
运用金融和市场机制提高中国建筑能效（REEEP资助项目）
Using Financial and Market-based Mechanisms to improve Building Energy
Efficiency in China (REEEP project)

Mapping the implementation of appropriate Financial
and Market-based Mechanisms for BEE in China
规划中国建筑节能的融资及市场机制的实施蓝图

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主要内容

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—— AHP分析
 2. 评价各种融资手段和政策机制对中国建筑节能的有效性
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mechanisms for BEE in China

AHP assessment

Ssuitability of different MBIs and FMs for China

MBIs and FMs for BEE

建筑节能融资及市场机制

1. 清洁发展机制
 2. 国内交易体系（白色证书）
 3. 电器能效标识
 4. 建筑物能效标识（节能建筑认证）
 5. 能源价格形成机制（建筑用能征税、供暖收费机制改革）
 6. 财政补贴和税收优惠政策
 7. 建筑能效标准
1. CDM
 2. Internal trading system (White Certificates)
 3. Appliance labeling
 4. Building energy efficiency certification
 5. Building energy price mechanism (including energy taxation)
 6. Financial subsidy or preferential tax.
 7. Building energy standards and codes

建筑节能融资手段和政策机制

■ 电器能效标识

- 是对各种家用电器和办公设备的能效进行分级标识的体系。能效标识直观的表明了产品的能效等级，方便消费者在购买时进行比较。
- 目前，中国已经公布了三批实行能效标识的电器产品目录，包括空调、冰箱、洗衣机、燃气热水器、自镇流荧光灯等多种电器设备都已经采用能效标识这一措施。。

■ Appliance labeling

- It is a system of categorizing the energy efficiency of different appliances and office equipments. Energy labeling of appliances helps consumers to make a more informed choice when buying an appliance by allowing them to easily compare the energy consumption of different models. Energy consumption is rated from 1-5 with 1 being the most efficient.
- China has issued three groups of appliances to implement the EE labeling, including air conditioner, refrigerator, washing machine, gas-fired water heater, etc.

建筑节能融资手段和政策机制

■ 建筑能效标准

- 强制性最低能效标准是市场准入的“门槛”，是实施节能激励政策的基础，只有符合强制性最低能效标准的建筑物和设备才能进入市场。更加严格的标准和实施将有助于降低新建建筑的建筑能耗。
- 为了鼓励节能型建筑的发展，中国已经出台了一系列的强制性建筑节能标准，但在标准的执行力度和监督力度方面仍然较弱，很多项目还未达到标准的要求，需要进一步加强。

■ Building energy standards and codes

- Obligatory minimum EE standard is a threshold to enter into market and a basis for the implementation of energy saving incentive policies. Stricter standards and enforcement would lead to improvements in building energy consumption of new buildings.
- China has issues a serials of obligatory BEE standards but the ability of implementing and supervising them are weak. There are still many projects unable to reach the standards. This policy need to be enhanced.

建筑节能的国外激励政策汇总

■ 财政补贴和税收优惠政策

- 政府补贴以直接资金补贴或间接贴息补助的方式鼓励绿色照明、建筑节能改造、供热系统改造以及新能源的使用等建筑领域的节能和新能源利用行动
- 减税或税收优惠政策通常用于鼓励节能相关的投资。如，英国政府推行一种强化的资金补贴方案，允许项目开发方以投资于节能技术全部的资本成本抵消其投资期间的应税利润，以此来推进建筑能效的发展。

■ Financial subsidy or preferential tax

- Subsidies are commonly used for green building energy efficiency modification, heating system reformation, renewable energy use, and etc.
- Another form of subsidy is a deduction in taxes for energy efficient behaviour. In UK, the Enhanced Capital Allowances allow a business to write off the whole of the capital cost of their investment in certain energy saving technologies against their taxable profits of the period during which they make the investment.

建筑节能的国外激励政策汇总

■ 能源价格形成机制

- 当前中国的重点是理顺建筑用能费用征收的机制，重点是对中国北方建筑集中供热/供冷收费机制进行改革，即将原先的按面积收费改为按供热/供冷量收费
- 建立基于市场的能源价格形成机制，如实行“阶梯电价”、“分季气价”等差别计价方式，调动居民节能的积极性，减少建筑能耗和提高建筑用能效率。
- 征收能源税或碳税，以此来实现增加国家财政收入和降低能源消耗及减少碳排放的双重功效。

■ Building energy price mechanism (including energy taxation)

- The key point for China currently is to reform the price mechanism of building energy use, especially that for district heating and cooling should change from area-based to quantity-based.
- The market-based energy price mechanism should be established, such as “stair-type electricity price”, “season-based gas price”, etc to arise the consumers’ initiatives to save energy and improve the BEE.
- A tax on energy use in buildings could be introduced – with the dual aim of increasing revenue for the state and decreasing energy consumption.

对建筑节能激励政策的AHP评价

Suitability of different instruments to the Chinese context

-- AHP assessment

AHP: 层次分析法

- 评价目标：确定7种政策机制在促进中国建筑节能方面具有优先性
- 评价方法：准则及方案两两对比，相对程度分为9个级别
- 评价者：政府、研究者、开发企业、节能企业等，共12份问卷

AHP: Analytical Hierarchy Process

- Assessment purpose: compare 7 different policy options against defined criteria in order to rank different policy options in promoting BEE
- Assessment method: all potential policy options were given pairwise comparison. 9 levels of rating between each pair of two options are given.
- Valuers: Government officials, researchers, entrepreneurs, etc. Totally 12 surveys are collected

对建筑节能激励政策的AHP评价

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■ 评价准则:

1. 建筑节能政策的有效性及其影响
2. 政策引进或修改所需要的资金投入
3. 政策为利益相关方接受的预期程度
4. 政策引进或修改所需要的制度性调整力度
5. 政策引进后实施过程中后续的成本支出和其他必要的努力

■ Assessment criterion:

1. Effectiveness/ impact of policy in improving building energy efficiency
2. Capital investment required to introduce/ modify policy
3. Acceptability to stakeholders e.g. building users, construction companies
4. Level of political effort to introduce/ modify policy (non-financial)
5. Ongoing implementation costs and effort for policy once introduced

对建筑节能激励政策的AHP评价

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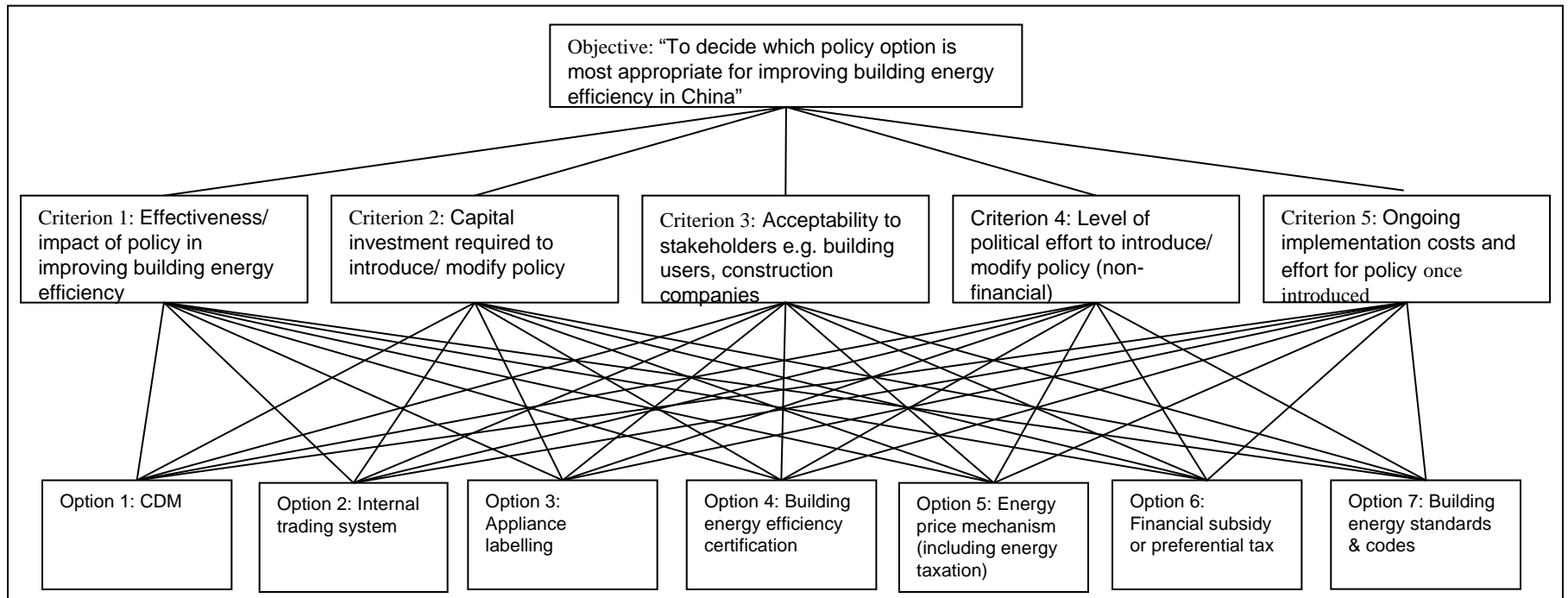
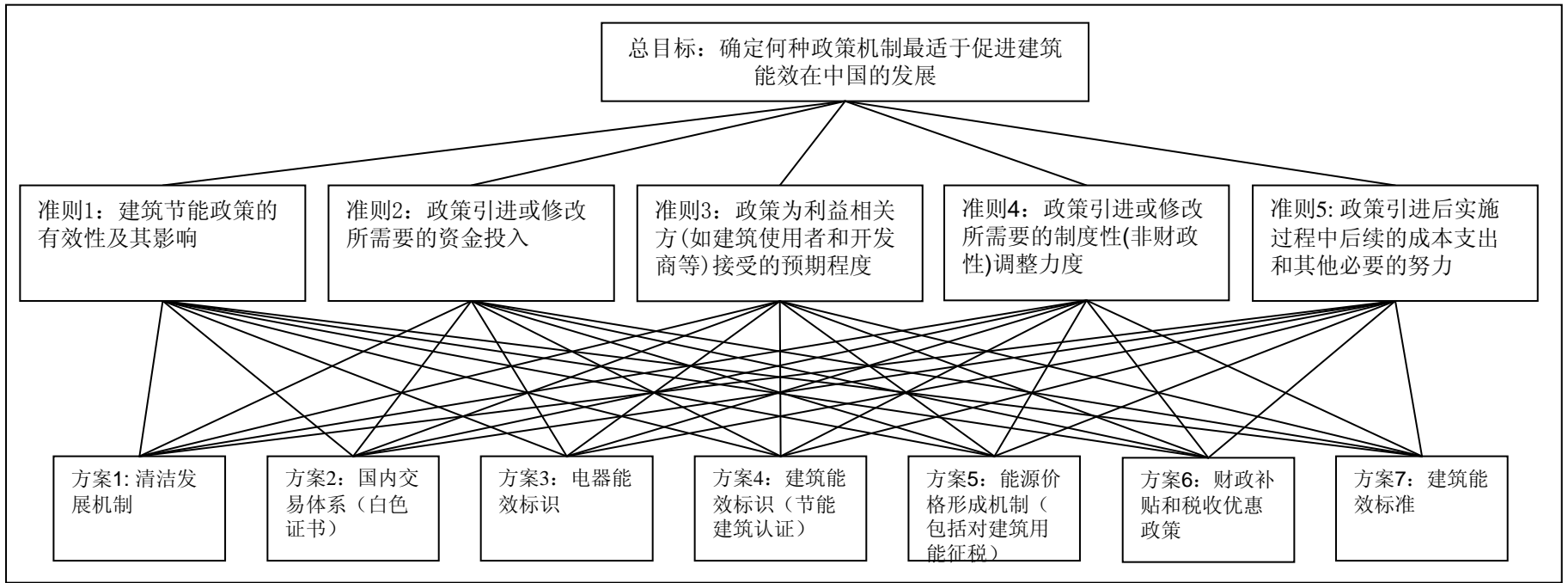
-- AHP assessment

■ 政策方案两两对比标度：

比例标度	关键
1	两种方案同等重要
3	一种方案的重要性稍高于另一种方案
5	一种方案的重要性明显高于另一种方案
7	与另一方案相比，该方案绝对重要
9	与另一方案相比，该方案极端重要
2, 4, 6, 8	上述判断的中间值

■ Rating for comparison between each pair of two options

Rating	Key
1	Equal importance
3	Small importance of one over the other
5	Moderate importance of one over the other
7	Strong importance
9	Very strong importance
2, 4, 6, 8	Intermediate values between the two adjacent judgements

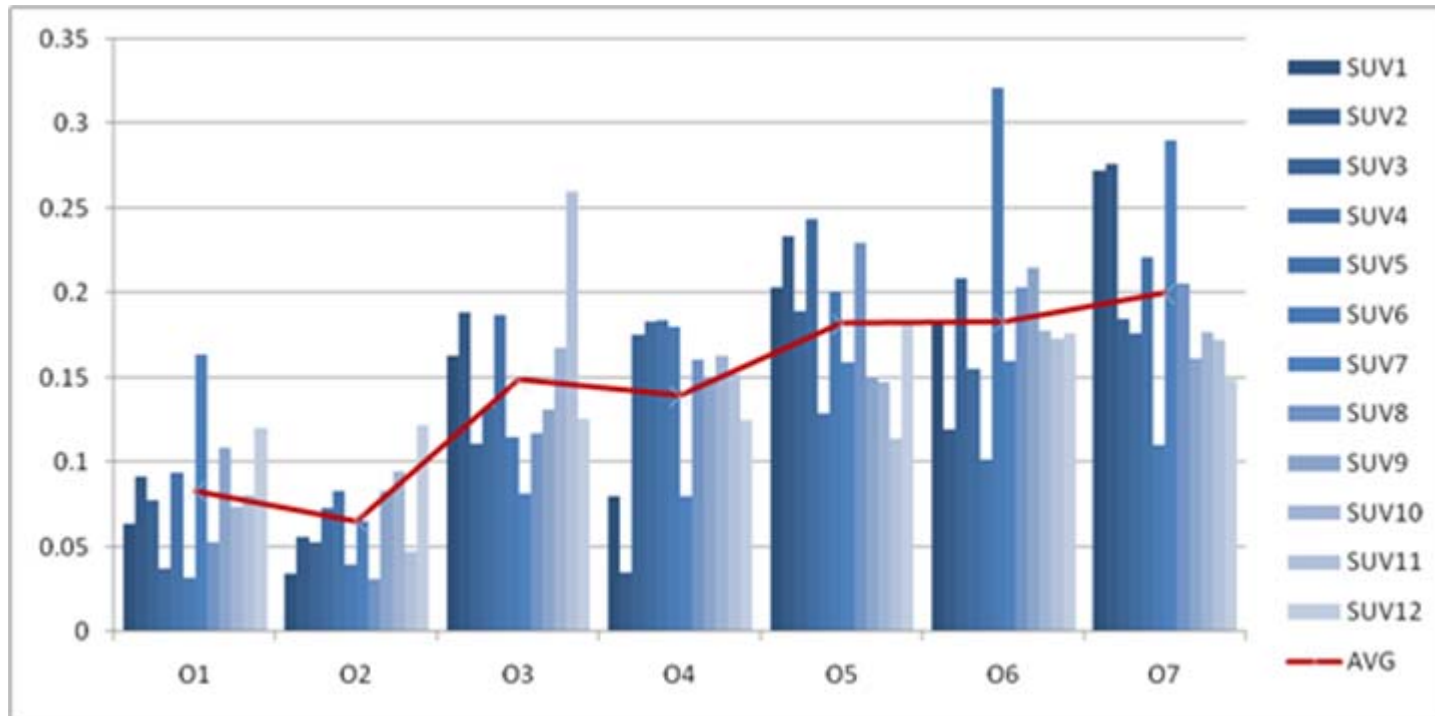


对建筑节能激励政策的AHP评价

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■ 评价结果 Result

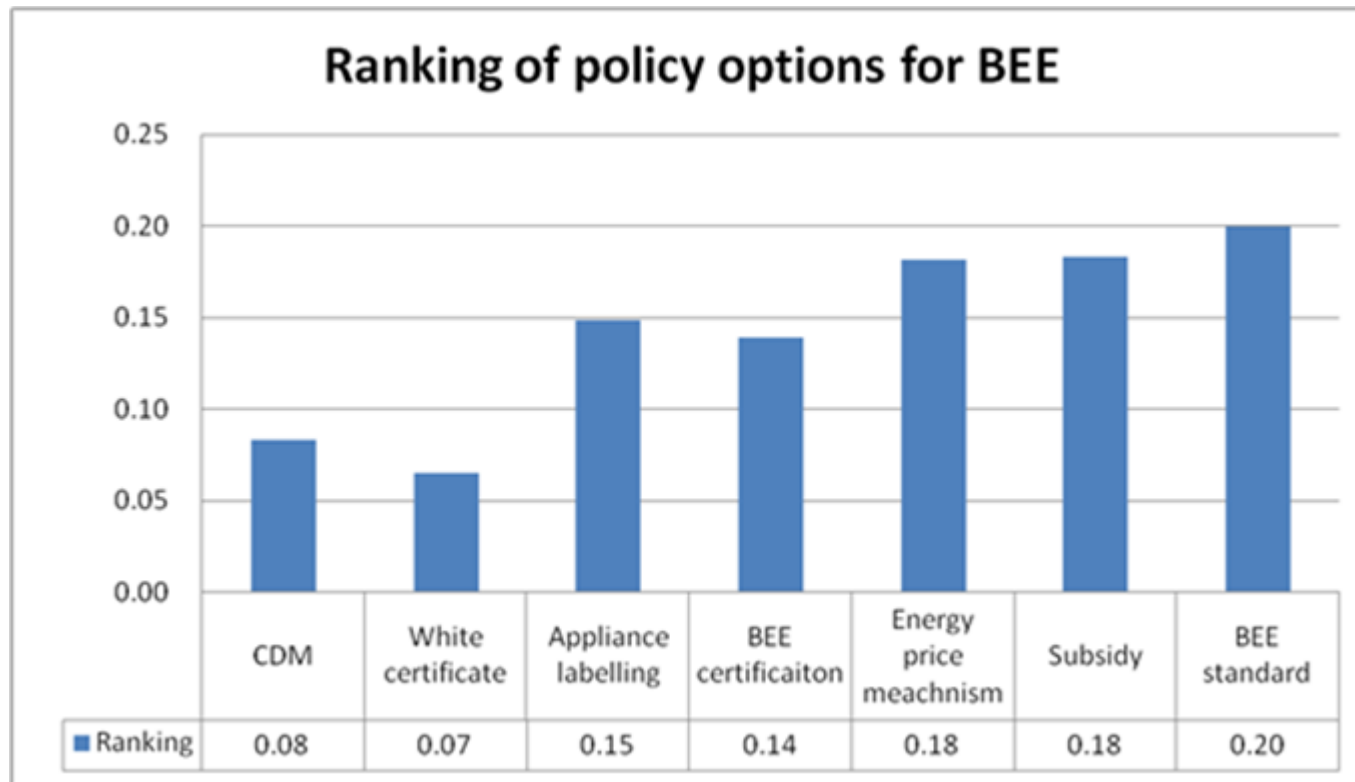


对建筑节能激励政策的AHP评价

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■ 评价结果 Result



初步结论 Primary summary

- 从对国外的相关激励政策的初步分析评价看，未来我国优先考虑和重视的还应该是能效标准、能源价格形成机制、税收和财政优惠政策，与此同时积极推动能效标识（包括电器和建筑两方面）工作的展开。CDM和节能交易体系还处于探索阶段。
- BEE standard, energy price mechanism and tax and subsidy options should be given more consideration and importance in the near future in promoting building energy efficiency. In the meantime, labelling or certification (including building EE labelling and appliance labelling) is also a good mechanism and should be enhanced. CDM and white certificate are new options for improving BEE in China, and still in the demonstration phase, the uncertainties of the additional costs or potential barriers when implementing them will preclude the stakeholders to give more dependence on them.

Qualitative interview

Ssuitability of different MBIs and FMs for China

Qualitative Interview – Objectives

- ✂ To identify gaps in policies and activities and barriers to improve building energy efficiency in China
识别有关政策和实施之间的差距、以及中国建筑能效改善的障碍
- ✂ To gather opinions on the best ways to improve building energy efficiency in China and which mechanisms might be most appropriate to achieve this
识别中国建筑能效发展最佳机制
- ✂ To gather opinions about the priority areas for activity in this area
识别中国建筑能效提高优先发展领域

Qualitative Interview – Methodology

- A broad range of individuals – fifteen individuals from various sectors such as academia, NGO, government, industry, commercial, and other
- 多部门专家 - 来自学院、非政府组织、政府部门、工业、商业和其他部门的15位资深专家
- Three effective ways – face to face interview, interview over phone, workshop
- 三种有效方式 - 面谈、电话访谈、研讨会

Qualitative Interview – Stakeholder Response



Barriers to Improve BEE in China

促进中国建筑能效发展的障碍

- ☞ **High Cost, Low Return**
 - ☞ 开发成本高、收益率低

- ☞ **Limitations in Access to Financing**
 - ☞ 融资渠道不畅

- ☞ **Lack of Proper Incentives**
 - ☞ 缺乏恰当的激励机制

- ☞ **Incomplete Standards and Insufficient Surveillance**
 - ☞ 相关标准不完善、监管体系不健全

Qualitative Interview – Stakeholder Response

Financial and Market Mechanisms to Improve BEE in China

促进中国建筑能效发展的融资和基于市场的机制

- ☞ Heating pricing reform
供热定价改革

- ☞ Building energy standards/codes
建筑能效标准/规范

- ☞ Building energy efficiency labelling/rating
建筑能效测评/标识

- ☞ Financial subsidies and preferential tax
财政补贴和优惠税收

- ☞ CDM and P-CDM
清洁发展机制和规划清洁发展机制

Qualitative Interview – Stakeholder Response



- *Priorities for Building Energy Efficiency in China*
- *中国建筑能效优先发展领域*

- ☞ Type of Buildings – New buildings and public buildings
- ☞ 哪类建筑 – 促进中国建筑能效发展，应优先考虑新建筑和公共建筑

- ☞ Type of Measures – consumption based metering system and customer education
- ☞ 哪些措施 – 当务之急是建筑基于实际消费的计量体系、加强消费者教育

Qualitative Interview - Conclusion

- Building codes and standards were identified to serve as a foundation for other policy options upon which other policy options can be built.
建筑能效标准和规范被认为是其他机制的基准，应当进一步完善
- Building energy efficiency labeling/rating was suggested to be a cost-effective and highly visible mechanism.
建筑能效测评/标识被认为是一个非常成本有效且最具直观效果的机制
- Energy pricing and subsidies were seen as needing a high priority. In particular, heating price reform was felt to be an area for significant focus.
能源定价和补贴需给予足够的优先发展。尤其是，目前应特别关注热价改革。
- CDM and White Certificates were given less importance as these were felt to be new options so face many uncertainties
作为一个全新的陌生的机制，清洁发展机制和白色证书，由于面临很多不确定性因素，短期内，很难得到大力发展
- Priority should be given to new buildings and public buildings, and customer education should also be given a high priority.
新建筑和公共建筑应优先发展，用户教育也应进一步加强

Roadmap to implement the financial and market-based mechanisms for BEE in China

Step 1: Short term actions 近期行动

- Strengthen the implementation of energy conservation standards on newly-installed buildings and newly-added energy use equipments
- 强化新增建筑和新增用能设备节能标准的执行力度
- Strengthen and complete the capacity of intermediary agencies involved in building energy conservation
- 提高和完善建筑节能服务中介机构的能力
- Enhancing the long-term market-based financing mechanisms to promote BEE
- 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
- Complete energy price reforms
- 推动能源价格改革
- Establish a system for building energy data collection
- 建立建筑能耗统计体系

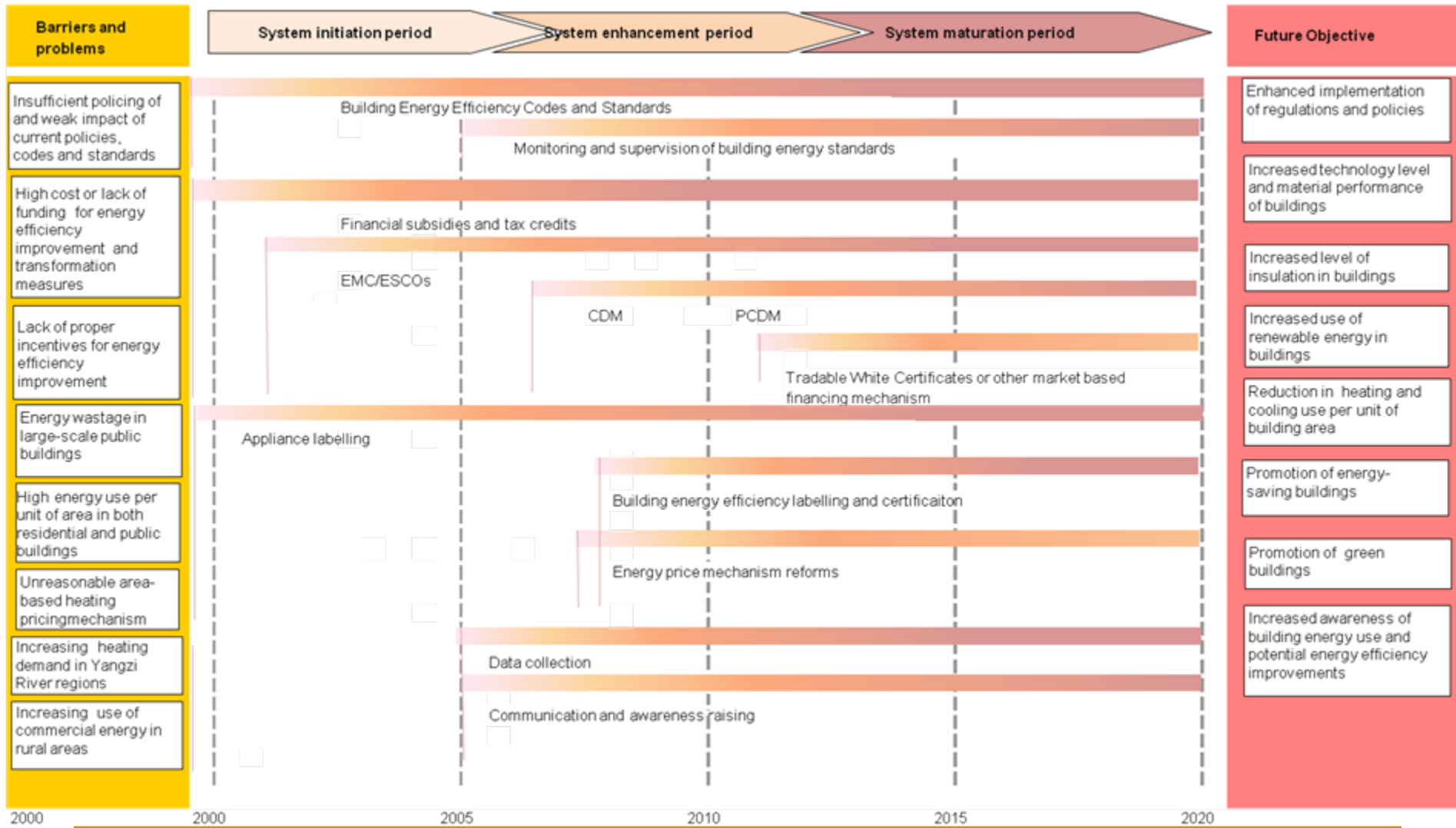
Step 2: Long term actions 长期行动

- Change the method of building energy efficiency improvement from “stressing the measures” to “stressing the energy efficiency index”, and providing a good macro-policy environment for the implementation of market-based incentive mechanisms on building energy efficiency.
- 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
- Communicate building energy consumption to building users and occupiers
- 增进建筑使用者和建筑能耗用户对建筑能耗的了解
- Strengthen and complete the long-effect incentive mechanisms for building energy conservation
- 加强和完善建筑节能经济激励长效机制

Step 3: Use of CDM 清洁发展机制

- CDM could have a role in developing building energy efficiency projects in China. For example, it could help to overcome split incentives whereby those who invest in the energy efficiency project are often not those who benefit from low running costs once the measure is installed.
- CDM可以在建筑节能方面发挥重要作用。比如说，它能够克服经常出现的节能投资者无法获得节能收益汇报的矛盾。
- Development of new methodologies and projects using a deemed savings approach
- 开发“认可节能方法”的新方法学和CDM项目
- Development of new methodologies and projects using an energy efficiency index approach
- 开发“能效指标方法”的新方法学和CDM项目

Roadmap 路线图



Thank You for your attention!

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