



**esd sinosphere**

Part of the Camco Group

Using Financial and Market-based Mechanisms to improve  
Energy Efficiency in Buildings in China

使用融资手段和市场机制提高中国的建筑能效

**Building energy efficiency in the  
CDM & other financing mechanism  
used internationally**

建筑能效与清洁发展机制及其他国际融  
资机制

27 November 2007 2007年12月27日

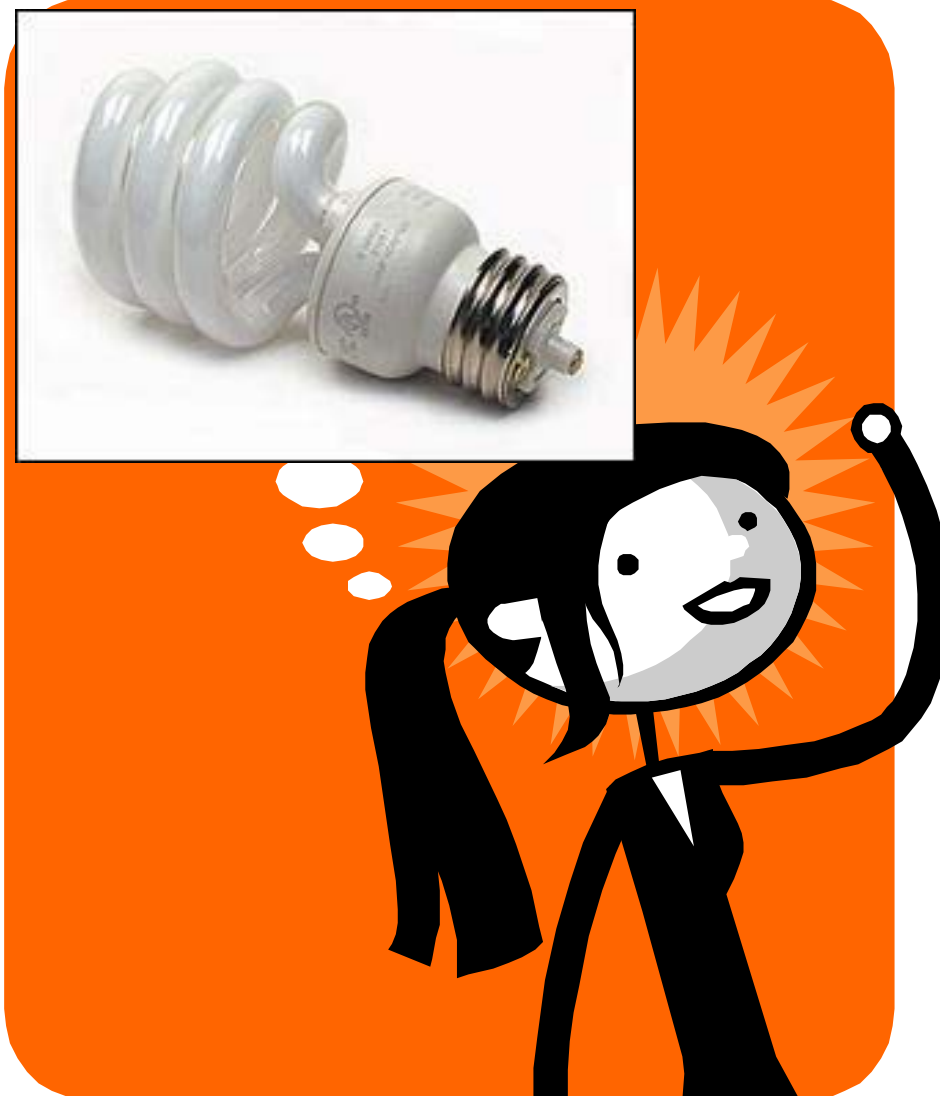
Rachel Child

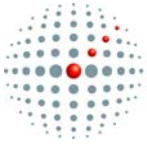




How many methodologies does it take to change a lightbulb?

采取多少种方法能够改变灯泡使之更加节能?





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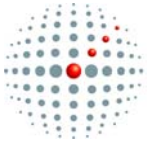
### ■ CDM

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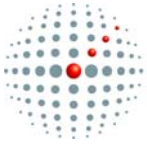
## Regulation 相关法律

■ Some countries have recently announced that they will ban the use of incandescent light bulbs:

最近世界上一些国家相继宣布废除白炽灯泡的使用:

- In January, legislators in California proposed legislation that would phase out incandescent light bulbs by 2012 in favor of compact fluorescent bulbs.  
一月份,美国加州的立法者提出立法草案:到**2012**年为止逐步停止白炽灯泡的使用而鼓励使用紧凑型荧光灯管.
- In February, the Australian Environment Minister announced a commitment to phase out incandescent light bulbs by 2009-10.  
二月份,澳大利亚环境部承诺,到**2009年10**月份为止,澳大利亚将逐步停止白炽灯泡的使用.
- But regulation is not the main focus of this project.  
但是法律规定并不是这个计划方案的重点.





## Labelling 标签

■ To encourage consumers to buy energy efficient products in the EU, Energy Labels are used to tell consumers the exact energy consumption of their appliance in units (kWh's) under standard conditions.

在欧盟，为了鼓励消费者购买节能产品，能源标签被广泛使用告知消费者他们的家用电器在标准条件下准确的能源消耗量（千瓦时）

■ It must, by law, be displayed on a number of new household products displayed for sale, hire or hire-purchase – including lightbulbs.

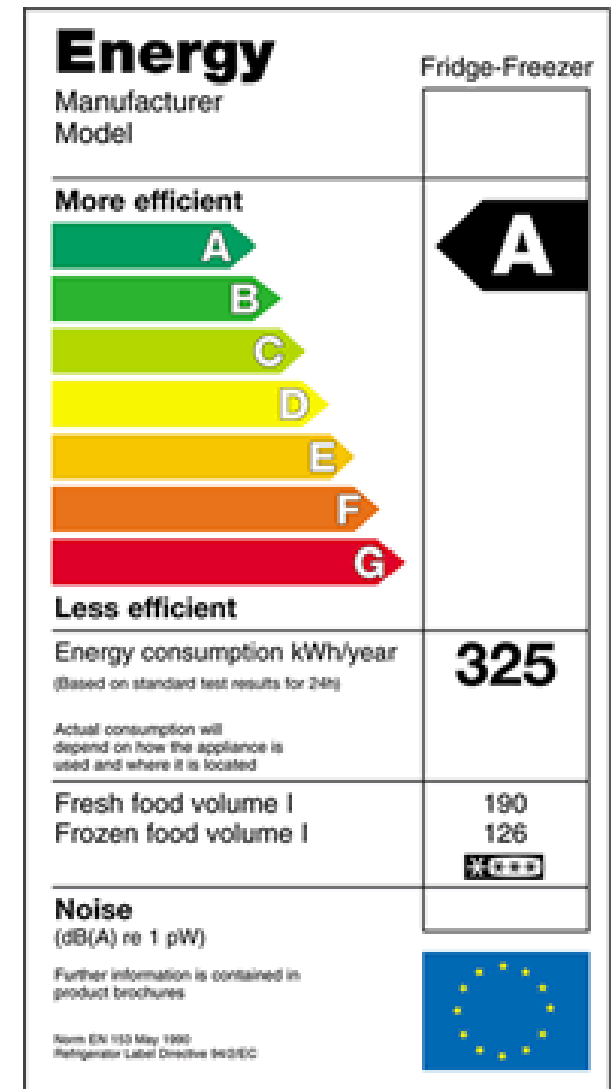
根据法律，能源标签必须贴在出售，租用或者是分期付款买到的新的家用电器上，包括普通的电灯泡。

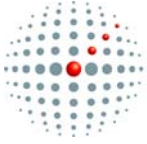
■ 'A' is the most efficient and 'G' is the least efficient

标有'A'类标签的电器是能效最高的，'G'类电器能效最低。

■ But labels by themselves do not provide any financial incentive for purchasing a CFL.

但是节能标签本身并不代表在购买紧凑型荧光灯管时有任何经济上的激励措施。





## Subsidies

## 补贴



- Subsidies on the price of CFLs could be used to reduce the cost for consumers

紧凑型荧光灯价格上的财政补贴可以用来减少消费者在购买该产品时的花销

- In the EU, there is a proposal to have an EU-wide scheme for reduced rates of VAT for energy efficient appliances in an attempt to increase demand for these products

在欧盟，人们建议在欧盟范围内减少具有高能源使用效率电器的增值税，从而增加大众对这种产品的购买欲望。



## CDM for CFLs (i)

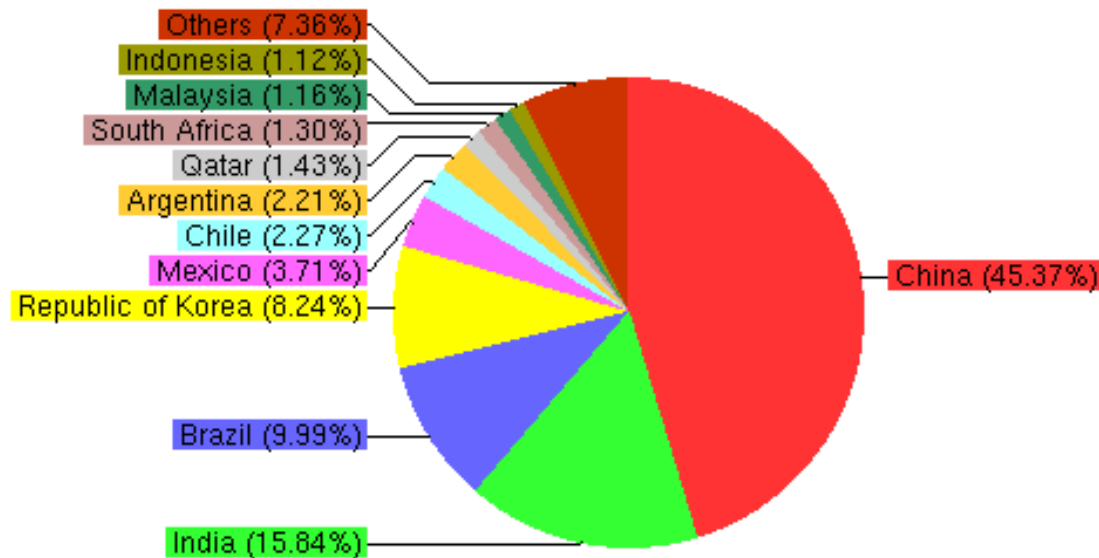
### 紧凑型荧光灯管的清洁生产机制(i)

#### ■ China is a leading player in the CDM

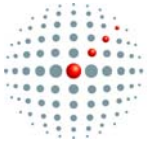
中国在清洁发展机制方面是世界的领跑者

Expected average annual CERs from registered projects by host party. Total: 174,268,851

在所有注册的项目中，中国预计平均每年经核证的减排量占总量的45%



<http://cdm.unfccc.int> (c) 08.11.2007 18:42



## CDM for CFLs (ii)

### 紧凑型荧光灯管的清洁生产机制(ii)

■ But, even though there are a number of registered CDM projects for industrial energy efficiency in China, there are no registered projects for building energy efficiency

但是，尽管在中国的工业能效领域有很多已注册的CDM项目，在建筑能效领域却还没有项目经过注册

■ Across the world there are only 5 projects looking at energy efficiency in buildings

世界上只有5个建筑能效领域的项目

■ And only one of these considers energy efficient lighting - Kuyasa low-cost urban housing energy upgrade project, Khayelitsha (Cape Town; South Africa)

并且其中只有一个项目考虑了节能照明：位于南非开普敦的 **Kuyasa** 低成本城市住房能源升级项目。

■ 3 methodologies: 三种方法学

- **AM0046 – Distribution of efficient light bulbs to households**

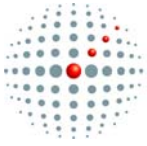
**AM0046 – 向住户分发高效的节能灯泡**

- **AMS-II.C – Demand side energy efficiency activities for specific technologies**

**AMS-II.C – 应用特别技术开展的提高能效的活动**

- **AMS-II.E – Energy Efficiency and Fuel Switching Measures for Buildings**

**AMS-II.E – 提高建筑物的能效和燃料转换措施**



## CDM for CFLs (iii)

### 紧凑型荧光灯管的清洁生产机制(iii)

■ So what are the barriers to developing more CDM projects in this area?

究竟是什么阻碍这一领域的清洁发展机制的发展？

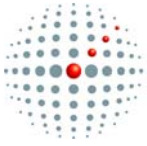
- Energy savings per measure are very small  
每项措施只能节省很少的能源。
- Also, in one building many measures may be installed (e.g. CFLs + solar hot water heater). This would be 2 different methodologies.

另外，很多项措施很可能在一座建筑物里实施（比如说紧凑型荧光灯管和太阳能热水器）。这将使用两种不同的方法学。

- Who owns the CERs (Manufacturer? Distributor? User?)  
谁拥有经核证的减排量（制造商？分销商？用户？）
- Additionality – over the lifetime of the measure, a CFL probably represents the least cost option

而且，从一项设备的使用寿命来看，紧凑型荧光灯管很可能代表了最经济的选择。





## CDM for CFLs (iv)

### 紧凑型荧光灯管的清洁生产机制(iv)

#### ■ Emissions reductions calculations:

##### 减排量的计算

- How to take account of the rebound effect (if it costs less to use a light bulb, maybe people will just leave their lights on for longer – cancelling out energy savings?)

如何应对反弹效应 (由于使用节能灯更加经济, 人们在也许会下意识地忽略使用时间, 这就使得节能效果大打折扣)

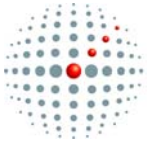
- How to take account of free riders (people who might have installed a CFL anyway)  
如何考虑那些“免费搭车”的人 (那些可能已经安装了紧凑型荧光灯管的人们)

#### ■ Monitoring emissions reductions:

##### 减排量的监测

- Robust sampling procedures are needed  
我们需要完整有效的取样程序
- (Not relevant for CFLs maybe but is for other building energy efficiency measures) how to make sure savings are from measure installed and not from other external factors (e.g. changes in external temperature)

(取样也许与紧凑型荧光灯管无关, 但与其他提高建筑物能效的措施有关) 如何确定能源是通过我们实施的措施节省的, 而不是通过其他外部因素 (比如外部温度的变化)



## White Certificates (i)

### 白色证书(i)

■ A ‘white certificate’ represents a certain amount of energy savings (e.g. 1MWh) achieved through undertaking energy saving measures (e.g. improving insulation in a building or replacing incandescent light bulbs with CFLs)

“白色证书”指通过采用节能措施(例如改进建筑物的绝缘性能, 或者用紧凑型荧光灯管替换普通的白炽灯)而节省的电量(例如一兆瓦时的电量)。

■ White Certificates have generally been used together with an obligation on energy suppliers or distribution companies to reduce the energy they supply by a certain amount.

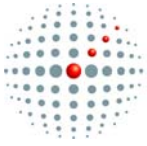
“白色证书”作为强制规定被能源供应商和输送公司的广泛使用, 以便这些公司能够节省一定量它们所供应的能源。

■ The Certificate demonstrates therefore that a certain amount of energy saving has been achieved and can be used by the energy supplier to prove that they have reached their target.

“白色证书”证明, 我们可以有意识的节省一定的能源, 而且使能源供应商达到其节能目标。

■ TWCs are also generally tradable so that obligated parties can meet their target in the most cost-effective way.

“可交易白色证书”通常也可以交易, 这使得各责任群体能够通过最有效的方式达到他们各自的节能目标



## White Certificates (i)

### 白色证书(i)

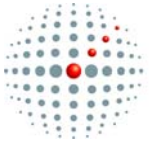
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■ White Certificate schemes are operating in New South Wales (Australia), France, Italy & the UK. There is also a suggestion to start an EU-wide White Certificate scheme

“白色证书”制度正在澳大利亚的新南威尔士州，法国，意大利和英国实施。也有人提议建立跨欧盟的“白色证书”制度。

■ Existing schemes have established methodologies to monitor energy savings including an ex ante approach (where energy savings are conservatively calculated before the measure installed and no actual monitoring need take place following installation)

已经存在的“白色证书”制度建立了相应的方法去监测节能效果，这包括一种叫做“事先研究”的手段，即我们在采取节能措施前就把能够节省的能源计算出来，所以在采取节能措施之后我们不再需要现时的监测。



## Conclusions & questions

### 结论和问题

→ Regulation can remove the worst performing products from the market – but isn't the main focus of this project

法律规定能够将表现最差的产品淘汰出市场，但不是这个计划方案的关键。

→ Labelling schemes can help to educate consumers but don't provide additional financial assistance

节能标签制度能够帮助消费者了解哪个产品更加节能，但无法为他们提供额外的经济补偿。

→ There appear to be good opportunities to use CDM finance for building energy efficiency projects but there are significant barriers to developing projects in this area

我们似乎拥有很好的机会使用**CDM**项目来资助建筑节能项目，但开发这一领域的项目还存在许多显著的障碍。

→ There appear to be some similarities between White Certificate schemes and Building energy efficiency CDM projects. Can we use some experience from White Certificates schemes to help develop CDM projects in this area?

在白色证书制度和提高建筑物能源使用效率的清洁生产项目之间似乎存在着某种相似性。那么我们可否利用我们在“白色证书”领域中取得的经验去开发在建筑节能领域的清洁生产项目呢？



## Thank you!

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