



RAP

Energy solutions
for a changing world

Market-based mechanisms for GHG Reduction – overview of some key lessons from international experience

基于市场的温室气体减排机制，国际经验概述

April 2011

中国低碳融资政策与机制国际研讨会

International Symposium on China's Low Carbon Finance Policies and Mechanisms
Anhui, Yellow Mountain, China

Chris James

The Regulatory Assistance Project

电力监管援助计划

China

European Union

United States

www.raonline.org

Market-based mechanisms for emission reduction: examples

减排的市场机制: 国际案例

- EU Emissions Trading System
- US RGGI (Regional Greenhouse Gas Initiative)
- Australian White Certificate Schemes
- Italian White Certificate Scheme
- New Zealand ETS
- And more...
- 欧盟排放交易制度
- 美国东北地区的区域温室气体减排倡议 (RGGI)
- 欧洲白色证书制度
- 意大利白色证书制度
- 新西兰排放交易制度
- 其他

Market-based mechanisms (MBMs) for emission reduction: general points

减排的市场机制：基本观点

- MBMs can be useful
- However, they are just tools
- An overall low-carbon plan will need many tools; MBMs can't do the whole job
- Around the world, some success with MBMs, but also lots of mistakes
- 市场机制将发挥作用
- 但它们只是配套政策工具
- 一个全面的低碳规划需要许多配套工具，市场机制不能解决一切
- 世界范围内，有一些市场机制的成功案例，但仍存在很多问题

Two types of market-based mechanism

市场机制的两种类型

1. Permit scheme: eg, “cap and trade” scheme

1. 许可证制度：如“总量控制与交易”制度

2. Energy efficiency certificate scheme: eg, “white certificate” scheme

2. 能效证书制度：如“白色证书”制度

1. Permit schemes

1. 许可证制度

- Obligated parties required to obtain a permit for each unit of emissions
- “Cap and trade” is the best-know variety of permit scheme
- Examples: the EU ETS, New Zealand ETS and RGGI in the US
- 义务方所有排放须获得许可
- “总量控制与交易”正是此类众所周知的制度之一
- 案例：欧盟排放交易制度、新西兰排放交易制度、美国东北区排放交易制度 (RGGI)

2. Energy efficiency certificate schemes

2. 能效证书制度

- One or more entities (eg, large firms or grid companies) are obligated to stay within a target level of emissions
- They do this by:
 - reducing own emissions
 - or by buying certificates representing EE implemented by others
- Eg: Australian, Italian and French white certificate schemes.
- 规定一个或多个实体（大企业或电网公司）必须控制不超过一定目标的排放
- 实体操作方法：
 - 降低内部排放
 - 或购买其他企业实施能效项目所获得的证书
- 案例：澳洲、意大利、法国的白色证书制度

Key Lessons (1)

主要经验 (1)

- Market-based mechanisms must be **carefully designed and managed** to achieve a desired result
- International experience shows most market-based schemes have had to be modified numerous times to address unanticipated problems
- If secondary market trading is adopted, an agency must be designated and authorized to watch its performance closely and manage it carefully
- 基于市场的机制要得到预期的节能结果，**必须精心设计，加强管理。**
- 国际经验表明，大多数机制必须**要**经过无数次的修正和完善，以应对各种始料不及的问题。
- 若采用二级市场的交易制度，必须**要**指定一个机构，授权对交易进行密切监督**和管理。**

Key Lessons (2)

主要经验 (2)

- A clearly **defined target or cap** is critical
- Policymakers often end up adding features that undermine their own cap or simply set the cap too high.
- If a scheme includes secondary market trading, the level of the cap will be the most important factor determining the value of the tradable instrument and the incentive to engage in trading
- **关键是提出明确的目标或总量**
- 需要注意的是，相关政策部门有时可能会低估或高估总量目标。
- 如果选择通过二级市场交易制度，总量控制水平将成为最重要的因素，决定可交易证书的价值，它的激励作用也直接影响参与交易企业的积极性。

Key Lesson (3)

主要经验 (3)

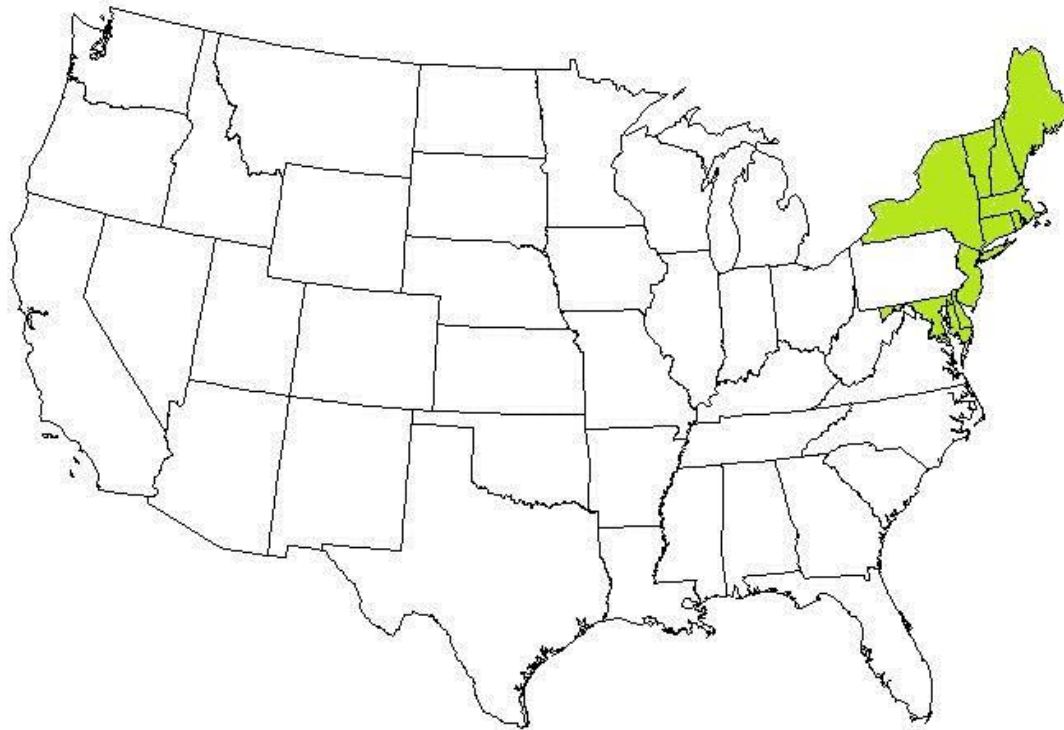
- Linking the scheme to energy efficiency is essential
 - US RGGI is a good example: auction permits and use revenue for EE
- Relying on price signals alone to reduce energy use and deliver gains in energy efficiency is unrealistic because, to achieve results, these prices will have to be unacceptably high
- 关键是将市场机制与能效挂钩
 - 美国东北区排放交易制度 (RGGI) 是个很好的案例：通过拍卖排放许可和合理支配收益提高能效
 - 单靠价格信号来减少用能和提高能效是不现实的，将最终导致这些价格高得离谱。

Key Lesson (4)

主要经验 (4)

- Limiting the initial pilot programs to the power sector is a reasonable approach
- No government has yet been successful in designing a single comprehensive market-based mechanism that covers all sectors
- Many governments have initially limited the focus to the power sector (or just a few sectors)
- As policies are fine-tuned, coverage can be broadened
- 合理的做法是，从电力部门开始初步试点
- 目前尚未有任何一个国家成功地设计出一个全面的市场机制，能够覆盖所有用能部门
- 很多国家都把电力部门（或少数几个部门）作为初步的重点
- 随着政策的不断调整和完善，可以将政策的覆盖范围不断扩大。

Regional Greenhouse Gas Initiative (RGGI) 区域性温室气体倡议 (RGGI)



RGGI: Key Points

区域性温室气体倡议 : 要点

- 美国首个提出以市场为基础的强制性 CO₂ 减排计划
- 设定电力行业 CO₂ 排放量上限；到 2018 年实现减排 10%
- “限额和投资”是个双管齐下的减排战略
 - 二氧化碳津贴被拍卖
 - 至3/11/11，区域拍卖产生了 8.61亿美元
 - 拍卖收入投资于州上政府的可再生能源和能效方案
- First mandatory, market-based CO₂ emissions reduction program in U.S.
- Power sector CO₂ capped; 10% reduction by 2018
- Cap-and-Invest: a two-pronged reduction strategy
 - CO₂ allowances are auctioned.
 - As of 3/11/11, regional auctions generated USD \$861 million.
 - Auction revenue is invested in state programs for renewable energy and energy efficiency.

RGGI Mechanisms

区域性温室气体倡议机制

- 3rd party audit and verification of allowance auctions
- Transparency through market monitoring reports for each quarterly auction, summarizing results and bidding behavior
- Regulations and procedures adopted by each state
- 2012 mid-course review to assess progress, consider and recommend future program direction and emissions goals
- 第三方审计与许可额度拍卖审核
- 对结果和投标活动进行总结，透明化每季度拍卖的监测报告
- 各州采纳的法规和程序
- 2012年进行中期阶段评估，考虑并建议未来项目的方向和排放目标

RGGI Benefits to Date

迄今区域性温室气体倡议所取得的效益

- \$441 million invested in additional energy efficiency programs, resulting in energy savings of \$1.1 billion
- Additional gross state product of \$2.6 billion
- Estimate of 45 job-years per \$1 million of energy efficiency funding, or over 20,000 new job-years as of March 2011.
- 获得了额外的4.4亿美元能效项目的投资，使得节能11亿美元
- 额外的州内生产总值26亿美元
- 估计每100万美元的能效资金能提供45个年度就业，或2011年3月前新增超过20,000个年度就业

Conclusion

结论

- The most successful market-based mechanisms are combined with programs that invest directly in energy efficiency
- Permit schemes can “recycle”, or reinvest, revenue from permit sales into cost-effective efficiency programs
- Energy efficiency certificate schemes achieve this same result more directly by requiring obligated parties to invest in energy efficiency or buy efficiency certificates
- 最成功的市场机制能与那些直接投资能效的项目相结合
- 许可证制度可“再循环”，或“再投资”，即将许可证销售所得的收入重新投入到成本效益好的能效项目中。
- 能效证书制度能更直接的达到同样的效果，即要求配额对象企业通过对能效项目进行投资，或通过购买能效证书实现节能目标。

About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power and natural gas sectors. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raonline.org

Chris James

[**cjames@raonline.org**](mailto:cjames@raonline.org)

617-861-7684 (Pacific time)



Global
US
China
EU

The Regulatory Assistance Project

50 State Street, Suite 3
Montpelier, Vermont 05602

phone: 802-223-8199
fax: 802-223-8172

www.raonline.org