



# China Regional Emission Trading Pilot : Opportunity & Challenge

## 中国地方排放贸易试点：机遇和挑战

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International Cooperation*

March 2013

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## Policy Background

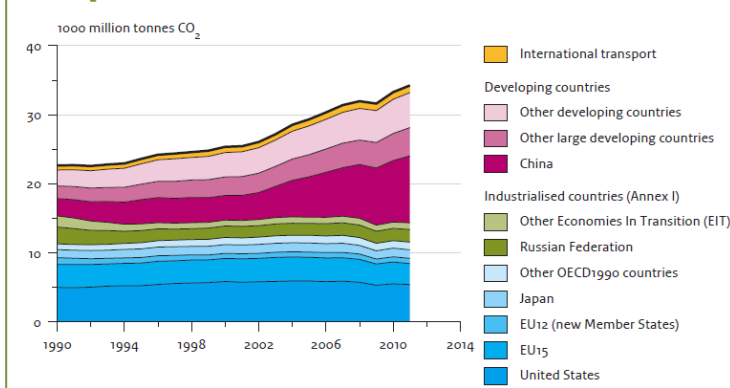
## 政策背景

# Policy Background

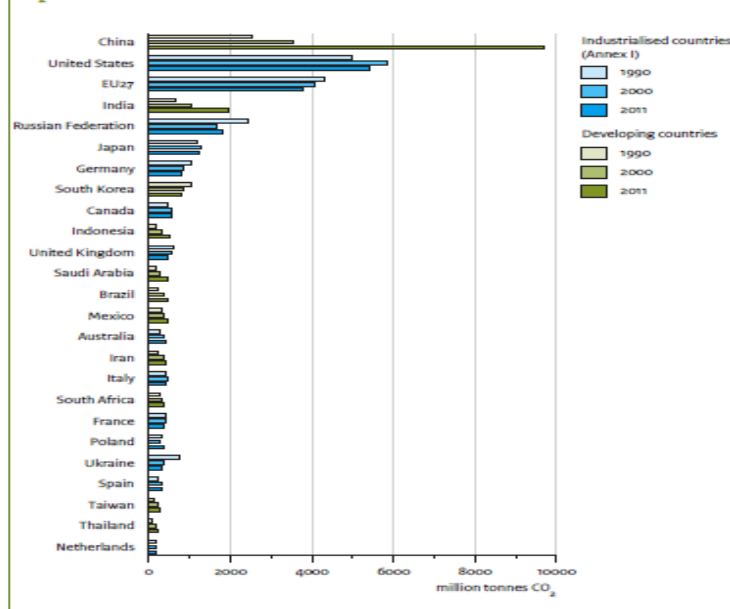
## 政策背景

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Global CO<sub>2</sub> emissions per region from fossil fuel use and cement production



CO<sub>2</sub> emissions per country from fossil fuel use and cement production



•Global emissions of carbon dioxide (CO<sub>2</sub>) increased by 3% in 2011, reaching an all-time high of 34 billion tonnes in 2011. 全球2011年CO<sub>2</sub>排放已达340亿吨，增长3%

•The top 5 emitters are China (share 29%), the United States (16%), the European Union (EU27) (11%), India (6%) and the Russian Federation (5%), followed by Japan (4%). 中国（29%）、美国（6%）、欧盟（11%）、俄罗斯（5%），日本（4%）是全球前5位排放大国

•China's average per capita carbon dioxide (CO<sub>2</sub>) emissions increased by 9% to 7.2 tonnes CO<sub>2</sub>. 2011年，中国人均CO<sub>2</sub>排放量为7.2t/a，比上年增长9%。

# Policy Background

## 政策背景

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- 2009-11-26, Chinese government announced: carbon dioxide emissions per unit GDP reduces 40-45% by 2020 comparing with that in 2005.

2009-11-26, 中国政府宣布, 到2020年单位GDP的CO2排放量比2005年降低40-45%。

- 12<sup>th</sup> Five Year Plan proposed: energy consumption per unit GDP decreased by 16%, carbon dioxide emissions per unit GDP decreased by 17%.

“十二五规划”提出, 单位GDP能耗降低16%, 单位GDP的CO2排放量下降17%。

- Local government set up emission reduction target, carbon dioxide emissions per unit GDP, Guangdong (18%), Shanghai (18%), Beijing (17%).

各地方政府也制定了减排目标 (单位GDP CO2排放量), 广东 (18%), 上海 (18%), 北京 (17%)。

## 国家发展和改革委员会文件

发改办气候[2011]2860号

### 国家发展改革委办公厅

#### 关于开展碳排放权交易试点工作的通知

北京市、天津市、上海市、重庆市、广东省、湖北省、深圳市发展改革委：  
根据党中央、国务院关于应对气候变化工作的总体部署，为落实“十二五”规划关于逐步建立国内碳排放交易市场的要求，推动运用市场机制以较低成本实现2020年我国控制温室气体排放行动目标，加快经济发展方式转变和产业结构升级，经综合考虑并结合有关地区申报情况和的基础，我委同意北京市、天津市、上海市、重庆市、湖北省、广东省及深圳市开展碳排放权交易试点。  
请各试点地区高度重视碳排放权交易试点工作，切实加强组织领导，建立专职工作队伍，安排试点工作专项资金，抓紧组织编制碳排放权交易试点实施方案，明确总体思路、工作目标、主要任务、保障措施及进度安排，报我委审核后实施。同时，各试点地区要着手研究制定碳排放权交易试点管理办法，明确试点的基本原则，测算并确定本地区温室气体排放总量控制目标，研究制定温室气体排放指标分配方案，建立本地区碳排放权交易监管体系和登记注册系统，培育和建设交易平台，做好碳排放权交易试点支撑体系建设，保障试点工作的顺利进行。  
特此通知。

国家发展改革委办公厅  
二〇一一年十月二十九日

主题词：气候变化 碳交易 试点 通知

# Policy Background

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- China will build chinese style emission trading scheme (ETS) by innovating market mechanism and learning from foreign ETS.
- 中国将汲取国外碳排放交易制度的经验，创新市场机制，建立具有中国特色的碳排放交易体系。

In November 2011, NDRC proclaimed ***“Carrying out the Work of Carbon Emission Trading Pilot”***, and approved seven ETS pilot regions, including Beijing, Tianjin, Shanghai, Chongqing, Hubei, Guangdong and Shenzhen.

2011年11月，NDRC宣布：在北京、天津、上海、重庆、湖北、广东和深圳开展碳排放交易试点工作。





## 国家发展和改革委员会文件

发改办气候[2011]2661号

国家发展改革委办公厅

### 关于开展碳排放权交易试点工作的通知

北京市、天津市、上海市、重庆市、广东省、湖北省、深圳市发展改革委：  
根据党中央、国务院关于应对气候变化工作的总体部署，为落实“十二五”规划关于逐步建立国内碳排放交易市场的要求，推动运用市场机制以较低成本实现2020年我国控制温室气体排放行动目标，加快经济发展方式转变和产业结构升级，经综合考虑并结合有关地区申报情况和工作基础，我委同意北京市、天津市、上海市、重庆市、湖北省、广东省及深圳市开展碳排放权交易试点。  
请各试点地区高度重视碳排放权交易试点工作，切实加强组织领导，建立专职工作队伍，安排试点工作专项资金，抓紧组织编制碳排放权交易试点实施方案，明确总体思路、工作目标、主要任务、保障措施及进度安排，报我委审核后实施。同时，各试点地区要着手研究制定碳排放权交易试点管理办法，明确试点的基本原则，测算并确定本地区温室气体排放总量控制目标，研究制定温室气体排放指标分配方案，建立本地区碳排放权交易监管体系和登记注册系统，组织建设和交易平台，做好碳排放权交易试点支撑体系建设，保障试点工作的顺利进行。  
特此通知。

国家发展改革委办公厅  
二〇一一年十月二十九日

主题词：气候变化 碳交易 试点 通知

# Policy Background NCSC

According to NDRC, the regional ETS pilot should start to run in 2013; and national ETS will be built and work till 2015 in China.

根据NDRC的安排，7个ETS试点城市在2013年将开始运行碳交易市场，到2015年时，在中国建立全国性的碳交易市场。

NDRC proclaimed “*The Interim Measurement for Administration of Voluntary Emission Trading of Greenhouse Gases*” on June 21, 2012, which enhanced the China ETS pilot and enriched China ETS.

2012年6月21日，NDRC颁布“温室气体自愿减排交易管理暂行办法”，有力的推动了中国碳交易试点工作，并是中国碳交易市场的有力补充。

## 国家发展和改革委员会文件

发改办气候[2012]1668号

### 国家发展改革委关于印发 《温室气体自愿减排交易管理暂行办法》的通知

国务院各部委、直属机构，各省、自治区、直辖市发展改革委：  
为实现我国2020年单位国内生产总值二氧化碳排放下降目标，《国民经济和社会发展的第十二个五年规划纲要》提出逐步建立碳排放交易市场，发挥市场机制在推动经济发展方式转变和经济结构调整方面的重要作用。目前，国内已经开展了一些基于项目的自愿减排交易活动，对于培育碳减排市场意识、探索和试验碳排放交易程序和规范具有积极意义。为保障自愿减排交易活动有序开展，调动全社会自觉参与碳减排活动的积极性，为逐步建立总量控制下的碳排放权交易市场积累经验，奠定技术和规则基础，我委组织制定了《温室气体自愿减排交易管理暂行办法》（以下简称《暂行办法》）。现印发施行。

# Policy Background

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**The pilot regions are important and topical areas in China.**

试点地区是重要的并具有代表性的地区。

✓ The pilot regions respectively locate in north, mid, west and est China, and cover the area of 480,000 km<sup>2</sup> and the population of ca. 199 m. 试点地区分布于中国东、中、西和北部，人口1.99亿，面积48万平方公里，

✓ These pilot regions have different industrial structure and economic development level, produce ca. 30% of China GDP and release more than 20% of CO<sub>2</sub> emission of China. 试点地区具有不同的产业结构和经济发展水平，产生中国约30%的GDP和20%的CO<sub>2</sub>排放量。

	Population (x10 <sup>4</sup> )	GDP (RMB, x10 <sup>8</sup> )	GDP rate(%)	EC (t sc, x10 <sup>4</sup> )	1 <sup>st</sup> /2 <sup>nd</sup> /3 <sup>rd</sup> Ratio in GDP	GHG (t eCO <sub>2</sub> , x10 <sup>8</sup> ), 2007
Beijign	1961.2	13777.9	+10.2	6945	0.9/24.0/75.1	1.17
Tianjing	1293.8	9108.8	+17.4	6818	1.6/52.4/46.0	1.41
Shanghai	2301.9	16872.4	+9.9	11201	0.7/42.1/57.2	2.32
Huibe	5723.8	15806.1	+14.8	15138	13.4/48.7/37.9	2.34
Chongqing	2884.6	7894.2	+17.1	7117	8.6/55.0/45.0	1.37
Guangdong	10430.3	45472.8	+12.2	26800	5.0/50.0/45.0	4.99
Shenzhen	1035.8	9510.9	+12.0	2200	0.1/47.5/52.4	-
China	137053.7	397983	+10.3	325000	10.1/46.8/43.1	67.9





## Pilot Program & Progress

### 试点方案和进展

- Pilot Program  
试点方案
- Pilot Progress  
试点进展
- Pilot Summary and Comparison  
试点总结和比较

# ETS Pilot Program Roadmap

## ETS试点方案路线图

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Policy  
政策基础

Kyoto Protocol  
《京都议定书》

China: Notice *ETS Pilot Program & Local Policy*  
中国: ETS试点工作通知

China: *VER Interim Measurement*  
中国: VER暂行办法

VER 自愿减排

National ETS  
全国ETS

ETS Regional  
Pilot ETS试点

Preparation  
Stage of ETS  
Regional Pilot  
准备阶段

CDM

Market mechanism  
市场机制

2015

(2013-2015)

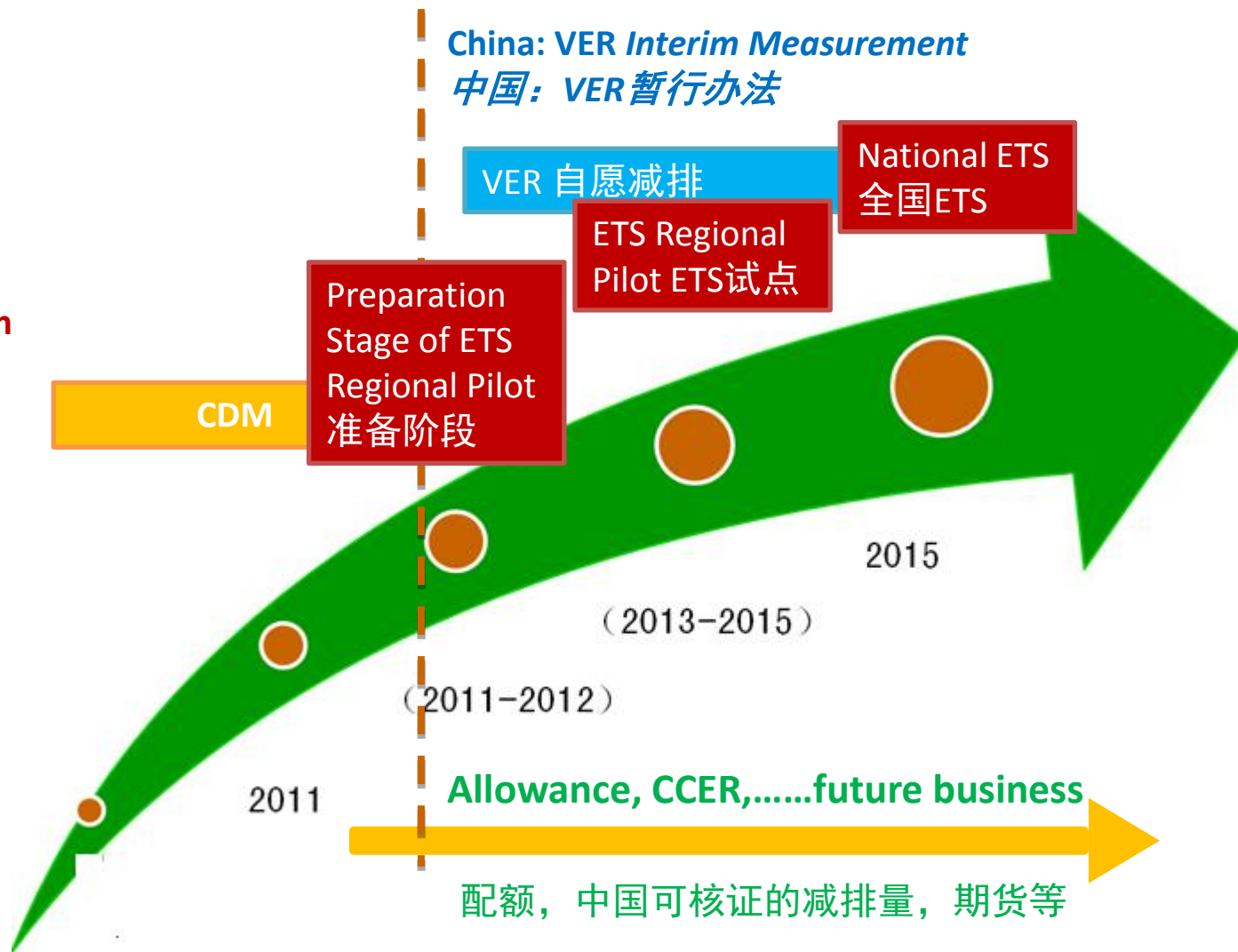
(2011-2012)

2011

Allowance, CCER,.....future business

配额, 中国可核证的减排量, 期货等

Carbon Finance  
碳金融及衍生物



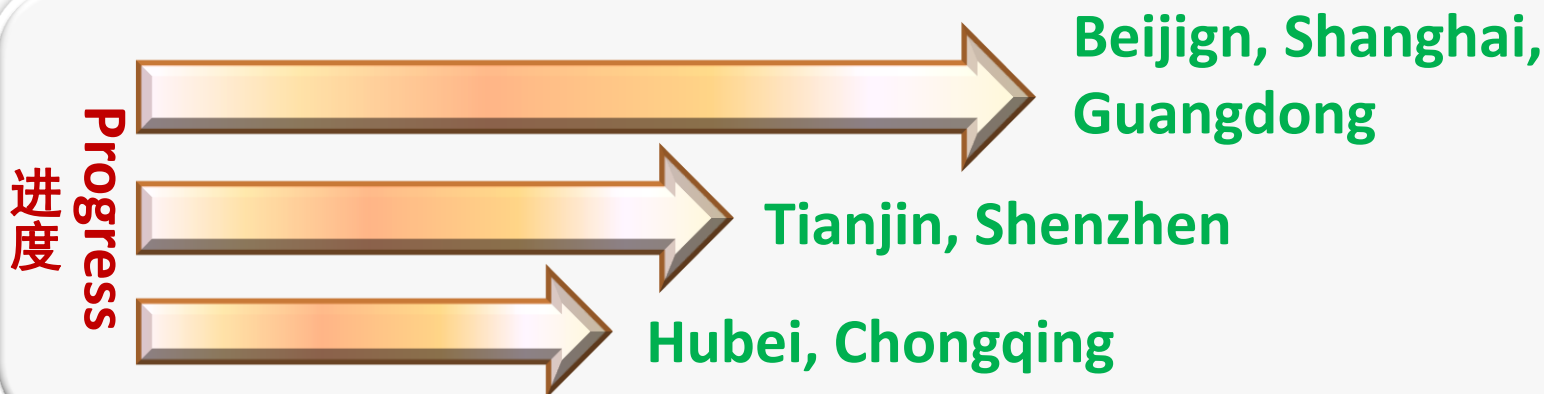
# Pilot Progress

## 试点进展

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### Pilot Work 试点工作内容

- ❑ Lay down local legislation 制定地方法律法规
- ❑ Cap setting 设定排放总量
- ❑ Scope and coverage 覆盖范围
- ❑ Allowance allocation 配额分配
- ❑ MRV system MRV 制度
- ❑ Trading scheme and Regulatory 交易制度和监管
- ❑ Registry 登记簿体系
- ❑ Offset mechanism 补偿机制
- ❑ Compliancy 履约机制



# Pilot ETS Summary and Comparison

## 试点总结 and 比较

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content	BEIJING	SHANGHAI	GUANGDONG	HUBEI	TIANJIN	CHONGQING	SHENZHEN
Cap setting 排放总量 设定	Key factors for cap-setting for pilots: the regional carbon intensity and energy intensity target, GDP growth rate, Regional GHG inventory / key sectors' GHG emission, Other economic factors, such as investment rate, industrial structure, energy structure, etc						
Threshold of coverage 覆盖企业 排放门槛	10,000 ton CO <sub>2</sub> e	20,000 ton CO <sub>2</sub> for industry , 10,000 ton CO <sub>2</sub> for non-industry	20,000 ton CO <sub>2</sub> (10,000 tce)	Approx.120,000 ton CO <sub>2</sub> e (60,000 tce)	20,000 ton CO <sub>2</sub>	20,000 ton CO <sub>2</sub> (10,000 tce)	Industry: 20,000 ton CO <sub>2</sub> Public building: 2,000 ton CO <sub>2</sub> (20000 sqm floor area With certain threshold on ton CO <sub>2</sub> /sqm )
Baseline year range 基准年	2009-2011	2010-2011	2010-2012	2010-2011	2009 and onwards	2008-2010	2009-2011
Reporting requirement threshold 要求报告 的企业排 放门槛	Others voluntary for reporting emissions	Mandatory reporting threshold: 10,000 ton CO <sub>2</sub>	Mandatory reporting threshold: 10,000 ton CO <sub>2</sub> (5000 tce)	Mandatory reporting threshold: Approx. 16,000 ton CO <sub>2</sub> (8000 tce)	Others voluntary for reporting emissions	Others voluntary for reporting emissions	Others voluntary for reporting emissions

# Pilot ETS Summary and Comparison

## 试点总结 and 比较

NCSC

content	BEIJING	SHANGHAI	GUANGDONG	HUBEI	TIANJIN	CHONGQING	SHENZHEN
<b>Sector covered</b> 覆盖的产业	Iron & steel, cement, petrochemical , heating, power, facility and public buidling sectors	Industry sectors: Iron & steel, petrochemical , non-ferrous, power, building construction, textile, paper & pulps, etc; Service sectors: airport, ports, airlines, railways, hotels, commercial and retails, and finance	Power, cement, iron & steel, petrochemical, ceramics, textile, non-ferrous, pulps & paper	Iron & steel, petrochemical, cement, power, paper	Iron & steel, chemical, power, heating, petrochemical, oil & gas drilling, and residential buildings	Electrolytic Aluminium , iron alloy, calcium carbide, sodium, cement, and iron & steel	8 to 9 sectors and 26 sub-sectors (manufacturing industries) Public and commercial buildings
<b>No. Enterprises covered</b> 覆盖企业数量	420 -600	197	827 for trading 1851 for reporting	150	100 - 120	n.a	800
<b>Percentage of the total emission in the region</b> 企业占比	42%	45%	42%	35-36%	60%	n.a	40-54%

# Pilot ETS Summary and Comparison

## 试点总结 and 比较

NCSC

content	BEIJING	SHANGHAI	GUANGDONG	HUBEI	TIANJIN	CHONGQING	SHENZHEN
Tradable Units 交易标的	<ul style="list-style-type: none"><li>All pilots will trading CO<sub>2</sub> (only one GHG type)</li><li>Emission Allowance, Reduction Credits: Offsets-China Certified Emission Reduction (CCER) , including forestry carbon offset</li></ul>						
Allowance Allocation 配额分配	Annual allocation	One-time allocation Benchmarking approach applied in certain sectors	One-time allocation	Annual allocation	Annual allocation	One-time allocation	Free allowance + Auction
	<ul style="list-style-type: none"><li>All pilots chose free allowance for start, and would explore the auction methodology for allowance allocation;</li><li>Pilots competent authority holds certain allowance for price containment</li><li>Key factors for considering the allocation Historical emission (grandfathering), Per output emission level (benchmarking), Early action on energy efficiency Shut-down the outdated installation, Future emission growth rate</li></ul>						
Banking(Yes/No) 配额存续	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Borrowing (Yes/No) 配额预借	No	No	No	No	No	No	No



# Pilot ETS Summary and Comparison

## 试点总结和比较

NCSC

content	BEIJING	SHANGHAI	GUANGDONG	HUBEI	TIANJIN	CHONGQING	SHENZHEN
MRV MRV制度	<ul style="list-style-type: none"> <li>•Each pilot develops the MRV guidance by referring EC guidance, ISO 14064-1, GHG Protocol, IPCC inventory, China provincial GHG inventory guidance, and Chinese energy consumption calculation and verification guidance</li> <li>•All chose to include both direct and indirect emissions</li> <li>•All allow the carbon reduction project as offsets, following China Certified Emission Reduction (CCER) validation and verification guidance</li> <li>•Third-party entities conduct the validation and verification</li> </ul>						
Registry 登记簿体系	<ul style="list-style-type: none"> <li>•Develop the electronic system for registry system for tracking allowance holding, transfer, cancel;</li> <li>•All pilots registry system options would be very similar in terms of the function, and all learn from the EU ETS</li> <li>•Need software and hardware IT system maintenance and backup system safety</li> <li>•All pay attention to the IT system interface and potential linking to the national level registry</li> </ul>						
Non-compliance and penalty 违约及处罚	Yes, but not specified in the implementation plan	Yes, but not specified in the implementation plan	Yes, but not specified in the implementation plan	3 times of the carbon price as the fines; The next year allowance would be deducted for 2 times of the excess emissions	Yes, but not specified in the implementation plan	Yes, but not specified in the implementation plan	3 times of the carbon price as the fines for excess emissions ;

# Pilot ETS Summary and Comparison

## 试点总结 and 比较

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content	BEIJING	SHANGHAI	GUANGDONG	HUBEI	TIANJIN	CHONGQING	SHENZHEN
<b>Market regulatory</b> 市场监管	<ul style="list-style-type: none"> <li>•All pilots have laid out the oversight targets include enterprises, third party verifiers, traders, trading platform, trading activity, with the principle of transparency, equality, justice , and efficient                             <ul style="list-style-type: none"> <li>–Trading platform oversight – develop the transaction rule</li> <li>–Plan to develop the carbon price monitoring</li> <li>–Third-party entities regulation</li> <li>–Non-compliance penalty</li> </ul> </li> <li>•All pilots form a ETS pilot leadership group, and plan to develop the ETS management office</li> </ul>						
<b>Other characteristics (e.g. linking, financial services, products innovation, etc)</b> 其他特征	Explore the carbon finance derivative products	Consider to involve financial institutions, and explore various carbon finance products	Consideration of linking Hubei pilots after 2014	Consideration of linking Guangdong pilots after 2014			Engaging Hong Kong entities for Shenzhen ETS
<b>Expected Pilot Starting</b> 试点启动预期	Early to Mid - 2013	Early to Mid - 2013	Sep, 2013	Aug, 2013	Mid-2013	Sep, 2013	Mid-2013

# Pilot ETS Summary and Comparison

## 试点总结和比较

NCSC

### Summary 总结

#### □ Cap setting 总量设定

- the regional carbon intensity and energy intensity target, GDP growth rate, Regional GHG inventory / key sectors' GHG emission, Other economic factors, such as investment rate, industrial structure, energy structure, etc. 考虑了各地区碳排放强度、温室气体核算清单、经济发展水平、产业结构和能源结构等。

#### □ Covered sector 产业覆盖

- key emission sectors, > 40% annual emission.  
关键排放企业，约为各地年排放40%以上

#### □ Allowance allocation 配额分配

- annual/one-time allocation 按年度分配，或者一次分配
- methodology: grandfathering, or benchmark 祖父法，基准线法
- All pilots chose free allowance for start, and auction would explore the; 免费和拍卖结合
- Pilots competent authority holds certain allowance for price containment 价格控制
- Key factors for considering the allocation 分配考虑的关键因素
  - Historical emission (grandfathering), Per output emission level (benchmarking)  
分配方法：祖父法，行业基准线法
  - Early action on energy efficiency 能效
  - Shut-down the outdated installation, Future emission growth rate, new entrance  
退出的企业、新加入者

# Pilot ETS Summary and Comparison

## 试点总结和比较

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### Summary 总结

#### □MRV MRV制度：

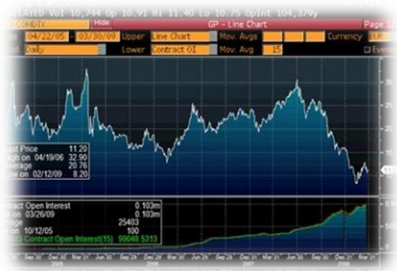
- Each pilot develops the MRV guidance by referring EC guidance, ISO 14064-1, GHG Protocol, IPCC inventory, China provincial GHG inventory guidance, and Chinese energy consumption calculation and verification guidance

根据国际标准、国内政策和标准等建立了MRV体系。

- All chose to include both direct and indirect emissions 涉及直接和间接排放
- All allow the carbon reduction project as offsets, following China Certified Emission Reduction (CCER) validation and verification guidance
- Third-party entities conduct the validation and verification 第三方核证制度

#### □Registry 登记簿系统：

- Develop the electronic system for registry system for tracking allowance holding, transfer, cancel; 电子登记簿，跟踪配额的持有、转移和取消等
- All pilots registry system options would be very similar in terms of the function, and all learn from the EU ETS 试点地区登记簿系统与欧盟的相似
- Need software and hardware IT system maintenance and backup system safety 建设了软件、硬件和灾备系统



# Challenges & Solutions

## 存在问题和解决办法

# Existing Problems

## 存在问题

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### Challenges 问题

- Ideal 理念
- Institution 制度
- Technology 技术



### Core 核心问题

Incentive Mechanism  
建立激励机制

- Idea problems: balance in low carbon development and economy growth  
理念问题：平衡低碳发展与经济发展之间的矛盾
  - ✓ Energy consumption and the limitation of emission 能耗与排放控制
  - ✓ Difference in regional economy development 区域经济差异
- Legislation problems: legislation delay 立法滞后
  - ✓ Fundamental law 根本法滞后
  - ✓ Local law 地方法规滞后
  - ✓ long period (3-5 years) 立法周期长



# Existing Problems

## 存在问题

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- Absence of data and standard  
缺乏完善的数据库和标准
- Absence of available methodology of Allowance allocation  
缺乏适用的方法学
- Registry (standard) system  
建立统一标准的登记簿系统
- Link of regional ETS pilot  
ETS试点连接
- State-owned enterprises involved in ETS  
国有企业/央企参与ETS

# Possible Solution

## 可能的解决方法

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### Possible solutions 可能的解决方法

- ETS Legislation  
ETS立法
- Encourage participation in ETS  
鼓励积极参加ETS
- Focus on the key industry and enterprise  
以重点产业和企业为抓手
- Database & Methodology  
逐渐建立完善的数据库和方法学
- Unified MRV system  
构建统一的MRV体系
- Carbon financial derivatives  
在ETS中逐步引入碳金融产品



Thank you