

Clean-Tech Industries Development & Capital Operation Program Globally

United Nations

Industrial Development Organization ITPO-China





United Nations Industrial Development Organization (HQ Vienna)

- ❖ **UNIDO is a specialized United Nations Agency. With 173 member countries, UNIDO is devoted to help developing countries pursue sustainable industrial development.**
- ❖ **UNIDO has become an important part of global multilateral investment, technology and investment financing system, and is aimed to promote sustainable economic development and industrialization process of developing nations and economic transition through technology support and global industrial cooperation**



United Nations Industrial Development Organization
Investment and Technology Promotion Office - China
联合国工业发展组织中国投资与技术促进处



- ❖ **UNIDO-Investment and Technology Promotion Office-China is a UNIDO field operational office with diplomatic status in China**
- ❖ **UNIDO provides a variety of aid and technology support including project financing, expert team, solution guidance and international cooperation platform for governments, enterprises, and NGOs by mobilizing UNIDO's global investment, technology, market, information and network resources**



The Industrial Sectors UNIDO focused on have been expanded from traditional industries to

- **Clean Production**
- **Health Care**
- **Environmental Protection**
- **Infrastructure**
- **Tourism**
- **Others**





Clean Production and Capital Operation Program Overview





UNIDO-ITPO-China On-going and Pipeline Projects

Clean-tech and Renewable Energy Direct Investment

■ Renewable Energy

- Solar Power, Solar-thermal equipment manufacture and implementation
- Wind Power equipment manufacture and implementation
- Biomass Power Generation and Existing Technology Improvement
- Biogas Power Generation (Centralized Animal Waste to Power and Organic Fertilizer)
- Garbage Incineration Power Generation
- Surplus Heat Utilization



UNIDO-ITPO-China On-going and Pipeline Projects

Clean-tech and Renewable Energy Direct Investment

- **Energy Efficiency and Management**
 - Coal Power Generation Industry
 - Steel Industry
 - Cement Industry
 - Construction Industry



Clean Production **Overseas Expansion**

- ❖ **Target Country's Investment Climate Analysis**
 - Target Country's Related Industry Policy
 - Target Country's Related Value Chain and Industry Chain Analysis
 - Target Country's Macro-economic Analysis

- ❖ **Specific Investment Project SWOT Analysis**
 - Project Investment Feasibility Study
 - Competitiveness Analysis
 - Market Analysis

- ❖ **Local Investment Services and Partners Networks**
 - Law Firm, Accounting Firm, Commercial Bank
 - Industry Association, Chamber of Commerce, and Economic Development Council



Clean Production **Overseas Expansion**

- ❖ **Target Government Resource Coordination and Public Relation Management**
 - Local Senior Government Official Linkage
 - Local Media and Public Relation Linkage

- ❖ **Project Operation and Risk Management**
 - Financial Risk Management Strategy
 - Implementation Risk Management Strategy

- ❖ **Capital Raising and Investment Strategy**
 - Oversea Equity Investment Promotion
 - Oversea Debt Investment Promotion
 - Local Investment Partner Networks
 - Structure Financing Strategy

- ❖ **Global Industry Development Fund Support**
 - Non-profit Development Resource Mobilization



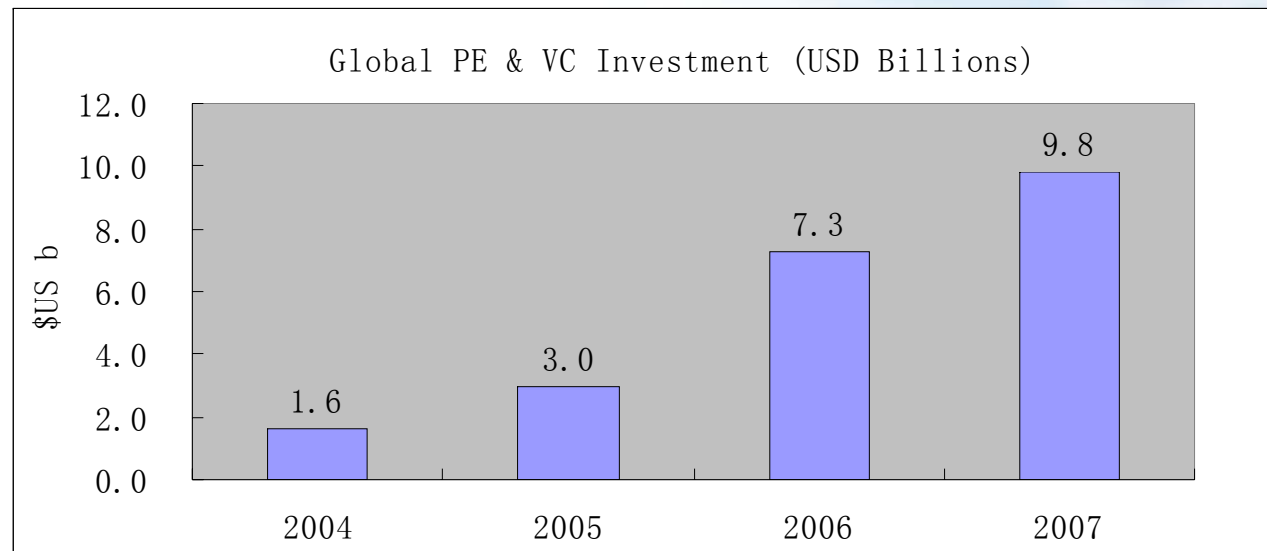
Carbon Finance Trading and **Financial Tools**

- ❖ **Design and Organize Feasible Business Model**
Promote the involvement of CDM for renewable energy corporation by designing and organizing feasible business models
- ❖ **Promote Advance Payment**
Manage the negotiation to promote the maximum advance payment right after ERPA (Emission Reduction Purchase Agreement) is signed in order to utilize the carbon finance income for initial investment.
- ❖ **Utilize Option Feature in ERPA**
Strategically define option and its details in ERPA, Except for contracted CERs, in order to maximize the tradable carbon assets to benefit both trading parties
- ❖ **CDM Plus Equity**
Face the challenge of Financial Crisis, Cooperate with Compliance Buyers and Equity Investment Carbon Buyers to Operate CDM Plus Equity Financing Model to benefit the clean-tech projects
- ❖ **Promote Golden Standard CER**
Act as the leading NOG to promote Golden Standard CER in China, as Golden Standard CER's price and social benefit is rated higher than general CERs (generally 25% higher price according to Golden Standard CERs)



Clean-tech Global Market Trend

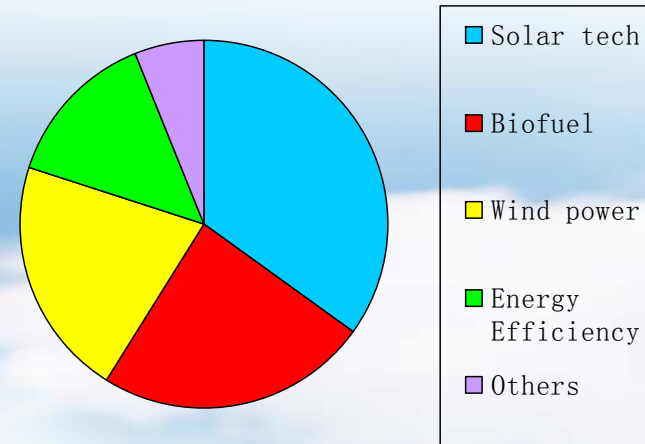
- ❖ **Global investments in cleantech reached US\$ 148.4 billion in 2007**
- ❖ **Private equity and venture capital accounted for US\$9.8 billion, which represented 34% increase from 2006**
- ❖ **Cleantech is now among the leading venture investment categories, ahead of telecommunication and medical device**



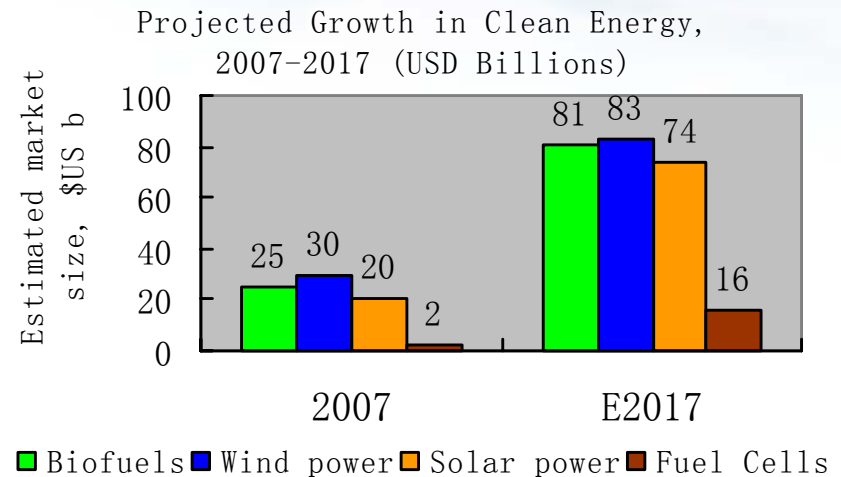


Clean-tech Global Market Trend

The leading sectors for cleantech investment are solar technology (roughly 35% of global investment in 2007), biofuels (24%), wind power (21%), energy efficiency companies (14%)



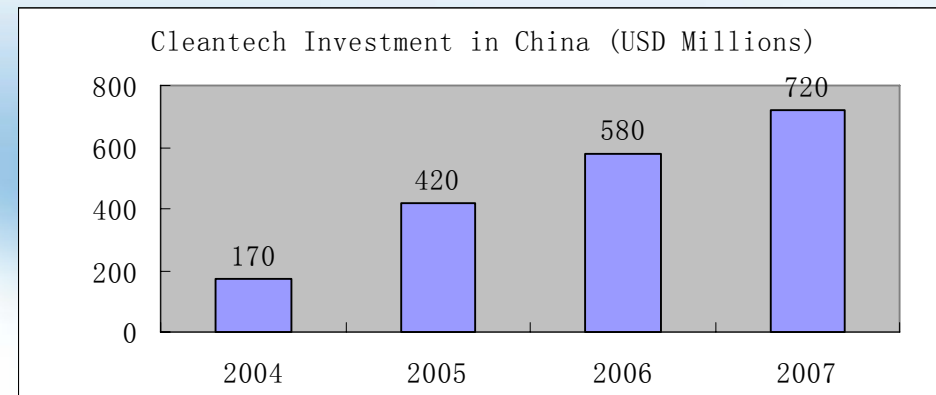
The total market size for clean energy—solar, wind, and biofuels comprising the bulk of cleantech opportunities—is estimated to be US \$77.3 billion today with potential growth to US\$255 billion by 2017





Cleantech Trend analysis for China Market

- ❖ From 2001 to 2005, China spent 1.3% of its GDP on environmental protection, and is currently evaluating plans to produce more than 10% of energy supplies from renewable resources by 2020.
- ❖ Chinese cleantech venture capital investment increased by 147% between 2005 and 2006, jumping from \$170 million to \$420 million (26 deals). Increases are expected to continue, with US\$580 million projected for 2007, and US\$720 million for 2008.
- ❖ In 2007, two of the top five investments in cleantech happened in emerging markets:
 1. Brazilian renewable energy with US\$200 million
 2. China Yingli Green energy LLC with US\$118 million
- ❖ IPO became the withdrawal pattern of many cleantech projects-after ShangDe, Solar concept listed Saiwei, Yingli, and Lingxiang companies.
- ❖ At the beginning of 2008, Goldman Sachs and CDH invested US \$100 million in HuangMing Solar Energy



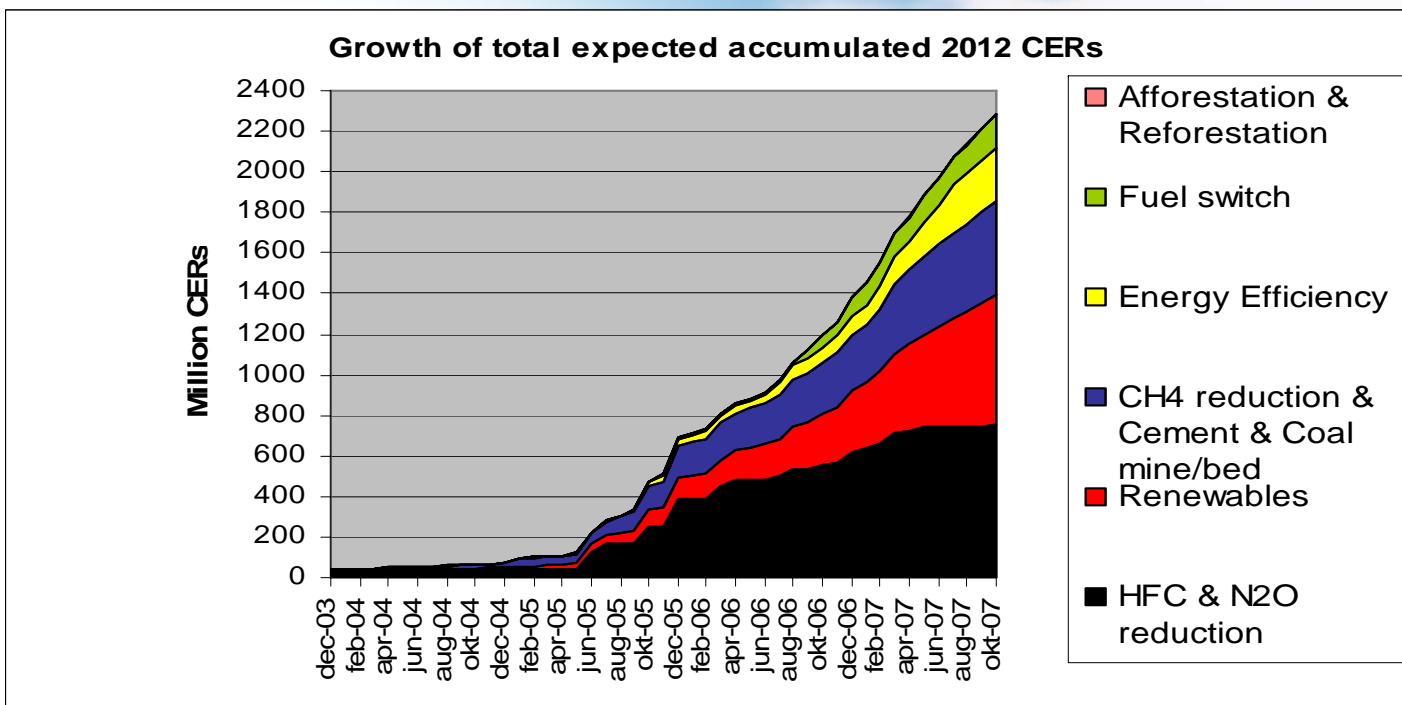
In the northern Chinese city of Rizhao, most roof tops and walls are covered with small panels of solar heat collectors.

Source: Emerging Market Private Equity Association, In Sight *Cleantech-An Overview of Trends in Select Sectors and Markets*, April 2008



2008-2012 Carbon Market Trend

2008-2012 Global Trading Reaches 60 Billion USD Annually
2012-Post Global Trading Reaches 150 Billion USD Annually



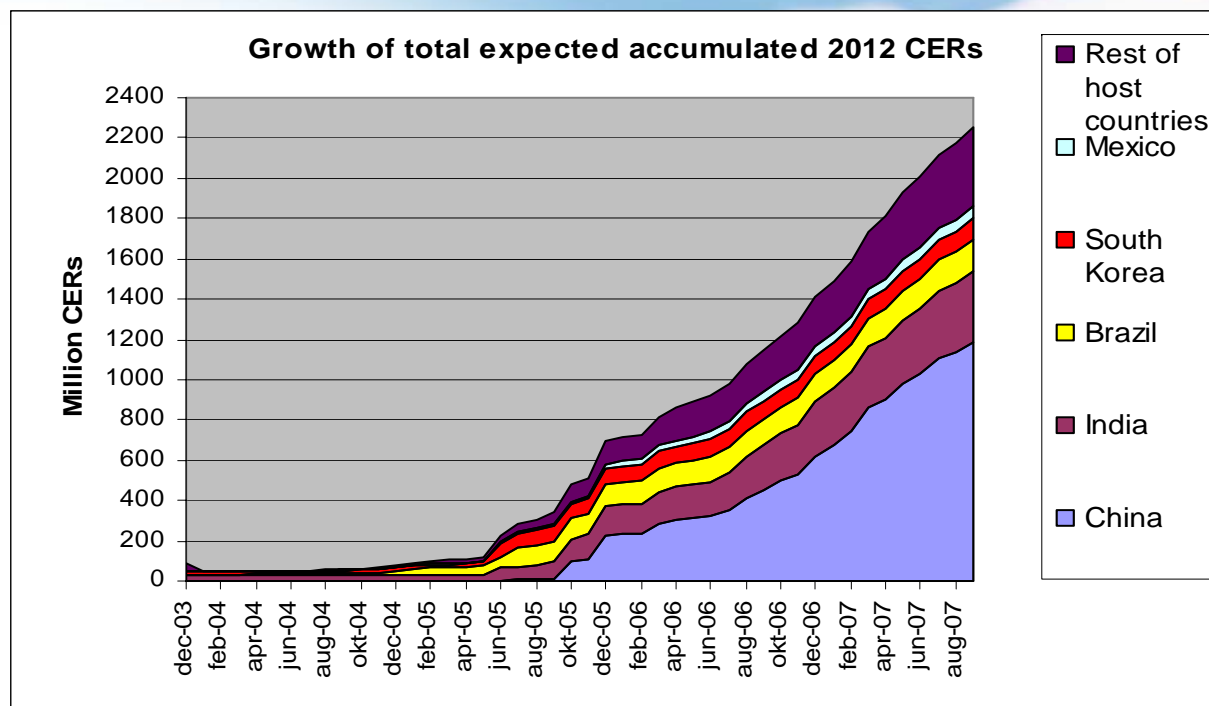
Source: Capital 2008.06 www.topcapital.com.cn and Jørgen Fenhann UNEP
Risoe Centre, Denmark, presented at Carbon Forum Asia Singapore, 8-9
October, 2007



2008-2012 Carbon Market Trend

Carbon market is expected to exceed **petroleum** market after 2012.

Will China become the next Middle East?



Source: Capital 2008.06 www.topcapital.com.cn and Jørgen Fenhann UNEP Risoe Centre, Denmark, presented at Carbon Forum Asia Singapore, 8-9 October, 2007



UNIDO-ITPO-China → Resource Mobilize





UNIDO-ITPO-China

→ Value Added Direct Investment Expertise & Implementation





UNIDO-ITPO-China

→ Value Added CDM Expertise & Implementation





联合国工业发展组织已完成的清洁技术项目

- ❖ **UNIDO Project of Micro Hydro Plant in Nias Island**
尼亚斯岛微型水力项目
- ❖ **Solar/ Hydrogen Rnergy Pilot Project**
太阳能/水能试验项目
- ❖ **Generation and Delivery of Renewable Energy Based Modern Services in Cuba**
古巴可再生能源开发和供给项目
- ❖ **Renewable Energy Based Electricity Generation for Isolated Mini-Grids in Zambia**
赞比亚独立电网可再生能源发电项目
- ❖ **Renewable Energy Powered Telecentre- Pilot and Demonstration Project**
可再生能源供电的电信中心试点项目
- ❖ **Operationalizing the Small Hydro Power Plant at Nias Island of Indonesia**
尼亚斯岛和印度尼西亚岛小型水电站实施项目
- ❖ **Rural Energy Development in Rwanda**
卢旺达农村能源发展项目



Expected Investment and Development Outcome

- ❖ Scale and Cluster Operation to Gain Efficiency**
- ❖ Chinese Enterprises' Strong Competitiveness in Niche Market of Clean Production**
- ❖ Value Added and Strategic Clean-tech Background Investment Partnership**
- ❖ Clean-tech Industries Securitization**
- ❖ Environmental Protection and Economic Sustainability**
- ❖ High IRR and NPV for Direct Investment**



UNIDO-ITPO-China Clean Production and Capital Operation Program

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