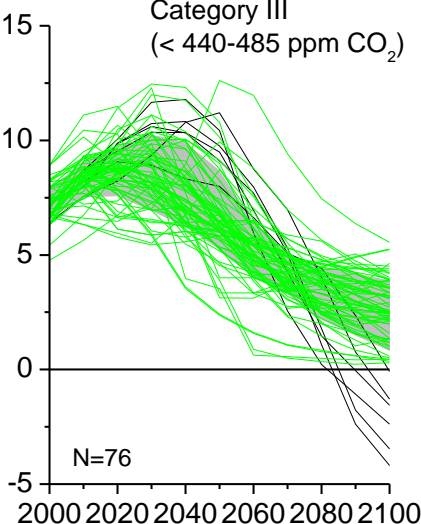
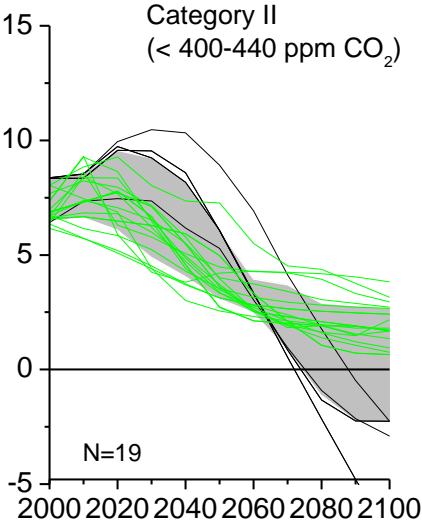
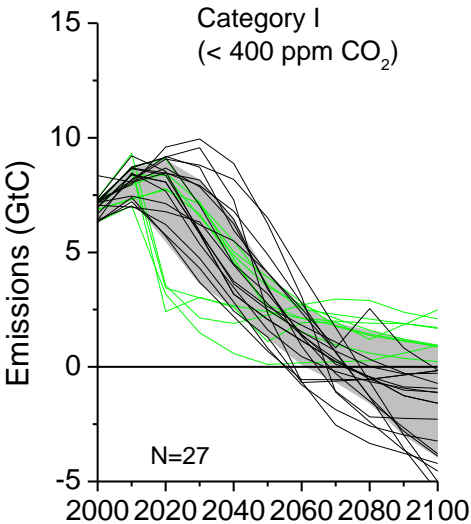


# Transformation implications for China

**Jiang Kejun**

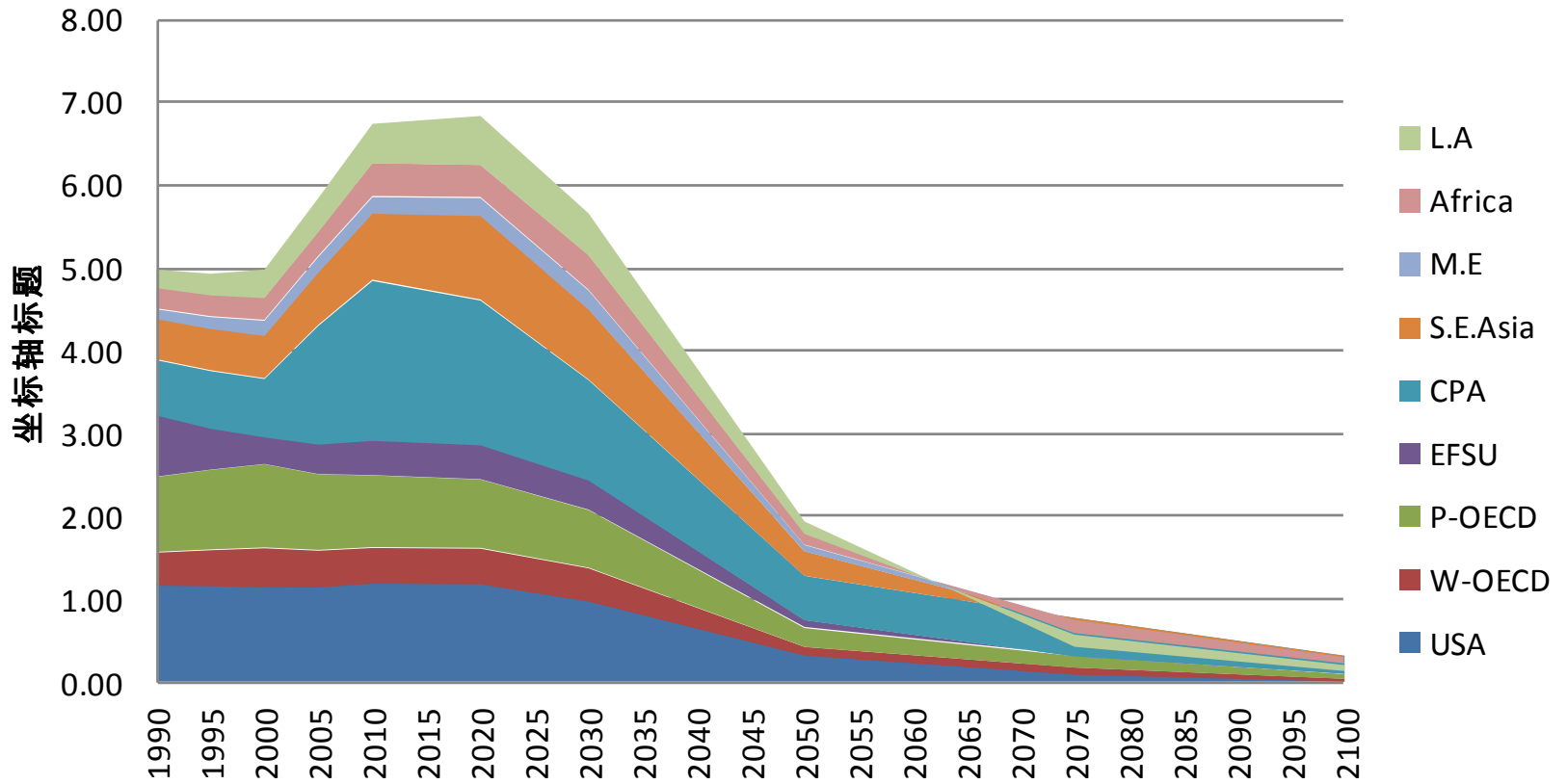
Energy Research Institute, China  
June 13, Bonn, RoSE Project Side Event

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



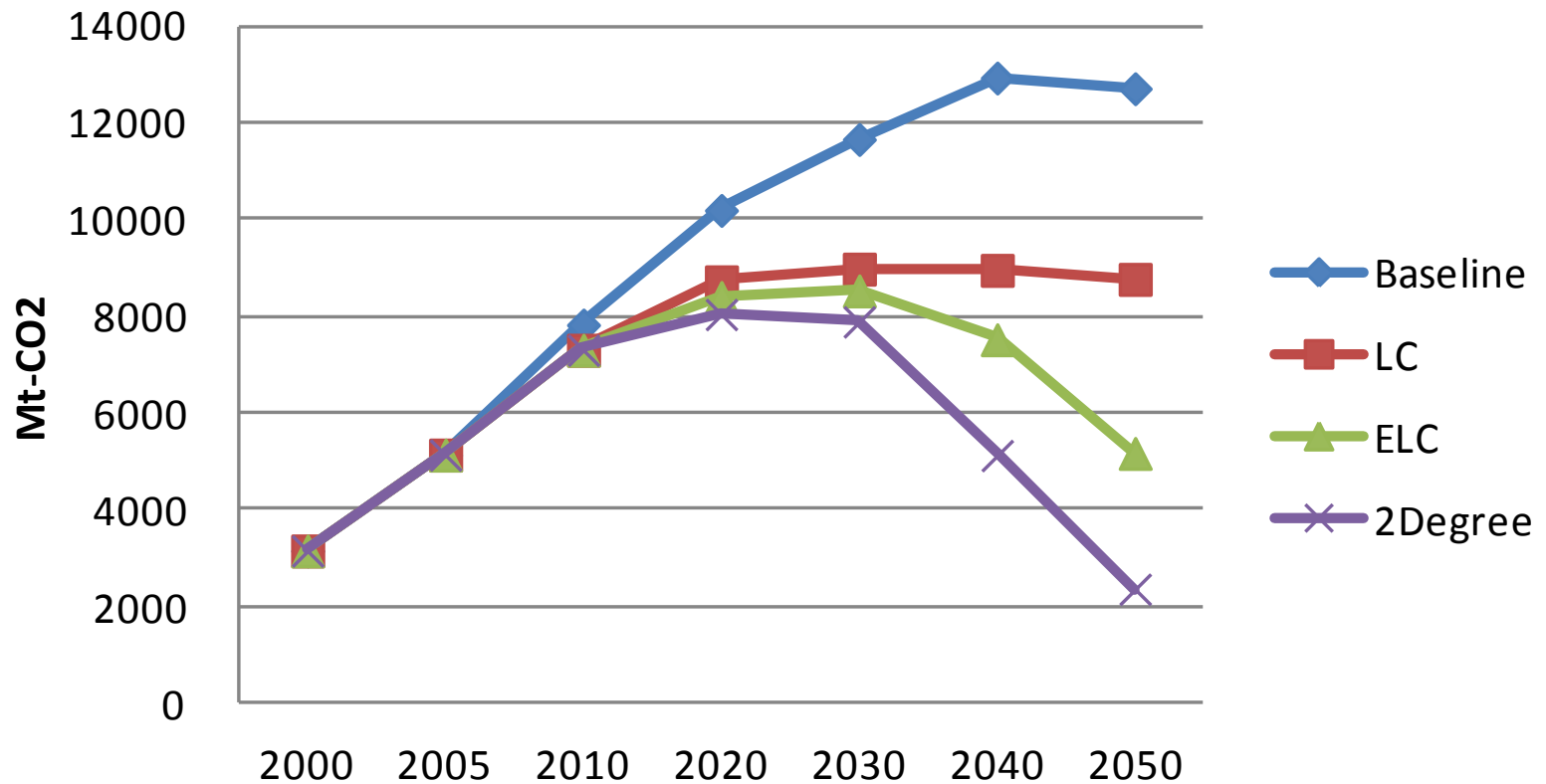
— without neg. emissions  
— with neg. emissions

# CO2

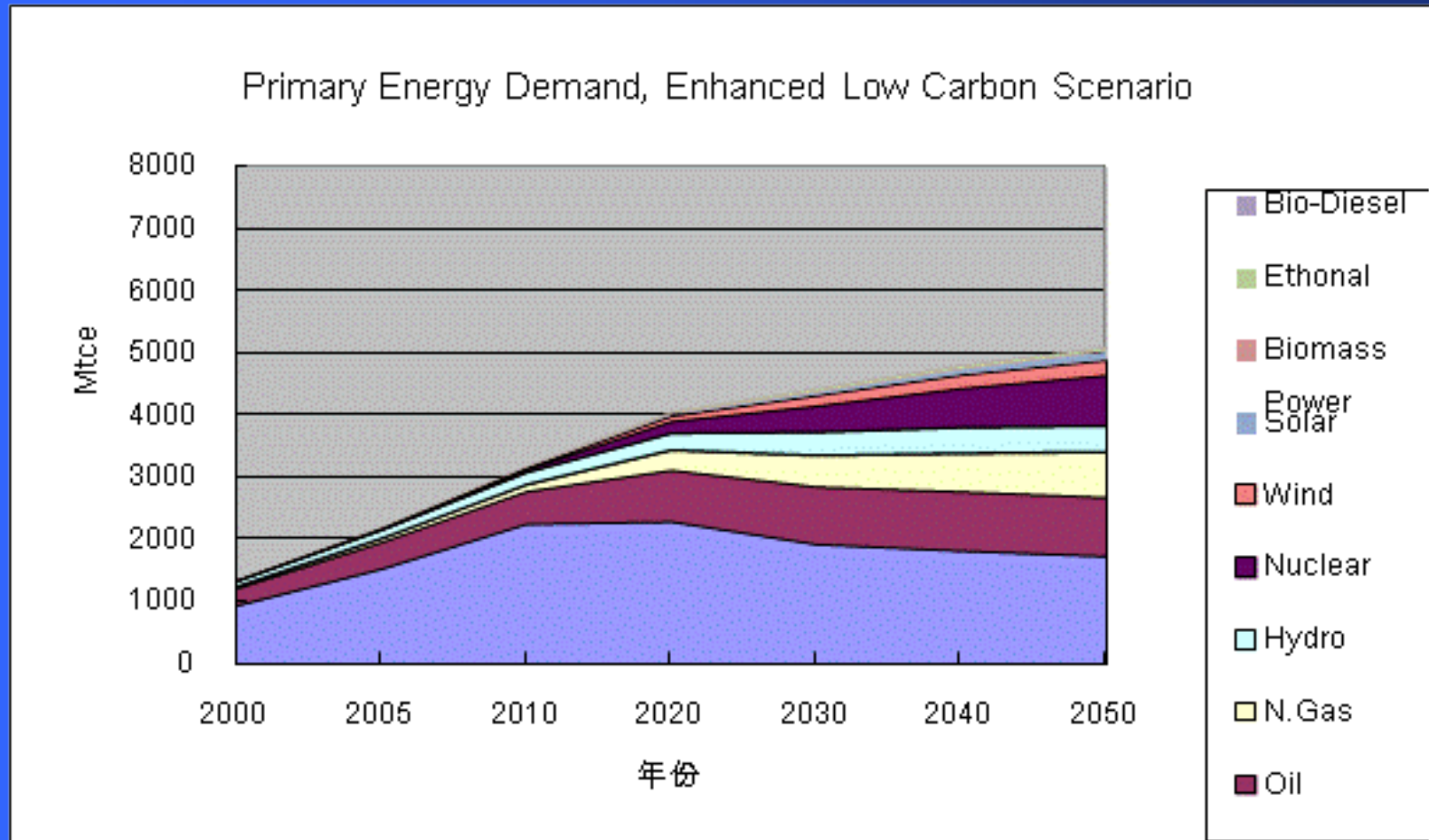


## Transformation: CO2 emission, a rapid change

### CO2 Emission in China



# Transformation: Energy System



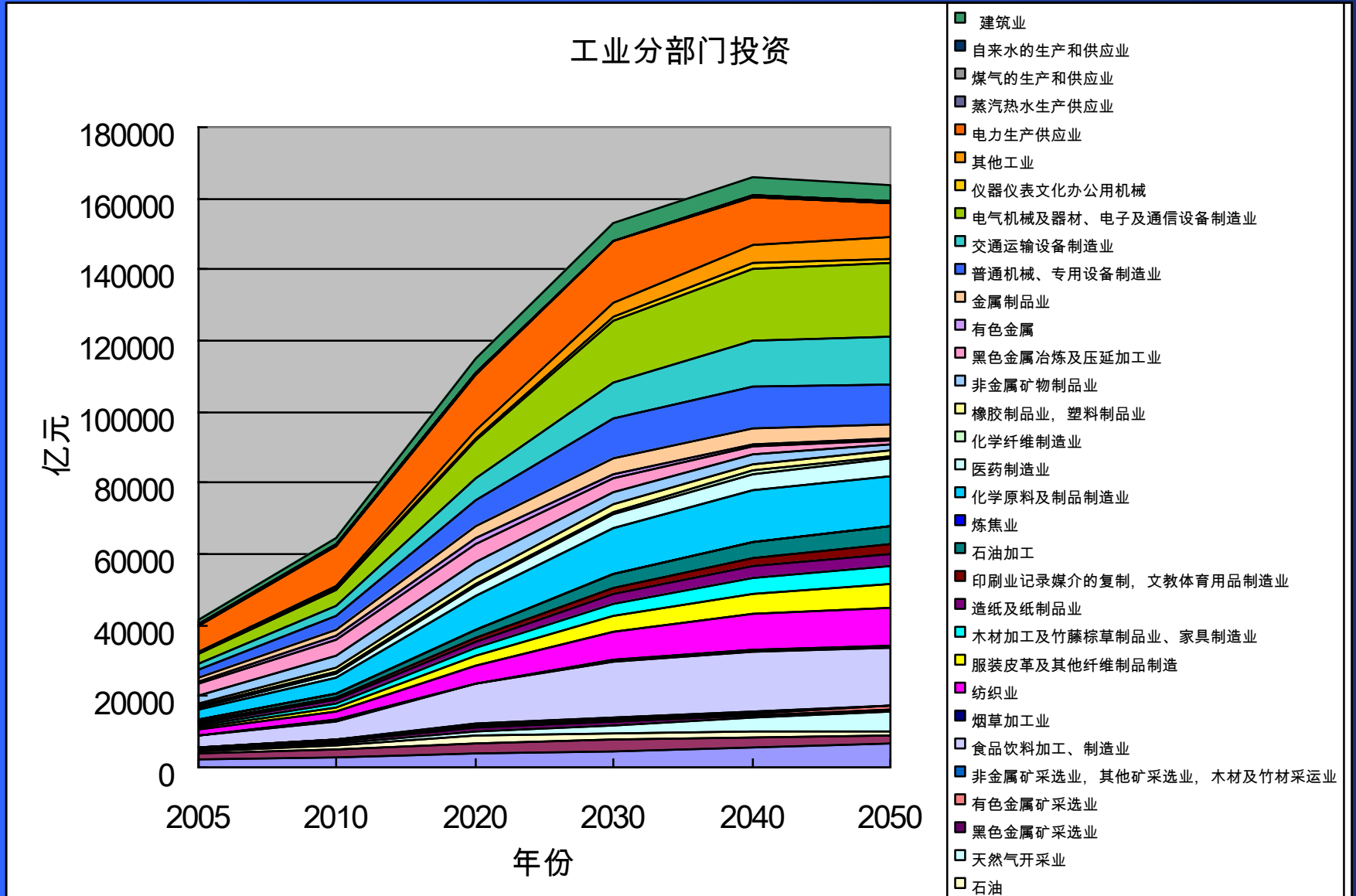
## Good news

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- Technology progress is much faster than our model says:  
learning curve effects
- High GDP growth could support low carbon development in China: all cost analysis in models are very small compared with GDP
- China's low carbon related technology manufacture is getting leading in the world: benefit for economy
- Local environment issues will be a very strong factor to go to clean production, nearly match with low carbon development

# Transformation: Economy system

## Investment by industrial sectors







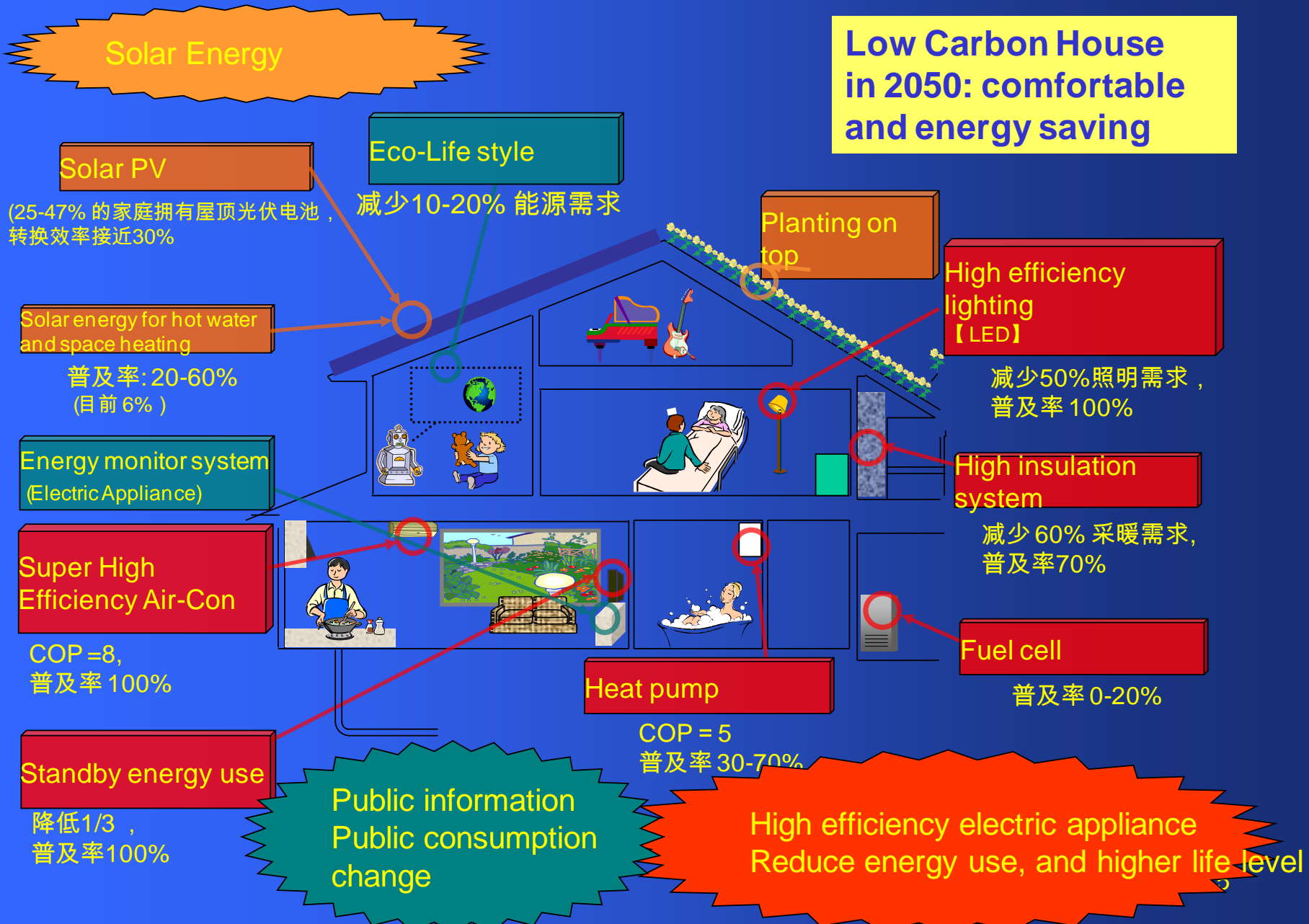
# Transformation: Energy efficiency

## Unit energy use for key products, LCS Scenario

	Unit	2005	2020	2030	2040	2050
Steel	Kgce/t	760	650	564	554	545
Cement	Kgce/t	132	101	86	81	77
Glass	Kgce/Weight Cases	24	18	14.5	13.8	13.1
Brick	Kgce/万块	685	466	433	421	408
Ammonia	Kgce/t	1645	1328	1189	1141	1096
Ethylene	Kgce/t	1092	796	713	693	672
Soda Ash	Kgce/t	340	310	290	284	279
Casutic	Kgce/t	1410	990	890	868	851
Calcium carbide	Kgce/t	1482	1304	1215	1201	1193
Copper	Kgce/t	1273	1063	931	877	827
Aluminium	kWh/t	14320	12870	12170	11923	11877
Paper	Kgce/t	1047	840	761	721	686
Electricity fossil fuel	Gce/kWh	350	305	287	274	264

# Transformation: Building

**Low Carbon House  
in 2050: comfortable  
and energy saving**



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



网购上京东 省钱又放心

灯泡

热门搜索：新一代AP

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



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：

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)

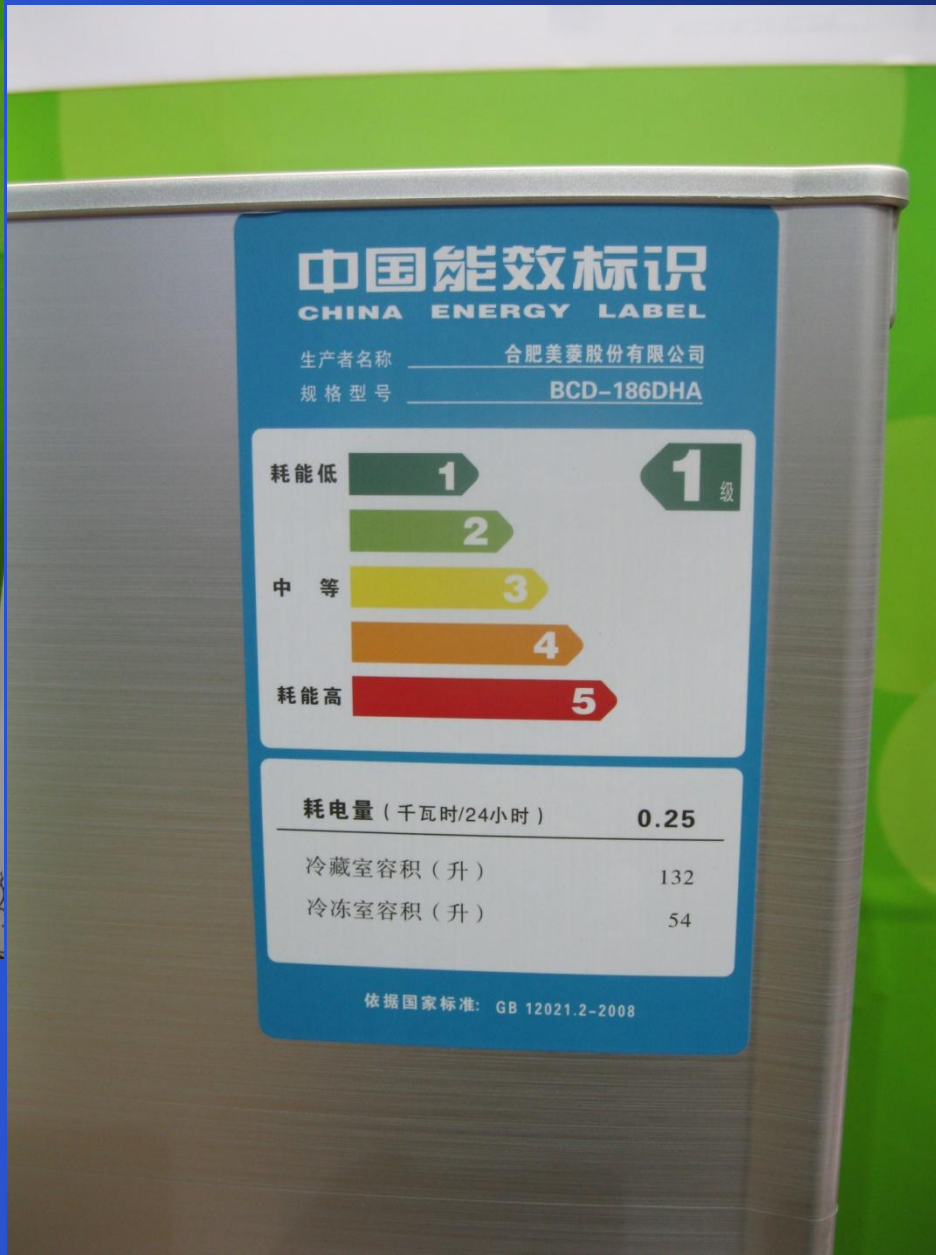
“灯泡” 找到1068件相关商品

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：



# 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

1 级

2

中等

3

4

耗能高

5

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



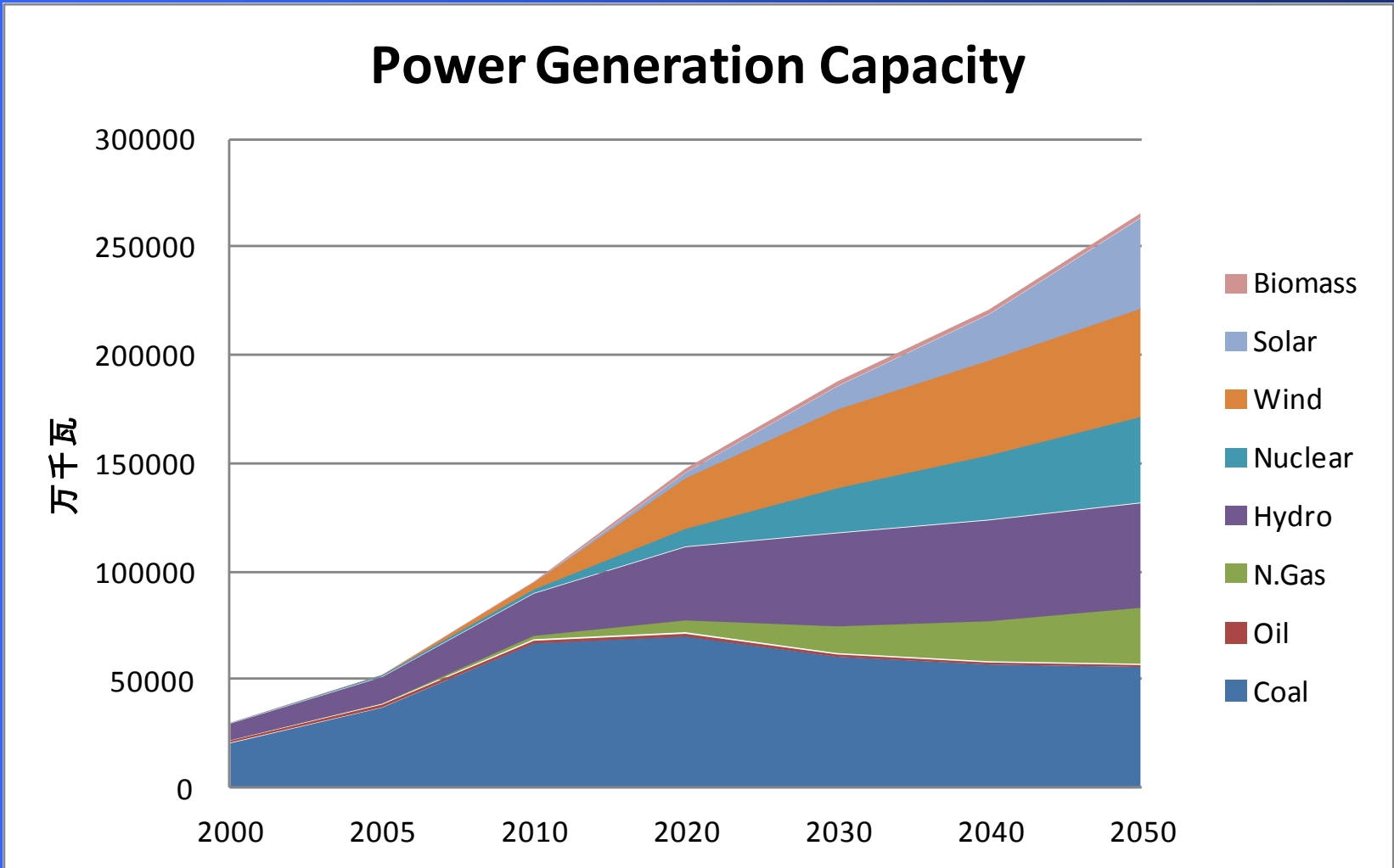


# Transformation: Transport

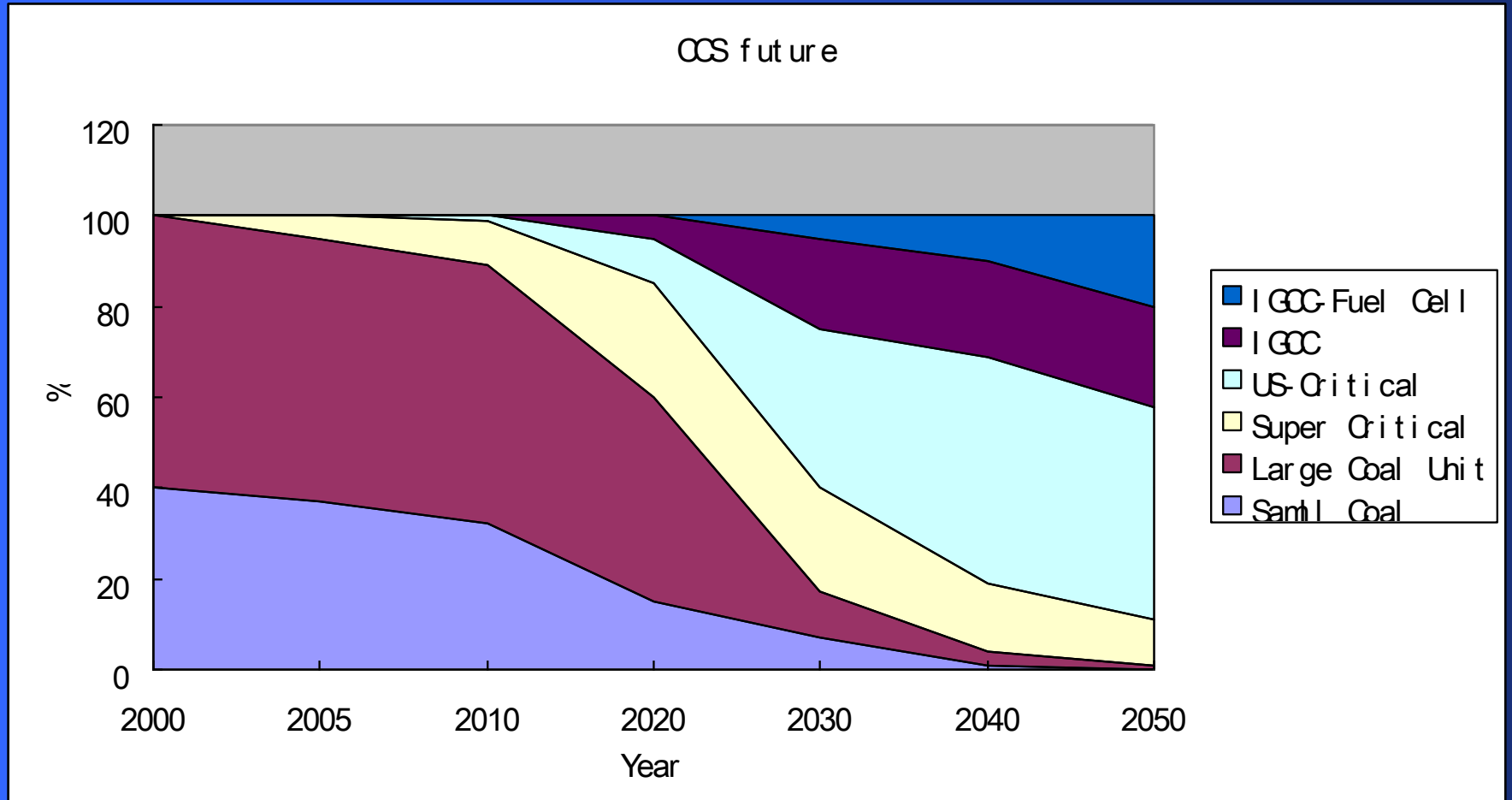
## Transport, Low carbon scenario

		2005	2010	2020	2030	2040	2050
Family car ownership, per 100HH	Urban	3.37	14	36	65	77	78
	Rural	0.08	0.2	8	38	70	90
Family car annual travel distance, km		9500	9500	9300	8635	8300	7480
Average engine size of family cars, liter		1.7	1.6	1.6	1.6	1.5	1.4
Fuel efficiency of car, L/100km		9.2	8.9	7.1	5.9	4.8	4.1
Share of MRT in total traffic volume, %		0.011	0.016	0.025	0.046	0.1	0.21
Share of Biofuel, %		1.10%	1.30%	4.1%	7.70%	12%	13%
Share of electric car, %		0%	0.12%	3.2%	6.80%	12.5%	19.8%
Share of fuel cell car, %		0%	0%	0.80%	1.60%	4.70%	7.90%

# Transformation: Power generation

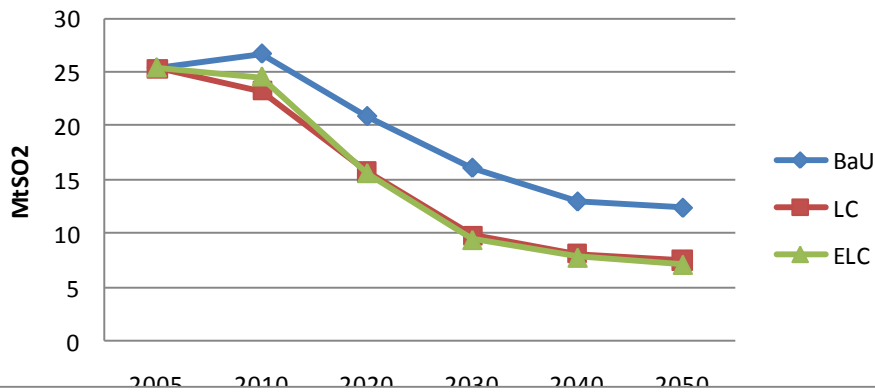


# Transformation: CCS

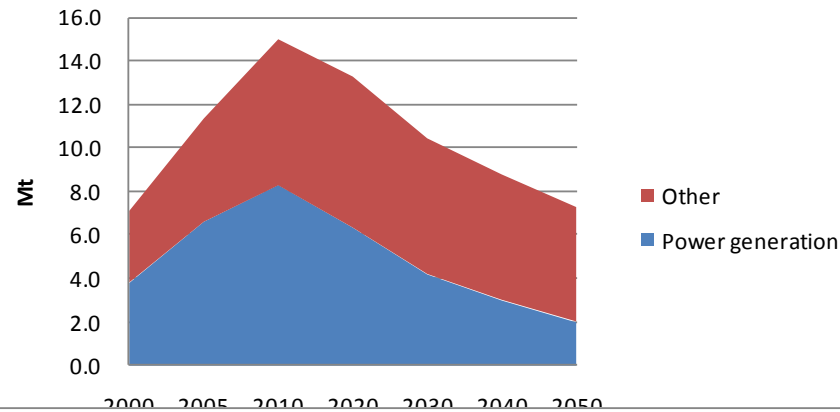




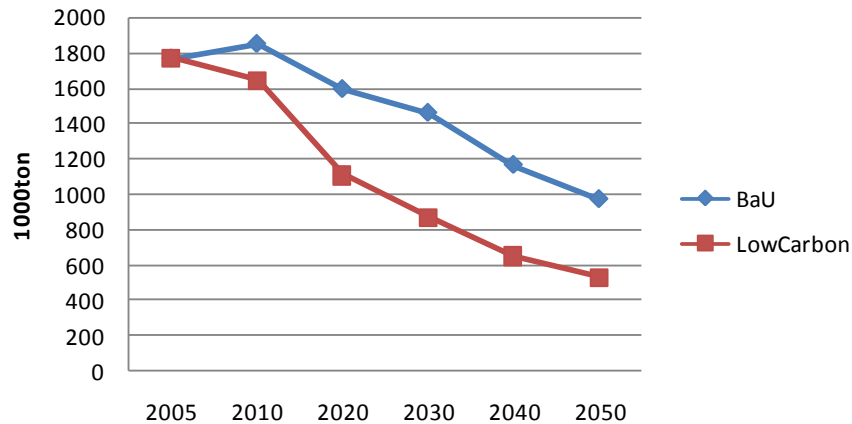
### SO2 Emission



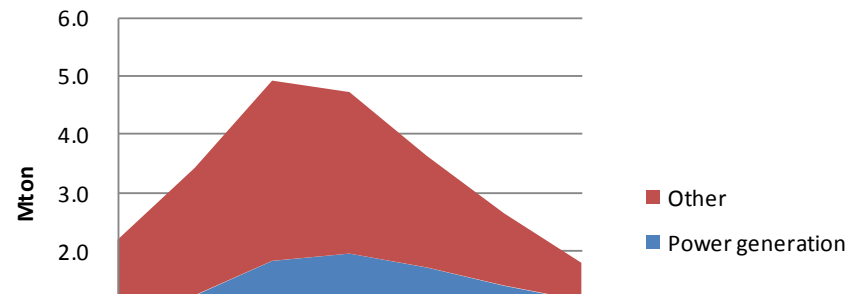
### NOx Emission in China, ELC scenario



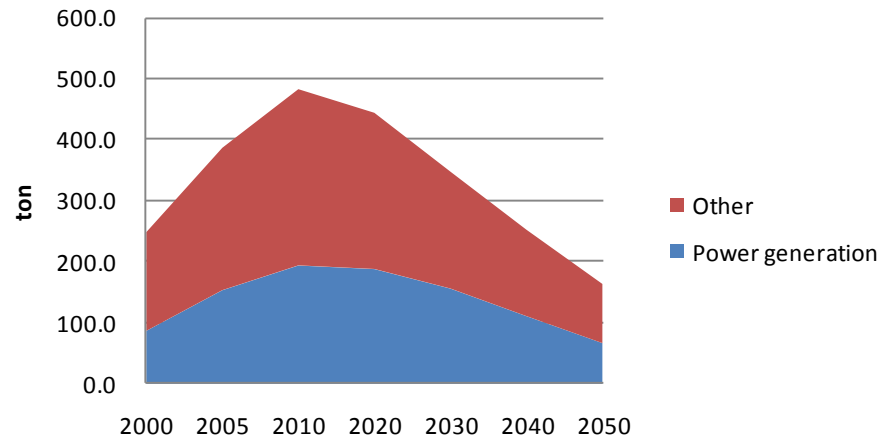
### Black Carbon Emission in China



### PM2.5 Emission



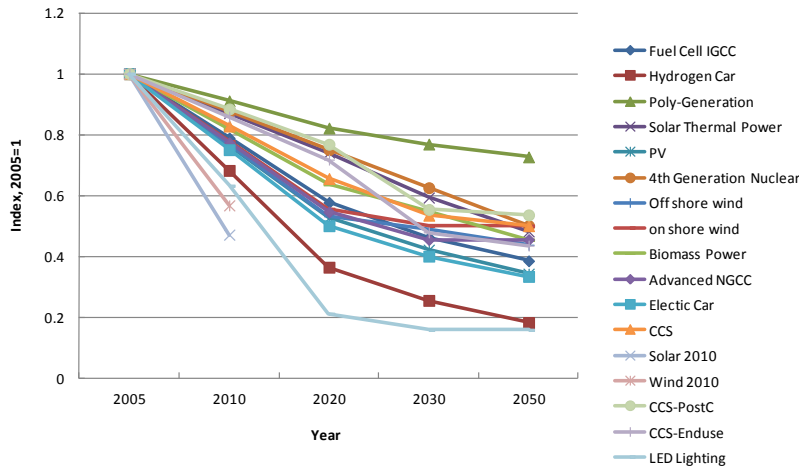
### Mercury Emission



Transformation: Air pollution

# Transformation: Technologies

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 20000 number plates per month),



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

# POWER\_BOX by Baosteel

2kW wind

10kW Solar PV





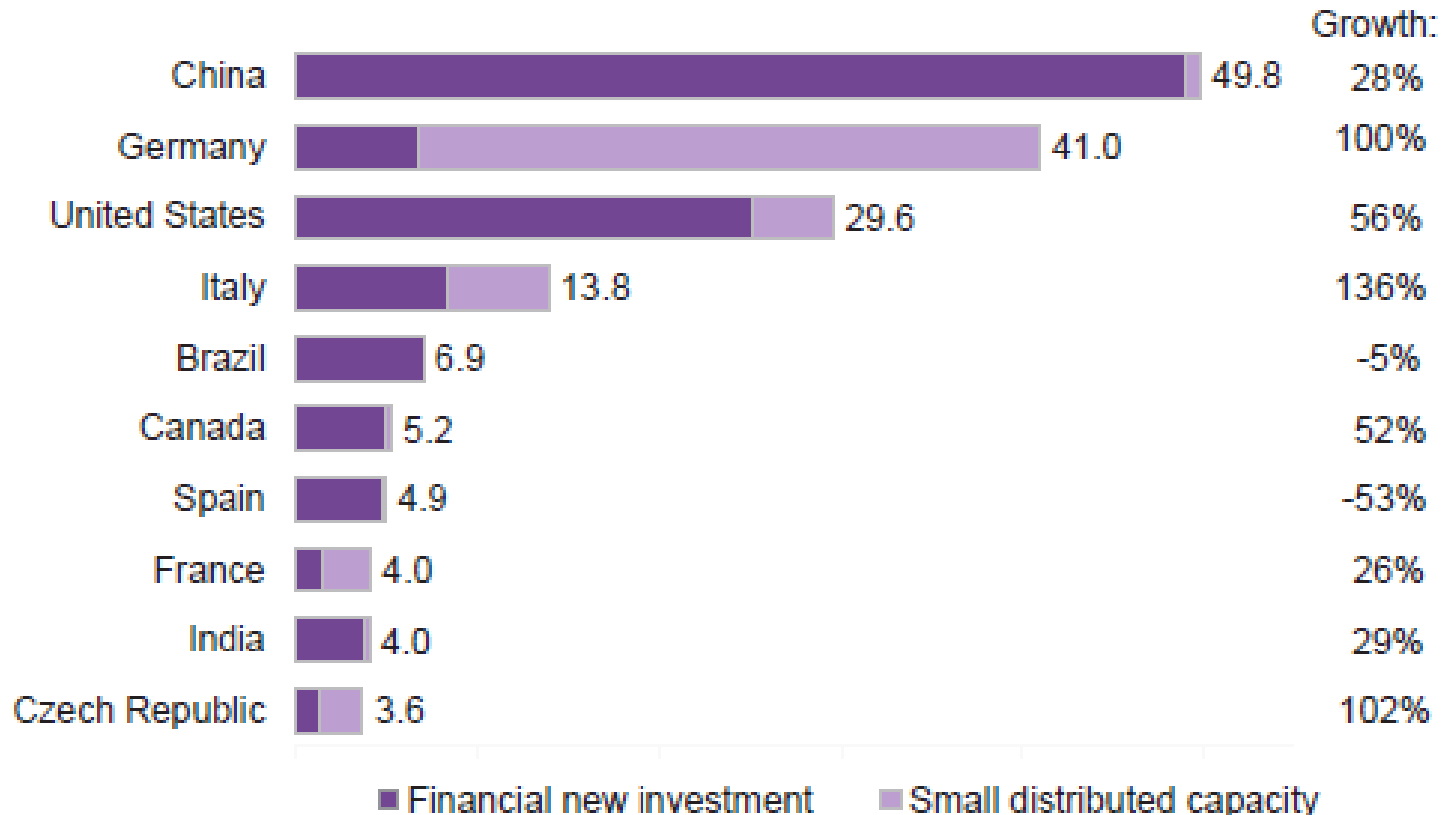


# Renewable Energy

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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 300GW, Solar 50WG to 80 GW
- Based on the conclusion from Chinese Academy for Engineering, grid in China could adopt these renewable energy power generation in short term.

**FIGURE 11: FINANCIAL NEW INVESTMENT AND SMALL DISTRIBUTED CAPACITY IN RENEWABLE ENERGY BY COUNTRY, 2010, AND GROWTH ON 2009, \$BN**



# Transformation: Low Carbon cities

## Beijing CO2 emission from energy activities

