

实现“十一五”节能目标的
方式与途径研究
**Ways and Means of Implementing the
2010 Energy Intensity Target**

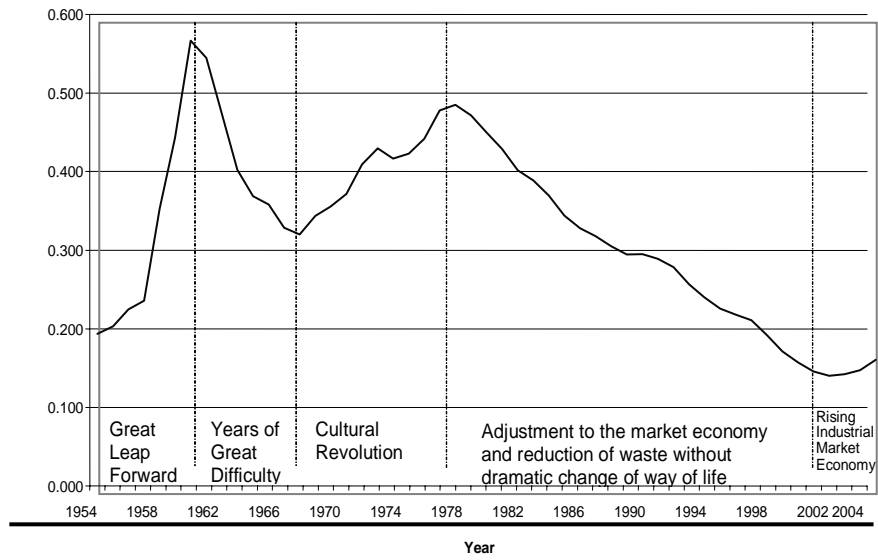
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一、实现“十一五”规划节能目标所面临的形势与挑战
**Conditions and challenges facing the energy
conservation targets**

1、“十五”时期节能状况的评价以及发展趋势的判断

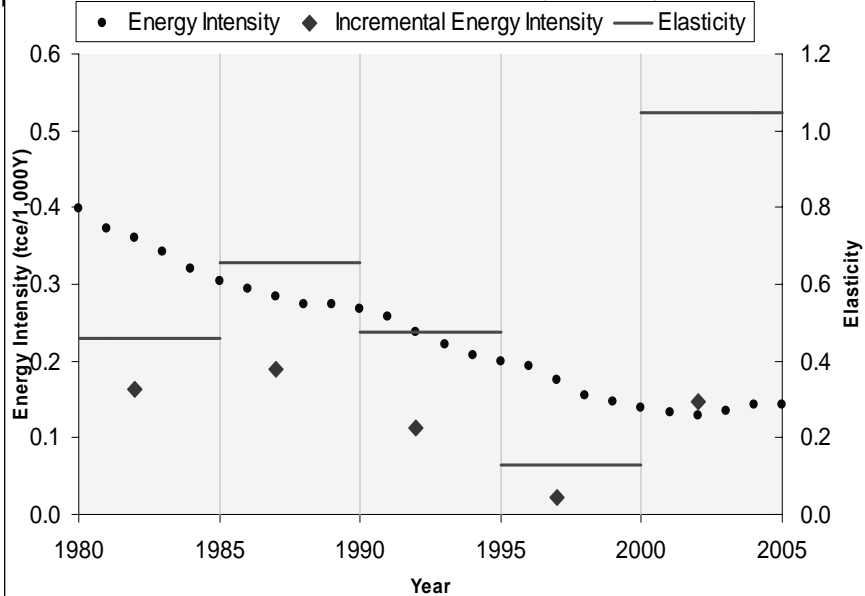
1. Evaluating the current status and future
trends of energy conservation in the 10th
Five-Year Plan (FYP)

中国的能源密度 Energy Intensity In China

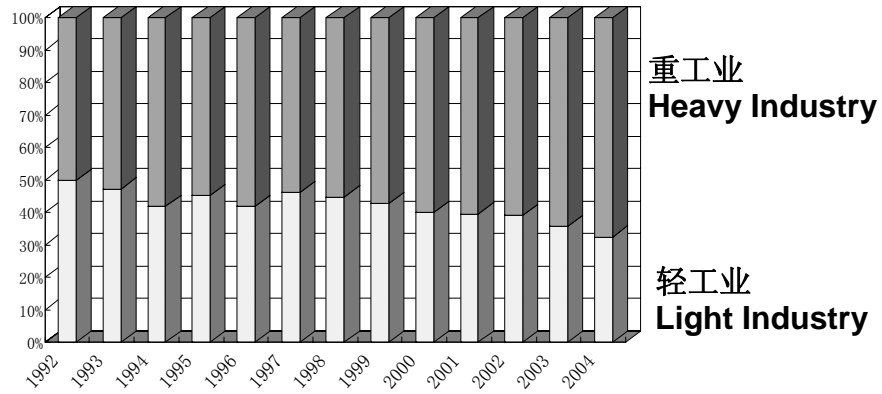


Energy Intensity and Energy/GDP Elasticity (1980-2005)

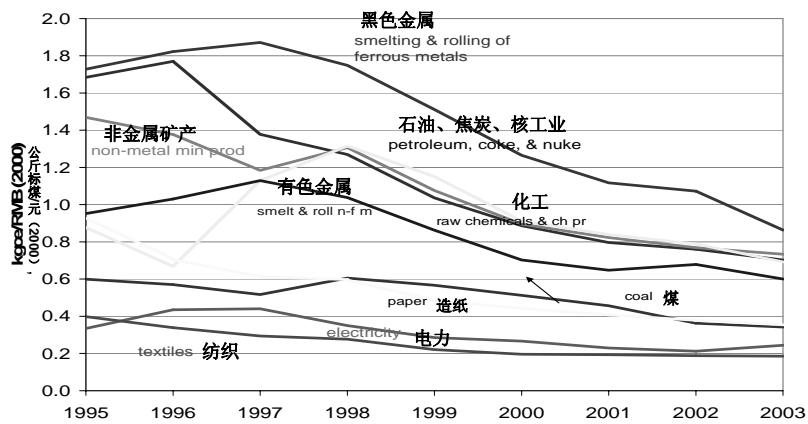
能源强度和GDP能源弹性系数(1980-2005)



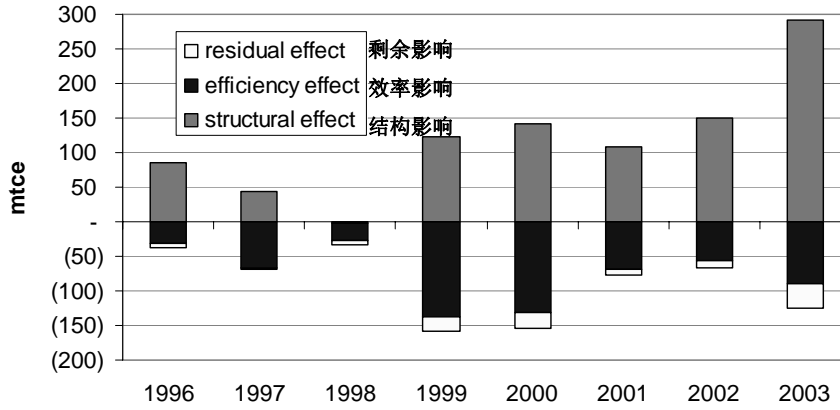
重化工业加速发展的特征
Accelerated Heavy Industrialization
霍夫曼比率



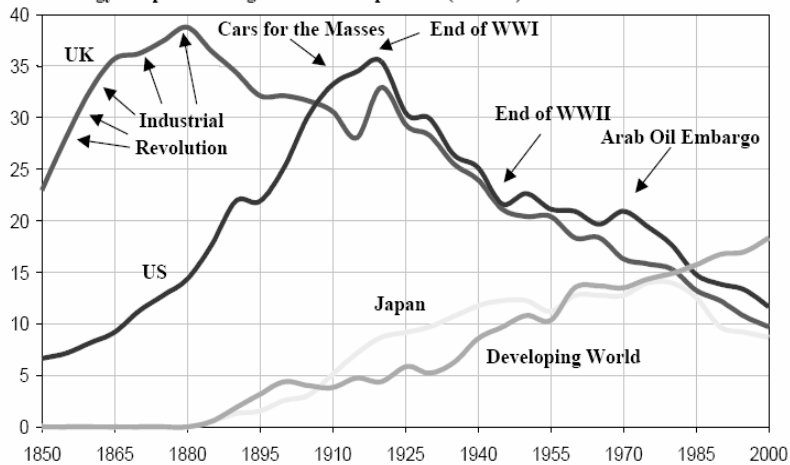
工业部门的能耗强度实际在下降
Energy Intensity Decreases in Industrial Sectors



结构重型化导致单位GDP能耗增加 Structural Impact on GDP Energy



Energy use per unit of gross domestic product (Mbtu/\$)



Source: DOE/EIA, 2000, Skov, 2000, DOC/BEA 2001, National Academy of Engineering, 1990

两个关键问题：Two Key Questions

1、重化工业加速发展 →
经济增长 → 能耗激增

转变经济增长方式？
不可持续 → 可持续

重化工业减速对GDP的影响？
20%节能目标与GDP的关系？

2、技术差距多大？ 缩小差距的
时间？ 成本？

1. Accelerated heavy industrialization →
Economic Growth → Energy
Consumption growth

Changes in economic growth pattern?
Unsustainable → Sustainable

Impact of deceleration in heavy industry
on GDP?
Relationship between 20% energy
intensity improvement target and GDP?

2. Size of technological gap? Time and
costs in reducing the gap?

一、实现“十一五”规划节能、环保目标所面临的形势与挑战

Conditions and challenges facing the energy conservation targets

2、“十五”时期节能领域出现问题的主要原因

一是战略不明，“十五”时期并没有将经济社会的可持续发展问题提升到国家战略的高度予以重视；

二是政策缺失，并没有形成法律、政策、标准等系统性的制度体系，尤其是没有建立起经济激励机制；

三是监管不力，现行的能源管理机构和管理方式并不能做出灵活的反应，也不能及时应对出现的新问题。

Main Causes of Problems Faced by Energy Conservation in the 10th FYP:

1. Unclear Strategy: Sustainable development has not been elevated to the level of national strategy.

2. Lack of strong policies: Systems of law, policy, standards, and especially market-based mechanisms, have not yet been established.

3. Weak regulation: The current regulation system and methods cannot respond flexibly or quickly to problems,

二、实现“十一五”规划目标的基本原则和途径 Basic Principles and Options for Realizing the 11th FYP Targets

三个基本原则

1. 市场、-法律、行政等手段多管齐下。
2. 远近结合。既要着重解决当前的突出矛盾，更要着眼于建立长效机制。
3. 上下联动。需要落实中央与地方以及中央各部门的各自责任，既要将国家的节能、环保目标落实到各级地方政府，也要避免责任的简单下移，中央政府的措施必须尽早到位。

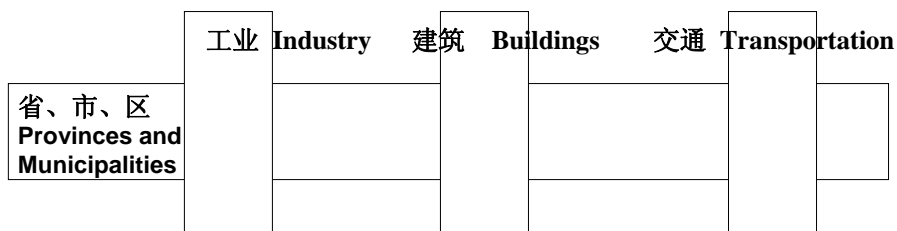
Three Basic Principles:

1. **Combine market-based, legal, and administrative mechanisms**
2. **Couple short- and long-term goals**
3. **Link the efforts of central and local government**

二、实现“十一五”规划目标的基本原则和途径 Basic Principles and Options for Realizing the 11th FYP Targets

2、节能目标的两维度分解 Disaggregating the Energy Conservation Targets

单位GDP能耗下降20%的总体目标 Overall Target of 20% Reduction



二、实现“十一五”规划目标的基本原则和途径 Basic Principles and Options in Realizing the 11th FYP Targets

3、三个基本途径

- 结构节能、技术节能、制度节能；

- 近、中、长期三个途径应发挥的作用

近期：制度因素入手（以抑制高耗能行业的无序发展，促进先进适用技术的采用）；

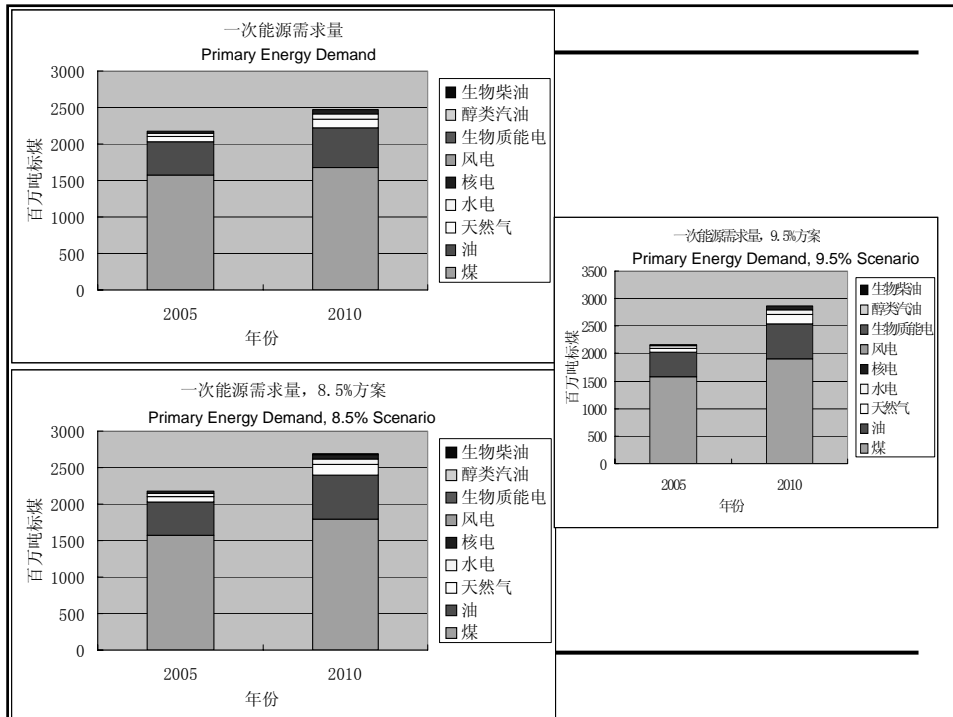
中长期：技术跨越战略，重大领域的技术创新；经济结构得到显著优化。

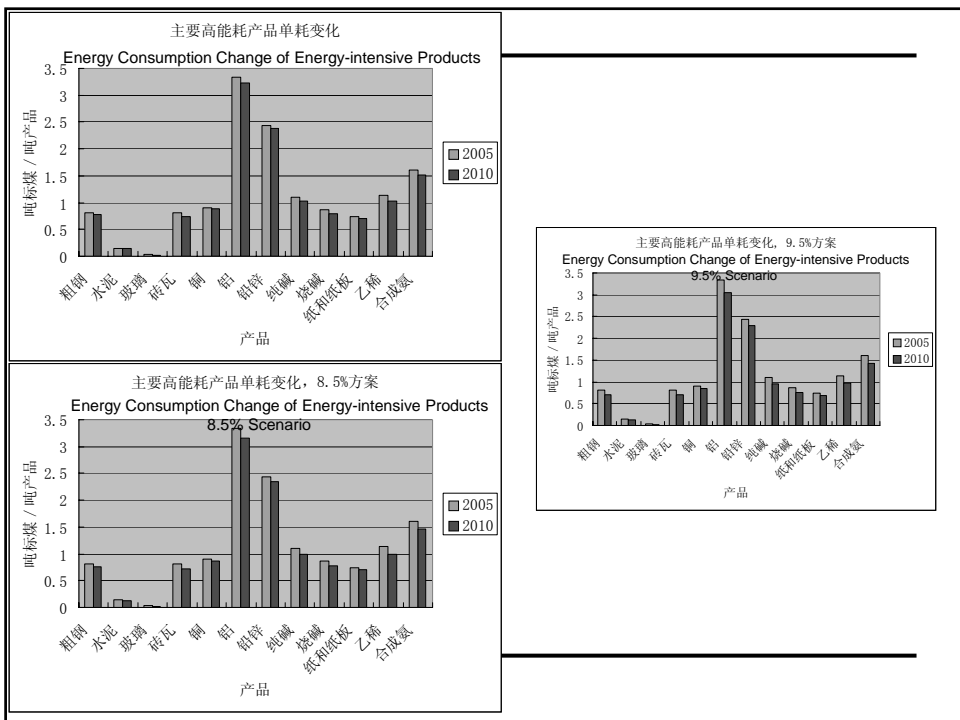
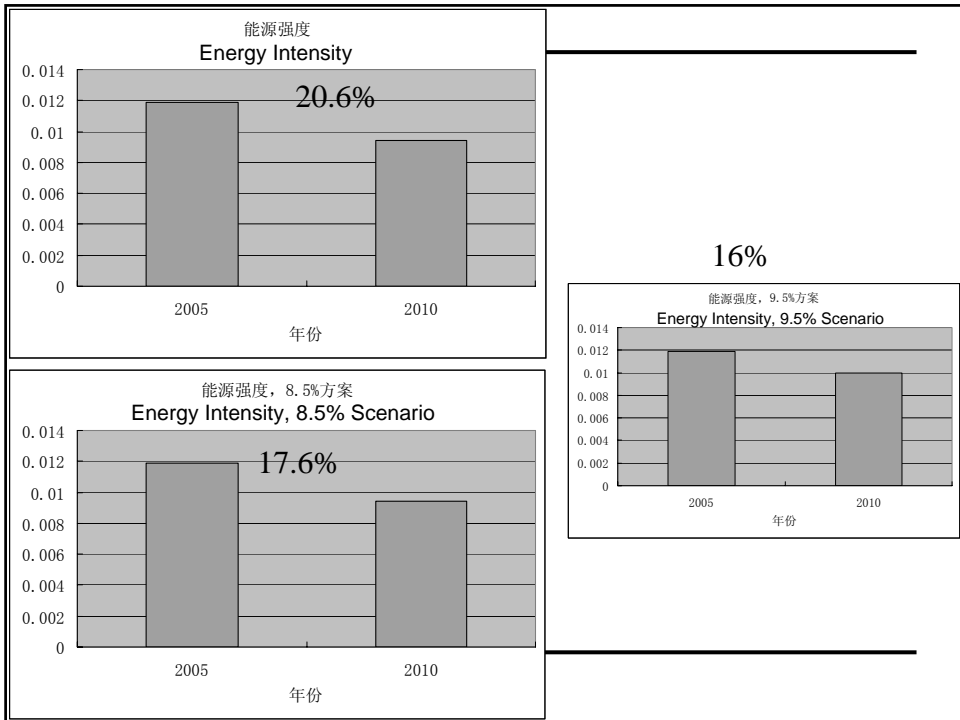
3、 Three Basic Options: Structure, Technology and System Energy Saving

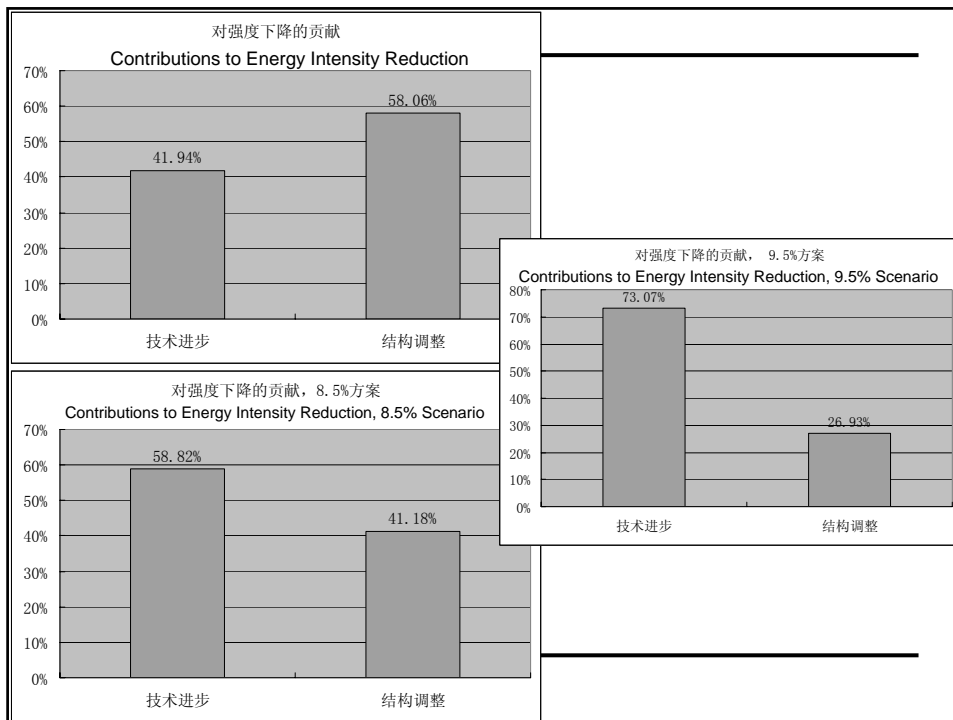
Varying roles:

Near-term: System factors

Medium long-term: Technological innovation, "leapfrogging", and structural improvement







三、以调整和完善制度入手，尽快扭转不利的局面

Start with System Improvement

- 1、在国家层面，改革能源管理体制和完善节能管理制度，切实转变在能源领域依然存在的“重供应、轻节约”的问题。
 - 2、将节能、环保目标纳入到对地方政府的考核制度中，并建立动态节能评估制度和节能监测制度。
1. Reform and improve the system for energy regulation and administration; change the “strong on supply, light on savings” approach to energy
 2. Use energy conservation and environment protection targets to evaluate local government performance and establish a dynamic evaluation and monitoring system

三、以调整和完善制度入手，尽快扭转不利的局面 Start with System Improvement

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| <p>3、改革能源价格政策，使得价格能够反映资源的稀缺程度、市场供求关系以及环境污染等造成的外部成本。</p> <p>4、改革财税政策，从供给和需求两个方面，建立有效的财税政策，激励节能、惩罚浪费。</p> <p>5、对重点耗能行业建立能效准入制度。</p> <p>6、建立能源审计制度。</p> <p>7、限制高载能产品出口。</p> | <p>3. Reform energy pricing to reflect resource availability, market demand and environmental externalities.</p> <p>4. Reform fiscal & tax policies to provide the correct incentives.</p> <p>5. Require a minimum EE for market entry.</p> <p>6. Establish an energy auditing system.</p> <p>7. Restrict export for energy-intensive products.</p> |
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三、以调整和完善制度入手，尽快扭转不利的局面 Start with System Improvement

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| <p>8、实施强制性能效标准。家用电器、照明产品、商业/工业设备共12种重点终端用能产品由于强制性能效标准的实施。在十一五末（2010年）总共节能4453万吨标准煤。能效标准实施所带来的节能量对十一五末实现单位GDP能耗降低20%的总目标（按节约7亿吨标煤算）来说，约贡献其中6.36个百分点。</p> <p>9、大幅度提高节能投资，建立激励企业节能投资的新机制。</p> | <p>8. Implement compulsory EE standards for household appliances, lighting, enterprise/industry facilities, to save 4453 tce by 2010. EE standards implementation can contribute 6.36% to realizing the 20% energy intensity reduction target.</p> <p>9. Significantly increase EE investment, and establish new mechanisms for EE investment</p> |
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四、依靠技术进步促进节能

Energy Conservation Through Technological Advances

1、提高技术进步对节能的贡献率

实现中国的能源可持续发展必须采取技术跨越的战略。

技术节能贡献率，“十一五”目标：35-40%

“十二五”、“十三五”目标：逐步提升。

1. Increase the contribution of technical advances to EE:

Targets: Technological advances contribute 35-40% to the EE targets in the 11th FYP.

Targets for 12th and 13th FYP should be gradually increased.

十一五技术节能潜力总和—S3

Overall EE Potential through Technological Improvement in 11th FYP

		钢材	水泥	玻璃	陶瓷	10种有色金属	乙烯	电力	交通	合成氨	烧碱	合计
存量节能	技术	1191	1064	73	392	114	54	3431	52	121	32	6524
	可实现	476	426	29	157	46	22	1372	21	49	13	2610
增量节能		1452	542	47	249	80	25	1896	17	32	16	4356
总节能量	技术	2643	1606	120	641	194	79	5327	69	153	48	10880
	可实现	1928	968	76	406	146	47	3268	38	81	29	6966
增量耗能		35342	7856	559	3278	5251	320	40159	655	1592	891	95902

四、依靠技术进步促进节能

Energy Conservation Through Technological Advances

2、技术创新的新机制

建立起基于市场机制的、有利于技术创新和新技术应用的经济激励机制，特别是财税政策，同时建立和提高相应的标准。

3、几个重大领域的技术创新 推荐几个面大量广的领域，实现技术创新，并分析预期可达到的节能效果。

2. Mechanisms for

Technological Innovation: market incentives (especially fiscal/tax policy), standards

3. Key Technological

Innovations: promote wide-ranging measures, implement technological innovation, and analyze the potential energy savings

五、加强环境监管，实现节能、环保的双重目标

Strengthening Environmental Regulation to Realize the EE and Environmental targets

20%节能目标与10%环境保护目标的互动关系

1、环境目标管理的重点 政府监管与市场机制；建立起有利于环境保护的市场机制至关重要，特别是增加排污收费标准，使得企业的环境治理成本小于污染排放的成本。

- 环境保护的主体—企业。

Interrelated 20% EE and 10% Environmental Improvement Targets

1. Keys to management of environmental targets:

combine government oversight with market-based mechanisms, e.g. increasing pollution penalties such that the cost of polluting exceeds the cost of cleaner production.

2. Enterprises are entities for environmental protection.

五、加强环境监管，实现节能、环保的双重目标
Strengthening Environmental Regulation to Realize the EE and Environmental targets

2、提高环境监管能力的主要方式

- 监管前置（真正作为经济、社会发展的决策变量）；
- 中央与地方的关系，垂直管理, 对地方政府的环境考核；
- 提高监管队伍的执法素质和增强能力建设。

2. Main options for improving environmental regulation include:

- Upfront regulation
- Vertically integrated environmental regulation
- Capacity building

五、加强环境监管，实现节能、环保的双重目标
Strengthening Environmental Regulation to Realize the EE and Environmental Targets

3、环境保护的经济激励机制和惩罚制度

- 经济激励机制：税收、收费、排污交易。
- 惩罚制度：提高惩罚标准、建立强制性市场退出制度。

3. Incentives for environmental protection:

- Economic: taxes, levies, emissions trading
- Punitive: Higher penalties, compulsory market-exit

4、公众参与，健全环境诉讼制度。

4. Public participation and environmental litigation