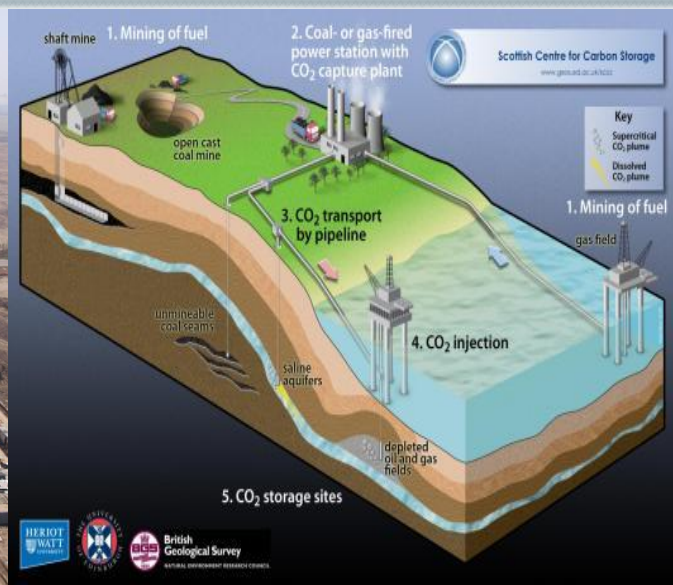


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# ADB Driving Innovation and Delivering Results to Meet PRC's Climate Change Mitigation Challenges



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**Ashok Bhargava**  
13 September 2012

**ADB**

# PRC's climate change mitigation challenges

Largest emitter

- More than 20% of CO<sub>2</sub> emissions globally and rising trajectory

Energy intensive economy

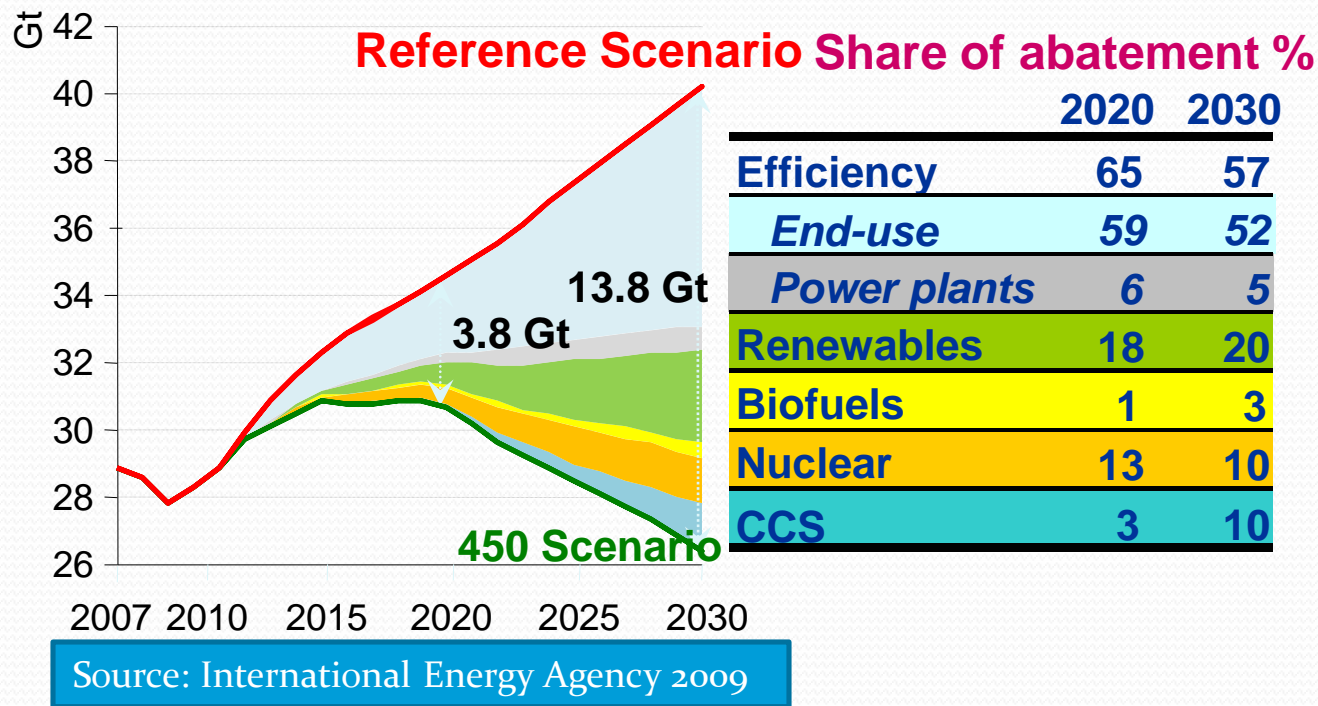
- Structural issues: predominantly industrial structure but service sector is increasing

Energy related emissions are rising fast

- Coal dependency: 2/3<sup>rd</sup> of primary energy needs are satisfied from coal

- In 2011, according to IEA estimates, more than 70% incremental emissions globally came from PRC; energy related emissions are still rising fast
- Urgent need to de-carbonize energy sector

# So, what is needed to de-carbonize energy sector



- A portfolio approach.
- Need to use best available technologies.

# 11<sup>th</sup> FYP (2006 – 2010) – A Defining Period for Clean Energy Development

More diversified energy mix with higher share of renewable

Disconnect economic growth from energy growth

Commitment to climate change mitigation strengthened

- Enacted Renewable Energy Law; rapid development of wind power from about 1 GW in 2005 to more than 40 GW by 2010
- 20% energy intensity reduction target (19.2% actually achieved)
- Announced longer term (2020) carbon intensity reduction targets to address environmental and climate change concerns

- Had the PRC not undertaken these initiatives in the 11<sup>th</sup> FYP, its incremental emissions in 2010 would have been double of what was achieved.

# 11<sup>th</sup> FYP – Impressive Achievements but Challenges Remain

Energy consumption increased rapidly

Coal dependency continued

New Challenges emerged

- Energy demand grew from 1.7 btoe in 2005 to 2.4 btoe in 2010; 44% increase
- Electricity consumption soared from 2,500 TWh in 2005 to 4,206 TWh in 2010; 68% increase. More than 3/4<sup>th</sup> electricity from coal
- Need for more intensified sector reforms; correction in domestic energy pricing; mainstream market-based approaches.

Based on initial estimates by IEA, the PRC's CO<sub>2</sub> emission increased by 0.73 Gt (or 73%) of the World's total incremental emissions of 1 Gt in 2011.

# ADB's Knowledge and Innovation-Based Support to PRC's Clean Energy Development

Sector strategies aligned with PRC's FYP

Provide knowledge solutions to policy making and regulations

Improve risk profile by demonstrating high impact clean energy technologies

- ADB sector priorities and strategies fully aligned with FYP
- New and emerging technologies targeted with upstream analytical work, tariff studies, policy papers and pilot testing
- Finance demonstration projects to build confidence in technologies and provide greater insight in to risks



## Examples of recent innovative clean energy projects – CMM Project in Shanxi (2004)

- Captures fugitive methane from one of the largest coal mines in Shanxi to generate electricity
- It is CDM registered and will mitigate more than 40 million tons of CO<sub>2</sub>e during its lifetime.
- Since the project completion, multiple projects capturing more than 15 times the methane are in operations by 2010.

## Targeting energy efficiency in energy intensive Guangdong, Hebei and Shandong provinces



Guangdong Energy Efficiency  
Power Plant

- \$300 million financing for multiple EE projects resulting in at least 750,000 p.a. tons of coal avoidance
- Address key barriers in energy efficiency financing.
- First such project in Guangdong has exceeded energy saving targets

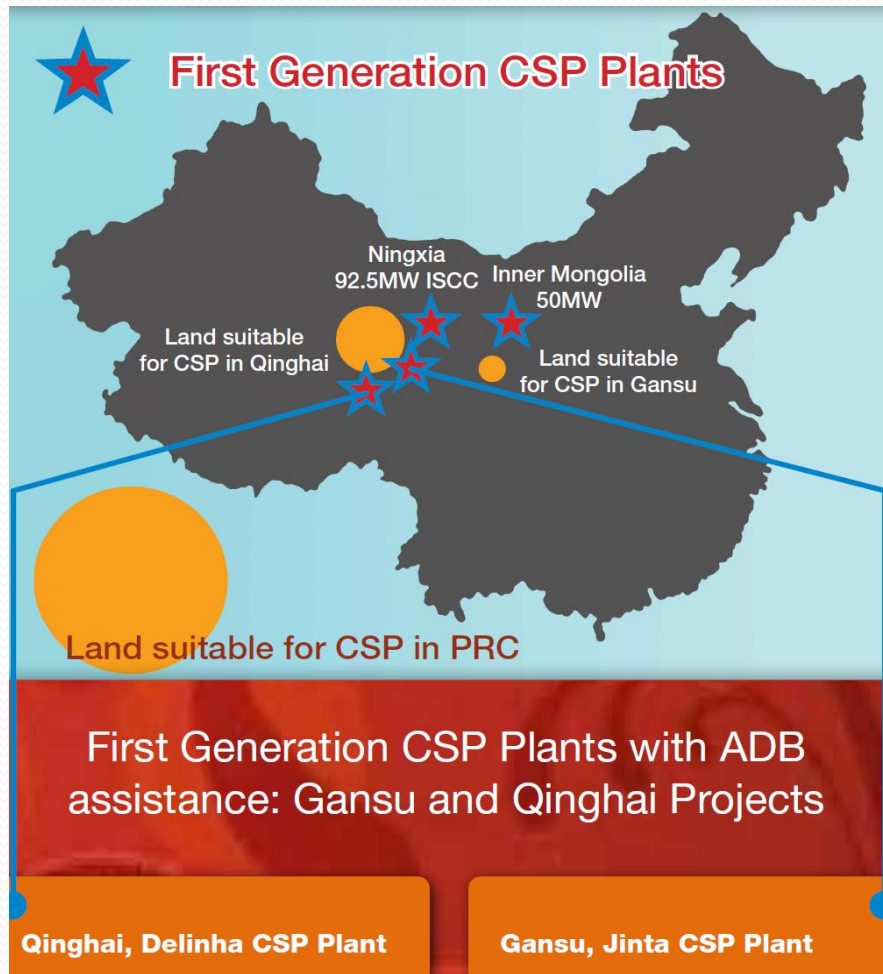


## Enabling CCS – Tianjin 250 MW IGCC Project (2010)



- PRC's first IGCC plant as part of its GRRENGEN program
- \$135 million loan and \$5 million grant approved in 2010
- Project is expected to be in operation by end 2012

## Promoting Concentrated Solar Power in Western PRC



- Qinghai, Delinha 50MW Parabolic Trough CSP Plant with 7 hour thermal storage
- Target: 199GWh/a
- Gansu, Jinta 50MW Parabolic Trough CSP Plant with 1 hour thermal storage
- Target: 90GWh/a
- \$250 million loan to demonstrate innovative clean energy technology

# Recent Policy Advisory and Capacity Development Activities

Emerging but relevant areas were targeted

Work with key relevant agencies

Support analytical and pilot work as well as policy and regulatory framework

- **Smart grid** – assist State Grid to integrate larger wind power generation in the grid
- **Energy Regulation** – work with NEA to refine regulatory regime
- **SO<sub>2</sub> Trading** - work with MEP to consider market-based approach
- **ETS** – work in Tianjin, Beijing and Shanghai with relevant agencies
- **CCS** – assist major energy companies with different technology routes; assist NDRC to prepare a CCS road map.

# Priorities and Areas of Interest for Lending Operation

Target demonstration of key low-carbon technologies

Support early –stage demonstration projects

- **Offshore Wind** – assist demonstration of first few projects to assist rapid future deployment
- **Innovative Energy Efficiency** – more market-based lending leveraging commercial financing
- **New Energy City Development** – expand renewable energy installation and use in smaller cities, including gas based district heating
- **CCS Demonstration** – support FEED studies and financing first CCS demonstration projects
- **Scale-up CSP** – pilot and demonstrate next generation CSP plants such as ISCC

# Priorities and Areas of Interest for Non-Lending Operation

Target emerging technologies and areas of interest

Move towards more market-based approaches

Carbon price setting

- **Shale gas** –assist in setting up best practices guidelines to govern early stage projects
- **Fossil-Fuel Power Plants** – analyze and set up emission performance standards
- **Tariff Studies** – more transparent and market-based approach in tariff setting for offshore wind and IGCC
- **Energy smart regulations**—regulations to encourage large energy efficiency investments
- **ETS** – assist pilot testing and implementation of emission trading system in key cities



# Thank You!

From:  
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