

# China's CMM Policy and Action in Tackling Climate Change

GMI Coal Session at the UNECE's Ministerial Conference &  
8<sup>th</sup> International Forum on Energy for Sustainable Development

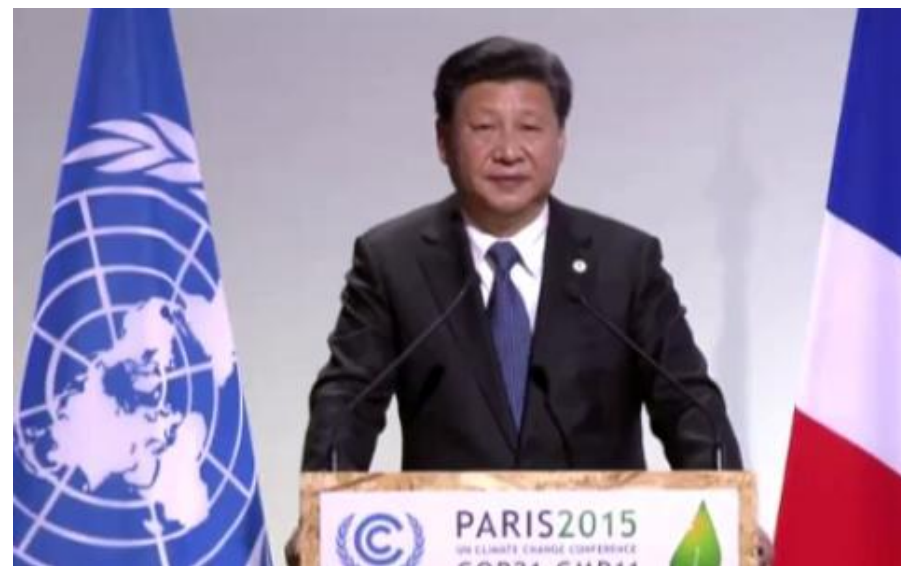
Astana, Kazakhstan 13 June 2017

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China Coal Information Institute

# China's Climate Policies and Countermeasures

## China's INDC by 2030

- Achieve peaking of CO<sub>2</sub> emissions around 2030 and making best efforts to peak early
- Lower carbon dioxide emissions per unit of GDP by 60% to 65% from the 2005 level
- Increase the share of non-fossil fuels in primary energy consumption to around 20%
- Increase the forest stock volume by around 4.5 billion cubic meters from the 2005 level.



# China's Climate Policies and Countermeasures

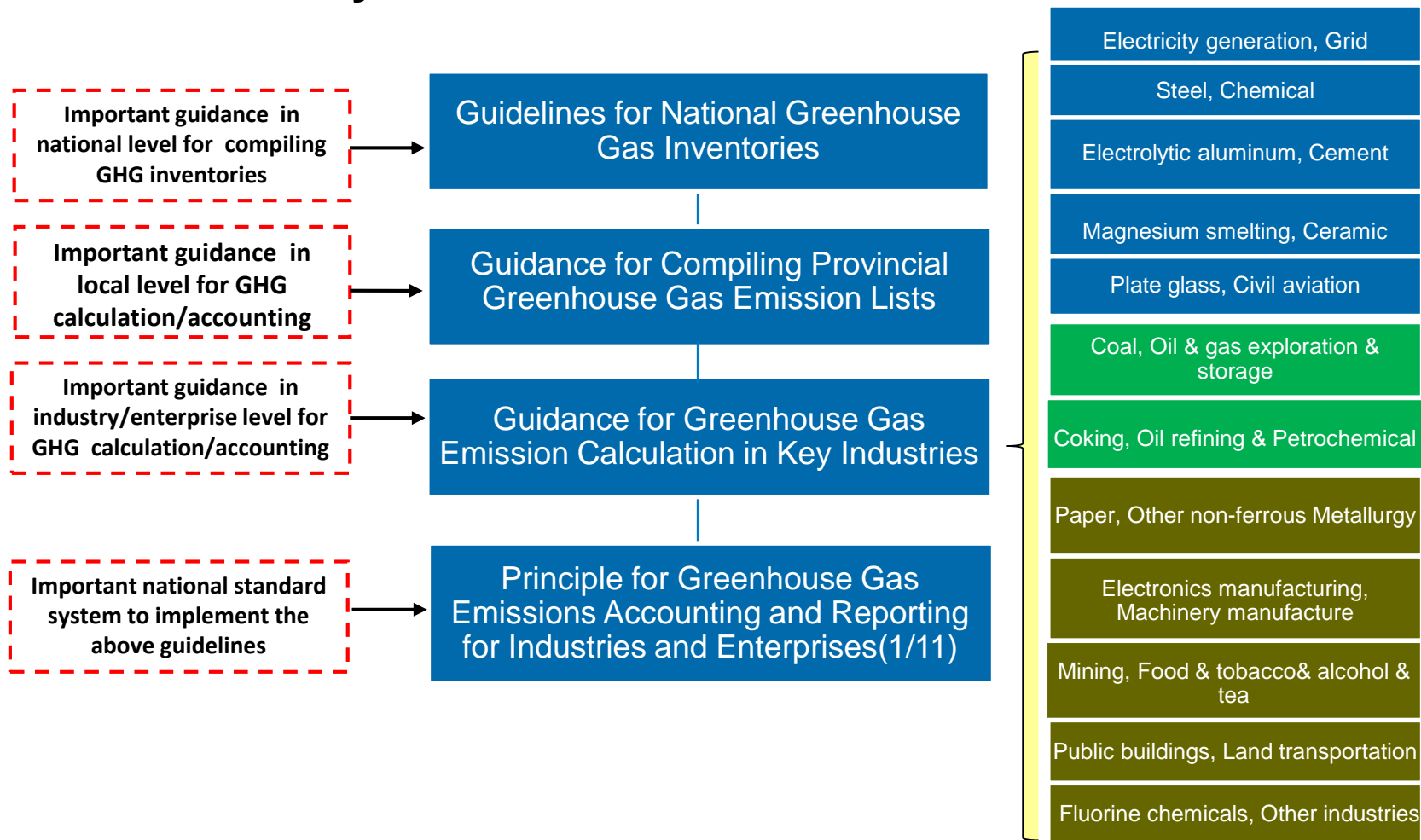
## China's GHG emission reduction target by 2020

- The intensity of CO<sub>2</sub> emissions would be reduced by 40%-45% from the 2005 level (Policy source: *National addressing climate change plan 2014-2020*)
- The CO<sub>2</sub> emissions per unit of GDP would be reduced by 18% from the 2015 level (Policy source: *GHG emission control scheme during the 13<sup>th</sup> five-year* issued by State Council)
- Further control emissions of Non-CO<sub>2</sub> GHG such as CH<sub>4</sub>, N<sub>2</sub>O, HFCs, et al. (Policy source: *GHG emission control scheme during the 13<sup>th</sup> five-year*)
- Making efforts to peak by 2020 in the CH<sub>4</sub> emissions from energy activities (Policy source: *China First Biennial Update Report on Climate Change*)



# China's Climate Policies and Countermeasures

## Guidance system of GHG emission calculation



# China's Climate Policies and Countermeasures

## Carbon emission trading market

- 7 provinces and cities initiated pilot programs for carbon emissions trading from 2011. By October, 2016, the trading volume reached 120Mt CO<sub>2</sub>, with the turnover of RMB3.2 billion.
- National carbon emission trading market involving 8 key industries would be set up ASAP in 2017.
- Pilot program of low carbon provinces and cities, parks and communities are processed in order, and the capacity of addressing climate change has been gradually strengthened.

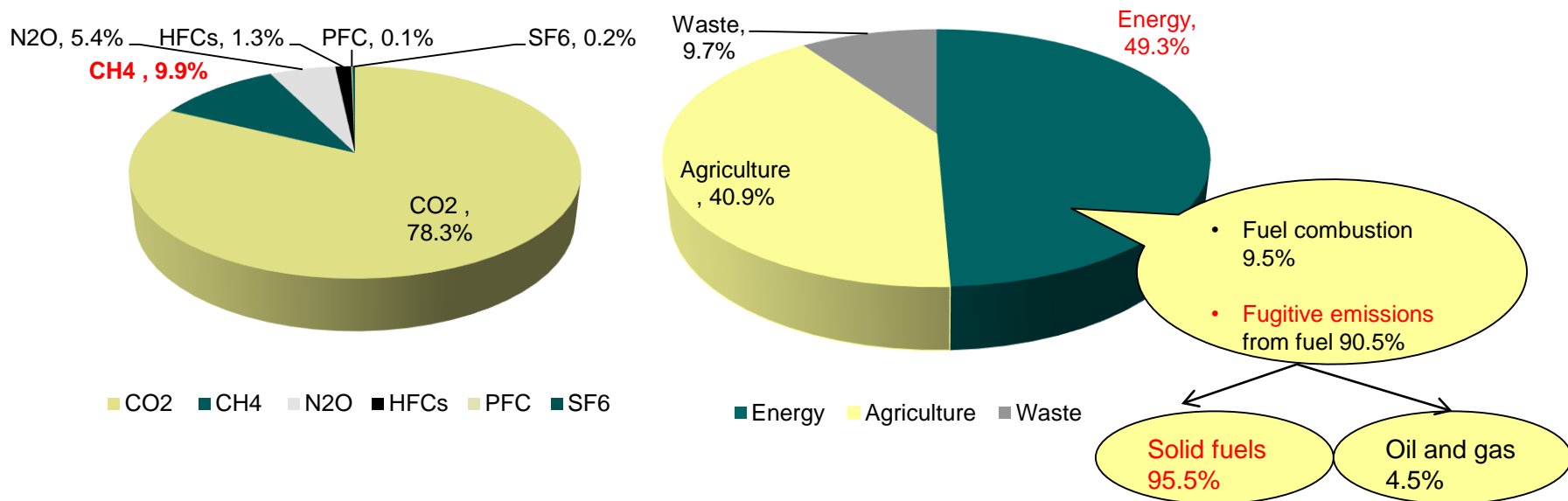


# CMM Emission Control Plays an Important Role in China's Climate Change Mitigation



## Methane emission in China

- Total methane emission volume in 2012 was 55.92Mt(1.17 billion Tons CO<sub>2</sub>e) ,accounting for 9.9% of the total GHG emission
- 27.59Mt were from energy, accounting for 49.3% of the total CH<sub>4</sub> emission



Composition of Methane emission by categories & sectors in 2012

(data source: China First Biennial Update Report on Climate Change issued in Jan.2017)



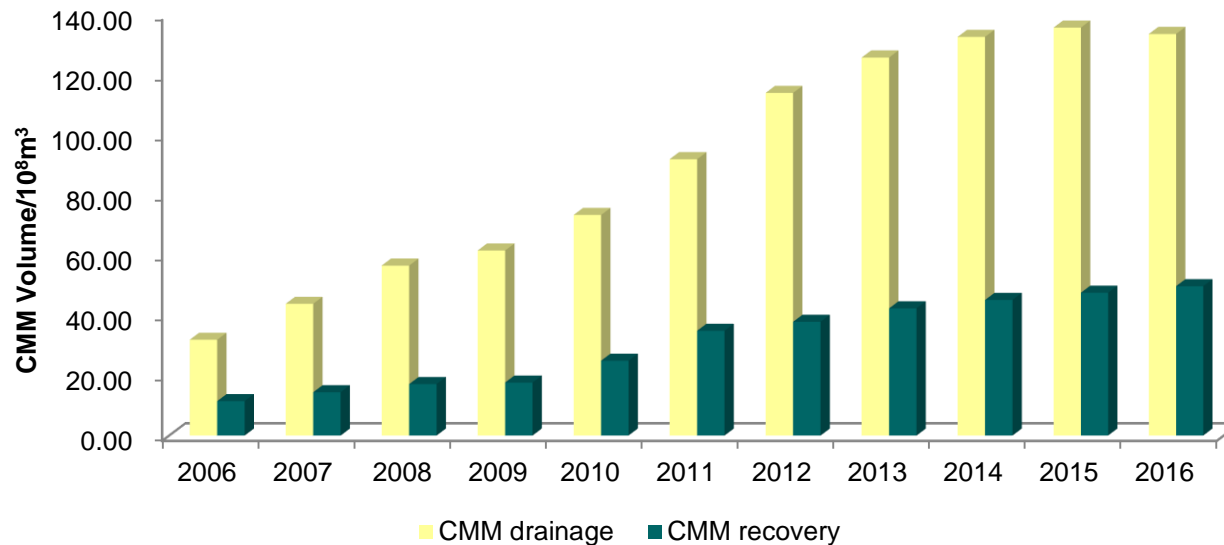
# CMM Capture & Utilization Policies and Actions

- Monetary Support and fiscal subsidies
  - 3 billion RMB country bond for coal mine safety innovation since 2005, focusing on gas prevention and control
  - 30 billion RMB allotted (till 2016)
  - Central budgetary allocations for coal mine safety reformation and demonstration project construction, focusing on CMM recovery and utilization system, VAM system.
  - Central government fiscal funding subsidy increases from 0.2 to 0.3RMB/m<sup>3</sup> ( *Notice on CBM/CMM Development and Utilization Subsidy Standard in 13<sup>th</sup> Five-Year Plan* )
- Mandatory Emission Standard
  - coalbed methane and coal mine gas' concentration be equal or greater than 30% is forbidden by fugitive emissions(*Emission standard of coalbed methane/coal mine gas* issued by EPA in April, 2008)

# CMM Capture & Utilization Policies and Actions

## CMM capture and utilization volume

- CMM capture in 2016: 13.57 Bm<sup>3</sup>, increased by 317.4% compared to 2006.
- CMM utilization in 2016 : 4.99 Bm<sup>3</sup>, increased by 333.6% compared to 2006.
- CMM utilization ratio in 2016 is 37.3%.



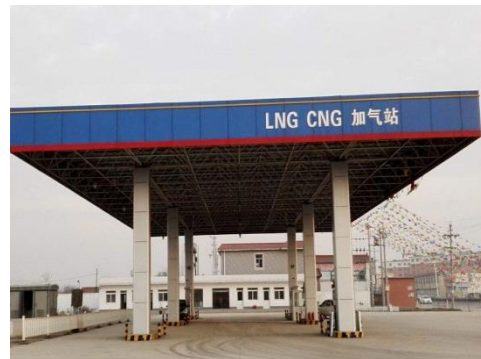
**CMM drainage and recovery volume in China from 2006-2016**



# CMM Capture & Utilization Policies and Actions

## CMM capture & utilization target and plan by 2020

- CMM(CBM) production volume will reach 24 Bm<sup>3</sup>, utilization volume reach 16 Bm<sup>3</sup>, utilization rate reaches 66.7%.
- Further strict CMM emission standards
- Encourage Private Investment in CMM pipe networks, CNG(LNG) station, gas storage and power generation
- Improve electricity price policy of CMM power generation



(Policy source: *The 13<sup>th</sup> Five - Year Plan for Coal Industry* issued by NDRC and NEA of China in December, 2016)



# CMM Capture & Utilization Policies and Actions

## CMM capture & utilization target and plan by 2020

- CMM drainage volume will reach 14  $\text{Bm}^3$ , utilization rate  $> 50\%$ .
- CMM power installed capacity 2800MW, civilian users more than 1.68 million.
- Continuously build up 2 mining areas with CMM drainage volume of 1-billion-cubic-meter scale, 5 mining areas with CMM drainage volume of 0.5- billion-cubic-meter scale, 7 mining areas with CMM drainage volume of 0.2- billion-cubic-meter scale, 13 mining areas with CMM drainage volume of 0.1- billion-cubic-meter scale.
- Build CMM drainage demonstration projects differentiated by geology situations.

(Policy source: *The 13<sup>th</sup> five-year plan of CBM/CMM development and utilization* issued by NEA of China in November, 2016)



# CMM Capture & Utilization Policies and Actions

## CMM capture & utilization target and plan by 2020

- Set about building carbon emission trading platform
- Encourage Private Investment in CBM/CMM development and utilization
- Strengthen the environmental impact assessment and energy conservation assessment, try to reduce greenhouse gas emissions
- Formulate intensive policies of low-concentration CMM and VAM
- Build gas zero emission demonstration projects

*(Policy source: The 13<sup>th</sup> five-year plan of CBM/CMM development and utilization issued by NEA of China on November, 2016)*

# CMM Capture & Utilization Policies and Actions

## Contribution of CMM to overall climate mitigation

|                            | <b>12<sup>th</sup> five-year</b> | <b>13<sup>th</sup> five-year<br/>(expected)</b> |
|----------------------------|----------------------------------|---|
| CMM utilization volume     | 20.9 Bm <sup>3</sup>             | 30 Bm <sup>3</sup>                              |
| Coal saving                | 25.1 Mt tce                      | 36 Mt tce                                       |
| CO <sub>2</sub> mitigation | 313.8 Mt                         | 450 Mt  |

# CMM Project Outlook

## CMM emission reduction projects

- Power generation, household use, LNG, CNG
- 133 CDM projects have been approved, therein, 81 projects were registered and 41 projects with CERs issuance in use of CMM up to May, 2017.



# CMM Project Outlook

## Promising projects in VAM

- Low Quality CMM Utilization (Concentration < 30%) : Enrichment and purification with PSA for power or CCHP
- VAM: Utilization of the wasted heat from combustion by thermal or catalytic oxidation for power or civilian heat

## CCII R&D Projects supported by the National Science Foundation of China

- *Synthesis and its reaction kinetic model research of novel Pd-based monolithic catalysts for ventilation air methane*



Synthesis and growth behavior of CeO<sub>2</sub>/ZrO<sub>2</sub>/LaAlO<sub>3</sub> nanorods on hierarchical macroporous  $\gamma$ -alumina monoliths

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# CMM Project Outlook

## Promising projects in Abandoned Coal Mines(AMM)

- **CCII Research Projects supported by Prosperity Fund of UK**
  - Policy Framework for AMM Recovery and Utilization in China
  - Feasibility study of AMM recovery and utilization pilot project and policy recommendation for AMM recovery and utilization in China
  - Utilising UK Expertise to Promote the Commercialization of Abandoned Mine Methane (AMM) Recovery in China



SPF.F2.13

**PROJECT PROPOSAL FORM**  
(For projects worth between €10k and €80k)

|   |   |       |                                     |
|---|---|-------|-------------------------------------|
| <b>Project Title</b>  | Feasibility study of pilot project on AMM development and policy recommendation for AMM recovery and utilization in China |       |                                     |
| <b>Which Programme is the funding being sought from *</b>   | Prosperity Fund   |       |                                     |
| <small>Policy Programme title or Bilateral Programme Budget</small>   |   |       |                                     |
| <b>Project Code *</b>   | 15EN30  |       |                                     |
| <small>To be added once the Project has been approved and the code is provided by the Programme Team</small>  |   |       |                                     |
| <b>Is the Project ODA eligible *</b> Yes/No   | YES   |       |                                     |
| <b>ODA Codes *</b>  | <b>Input Sector Code</b>  | 23010 |                                     |
| <small>To be added by Post using guidance in Annex 2 and 3 of "ODA Project Reporting Template – Technical Instructions" here: <a href="http://dbs.sharepoint.com/sites/finance/strategy/finance/oda/Guidance%20on%20completing%20ODA%20templates/Firms/AllItems.aspx">http://dbs.sharepoint.com/sites/finance/strategy/finance/oda/Guidance%20on%20completing%20ODA%20templates/Firms/AllItems.aspx</a></small> | <b>Channel of Delivery Code</b>   | 51000 |                                     |
| <b>Cost</b>   | <b>FY16/16</b>  | £     |                                     |
| <small>-What is the <b>TOTAL</b> cost of the Project</small>  | <small>Cost to FCO</small>  | £     | <small>Cost to Co-funders</small> £ |
| <small>-Please detail the cost to the FCO and, if relevant the cost to co-funders</small>   | <b>FY 16/17</b>   | £     |                                     |
| <small>-If relevant, please provide costs for future Financial years. Please note, the cannot guarantee funding for future years</small>  | <small>Cost to FCO</small>  | £     | <small>Cost to Co-funders</small> £ |
| <small>-Project funds are paid quarterly in arrears.</small>  |   |       |                                     |



# Welcome to the 17<sup>th</sup> International Symposium on CBM/CMM and Shale Gas in China!





# Contact Information

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