



China CFC-Free Energy-Efficient Refrigerator Project Financial Incentive Programs 中国无氟节能冰箱财税激励项目

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中国冰箱项目首席技术顾问


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Presentation Outline 主要内容

- Project Background
- 项目背景
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- 冰箱制造商激励项目
- Compressor Manufacturer Incentive Program
- 压缩机制造商激励项目
- Retailer Incentive Program
- 零售商激励项目
- Key Project Results
- 项目的主要成果
- Lessons Learned
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Project Background 项目背景

- The US-China CFC-Free Energy-Efficient Refrigerator Project was initiated in 1989 between USEPA and SEPA. From 1989-1995, work was conducted in the areas of:
- “中 - 美无氟节能冰箱项目”开始于1989年由美国环保局和中国环保总局实施。1989 - 1995年，工作围绕以下领域开展：
 - CFC substitutes research CFC替代品研究
 - Energy-efficient design options 能效设计选择
 - Prototype development 原型开发
 - Safety testing 安全性实验
 - Field testing 现场测试

Project Background 项目背景

- CFC replacement demonstration was funded through Montreal Protocol Fund (\$3.5 million) received in two parts in June 1993 and March 1995.
- CFC替代示范项目由蒙特利尔基金资助（350万美元），分1993年6月和1995年3月两个时间段资金到位。
- Initial GEF project development funding was received in March 1997 from the GEF's Project Preparation and Development Facility (PDF) (\$243,000).
- 1997年3月，最初的GEF项目研发资金由GEF PDF资金支持（24.3万美元）
- GEF provided \$9.6 million for market transformation (proposal approved June 1998; the Project Document (= detailed implementation plan required by GEF) was approved July 1999. Implementation began Jan. 2000.
- GEF提供了960万美元用于市场转化（于1998年6月批准），项目文件（GEF所要的详细项目实施计划）在1999年7月通过批准并于2000年1月执行。



Project Participants 项目参与者

- Chinese refrigerator and compressor manufacturers
- 中国的电冰箱和压缩机生产商
- China State Environmental Protection Administration (SEPA) -- National Executing Agency, project Advisory Committee (AC) member
- 中国国家环保局 - 国家执行机构，项目顾问委员会成员
- United Nations Development Programme (UNDP) -- GEF Implementing Agency, AC member
- 联合国发展计划署（UNDP）- GEF执行机构，项目顾问委员会（AC）成员
- China Ministry of Finance (MOF) -- GEF Country Focal Point, AC member
- 中国财政部 - GEF Country Focal Point - 项目顾问委员会（AC）成员
- SEPA Foreign Economic Cooperation Office -- National Implementing Agency and home of Project Management Office (PMO)
- SEPA外国经合办公室 - 国家执行机构及项目管理办公室

Project Participants项目参与者

- United Nations Department for Economic and Social Affairs (UNDESA) – International Cooperating Agency
- 联合国经济社会事务部 (UNDESA) - 国际合作机构
- China National Development and Reform Commission (NDRC) – chief energy efficiency regulatory body, AC member
- 中国国家发改委 - 中国的主管节能部门, AC成员
- China State General Administration for Quality Supervision, Inspection, and Quarantine (AQSIQ) – issues energy efficiency and other product standards, AC member
- 中国国家质检总局 - 颁发产品能效标准, AC成员



Project Participants项目参与者

- China National Institute of Standardization (CNIS) – provides market assessment, technology review, and economic analysis support to AQSIQ in energy use standard development, and was lead participant in GEF project standards and labelling work
- 中国国家标准研究院 - 为国家质检总局在能源效率标准开发方面提供市场评估技术审查及经济分析支持, 同时是GEF项目中在标准及标识方面的主要参与方
- China State Administration of Internal Trade (SAIT) – oversees retail sector; AC member
- 中国国际贸易总局 - 海外零售部门, AC成员
- China Household Electric Appliance Association (CHEAA) – lead participant in variety of project activities; liaison to industry; maintains project Information Center and website
- 中国家电协会 - 各种项目活动的主要参与者; 行业联络; 维修项目信息中心及网站
- China Household Electric Appliance Research Institute (CHEARI) – helped develop demo project prototype, provides project technical support and product testing capability
- 中国家电研究院 - 协助开发示范项目, 提供项目技术支持及产品性能测试

Project Participants项目参与者

- China Certification Center for Energy Conservation Products (CECP) – responsible for China's endorsement level and will manage information label; key participant in mass procurement program
- 中国节能产品认证中心 - 负责认证节能产品, 是大宗采购项目的主要参与者
- Collaborative labelling and Appliance Standards Program (CLASP) – key participant in standards and labelling work
- CLASP项目—标准及标识主要参与者
- University of Maryland Center for Environmental Energy Engineering (UMd CEEE) – intensive long-term refrigerator design training location
- 马里兰大学环境能源工程中心 - 长期致力于冰箱设计培训
- National and international experts and contractors hired to support implementation of the project.
- 国家及国际专家, 以及支持该项目执行的承包商

GEF Project Approach GEF 项目实施途径

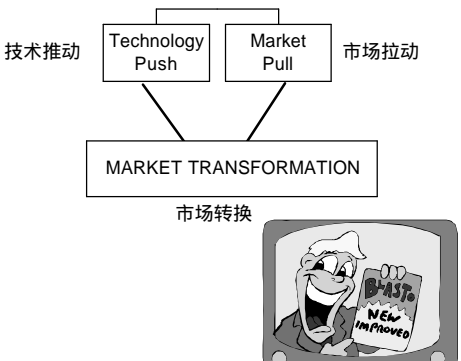
- Nine barriers were identified to widespread adoption of energy efficient technologies. 能效技术被广泛采纳的九大障碍
 - Lack of awareness of the lifecycle economic benefits of high-efficiency refrigerators 对高效冰箱的循环经济利益缺乏认识
 - Lack of reliable, comparative information available to consumers about specific models. 对消费者来说, 对某些特定技术缺乏可靠的、具有可比性的信息
 - Manufacturer uncertainty about market demand for high-efficiency models 生产商对高效节能产品的市场需求存在疑虑
 - Manufacturer uncertainty about cost-effectiveness of high-efficiency models 生产商对高效节能产品的成本效益存在疑虑
 - Lack of expertise in energy-efficient refrigerator design. 缺少能效冰箱设计的专家队伍
 - Higher-efficiency compressors are not available domestically. 国内缺乏更高效能的压缩机
 - Dealer reluctance to stock or promote high-efficiency models 经销商不愿库存或促销高效产品
 - Lack of an appliance recycling program. 缺乏家电再利用项目
 - Lax efficiency standards. 能效标准太宽松

GEF Project Approach GEF 项目实施途径

- Two basic approaches were identified to overcome these barriers.
- 克服这些障碍的两大基本途径
 - Technology push
 - 科技推动
 - Market pull
 - 市场拉动



Market Transformation 市场转化



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graph TD
    TP[Technology Push] --> MT[MARKET TRANSFORMATION]
    MP[Market Pull] --> MT
    
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技术推动 市场拉动

市场转换

Project Budget 项目预算

Activity	GEF	Co-financing	Total
1. Compressor Factory Technical Assistance 压缩机工厂技术援助	\$352,500	\$1,579,500	\$1,932,000
2. Refrigerator Factory Technical Assistance 冰箱工厂技术援助	\$1,503,090	\$24,265,000	\$25,768,090
3. Incentive Programs 激励项目	\$3,595,000	\$660,000	\$4,255,000
4. Consumer Education Program 消费者教育项目	\$2,984,940	\$4,450,000	\$7,434,940
5. Project Management, Monitoring and Evaluation 项目监督及评估	\$1,181,470	\$335,000	\$1,516,470
Total 总计	\$9,617,000	\$31,289,500	\$40,906,500



- GEF target cost effectiveness (CE) = \$0.0001/kWh energy saved, \$0.10/ton CO₂
- 预期的成本效益: \$0.0001/kWh 节电量, \$0.10/ton CO₂ 减排量
- Actual CE will probably be even better.
- 实际的成本效益会更好些

Incentive Program 激励项目



Incentive funding 激励基金 money to give project participants and incentive to take the actions we want them to and cover their incremental costs to do so.

为项目参与者提供资金激励, 推动他们按照要求采取行动, 激励资金用来抵消其成本增加部分



Incentive Program Budget 激励项目预算

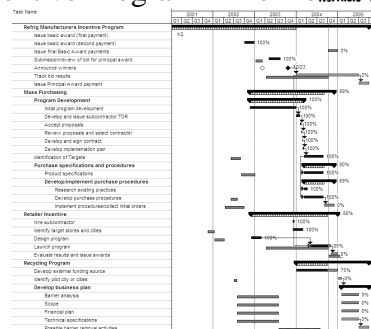
Three inter-related programs, with links to each other and other project activities.

三种项目彼此之间、及与其他项目之间互相联系

Refrigerator Manufacture Incentive Program 冰箱生产厂商激励	\$2,500,000
Compressor Manufacturer Incentive Program 压缩机生产厂商激励	\$500,000
Retailer Incentive Program 零售商激励	\$445,000
Other programs 其他	\$150,000
Total 总计	\$3,595,000



Incentive Program Timeline 激励项目时间表




Refrigerator Manufacturer Incentive Program 冰箱生产厂商激励项目

- Program Introduction 项目引进
- Award Types 奖励形式
- Basic Award 基本奖励
- Principal Award 主要奖励
- Supplemental Award 辅助奖励
- Energy Savings Calculation 节能量计算
- Program Results 项目实施成果




Program Introduction 项目引进


- Program goal: encourage and provide funding for manufacturers to design and build energy efficient refrigerators
- 项目目标: 鼓励厂商设计、生产能效冰箱并提供资金
- Total award pool \$2.5 million.
- 奖励金共计250万美元
- Originally budgeted for 12 manufacturers, but...
- 原来预算给12家厂商, 但是.....



Refrigerator Manufacturer Incentive Program 冰箱生产商激励项目





Four more refrigerator manufacturers than originally anticipated requested admission to the project, for a total of 16 manufacturers representing ~90% of production and sales. 比原来预期申请加入该项目的厂商多出了4家，共计16家生产商，占生产和销售量的约90%





Award Types 奖励形式

- Basic award: 16 awards of US\$60 (for smaller 8 manufacturers) or \$120,000 (for larger manufacturers) each awarded to each participating manufacturer.
- 基本奖励：16项60美元的奖励（给8家较小的厂商）或12万美元的奖励（给较大厂商），对每个参与厂商给予奖励
- Principal award: total award of US\$ 1 million (including basic award) awarded to the manufacturer who commits to and achieves the greatest total energy savings (relative to the standard) over a 12 month period for a single new energy efficient model refrigerator-freezer (BCD-200+)
- 主要奖励：总计100万美元（包括基本奖励），奖励在12个月内通过生产一款新型高效冰箱(BCD-200+)并得到了最大总节能量（相对于标准）的厂商
- Supplemental awards: three awards of US\$60,000 each awarded to manufacturers that commit to and achieve the greatest energy savings relative to their base year energy efficiency.
- 辅助奖励：三种6万美元的奖励，每种奖励给予那些相对其基期的能效水平得到了最大节能量的厂商

Energy Savings Calculation 节能量计算


- Target energy savings is calculated based on refrigerator and freezer volume.
- 节能目标根据冰箱容量进行计算
- Calculation formula is based on the new minimum energy standard.
- 计算公式基于新的最低能效标准

Energy Savings Calculation 节能量计算


- The principal award will be awarded to the manufacturer that designs, manufactures, and markets the refrigerator that delivers the greatest total energy efficiency gains and carbon emissions reductions for the amount of the prize, as follows:
- 根据节能量和碳减排量，奖励设计、生产并销售了节能冰箱的生产商：

Total energy efficiency gain 总节能量 =
 Unit energy efficiency gain * number of units produced and sold
 单位能效水平收益 × 生产及销售量
 Unit energy efficiency gain 单位能效水平收益 =
 (Allowable energy use) - (Actual energy use)
 (允许的能源使用量) - (实际能源使用量)



Refrigerator Manufacturer Incentive Program Results 冰箱厂商激励项目成果

- The Refrigerator Manufacturer Incentive Program was carefully timed to follow the technical training, and allow for large-scale production and sales of new, energy efficient refrigerators to benefit from the simultaneous consumer education campaign and issuance of the energy efficiency label. Intense competition and lobbying by leading manufacturers over the principal award necessitated a longer review process than expected, which delayed finalization of the award contract for several months.
- 经过精心安排，电冰箱生产商激励项目跟踪了技术培训，允许新型高效冰箱的大规模生产和销售行为从同时进行的消费者培训活动中获益，并且要保障实施能效标识。因为竞争非常激烈，并且协调主要生产商关于奖励方面的游说活动，评估过程花的时间比预期的要长，也导致奖励合同拖延了几个月。



Refrigerator Manufacturer Incentive Program Results 冰箱厂商激励项目成果

- The Project Management Office (PMO) overcame these difficulties and issued the award to the party to Kelon, based on the strength of Kelon's highly detailed proposal (including monthly and regional sales breakdowns and a detailed promotional plan) and the ambitious energy savings and CO2 emissions reductions proposed. Kelon committed to produce and sell one million super-efficient refrigerators during the 12-month contest period, such a large new product debut that competitors complained it was unrealistic.
- 项目管理办公室克服这些困难并对科隆集团颁布了奖励，主要因为科隆十分详细的有说服力的推动计划（包括月度及分地区的销售清单和详细的推动计划）及其雄心勃勃的节能量和碳减排量。科隆承诺在12个月内生产并销售100万台超高效冰箱，该方案一出现便遭竞争对手对其真实性的怀疑。
- The model Kelon proposed, the BD-209, has a 141 litre FF compartment and 68 FR compartment, based on which the BCD-209 is allowed to consumer 1.29 kWh/day. It's actual energy use is 0.42 kWh/day, for energy efficiency savings of 0.87 kWh/day or 67%, making it one of the most energy efficient refrigerators in the world.
- 科隆推出新型BD-209冰箱，主要基于BCD-209型冰箱，允许的日耗电量为1.29 kWh。它的实际日耗电量仅为0.42 kWh，节能67%，每天节约用电0.87 kWh。这使其成为目前世界上能效水平最高的冰箱之一。



Refrigerator Manufacturer Incentive Program Results 冰箱厂商激励项目结果

- Kelon and the backup award recipients will receive up to a 15% credit for the delta between wholesale and final consumer sales, such that if Kelon meets its 1 million unit target for sales to retailers, up to 150K may still be in retailer hands and not yet sold to final consumers. In order to encourage further promotion by Kelon of energy efficient refrigerators and long term sales gains, Kelon may receive another 5% sales credit if 50% of their advertising during the promotional period is EE-related, and another 5% if consumer awareness is raised by at least 10% points during that period.
- 科隆及候补的获奖者将可以得到不超过15%的奖励，主要是根据批发量和最终用户的销售量直接的差异。这样，如果科隆从销售到零售实现了自己100万的单位目标，最高有15万台可能仍在零售商手中而未卖到最终用户那。为了鼓励科隆能效冰箱的进一步促销和长期销售收益，还奖励科隆另外5%，条件是在规定时间里50%的广告需要与节能相关。而且，另外的5%奖励条件是在此期间消费者的意识提升至少10%。



Refrigerator Manufacturer Incentive Program Results 冰箱厂商激励项目结果

- After the first 6 months of the 12 month sales period (Sep. 2004-Feb. 2005), Kelon has produced and sold 442K super efficient fridges, making it on track for meeting its sales goal, particularly given the upcoming high sales season is April-August, which usually accounts for at least 60% of total annual sales.
- 当12个月销售期的前6个月（2004年9月 - 2005年3月）过后，科隆已生产并销售了44.2万台超效能冰箱，使其实现销售目标走上了正轨，尤其要指出的是4月 - 8月是其销售旺季，这段时间的销售占总年销售至少60%的份额。
- The three supplemental award recipients (Haier, Xinqi, and Kelon) have made significant energy efficiency commitments as well and are moving towards completing them.
- 三个获奖者（海尔，新飞，和科隆）已做出能效承诺并将实现目标。



Compressor Manufacturer Incentive Program 压缩机生产厂商激励项目

- Program Introduction 项目介绍
- Award Types 奖励形式
- Calculation Method 计算方法
- Program Results 项目结果



Compressor Incentive Program 压缩机奖励项目

- Provide incremental cost funding for energy efficiency improvements in compressors.
- 为压缩机在能效方面的改进提供增益成本基金。
- Give compressor manufacturers an incentive to acquire or develop energy efficient compressor technology.
- 对压缩机厂商进行激励，支持开发高效压缩机技术
- Total \$500,000.
- 总额为50万美元



Award Types 奖励形式

- Principal award of \$400,000 to the manufacturer that commits to develop or acquire and commercialize the most energy efficient compressor technology, as measured by the compressor's coefficient of performance (COP) by then end of 2003;
- 40万美元的主要奖励给予承诺开发最高效压缩机技术并使其商业化的生产商，主要根据2003年底的压缩机性能系数COP。
- Secondary award of \$100,000 to the manufacturer that commits to develop or acquire and commercialize the second most energy efficient compressor technology (or, this award can be divided between two manufacturers if their scores are within 3%, which is what happened).
- 10万美元的第二类奖励将给予承诺开发第二等的最高效压缩机技术并使其商业化的生产商（或者该奖励被两个性能差额在3%以内的厂商共分，也是可能发生的？）。



Compressor Award Formula 压缩机奖励方法

- In order to encourage adoption of energy efficient technology for each of the two substitute refrigerant types, potential awardees for the secondary award will receive a COP bonus of 0.05 if the substitute refrigerant technology proposed differs from the one proposed by the principal award winner.
- 为了鼓励让两种替换制冷剂机型每个都采取节能技术，对第二种奖励的潜在获奖者来说，若其采用替代制冷剂技术与主要奖励获得者的不同，将得到COP奖金0.05的分成。
- The compressor technology developed or acquired (e.g., via technology transfer license from an international vendor) may consist of a single model or multiple models. The minimum COP proposed is COP of 1.40. For both the principal and secondary awards, proposals will be evaluated and scored as follows:
- 所开发或采用的压缩机技术（比方说从国际商那得到技术转让许可证）可能包括一种模型或综合模型。建议的最低压缩机性能系数COP是1.40。主要奖励和第二种奖励的提议要被评估并按以下方式打分：
- (COP of compressor – baseline COP of 1.4) multiplied by the Potential market for compressor(s) of that size range (压缩机性能系数COP基线1.4) × 该尺寸范围压缩机的潜在市场

Calculation Method 计算方法

	Formula	Model 1	Model 2	Model 3	Model 4
Compressor power (W)		120	130	140	150
Compressor COP	COP	1.70	1.60	1.60	1.55
Performance delta (PD)	$PD = COP - BCOP$	0.30	0.20	0.20	0.15
Market potential (MP) (%)	MP	3.4%	12.6%	6.9%	11.4%
Weighted market potential (%)	$WMP = W * MP$	1.7%	6.3%	3.5%	5.7%
Production capacity commitment (10^4)	PC	30	50	100	200
Projected total annual production (10^4)	PTAP	1000	1000	1000	1000
Market capacity potential (%)	$MCP = PC / PTAP$	3%	5%	10%	20%
Modified market capacity potential (%)	$MMCP = MIN(MCP, MP)$	3%	5%	7%	11%
Weighted market capacity potential	$WMCP = W * MMCP$	1.5%	2.5%	3.5%	5.7%
Total market potential (MP) (%)	$TMP = WMP + WMCP$	3.2%	8.8%	6.9%	11.4%
Score	$PD * TMP * 10^4$	96	176	138	171

Compressor Incentive Program Results 压缩机激励项目效果

- Three winning manufacturers were selected and committed to develop new lines of more energy efficient compressors. Huangshi Dongbei won the main prize, \$400K, with a package of 18 highly efficient compressors, with COPs ranging from 1.5 to 1.72. Wanbao and Jiaxipera won the secondary prizes (\$50K each), Wanbao with a package of 15 EE compressor with COPs from 1.5 to 1.73, and Jiaxipera with a package of 10 EE compressor with COPs from 1.55 to 1.75. Though the three manufacturers' packages were close in terms of COP, the greater number of models developed by Dongbei covering a greater share of the refrigerator market (which the program was structured to encourage) made Dongbei the winner. The three manufacturers will roll out 43 new models with average COP improvement of 16% (individually, Dongbei 9%, Jiaxipera 3%, and Wanbao 35%, because Jiaxipera's baseline models were already highly efficient, and Wanbao's much less so).
- 选择了3个获奖的压缩机生产商为生产更加高效的压缩机开发新的生产线。Huangshi Dongbei 获得了大奖40万美元，有18种高效压缩机，COP范围是1.5~1.72。Wanbao 和 Jiaxipera 得到了二等奖（分别得到5万美元）。Wanbao 有15种高效压缩机，COP范围是1.5~1.73；Jiaxipera 有10种高效压缩机，COP范围是1.55~1.75。虽然这3个生产商的COP比较接近，Dongbei 开发的压缩机市场占有率更高（在本项目的支持下），这使其成为优胜者。这3个生产商生产了43种新型压缩机，COP水平平均提高了16%（分别来说，Dongbei 9%，Jiaxipera 3%，Wanbao 35%。因为Jiaxipera 的基准COP本来就比较低，而Wanbao的基准COP本来就比较低，所以导致了上述差异）。

Compressor Incentive Program Results 压缩机激励项目效果

- Based on site visits and data collected from the bid winners, manufacturer commitments to increase compressor EE have been met or exceeded. According to independent test results, Huangshi's top model reached COP 1.90; Wanbao's and Jiaxipera's top models reached 1.80 and 1.76 respectively. Through this program and the technical training which the project provided, average compressor efficiency for all compressor company project participants has improved from COP 1.0 in 2000 to COP 1.3 as of mid-2004.
- 根据对获奖生产商的现场采访和数据收集，发现生产商已经实现或者超过了他们对提高压缩机能效水平的承诺。根据独立的测试结果，Huangshi的最高COP达到1.9；Wanbao的最高COP达到1.8；Jiaxipera的最高COP达到1.76。通过本项目实施以及提供的相关技术培训，所有参加本项目的压缩机公司的平均COP已经从2000年的1.0提高到2004年夏天的1.3。
- All three of the bid winners met commercialization goals, with significant sales by Jiaxipera and Huangshi (331K and 755K high efficiency units respectively).
- 所有的3个获奖的生产商都实现了商业化的目标，Jiaxipera 和 Huangshi 的销售业绩很突出（分别是33.1万和75.5万台高效压缩机）。



Retailer Incentive Program 零售商激励项目



Retail Incentive Program 零售激励项目

- Appliance retailers are crucial in refrigerator marketing, so China Energy Efficient Refrigerator Project includes significant funding for a Retailer Incentive Program.
- 在冰箱的市场推广中设备的零售商也起着关键作用，因此中国能效冰箱项目包括给零售商提供激励资金支持。
- Direct cash payments of over \$250,000 awarded on a competitive basis to winning stores and individual salespeople.
- 超过25万美金的现金支付将直接奖励给基于竞争赢得此奖励的商店或推销者个人。
- Additional funding of about \$200,000 for program administration, an Award Workshop, retailer education, purchaser awards, and in-store consumer education materials.
- 另外大约20万美金的基金会用于项目管理，颁奖会，零售商教育，奖励购买者以及提供给商店里的教育材料。

Knowledge = Retailer Education
Information = In-Store Promotional Materials
Incentives = Retail Incentives



Retailer Awards 零售商奖励

	Number	Amount	Total \$
First prize 一等奖	1	\$25,000	\$25,000
Second prize 二等奖	5	\$10,000	\$50,000
Third prize 三等奖	10	\$2,000	\$20,000
Honorable mentions 荣誉奖	20	\$1,000	\$20,000
Total/average 共计/平均	36	\$3,194	\$115,000

First place won by Shanghai Commercial Center (上海商务中心).
第一名被上海商务中心得到



Salesperson Awards销售人员奖励

	Number	Amount	Total \$
First prize一等奖	1	\$10,000	\$10,000
Second prize二等奖	5	\$5,000	\$25,000
Third prize三等奖	25	\$2,500	\$62,500
Honorable mentions荣誉奖	50	\$100	\$5,000
Total/average总计/平均	81	\$1,265	\$102,500

First place won by Ma Haiming (马海明) from Beijing.
第一名被来自北京的马海明获得

Purchaser Awards购买者奖励

	Number	Amount	Total \$
First prize一等奖	1	\$10,000	\$10,000
Second prize二等奖	10	\$1,000	\$10,000
Third prize三等奖	50	\$100	\$5,000
Honorable mentions荣誉奖	1000	\$10	\$10,000
Total/average总计/平均	1061	\$33	\$35,000

- Designed to give purchasers and additional incentive to buy EE fridges, and collect additional information (a total of 12,892 information forms were submitted).
- 给购买者设计了奖励，并且购买高效冰箱消费者和可以得到另外的激励，此外，收集其他信息（总共散发了12892个信息表）
- Based on Chinese government regulations, the first and second prize amounts were not approved and had to be reduced to RMBY 5,000 (~\$600). The number of awards was increased from 11 to 33 in order to keep the total budget the same.
- 根据中国政府的规定，一等奖和二等奖的奖金数额不能被批准，所以不得不降至人民币5000元（约600美元）。这样奖励人数从11人增加到了33人，从而保持总预算不变。

Retailer Incentive Program Results

零售商激励项目结果

- The program subcontractor (CHEAA) was selected in December 2003.
- 2003年12月选出项目的子承包商。
- 57 top nationwide retailers were recruited to participate in the program, all of whom signed contracts committing themselves to achieve program goals. A sales data collection system was established and in-store ad materials were sent to each retailer.
- 全国排名前57位的零售商被邀参与该项目，这57位零售商都签了协议，他们承诺保证会实现项目的目标。建立了销售数据收集系统，并且店内广告材料也送到了每个零售商手中。

Retailer Incentive Program Results

零售商激励项目结果

- Retailer education was completed in April 2004. 200 salespeople received training.
- 在2004年4月完成了零售商的培训。200名销售人员接受了培训。
- The Retailer Incentive Program contest was conducted May 1 through October 31, 2004, after which the Awards Workshop was held to issue incentive funding awards. Participating stores and salespeople were responsible for sales of over 35,000 top rated energy efficient refrigerators.
- 零售商激励项目在2004年5月1日至10月31日实施，之后召开了颁奖会，颁发激励基金。参与的商店及推销员负责销售超过3.5万台顶级的节能冰箱。

Overall Project Results总项目结果

- The project obtained commitments from each participating refrigerator manufacturer to (i) design one new top rated-equivalent (consuming <55% of the current energy use standard), (ii) improve average refrigerator energy efficiency by at least 10%, and (iii) to invest at least 10% of their advertising budget in promoting energy efficiency. Based on site visits and other communications with manufacturers, all of these requirements will be met or exceeded.
- 该项目得到了每个参与本项目的冰箱生产商的承诺，（1）设计一款新的顶级产品（耗电量不超过当前标准值的55%）；（2）把冰箱平均能效至少提高10%；（3）将广告预算的至少10%投资于旨在促进能效的现场参观以及与其他厂商的交流活动中，所有这样要求必须要实现或超额完成。

Overall Project Results总项目结果

- Production and sale of top rated energy efficient refrigerators (consuming <55% of current energy use standard) increased from less than 360,000 units in 1999 to 4.8 million units in 2003.
- 顶级高效冰箱的产量和销售量（耗电量不超过当前标准值的55%）从1999年不到36万台增加到2003年的480万台



Overall Project Results 总体的项目效果

- Participating refrigerator manufacturers improved average energy efficiency gains from 79.4% of the minimum standard in 1999 to 61.1% in 2003 for average efficiency improvement of 23%. Production and sale of top rated energy efficient refrigerators has significantly increased, and a number of manufacturers are now producing a majority (or even 80-90%) energy efficient products.
- 参与本项目的冰箱生产商在不断提供电冰箱的能效水平，日耗电量1999年降低到最低能效标准的79.4%，到2003年，又进一步降低到61.1%，能源效率平均水平提高了23%。顶级高效冰箱的产量和销售量显著增加，并且，许多生产商当前以生产高效产品为主（甚至高达80 - 90%的比例）。



Overall Project Results 总体的项目效果

- The overall project goal of 20 million EE fridges sold, lifetime product emissions reduction of 100 million tons CO₂, and energy savings of 66 billion kWh will be exceeded by a factor of two or more. Cost effectiveness will likely reach less than \$0.05/ton CO₂.
- 销售2000万节能冰箱，产品全寿命周期二氧化碳减排量1000万吨，节约能源660亿kwh的总项目将超额完成。成本效益也将低于\$0.05/ton CO₂。



Note: Emissions reductions and energy savings are calculated as 40% lower energy use for 20% of the projected market (~2 million refrigerators/year) for 10 year project impact period at conclusion of and following project and with for an assumed 15 year average product life. 40% average efficiency gain for 20% of the fleet represents average fleet-wide efficiency gain of 8%. Actual efficiency improvement achieved 1999-2003 as almost three times that amount.



Key Lessons Learned 主要经验教训

- The China Refrigerator Project has demonstrated that financial incentives, in conjunction with other aspects of a comprehensive market transformation project, can yield significant benefits and impacts relative to single-activity based projects.
- 中国的冰箱项目表明，和基于单项活动的项目相比，财税激励与其它综合性的市场转型项目在方方面面的配合可以产生显著的收益和影响。



Key Lessons Learned 主要经验教训

- The key in a comprehensive market transformation project is to carefully plan and coordinate activities, and to ensure that all stakeholders are involved in both project planning and execution.
- 一个综合性市场转型项目的关键是精心设计、协调工作，并确保所有相关群体参与到了项目的计划和实施过程中。



Information Sources 信息来源

- General project information is available at the China Refrigerator project website <http://www.r-gefchina.org.cn/news/en/admin.asp> (mostly in Chinese).
- 项目信息资料来自中国冰箱项目网（主要是中国部分）
- The demonstration project technical report *Sino - US CFC-Free Super-Efficient Refrigerator Project Progress Report: Prototype Design & Testing, Summer 1997* and technical information regarding the prototype are available at <http://www.epa.gov/appdstar/appd>.
- 项目技术报告的演示 - 美国CFC超效冰箱项目过程报告：原型设计及实验，1997年夏，关于原型的技术资料来自：<http://www.epa.gov/appdstar/appd>.
- Copies of the project proposal and status reports are available at <http://www.gefweb.org>.
- 项目建议书的备份及数据报告来自：<http://www.gefweb.org>

