

中国建筑节能：现状、政策、问题与建议

China BEE: Situation, Policy, Barrier and Recommendation

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主要内容 Outline

- 中国的建筑节能现状
- China's Energy Conservation Situation

- 中国的建筑节能政策
- Policy review

- 问题与建议
- Barriers and recommendations

现状 Situation

建筑能源服务水平 Energy Service Level

● 人口与城镇化 Population and Urbanization

		1995	2000	2001	2002	2003	2004	2005
人口	亿人	121121	126743	127627	128453	129227	129988	130756
城镇化率	%	29.04	36.22	37.66	39.09	40.53	41.76	42.99
人均GDP	元	5046	7858	8622	9398	10542	12336	14040

	Unit	1995	2000	2001	2002	2003	2004	2005
Population	10 ⁸	121121	126743	127627	128453	129227	129988	130756
Urbanization rate	%	29.04	36.22	37.66	39.09	40.53	41.76	42.99
GDP per capita	RMB	5046	7858	8622	9398	10542	12336	14040

建筑能源服务水平 Energy Service Level

● 建筑面积 Building area

- 每年新建的建筑高达16~20亿平方米。
- 1.6~2 billion m2 annually
- 截止2005年，全国既有民用建筑面积约420亿平方米。其中，
 - 住宅面积约365亿平方米
 - 公共建筑面积约55亿平方米
- Till 2005, total 42 billion m2
 - Residential: 36.5
 - Commercial: 5.5

建筑能源服务水平 Energy Service Level

● 能源系统设备 Energy facilities

- 采暖区域从黄河以北扩展到长江以南

- Heating Zone: North Yellow River  South Changjiang River

- 空调快速增长

- Air Conditioning Facilities grow fast

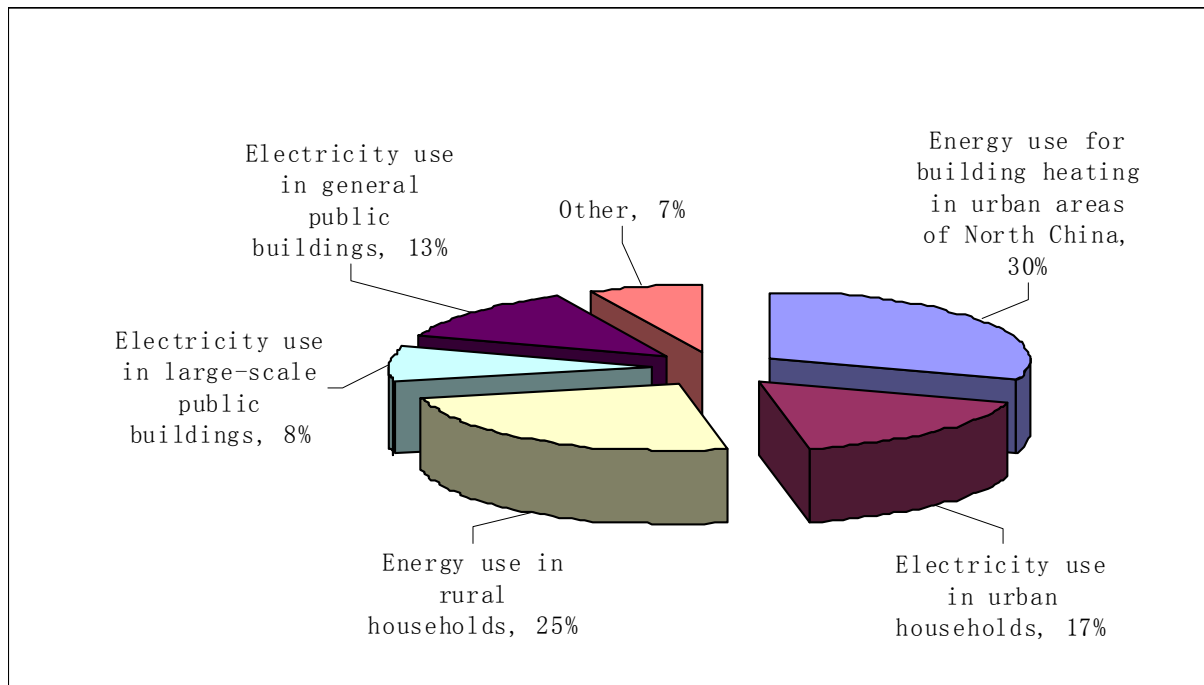
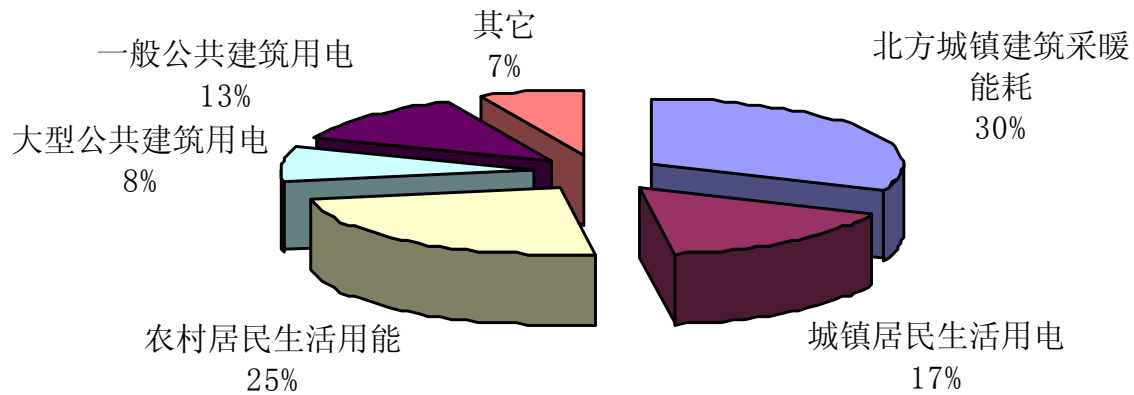
- 其他用能设备（尤其是电器设备）快速增长

- Other appliances grow fast

建筑能耗 Energy Consumption

- 2005年，建筑终端能耗约为2.7亿吨标准煤，折合为一次能源约为4~4.5亿吨标准煤，占全国能源消费总量的比重约为20%左右
- In 2005, about 20% of the national energy consumption

建筑能耗 Energy Consumption



能效水平 Energy Efficiency

- 北方城镇地区单位面积采暖能耗是同纬度气候相近国家的2~3倍
- In north urban region, the seasonal **heating energy consumption** based on building area is 2~3 times of the developed countries with similar climate
- 锅炉房实际运行效率非常低（约60%~65%），供热管网热损失很大（约15%~30%）
- In many cases, the operating energy efficiency of heating boilers is about 60% ~65% , heat pipe loss 15%~30%

能效水平 Energy Efficiency

- 大型公建年耗电量100~300度/年平方米，单位面积耗电量存在3~4倍的差距
- In large **commercial buildings**, the annual electricity consumption per building area exists 3~4 times of difference from **AC and lighting** operating energy efficiency

政策 Policy

标准与标识 Standard and Labeling

● 标准 EE Standards

● 居住建筑 Residential building

- 3个气候区: 3 climate zone

- 节能30%—50%—65%: energy cut 30%—50%—65%

● 公共建筑 Commercial building

● 绿色建筑 Green building

● 用能设备（空调、冰箱、照明等） End-use energy appliances

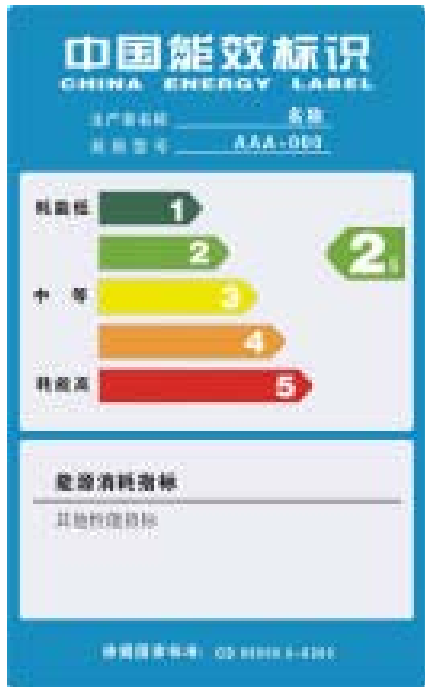
● 标识 EE labeling

● 用能设备（空调、冰箱等） End-use energy appliances

● 门窗 Windows

● 节能认证 EE Certification

标准与标识 Standard and Labeling



能源价格 Energy Price

● 热价 Heating

- 2007年，国家发改委会同建设部制定了《城市供热价格管理暂行办法》—“两部制”热价
- In 2007, the National Development and Reform Commission and the Ministry of Construction jointly formulated the "Temporary Administration Method for Urban Heating Price" —meter heating
- 地方热价补贴
- Local subsidy for heating tariff

● 电价 Electricity

- 正在研究“阶梯电价”
- “laddering electricity price” are under studying

财政补贴 Financial Subsidy

- 新型墙体材料专项基金 “*special fund for innovative wall materials*”
- 可再生能源建筑应用示范项目资金 “*Fund for Demonstration Projects of Renewable Energy Application in Buildings*”
- 国家机关办公建筑和大型公共建筑节能专项资金 “*special fund for the energy conservation of government office buildings and large-scale public buildings*”
- 北方采暖区既有居住建筑供热计量及节能改造奖励资金 “*award fund for heating measurement and energy conservation transformation of existing buildings with heating systems in northern regions*”

财政补贴 Financial Subsidy

- 节能技术改造财政奖励资金 “*Government reward fund for energy conservation retrofit projects*”
- 高效照明产品财政补贴 “*Financial subsidies for efficient lighting products*”

减免税 Tax Credit

- 《节能节水专用设备企业所得税优惠目录（2008年版）》“Catalogue of Income Tax Credit for Energy-Conservation and Water-Saving Special Equipment Enterprises (2008 Version)”
- 《资源综合利用企业所得税优惠目录（2008年版）》“Catalogue of Income Tax Credit for Enterprises of Comprehensive Utilization of Resources (2008 version)”

合同能源管理节能融资机制 ESCOs

- 世行/GEF中国节能促进项目 “WB/GEF China Energy Conservation Promotion Project”
 - 项目一期，二期，三期：Project I, II, III
- 超过300家，成立中国节能协会节能服务产业委员会（EMCA） Over 300 ESCOs, Energy Management Company Association (EMCA)
- 建筑节能项目占实施的节能项目总数的60%左右 building energy conservation projects accounted for 60%

问题与建议

Barriers and Recommendations

问题与建议 Barriers and Recommendations

- 推动建筑节能的思路由“抓措施”转为“抓能耗指标”，为实施基于市场的建筑节能推动机制提供良好的宏观政策环境
- BEE Strategy: from “measure based” to “actual energy consumption based” — provide good macro policy environment to promote BEE with market mechanism

问题与建议 Barriers and Recommendations

- 推动建筑节能的重点由“围护结构”向“能源系统/设备、围护结构、生活消费方式”转变—由“生产端”向“消费端”指标
- Major fields: from “envelope” to “energy system/equipments, envelope, life style” — from “producing side” to “consuming/demand side”

什么是建筑能耗？建筑能耗的影响因素？

Concept of building energy consumption?

The influence factors on building energy consumption?

问题与建议 Barriers and Recommendations

- 强化新建建筑和新增用能设备的节能标准执行力度
 - 新建建筑
 - 新增能源设备
- *Strengthen the implementation of energy conservation standards on newly-installed buildings and newly-added energy use equipments*
 - New buildings
 - New alliances

问题与建议 Barriers and Recommendations

- 尽快研究建立推动基于市场的建筑节能改造长效融资机制
 - 北方采暖地区住宅及供热系统/设备
 - 大型公建
- Establish EE financing market mechanism to promote EE retrofit projects
 - Residential heating
 - Large scale public building

问题与建议 Barriers and Recommendations

● 加强完善建筑节能经济激励长效机制 Improve long-term incentive policies to promote BEE

● 1、完善能源价格形成机制

- 逐步理顺一次能源和二次能源之间的关系。尤其是煤炭价格与热价和电价直接的关系，鼓励热电联产集中供热发挥应有的节能效果。
- 建立基于“全社会能源消费目标管理”思路的“阶梯能源价格”体系，对“奢侈型，浪费型”的消费行为进行合理控制
- 加快落实和推广供热/冷计量收费机制。

● 1. Improve energy price policy

- Primary energy price and secondary energy price: coal, heat, electricity
- “laddering electricity price”
- Metering heating and cooling

问题与建议 Barriers and Recommendations

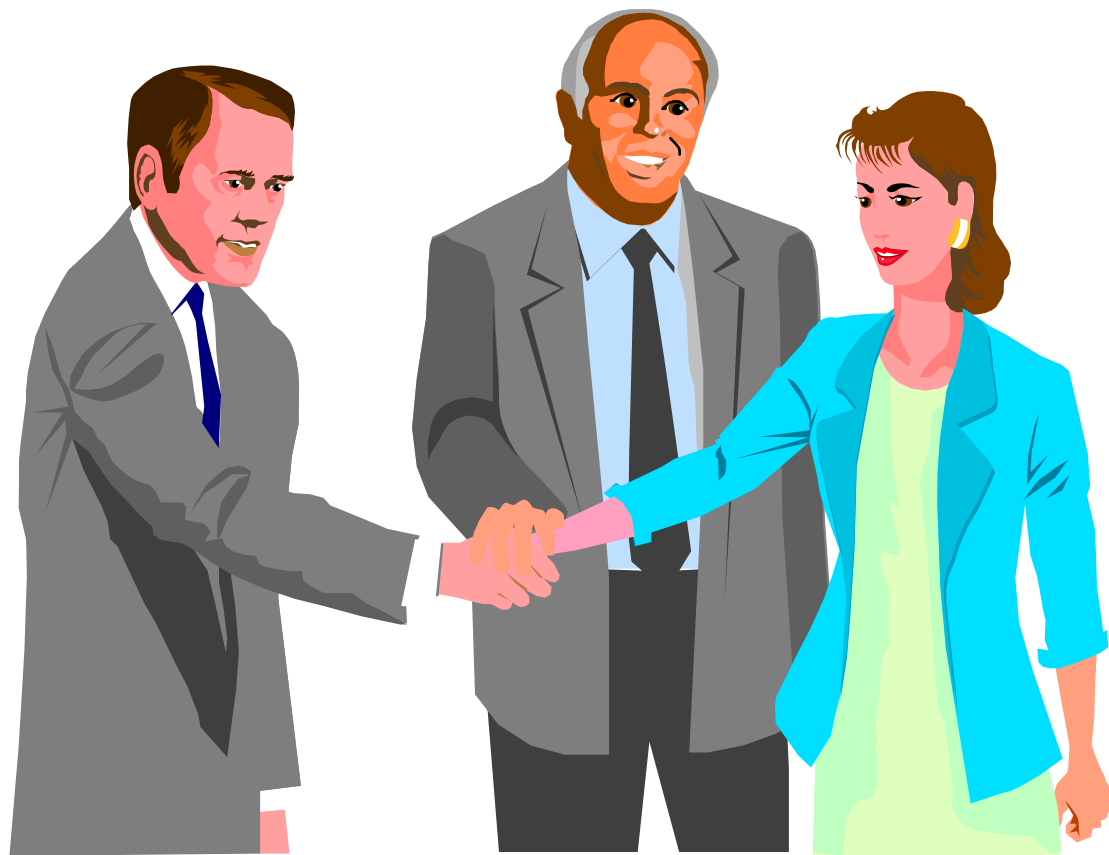
- 加强完善建筑节能经济激励长效机制 Improve long-term incentive policies to promote BEE
 - 完善支持建筑节能技术和项目的财税经济激励政策
 - 加快研究评价建筑节能效果的方法，并按照相关措施能够实现的节能量来采取财政补贴或者减免税政策。
 - 加大对建筑节能项目的财政补贴力度，并且采用根据能够实现的节能量效果确定补贴数量，并对最终实现的节能量进行审核。
 - 将更多的商用/民用领域节能技术纳入《节能节水专用设备企业所得税优惠目录》和《国家重点节能技术推广目录》，给予减免税优惠支持。
 - Improve fiscal and tax incentive policy on BEE
 - Study on the method to evaluate the actual energy saving amount
 - Enhance the fiscal and tax incentive policy support on BEE on the basis of energy saving amount
 - Put more innovative commercial/residential EE technologies into “Catalogue of Income Tax Credit for Energy-Conservation and Water-Saving Special Equipment Enterprises” and “Catalogue of Income Tax Credit for Enterprises of Comprehensive Utilization of Resources”

问题与建议 Barriers and Recommendations

- 加强完善建筑节能队伍的能力建设
 - 建筑节能人员编制
 - 建筑节能中介机构
 - 建筑节能服务市场
- Enhance the capacity building on BEE
 - Staff
 - Third party
 - Service market

问题与建议 Barriers and Recommendations

- 加强建筑能耗统计
 - 能耗统计指标与统计制度
 - 建筑节能效果评价方法
- Enhance data collection and statistics on building energy consumption
 - Statistical indicators and regulation
 - Energy saving performance evaluation



Thanks!