灯 | 灯 | led

灯具 (691)

节能灯 (143)

LED灯 (365)

装饰灯 (15)

台灯 (10)

氛围照明 (13)

吸顶灯 (76)

应急灯/手电 (2)

五金电器 (2)

吊灯 (58)

落地灯 (7)

五金家装 (40)

改装配件 (84)

“灯泡” 找到1068件相关商品

品牌：飞利浦 (Philips)

麦辉 (MAWUI)

蒙特丽

价格：0-69 70-199 200-499

排序：相关性 销量 价格 评论数

库存：全国 仅显示有货 商品类型：

+ 礼品

+ 运动器械

显示全部分类 ▾

推广商品



爆款

¥6.9
参考价: ¥55.0

60000人收藏, 70000人购买,
80000人安装!

¥6.90



买五送一

满五送一 亮韵美LED灯泡e14尖泡蜡



买五送一



亮韵美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



3W

云科技 启照明



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



¥6.9
参考价: ¥55.0



V瓦特沃LED灯泡球泡E27大螺口LED光源 3
W 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



限量
1000套



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

★★★★★ 已有1276人评价



尚仕达
SUNSHINE LED
航天铝制散热器 LED
3W 正白 E27球泡

劲爆
特价



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

¥5.70 直降

★★★★★ 已有400人评价



全民
百货



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

★★★★★ 已有1071人评价



全民
百货



佛山照明 LED灯泡 7W超炫银E27暖白光
球泡 2支装

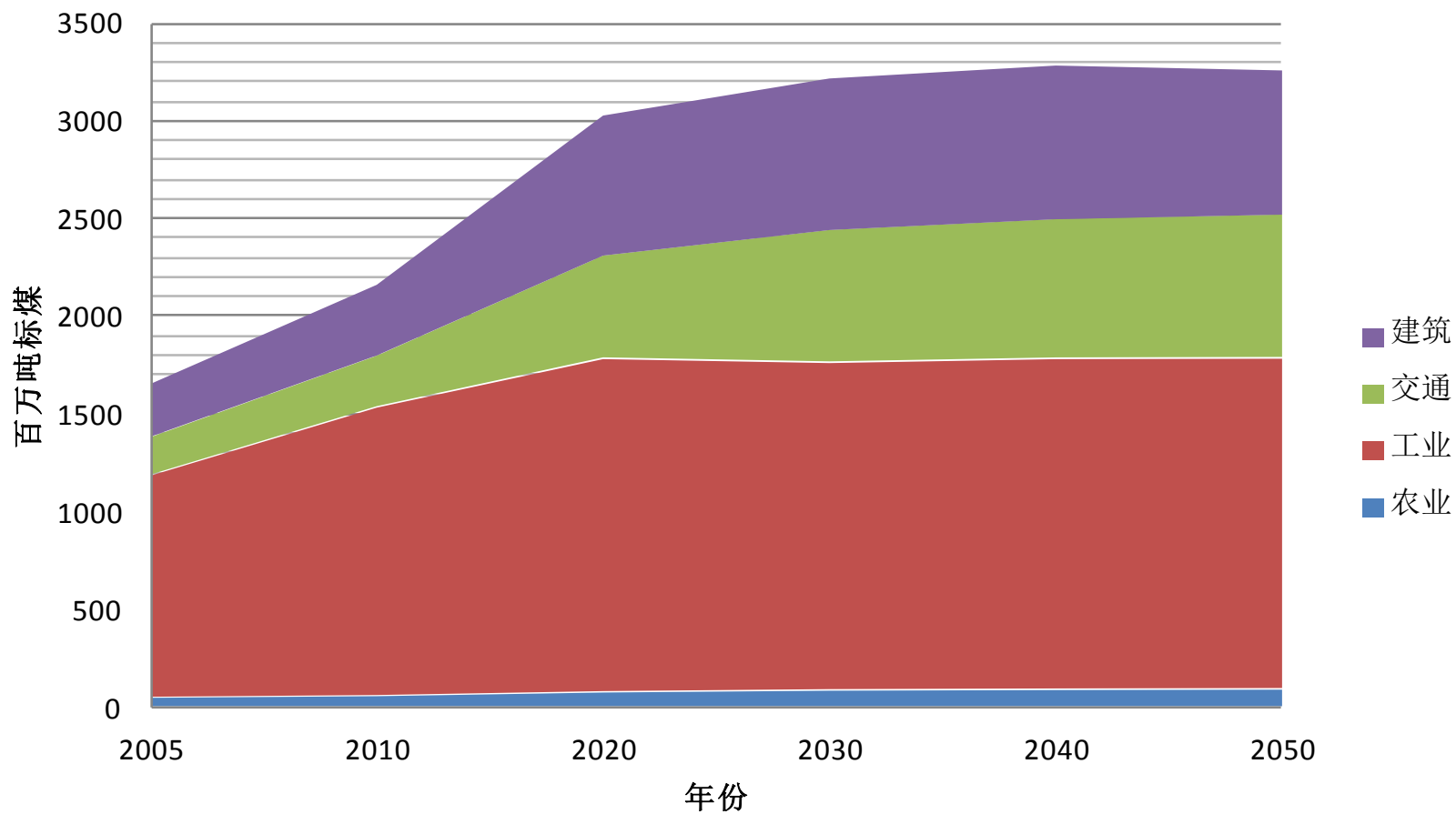
¥76.00 直降

★★★★★ 已有450人评价

↑ 返回顶部

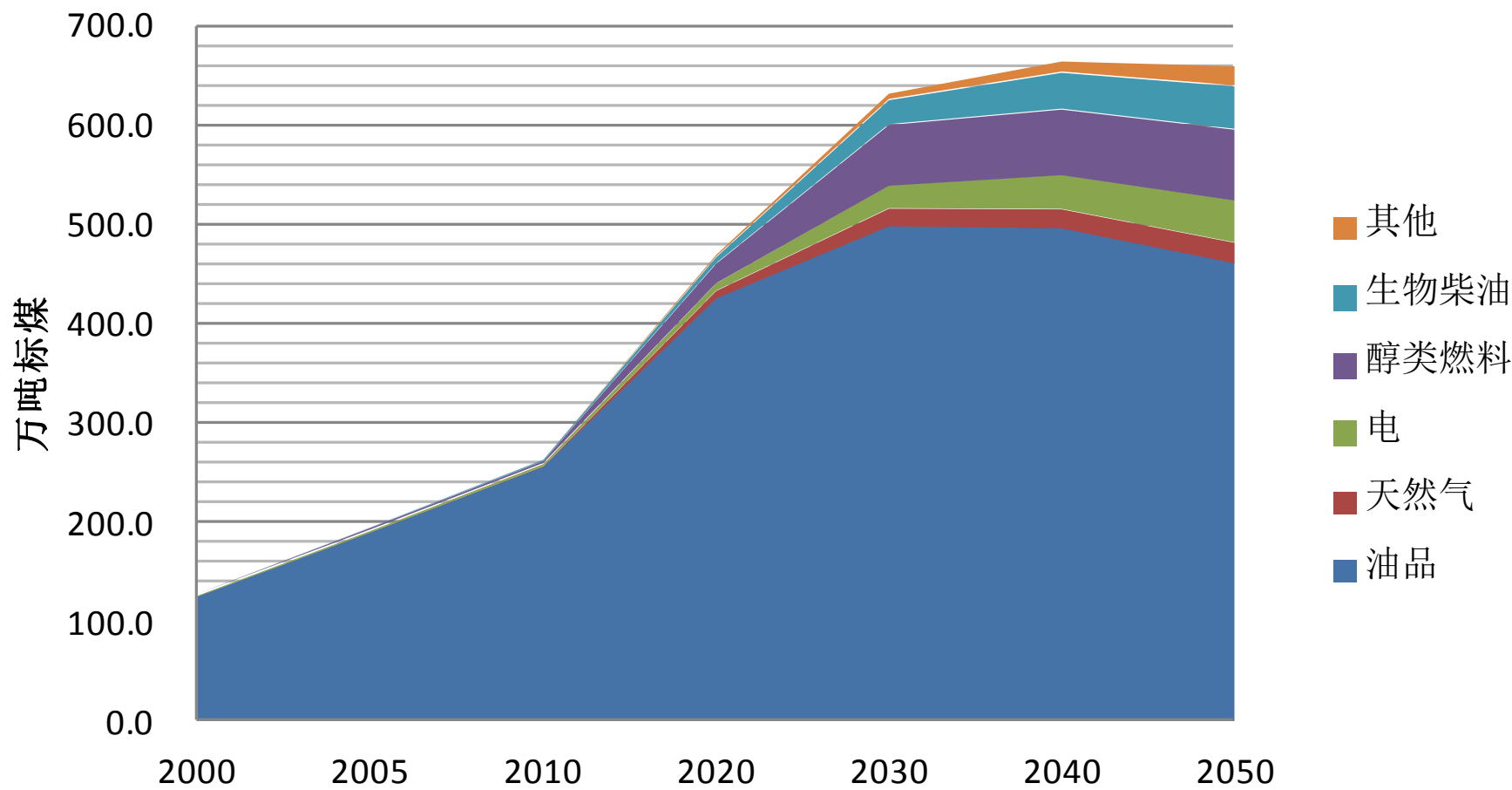
Final energy use by sectors

分部门终端能源需求量，当量法



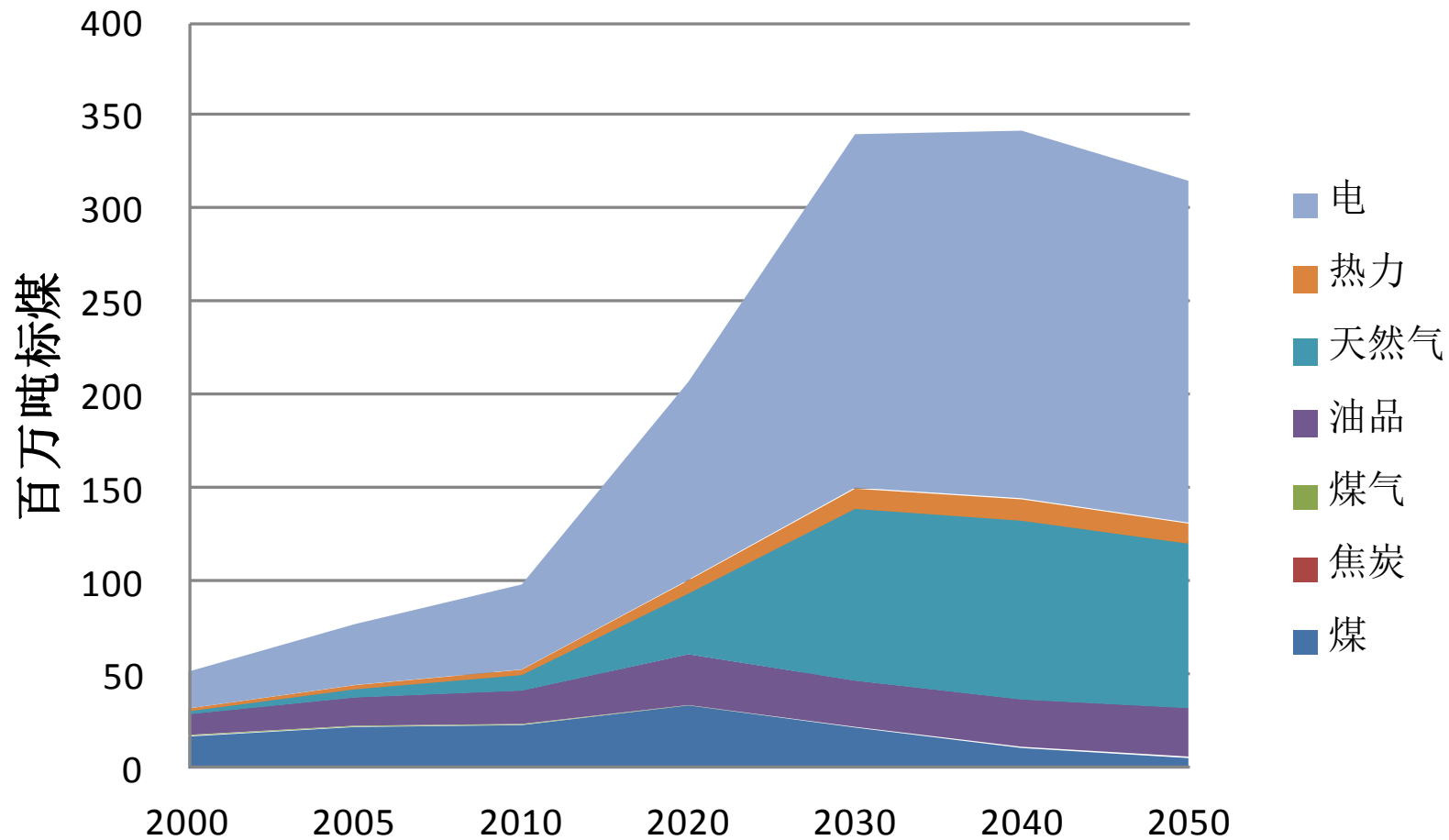
Transport energy demand

低碳交通能源需求



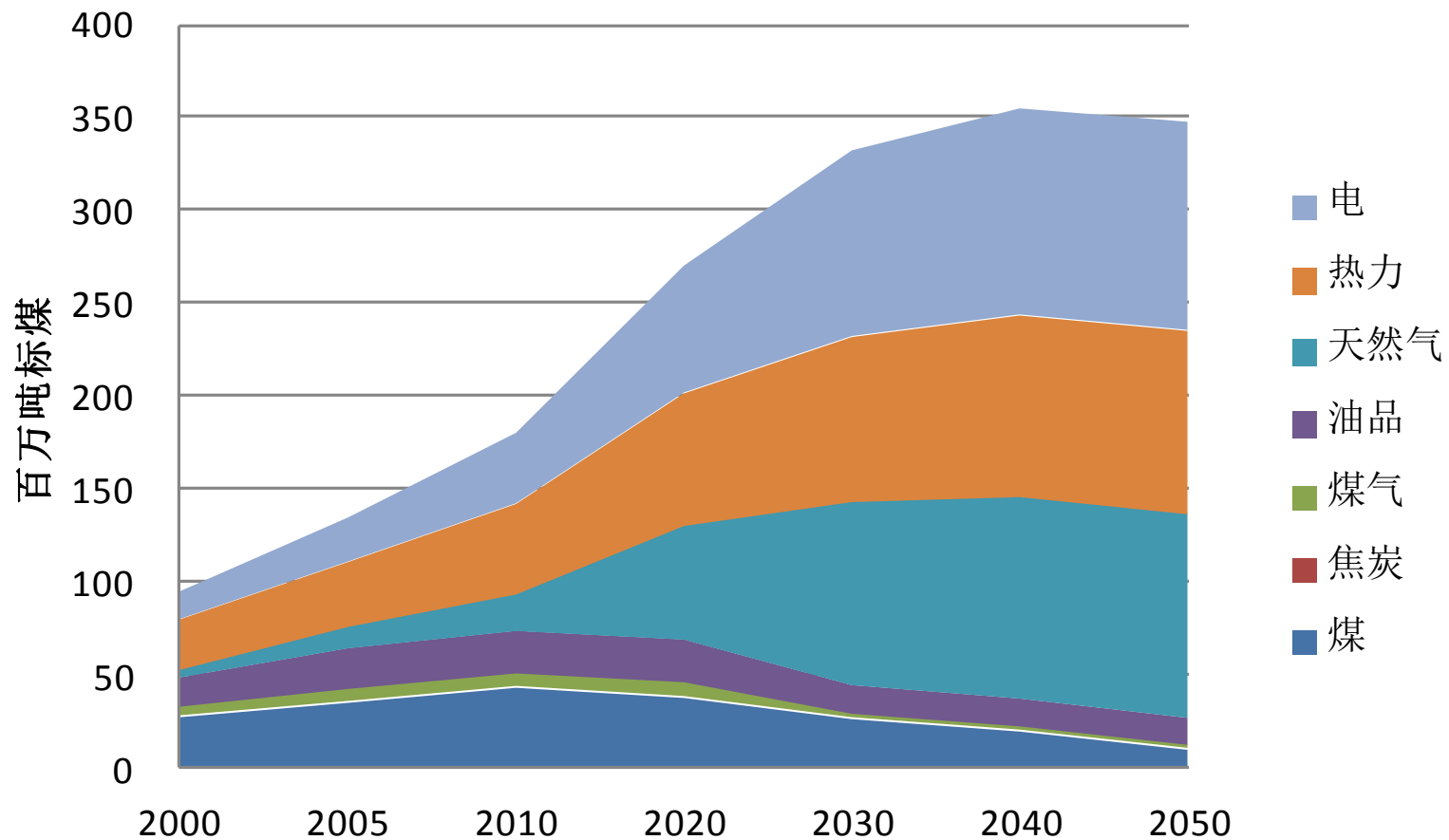
Energy demand in tertiary

服务业能源需求量



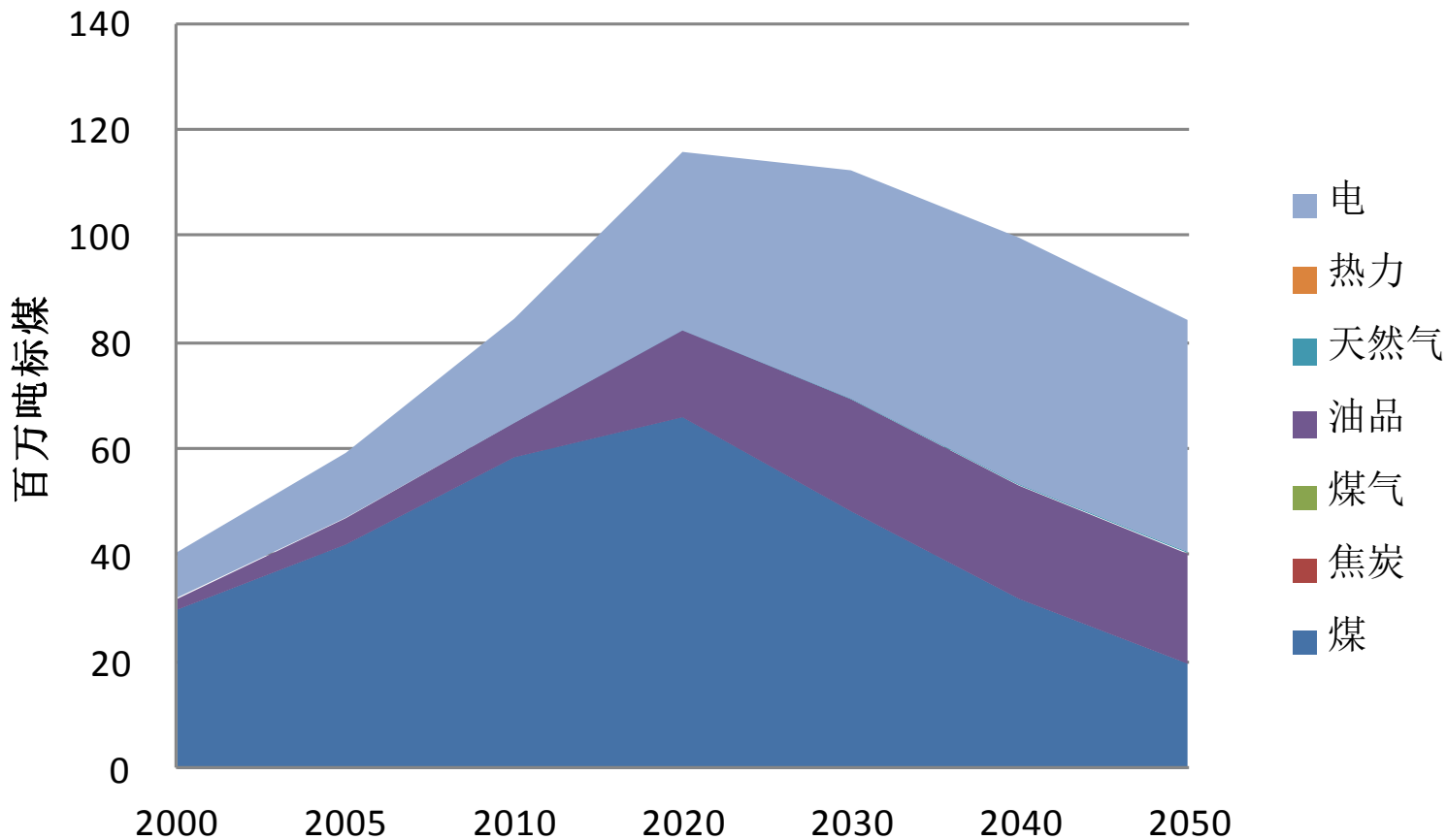
Urban household Energy demand

城市居民能源需求量



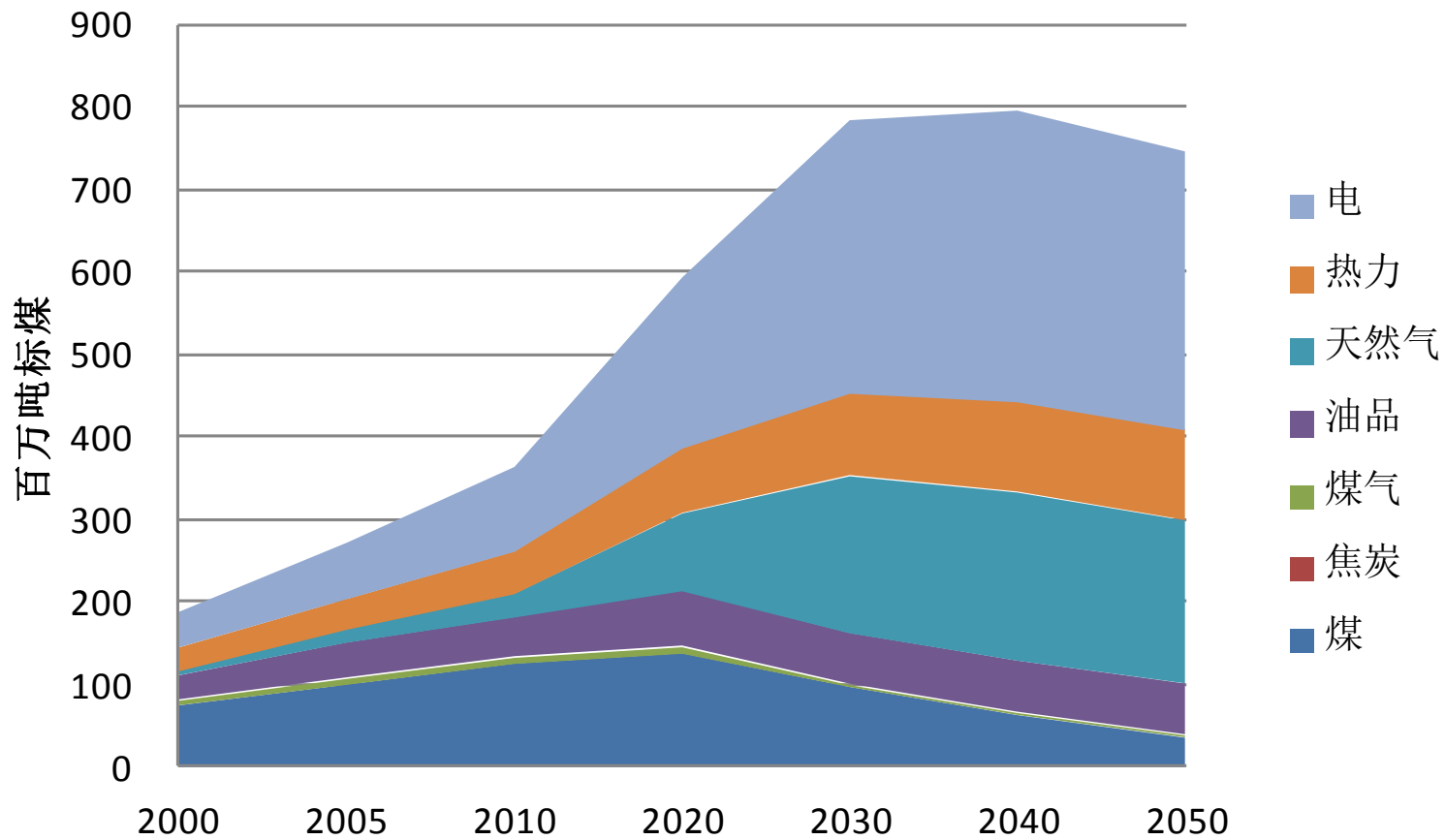
Rural household Energy demand

农村居民能源需求量

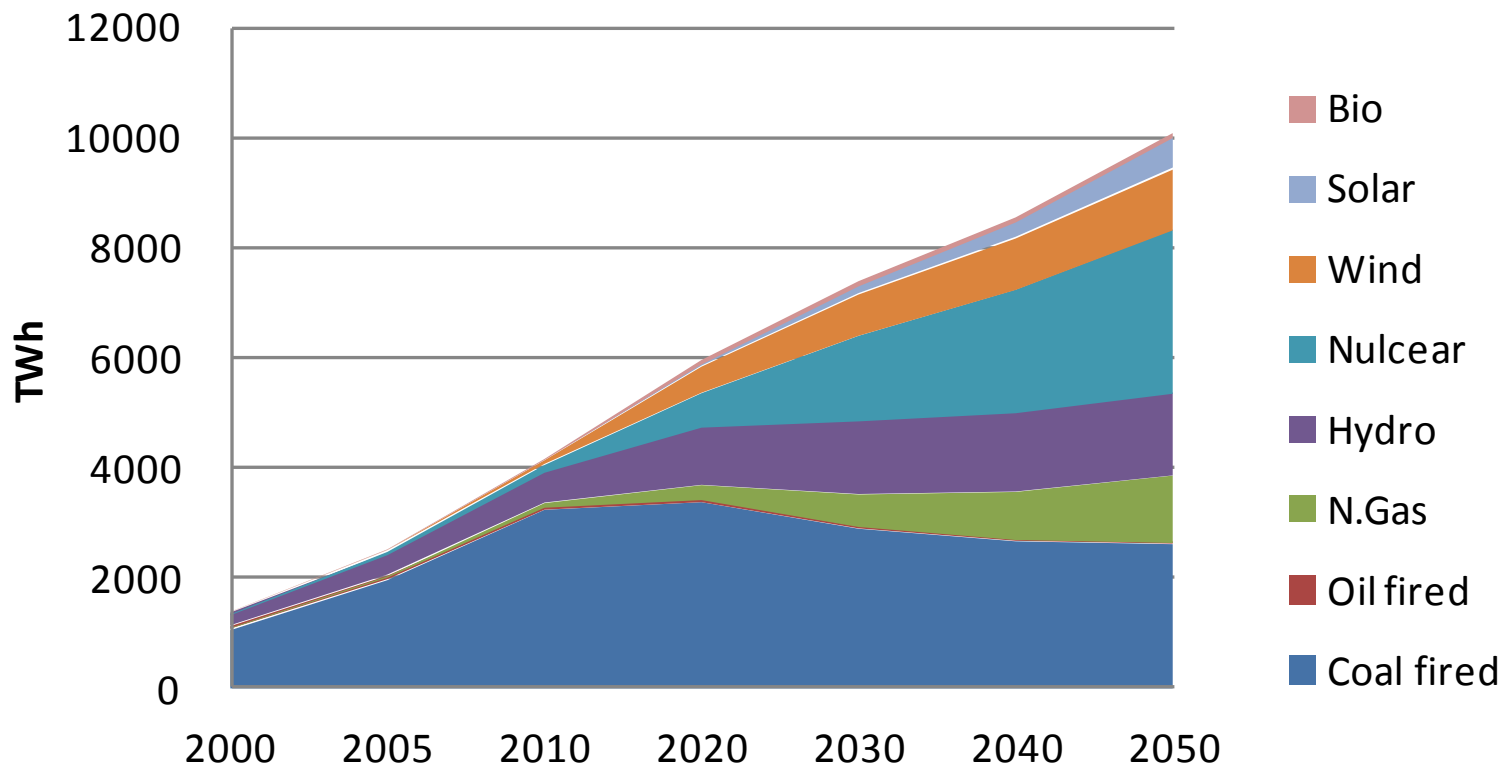


Energy demand in building

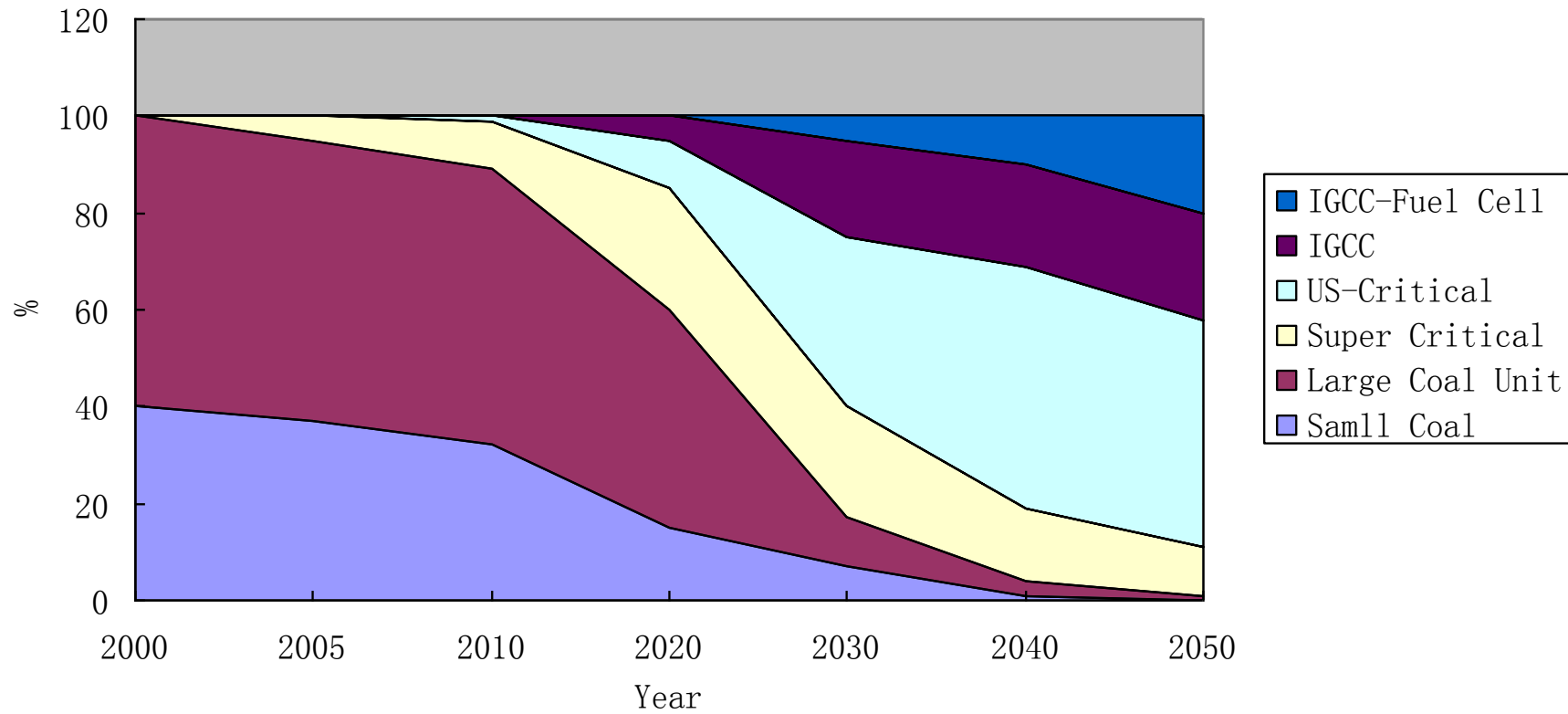
建筑能源需求量



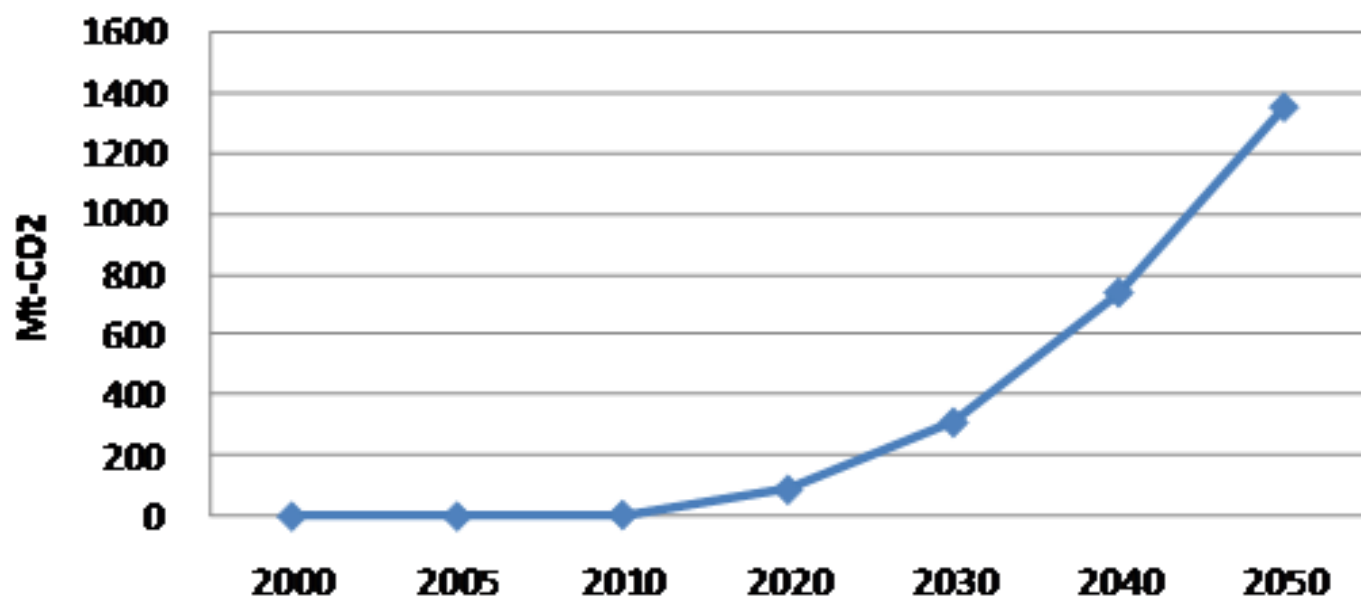
Power Generation



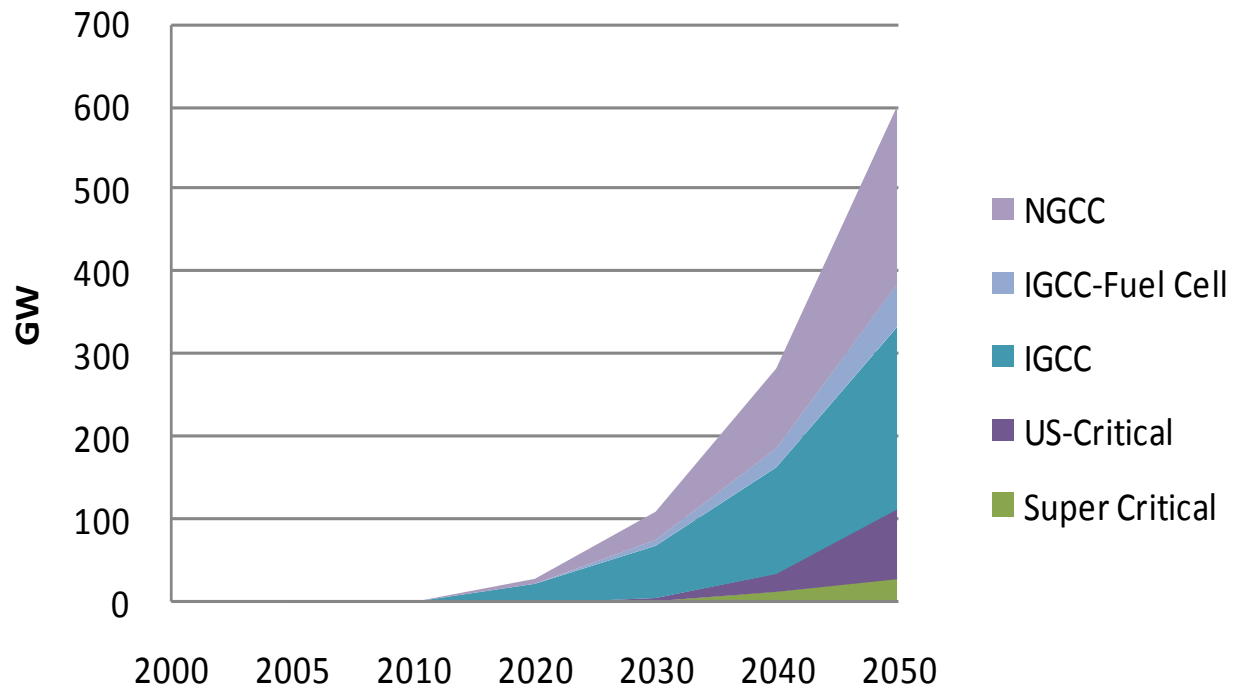
CCS future



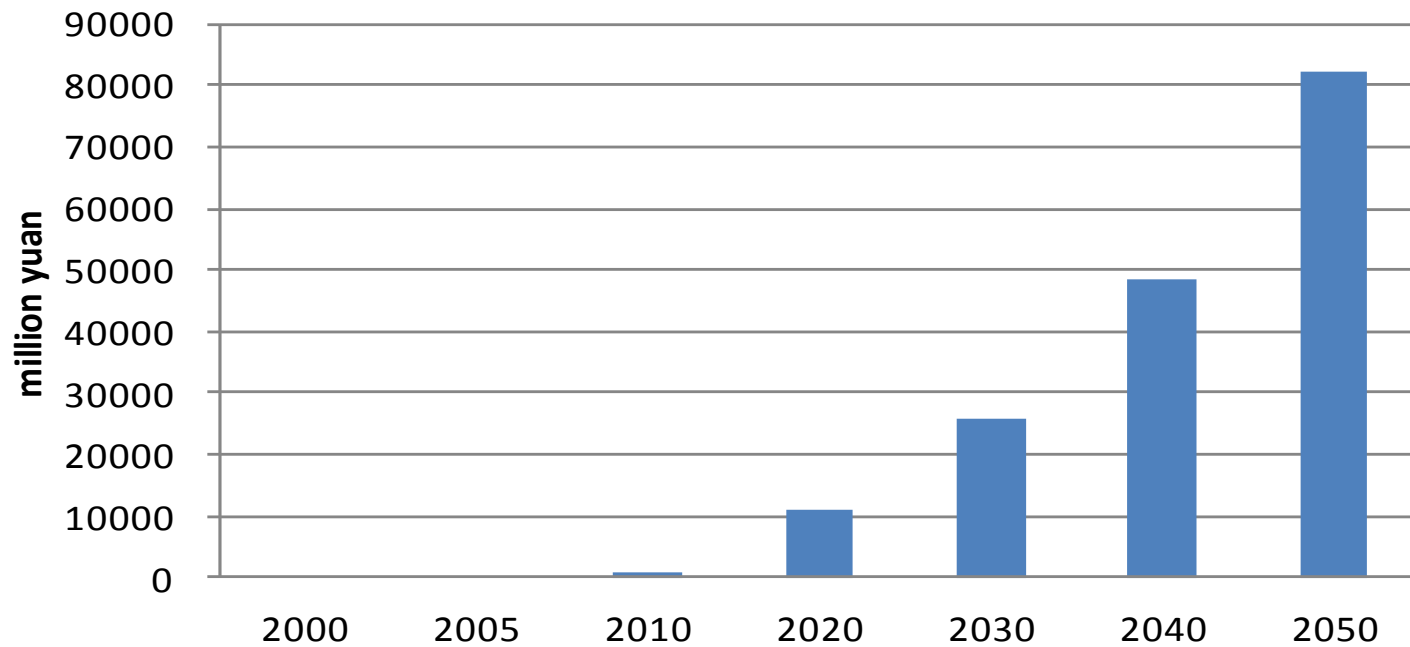
CO2 Emission Reduction from CCS in power generation



Power generation capacity with CCS

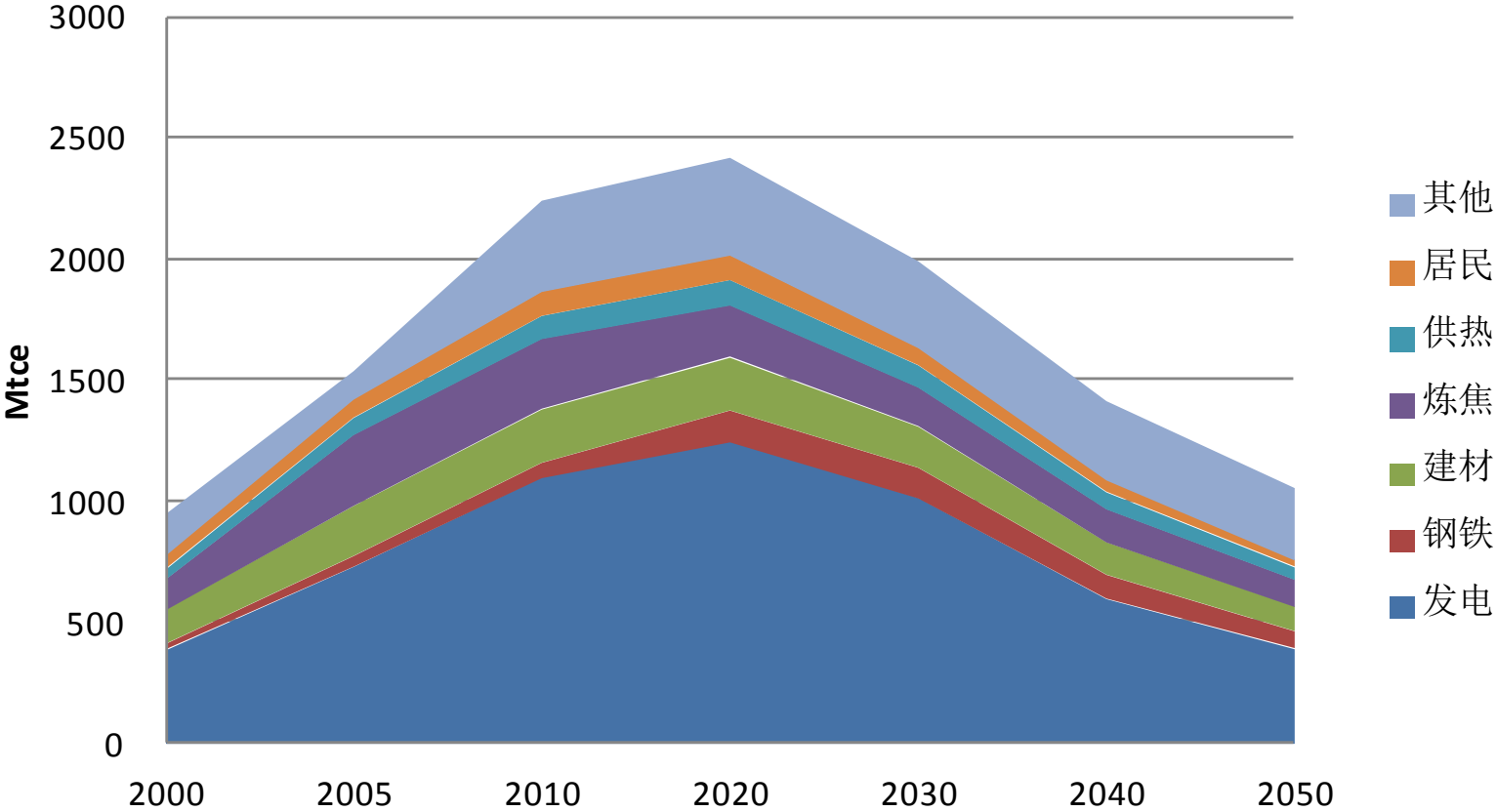


Annual Investment for CCS in China



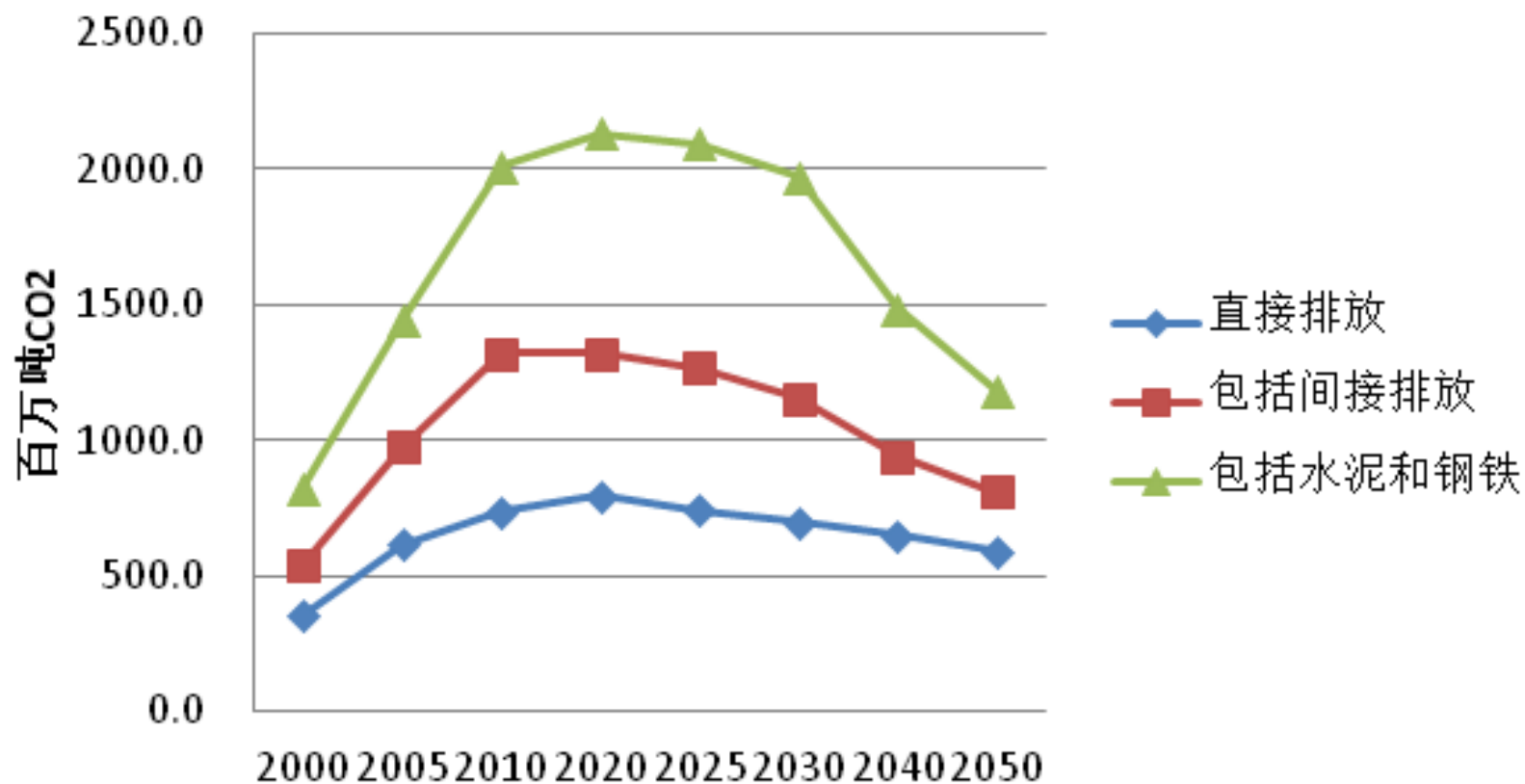
Coal use will reach peak by 2015

煤炭消费量，2度情景

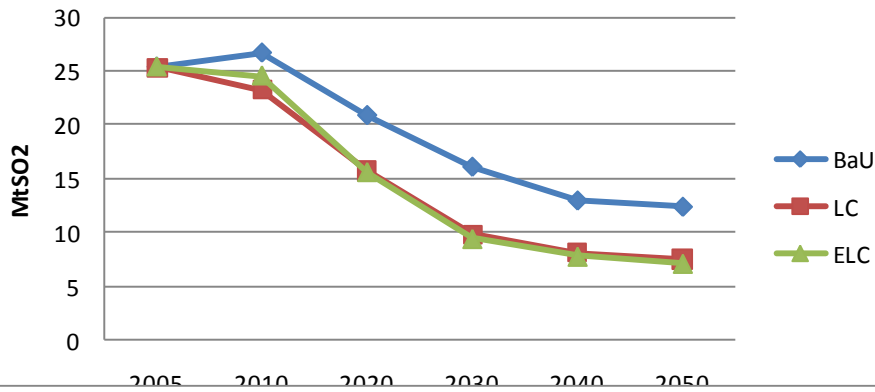


Industry CO2 emission will reach peak before 2020

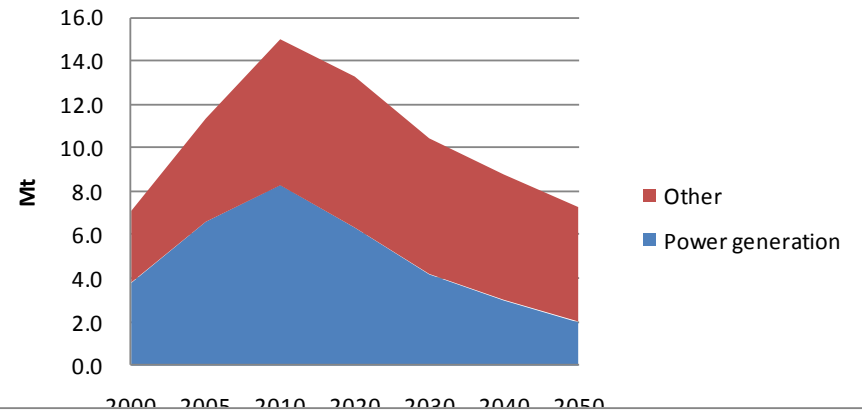
工业CO2排放量



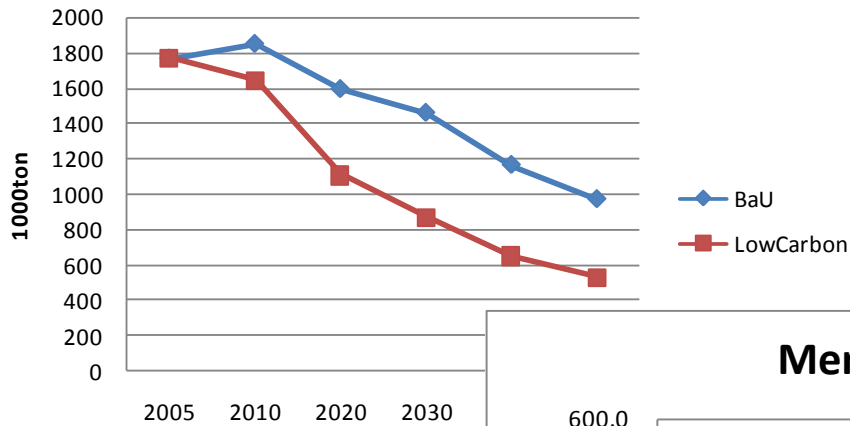
SO2 Emission



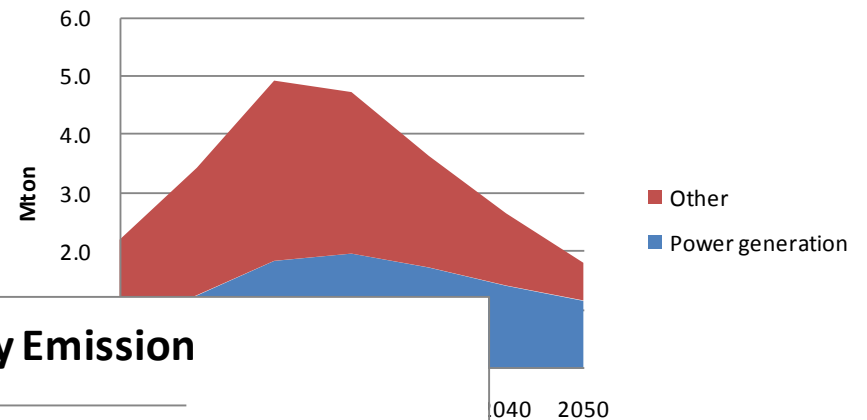
NOx Emission in China, ELC scenario



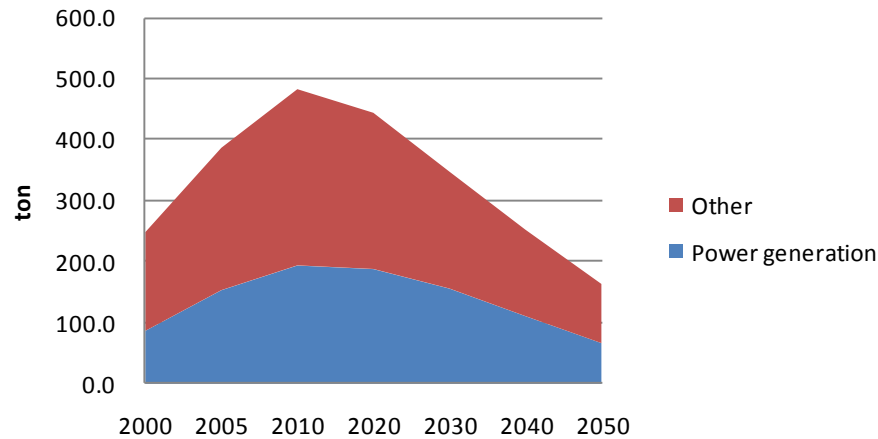
Black Carbon Emission in China



PM2.5 Emission



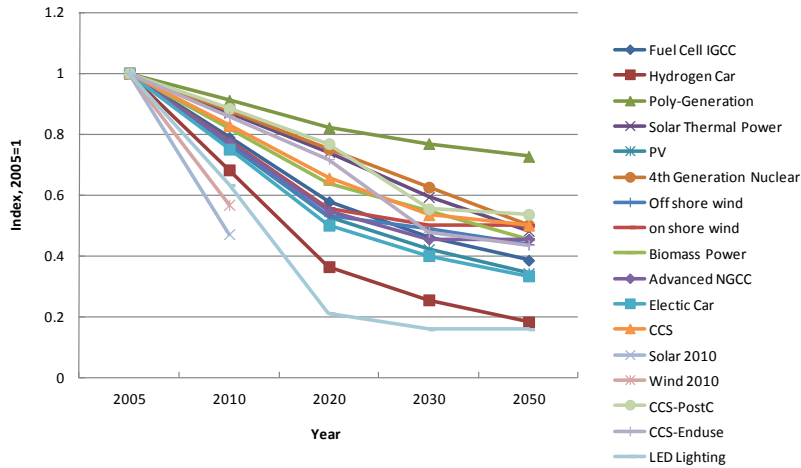
Mercury Emission



Can we do it: Peak before 2025?

- Economic structure will change soon, pushing by policy or wait until market decide(this will cause big problem for low capacity utilization)
- Technology is ready
- Economic ability is getting much stronger to pay for low carbon development
- Global target need us move faster
- Low carbon development is getting to be a main stream in China

Technology learning curve



荣威E50的长/宽/高分别为3569/1551/1540mm, 其定位为A00级紧凑型车。



Price: US\$38000

Subsidy: US\$15000(Shanghai), no need to apply number plate(cost US\$10000)

US\$18000(Beijing), no need to apply number plate(By Oct. 2012, 1.1 million people apply for 20000number plates per month),

By 2020, Wind 200GW to 250GW, Solar 50WG

Renewable Energy

- 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.

Renewable Energy

- 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
- 2013, the 12th Five Year Plan: 20GW of solar PV by 2015, 150GW wind
- February 2013, 35GW PV by 2015

- Now: Wind 200GW to 300GW, Solar 50WG to 120 GW
- Based on the conclusion from Chinese Academy for Engineering, grid in China could adopt these renewable energy power generation in short term.
- By Nov.2013, the plan on renewable energy development could be revised again, 43GW for solar.

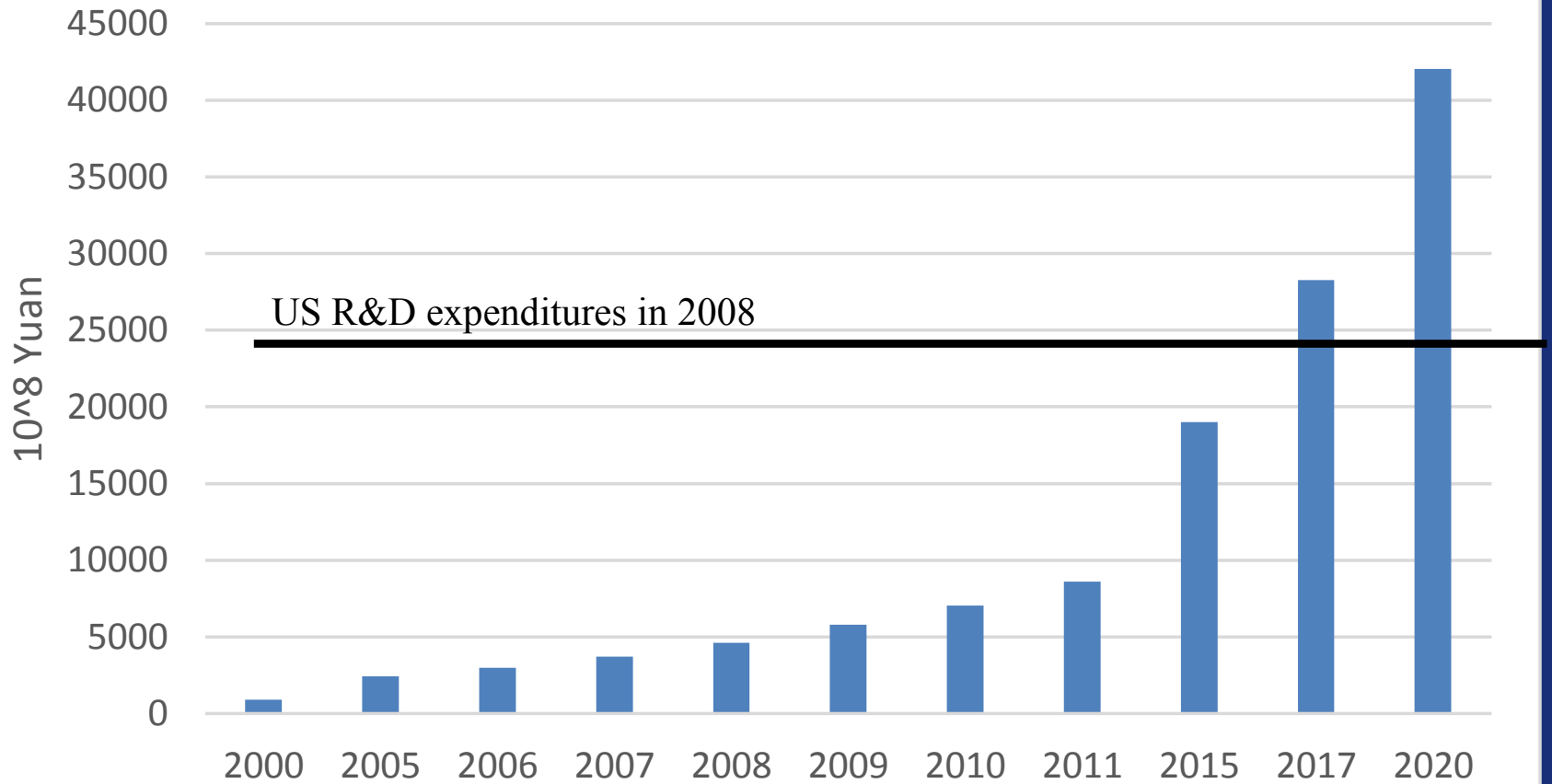
Natural Gas Scenarios

- In 2010, Natural Gas use 107.2BCM, while 12.2BCM imported.
- In our low carbon scenario: by 2030, 370BCM
- NEA's planning: 260BCM by 2015/230BCM

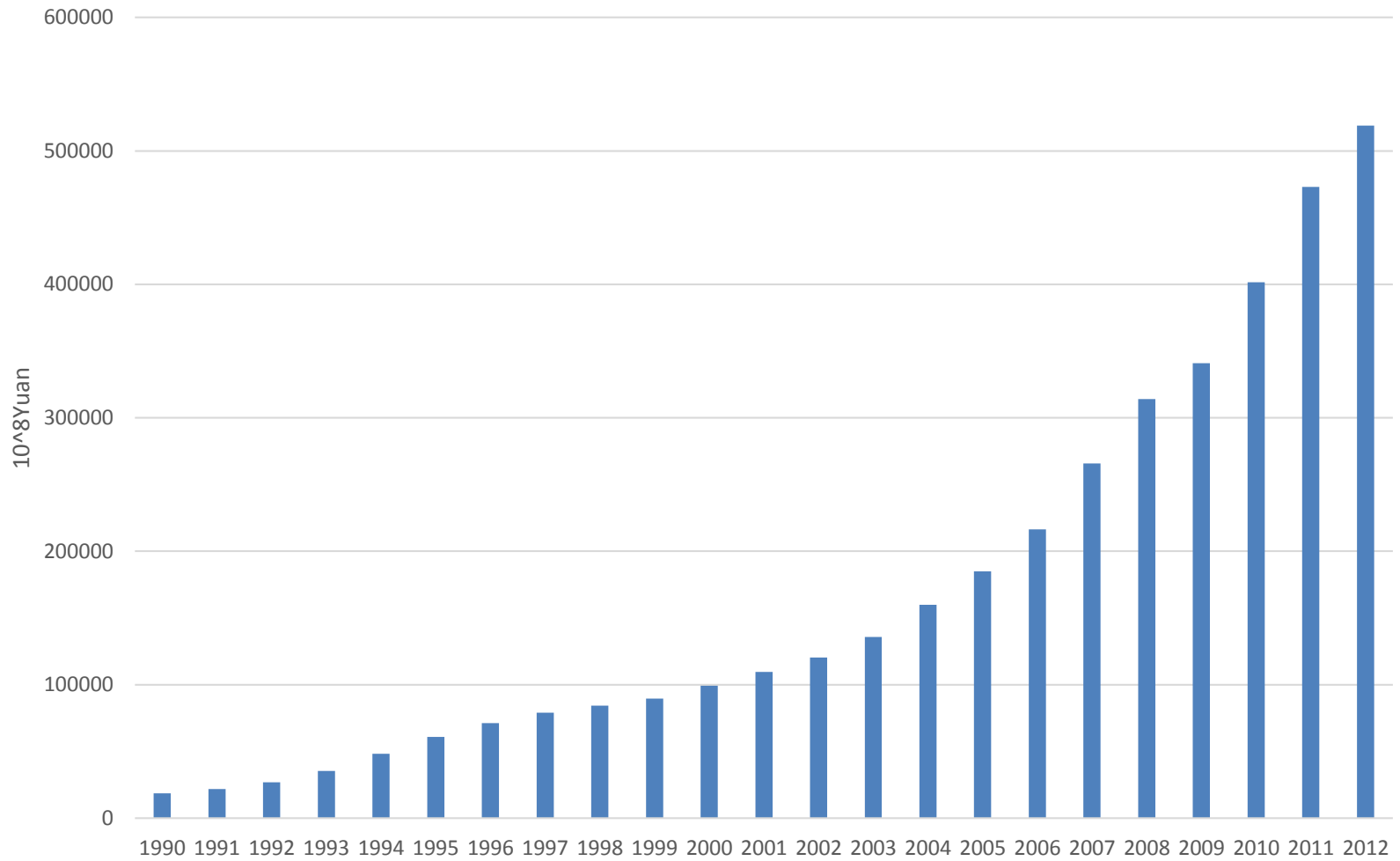
The New Five Year Plan on Air Pollution Control

- From 2013 to 2017
- Target: 30% improvement of air pollution
- A package of policies
- In which: reducing coal use in key areas including Beijing-Tianjin-Hebei region, Yangtze Delta Regions, Pearl River Delta Region
- Clean oil supply for vehicle, upgrade emission standard and oil quality
- Regulation on diffusion on high efficiency cars

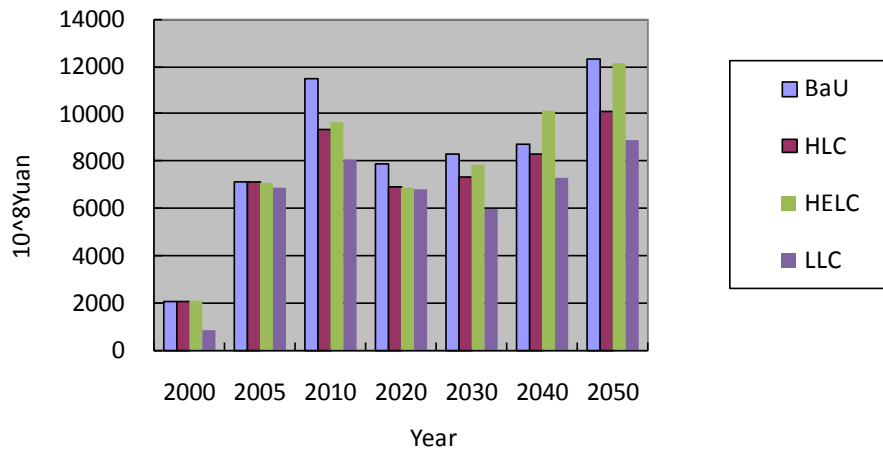
R&D Expenditures in China



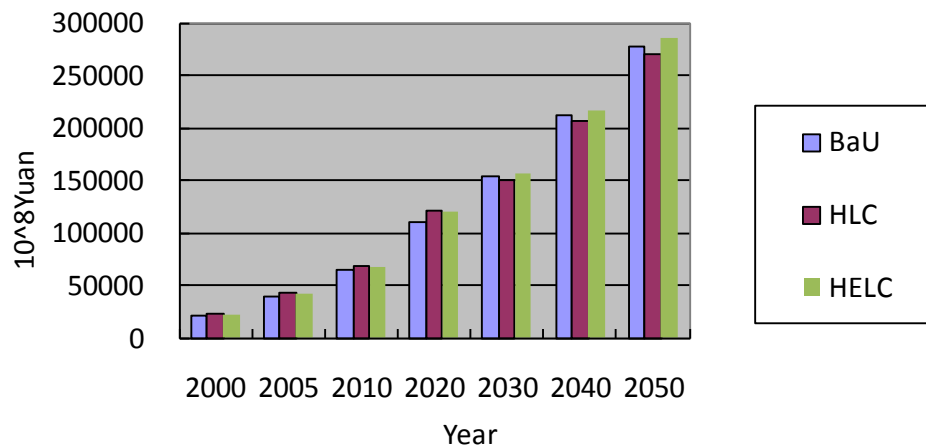
GDP in China, current price



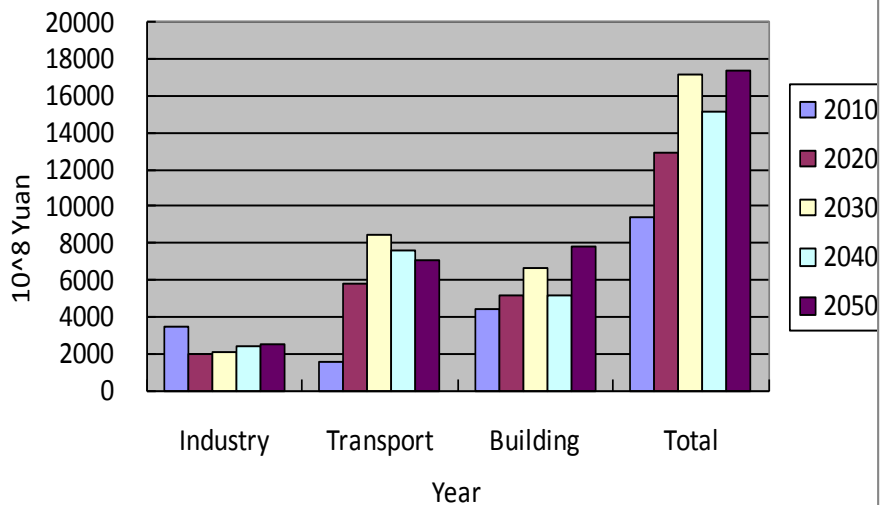
Investment in Energy Industry in China



Energy Expenditures in China



Additional Investment in end use sectors in ELC



GDP Loss, %

