

我国十一五20%节能目标行业定量分解研究

Study of the Quantitative Sectoral Allocation of the 2010 20 Percent Energy Intensity Reduction Target

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June 30th, 2007

2007年6月30日

Research Objectives

研究目标

The impact of industry structure shifts from 2005 - 2010 on the 20% energy intensity target (EI target);

2005-2010年经济结构转变对实现20%节能目标的影响和贡献

Sector trends in energy intensity as indication of the feasibility of meeting EI target;

分部门的能源强度下降趋势, 说明我国实现20%目标的可行性

The impact of technological progress between 2005 - 2010 on the EI target;

2005-2010年技术进步对实现20%节能目标的影响和贡献

The impact of policies and their implementation from 2005 -2010 on the EI target.

2005-2010年实施政策措施对实现20%节能目标的影响和贡献

Conditions for Policy Development

情景

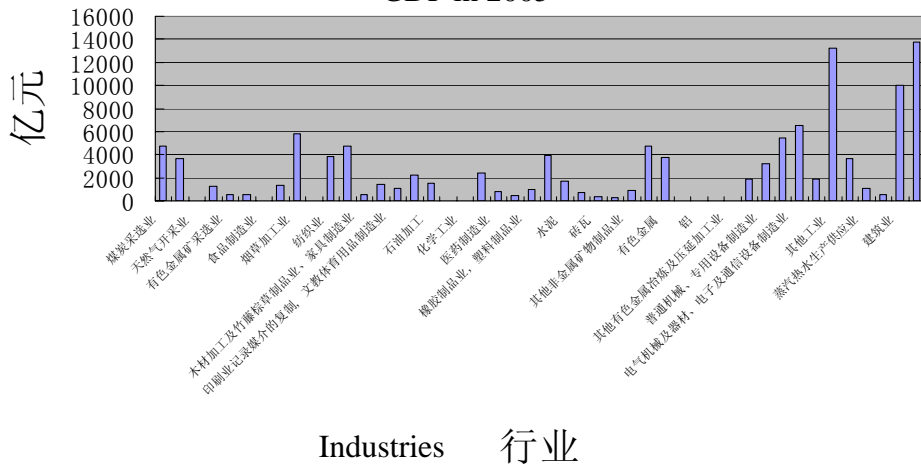
The 11th Five-Year Plan

- A growth rate of 8.5%
- A growth rate of 9.5%
- 8.5% GDP growth for policy development
- 9.5% GDP growth for policy development

- ✓ 十一五规划
- ✓ 8.5%增长速度
- ✓ 9.5%增长速度
- ✓ 8.5%GDP增长政策情景
- ✓ 9.5%GDP增长政策情景

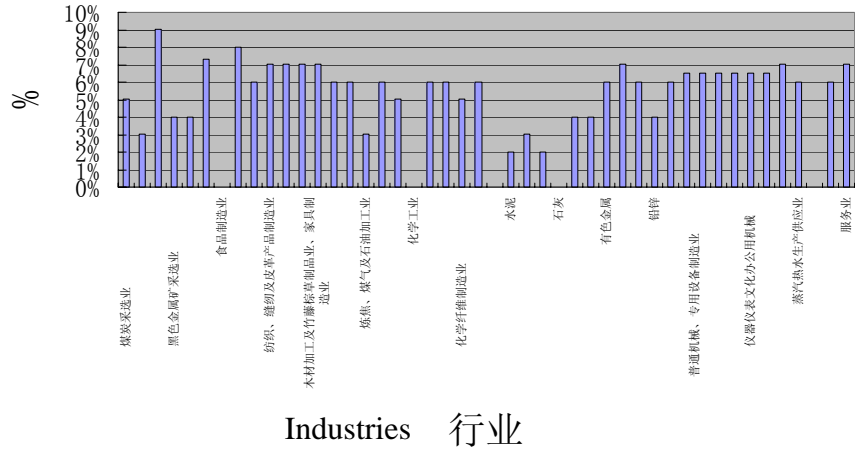
2005年GDP
GDP in 2005

(Unit: One hundred million yuan)



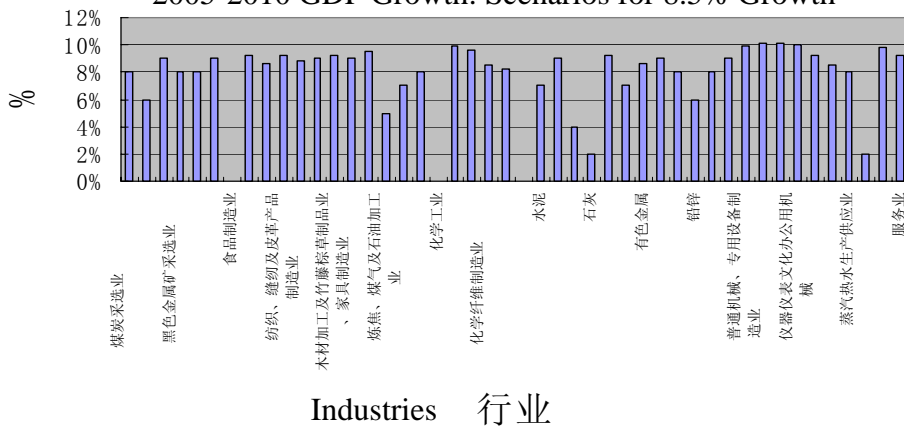
Industries 行业

2005-2010年GDP增长:规划方案 2005-2010 GDP Growth Scenarios

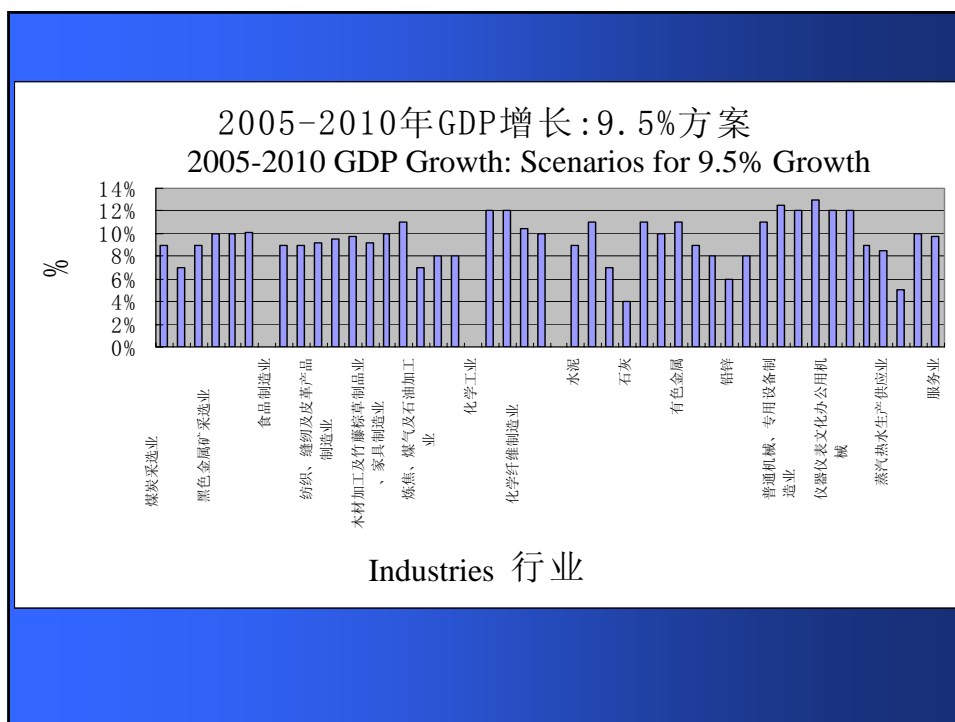


Industries 行业

2005-2010年GDP增长:8.5%方案 2005-2010 GDP Growth: Scenarios for 8.5% Growth



Industries 行业

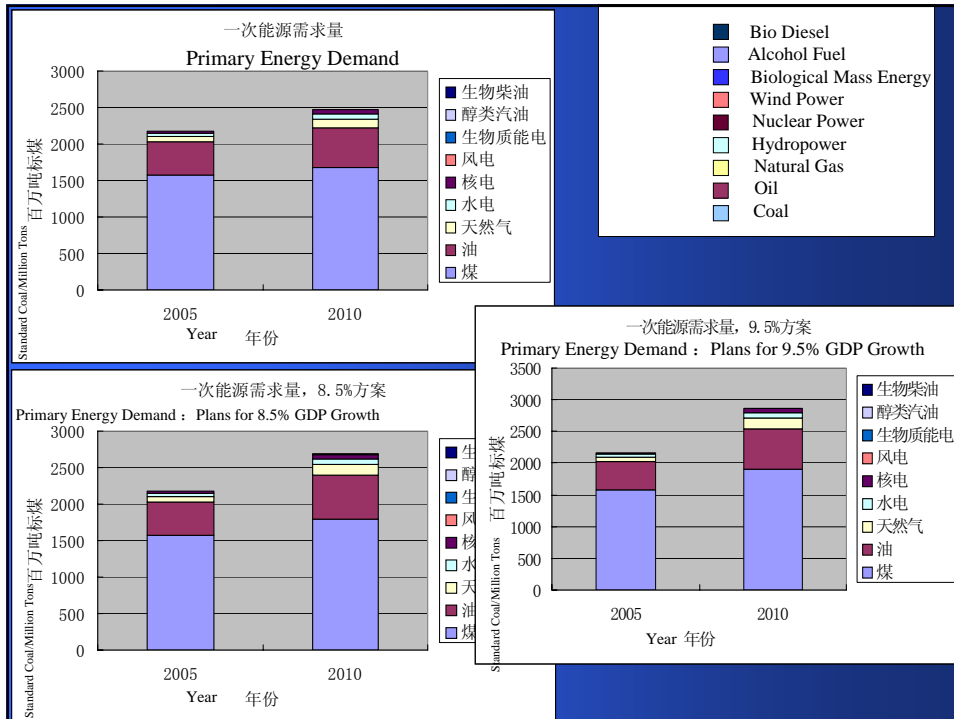


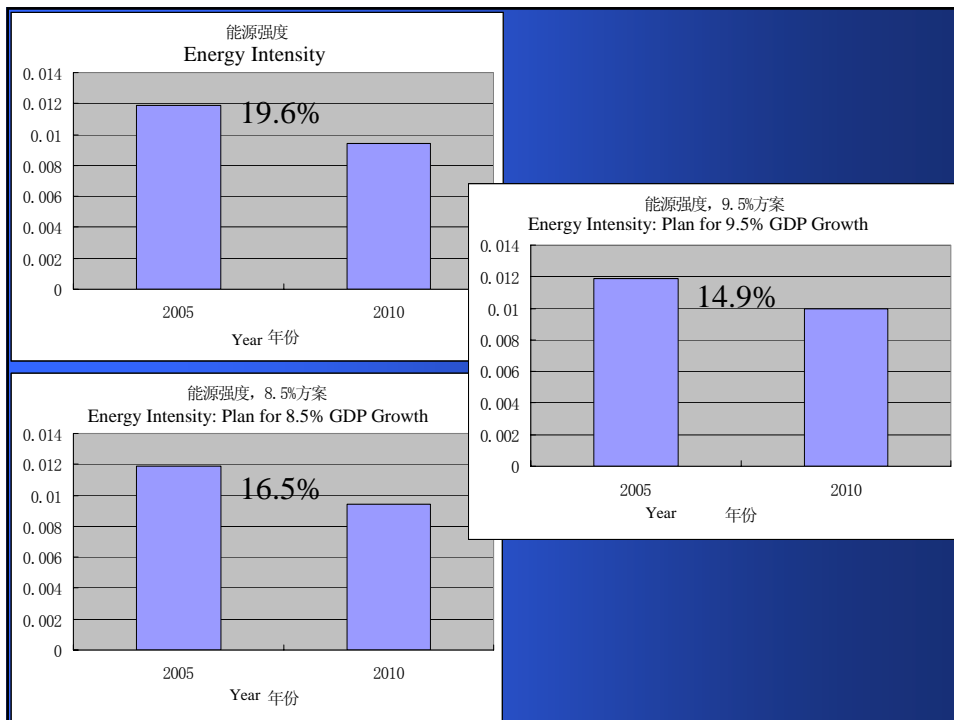
主要工业产品产量 The Output of Major Industrial Products

			2000	2005	2010			
					规划方案	8.5%情景	9.5%情景	9.5%政策情景
Steel	粗钢	亿吨	1.28	3.55	4.14	4.71	5.09	4.66
Cement	水泥	亿吨	5.97	10.6	13.05	14.15	15.02	13.74
Glass	玻璃	亿重量箱	1.83	3.99	5.49	6.14	6.72	6.43
Bricks	砖瓦	亿块	9.4	10.395	12.05	12.65	14.58	13.91
Copper	铜	万吨	137	260	364.66	400.04	400	382
Aluminum	铝	万吨	298	851	1138.83	1250.4	1250	1194
Pure Alkali	纯碱	万吨	834	1467	2125.73	2352	2585	2472
Caustic Alkali	烧碱	万吨	667	1264	1831.58	2026	2228	2130
Paper & Paper Board	纸和纸板	万重量箱	2486	6205	6604	6604	9547	9547
Chemical Fertilizer	化肥	万吨	3186	5220	6305.26	6646	6986	6822
Ethanol	乙醇	万吨	470	756	1600	1900	2300	2100
Ammonium Synthesis	合成氨	万吨	3363	4630	5300	5800	6400	6200
Calcium Carbide	电石	万吨	340	850	1105.14	1188	1272	1232
Vehicles	汽车	万辆	207	570	817.17	881	914	933

主要工业产品单耗 The Output of Major Industrial Products

			2005	2010			
				规划方案	8.5%情景	9.5%情景	9.5%政策情景
Steel	粗钢	吨标煤/吨	0.79	0.75	0.73	0.71	0.71
Cement	水泥	吨标煤/吨	0.15	0.14	0.13	0.12	0.12
Glass	玻璃	吨标煤/重量箱	0.03	0.027	0.025	0.023	0.023
Bricks	砖瓦	吨标煤/千块	0.09	0.074	0.072	0.07	0.07
Copper	铜	吨标煤/吨	0.91	0.88	0.86	0.83	0.83
Aluminum	铝	吨标煤/吨	3.33	3.23	3.15	3.05	3.05
Lead and Zinc	铅锌	吨标煤/吨	2.44	2.38	2.35	2.3	2.3
Pure Alkali	纯碱	吨标煤/吨	1.1	1.03	1	0.96	0.96
Caustic Alkali	烧碱	吨标煤/吨	0.86	0.8	0.78	0.75	0.75
Paper & Paper Board	纸和纸板	吨标煤/吨	0.74	0.71	0.7	0.68	0.68
Ethanol	乙醇	吨标煤/吨	1.04	1.03	1	0.8	0.8
Ammonium Synthesis	合成氨	吨标煤/吨	1.6	1.51	1.47	1.42	1.42
Calcium Carbide	电石	吨标煤/吨	1.12	1	1	1	1





Strategies to Meet the 20% EI Target:
Scenarios for 9.5% GDP growth

实现20%节能目标的对策: 9.5%方案

- | | |
|---|--|
| <ul style="list-style-type: none"> • Vehicle fuel tax • Increase export costs for high energy-consuming products, reducing tax reimbursements, or levying taxes. • Set advanced energy consumption levels for new production. • Increase investment in garbage and waste water treatment and rail transport in cities with sustainable development; step up technological R&D . • Green buildings: 50% energy efficiency improvement in 60% of new buildings • Household sector: energy-saving electrical appliances (energy efficiency standards); solar water heaters. • Transportation sector: public transportation and non-motor vehicle transportation, energy-efficient cars. | <ul style="list-style-type: none"> ✓ 燃油税 ✓ 提高高能耗产品出口成本:降低出口退税, 甚至收税 ✓ 新增生产能力为先进耗能水平 ✓ 加大对可持续城市发展的投入, 垃圾, 废水处理, 轨道交通; 加大对技术与研究的投入 ✓ 节能建筑: 60%新建建筑达到50%节能率 ✓ 居民部门: 节能电器(能耗标准), 太阳能热水器 ✓ 交通部门: 公共交通和非机动车交通, 节能汽车 |
|---|--|

实现20%节能目标的对策:提高高能耗产品出口成本

Strategies for 20 % EI Target:
Increasing Export Costs for High Energy-Consuming Products

2010 Output

✓ 2010年产量

- Steel: Reduction from 530 million tons to 4.7 million tons
- Cement: Reduction from 1520 million tons to 1370 million tons
- Glass: Reduction from 670 million weight boxes to 600 million weight boxes
- Copper: Reduction from 4 million tons to 3.2 million tons
- Aluminum: Reduction from 12.5 million tons to 9 million tons
- Lead and zinc: Reduction from 5.6 million tons to 4 million tons
- Calcium carbide: Reduction from 12.7 million tons to 8 million tons

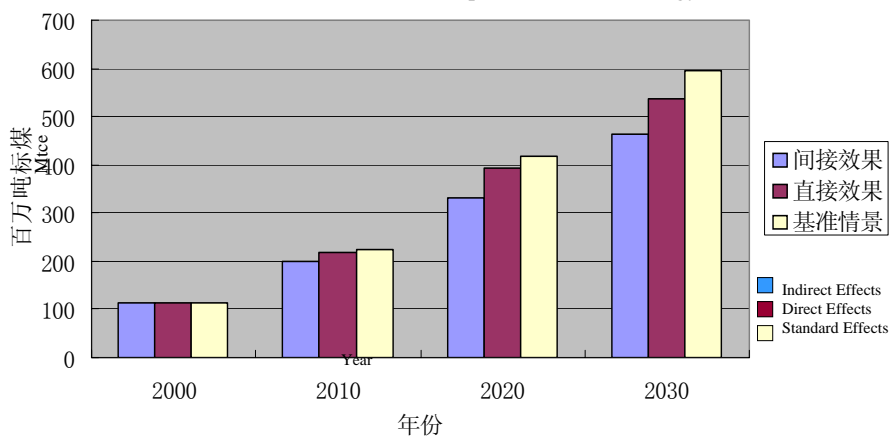
- ✓ 钢: 5.3亿吨降为4.7亿吨
- ✓ 水泥: 15.2亿吨降为13.7亿吨
- ✓ 玻璃: 6.7亿重量箱降为6亿重量箱
- ✓ 铜: 400万吨降为320万吨
- ✓ 铝: 1250万吨降为900万吨
- ✓ 铅锌: 560万吨 400万吨
- ✓ 电石: 1270万吨 800万吨

实现20%节能目标的对策: 9.5%方案---燃油税

Strategies to Meet the 20% EI Target:
Scenarios for a 9.5% GDP Growth Rate—Fuel Tax

采用机动车燃料税的能源效果

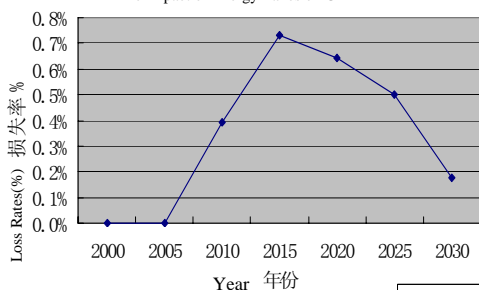
The Predicted Effect of Vehicle Fuel Tax Implementation on Energy Use



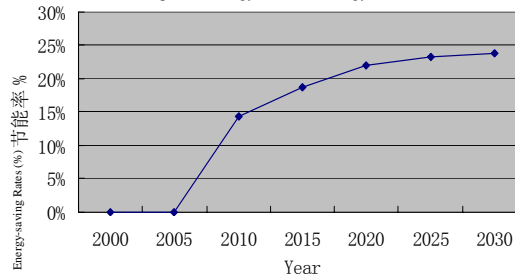
税率方案2 Tax Rate Proposal 2

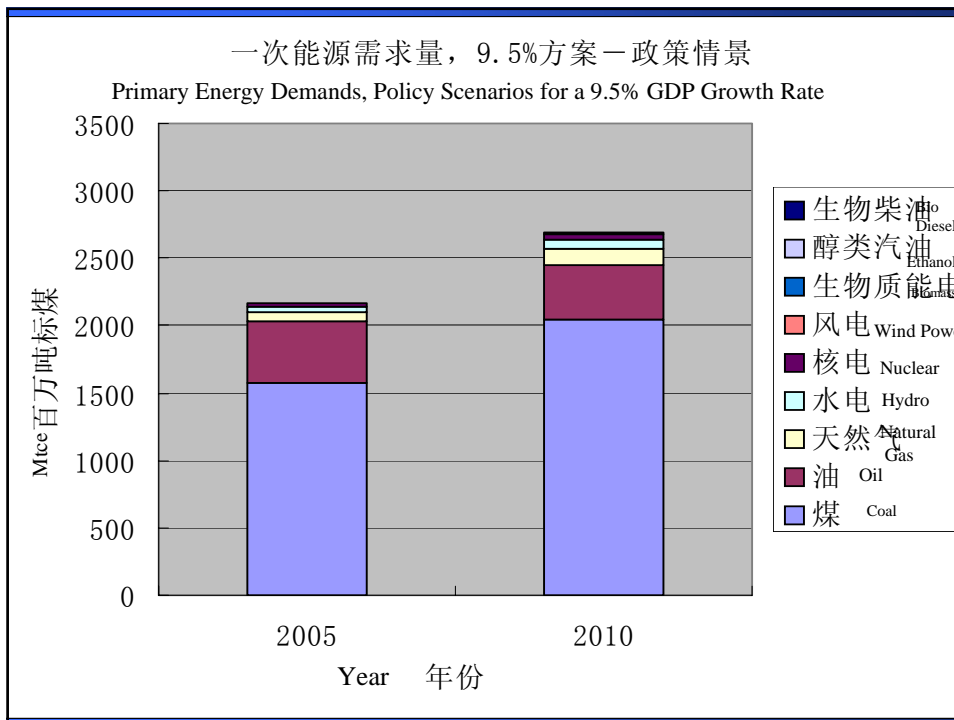
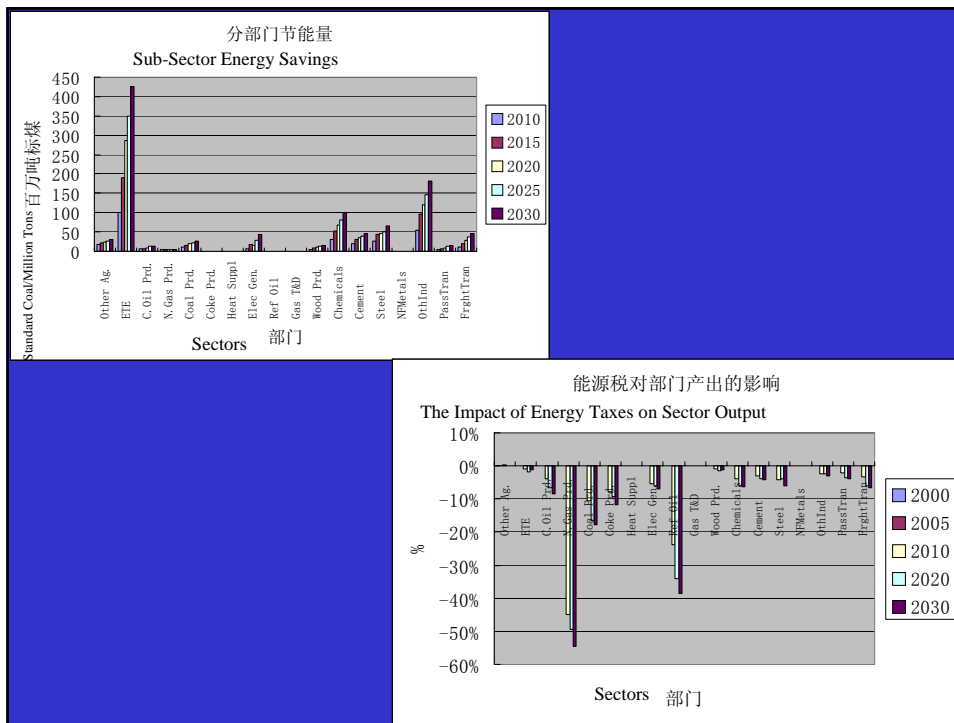
		2006	2010	2020	2030
Coal	煤炭	0	100	120	140
	Gas and Diesel Oil	0	1000	2000	3000
Other Petroleum Products	LPG	0	500	500	500
	其他石油制品	0	500	500	500
Natural Gas	天然气	0	500	500	500
Energy Rate for Raw Materials	原料用能源	0	300	300	300
Nuclear Power	核电	0	100	120	140
Hydropower	水电	0	0	0	0
Other Renewables	其他可再生能源	0	0	0	0

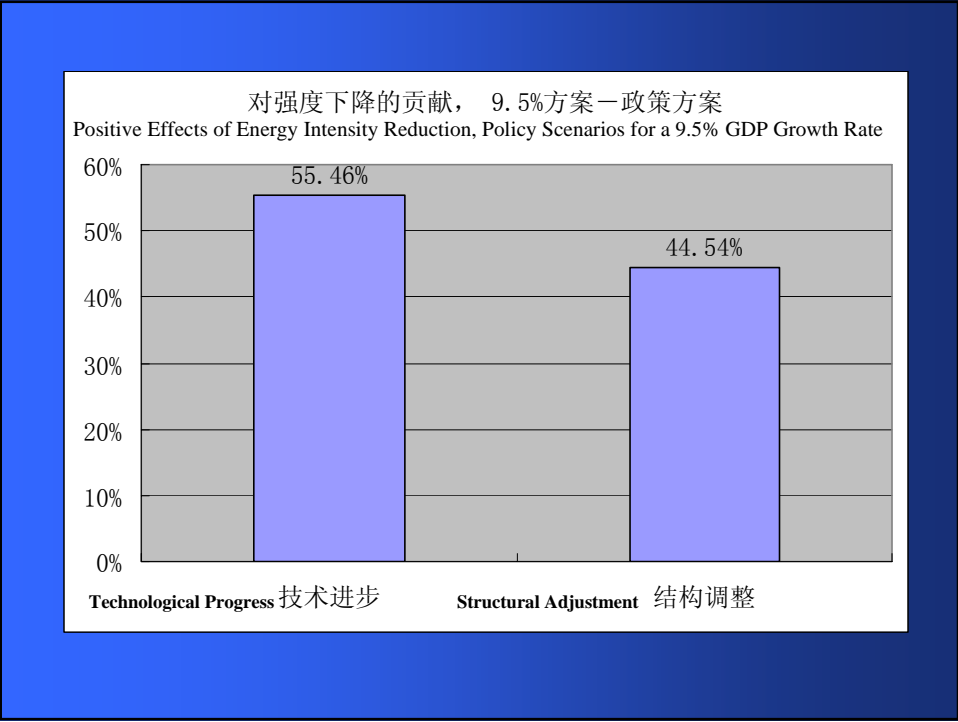
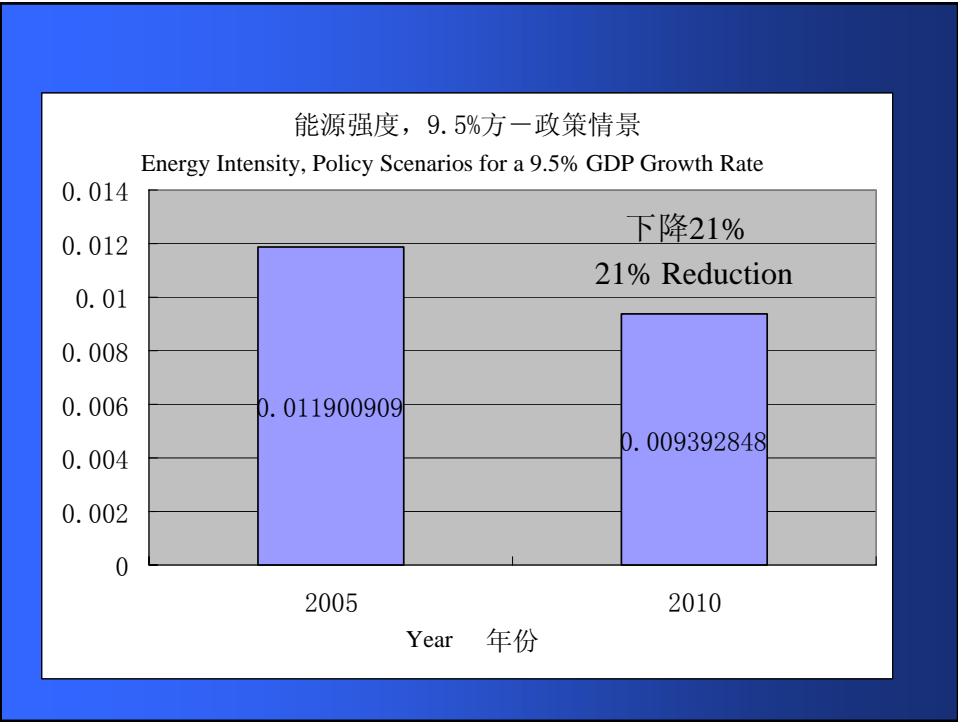
能源税对中国GDP的影响
The Impact of Energy Taxes on GDP

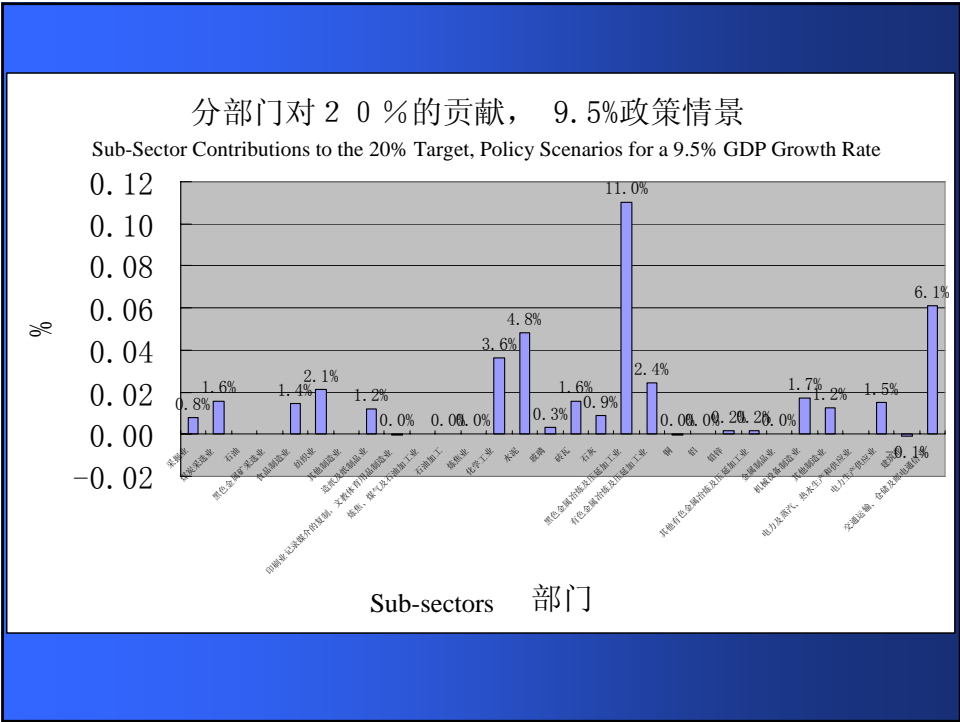
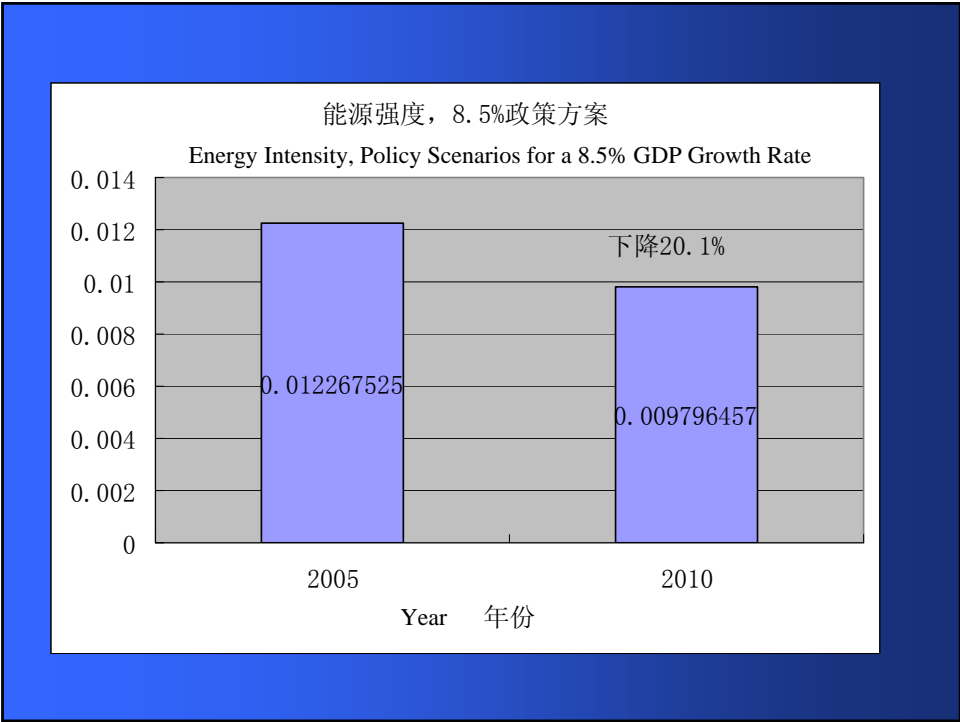


能源税对能源需求的影响
The Impact of Energy Taxes on Energy Demand

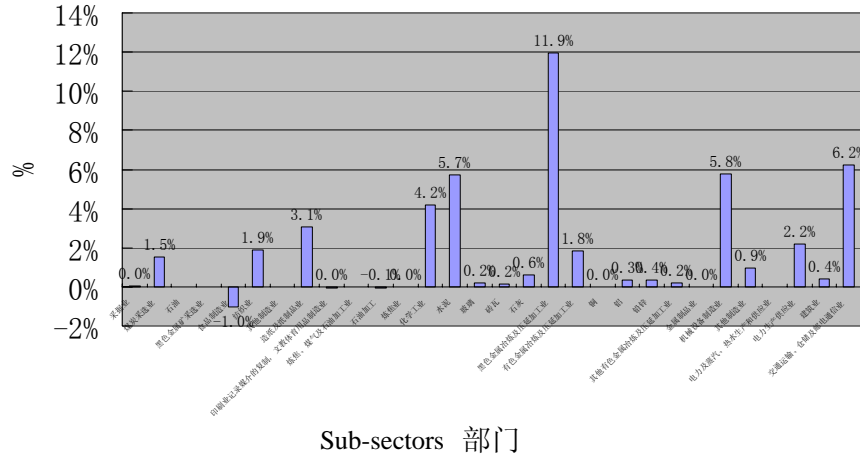






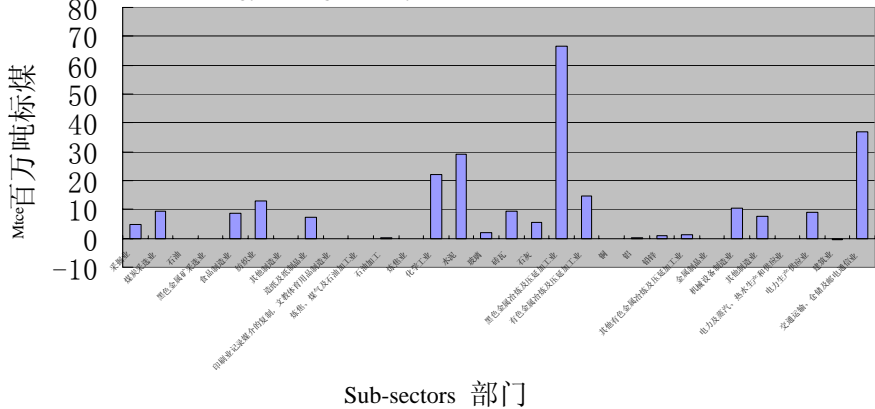


分部门对 20% 的贡献, 8.5%政策情景
 Sub-Sector Contributions to the 20% Target, Policy Scenarios for a 9.5% GDP Growth Rate



分部门节能量, 9.5%政策方案

Sub-Sector Energy Savings, Policy Scenarios for a 9.5% GDP Growth Rate



Policy Recommendations

政策建议

Fiscal Policies:

- Adopt the fuel tax and publicize the agenda for adoption of energy taxes ASAP.
- Publicize the timetable for measures supporting the reduction of tax reimbursement.

财政政策:

- 尽早采用燃油税. 同时提前公布采取能源税的日程.
- 在已经采取减少出口退税的基础上, 公布进一步措施的时间表, 使企业早有准备, 并影响未来近期的投资

Investment Policies:

- Step up investment in environment-friendly facilities, including urban garbage and waste-water treatment. These facilities could profit by increasing charges, allowing absorption of non-government investment.
- Step up investment in the public transit system, especially rail.
- Increase national investment in technological development. Use bonds and other channels to further pool non-governmental capital.

投资政策:

- 加大对促进城市环境友好设施的建设投入力度(垃圾处理, 污水处理), 在可以建立的城市均要建立. 可以通过提高收费来实现赢利, 这样可以吸引非政府投资.
- 大幅加大构建公共交通的投入, 特别是轨道交通. 北京已经有比较好的吸引民间资本的经验.
- 加大国家对技术开发的投入. 采用债券等多种途径进一步吸纳民间资金.

Policy Recommendations (continued)

政策建议(续)

Energy-saving Policies:

- Step up efforts to meet EE goals.
- Significantly raise EE standards for existing technologies, using the granting of market access as a mechanism.
- Implement building codes for EE.

节能政策:

- 大力强化行业的节能, 实现部门节能目标
- 大幅度提高已有技术的能耗标准, 采取市场准入制度.
- 严格实施建筑节能标准, 使新建建筑的节能普及率明显提高. 如北京方式, 青海方式.

Policies for new and renewable energy:

- Develop new and renewable technologies
- Use of solar water heaters and disseminate the strategies used by Qinghuangdao.

新能源和可再生能源政策:

- 大力发展新能源和可再生能源, 发展新能源和可再生能源就是节能. 建筑太阳能热水器大力普及. 如秦黄岛的对策.

Environmental policies:

- Strengthen environmental policies to impact industry and energy development.
- Encourage eastern provinces to step up industrial restructuring and investment in restoring the environment.

环境政策:

- 需要进一步强化的环境政策. 环境政策可以影响工业和能源发展, 但也会增加能源消耗. 环境政策会促进新型产业, 这对经济发展有益.
- 鼓励东部已经发达但已经失去优美环境的省份加大产业结构调整, 和恢复环境的投入

Policy Recommendations (continued)

政策建议(续)

Transportation Policies:

- Achieve energy savings by developing public transportation and limiting private cars.
- Build a transit system suitable for walking and cycling instead of one that is car dependent.
- Encourage the use of electric bicycles, including the use of bicycle-only lanes during rush hour (e.g. Zuoanmen).

Household Energy Consumption:

- Encourage purchase of EE appliances.
- Encourage low energy consumption in food, beverage, local products, etc.

交通政策:

- 大力发展公共交通，遏制私人小汽车，会有明显节能效果
- 构建适合于步行和自行车出行的交通体系，而不是目前以机动车为主的城市交通体系
- 大大鼓励电动自行车；高峰自行车专用道（如左安门到

居民用能和消费:

- 购买使用节能电器
- 低能耗消费：食品，饮料，当地产品等