



The People's Republic of China

First Biennial Update Report on Climate Change

Facilitative Sharing of Views
Dec. 3rd Katowice, Poland

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Preface

Addressing climate change is a shared mission for mankind!

—Remarks made by President Xi Jinping at Paris Climate Conference in 2015

Basic Understanding

- Taking a driving seat in international cooperation to respond to climate change, China has become an important participant, contributor, and torchbearer in the global endeavor for ecological civilization.
- Foster new growth areas and drivers of growth in the green and low-carbon economy; promote a sound economic structure that facilitates green, low-carbon, and circular development; build an energy sector that is clean, low-carbon, safe, and efficient; encourage low-carbon ways of life.
- Actively involved in global environmental governance and fulfill our commitments on emissions reduction; cooperate to tackle climate change, and protect our planet for the sake of human survival.

Source: 19th National Congress of the Communist Party of China (CPC) Report (Oct. 18, 2017)



OVERVIEW

- ❑ National Circumstances
- ❑ National GHG Inventory
- ❑ Mitigation Actions and Their Effects
- ❑ Support Needs and Received
- ❑ Domestic MRV arrangement
- ❑ Other Relevant Information
- ❑ Information of HK and Macao SAR



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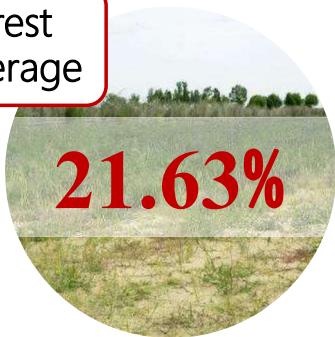
National Circumstances — Natural Conditions and Resources

Natural Conditions

- Climate—complexity and diversity
- Precipitation—significant temporal and spatial changes
- Temperature—significant seasonal variations
- Severe climatic disasters—high frequency, intensity and wide exposure

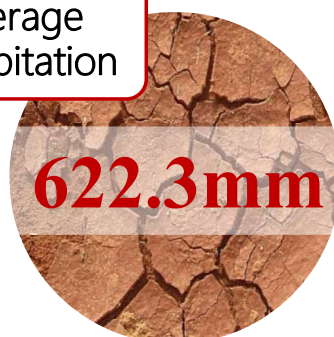
Forest Coverage

21.63%



Average Precipitation

622.3mm

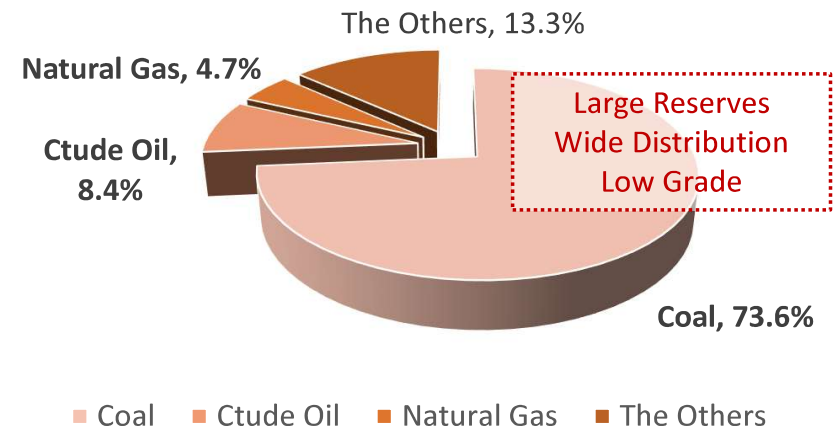


Direct Losses due to Climate Disaster

**213
Trillion RMB**



Total Production of Energy in 2014



Note: All data is for year 2014



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National Circumstances — Social and Economic Development



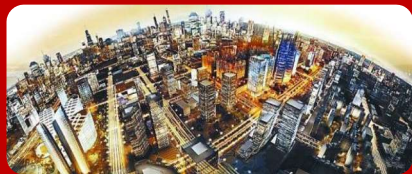
Most populous country in the world: 1.368 billion
Male 701, Female 667 (in million); Urban 749, Rural 619 (in million)



70.17 million rural poor people: resource-scarce areas, poor natural conditions
Grave challenge to poverty eradication.

GDP

Developing country with medium economic development level
GDP: RMB 64.4 trillion yuan; per capita GDP: RMB 47,203 yuan (US\$ 7,684)
Annual 8.1% growth rate from 2011-2014



Proportions of the three industries in China's GDP: 9.1:43.1:47.8
Share of the tertiary industry increased by 3.7 percentage points comparing to 2010
Witnessing a transformation to low-carbon development mode



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National Circumstances — National Development Targets

National Target for Economic and social development

- To build a moderately prosperous society in all respects in 2020
- To basically realize socialist modernization in 2035

13th Five-Year Plan for National Economic and Social Development

- Core concept: innovation, coordination, green, openness and sharing
- A higher position of green development in the national development strategy

Main objectives on climate change for 2020

- Relative to 2015, CO₂ emissions per unit of GDP will be reduced by 18%
- Promote low carbon development in key sectors
- Launch national ETS
- Strengthen domestic MRV system
- Disseminate experiences from low-carbon pilots



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National Circumstances —

Institutional Arrangements for
Addressing Climate Change

National Leading Group on Climate Change, Energy Conservation and Emissions Reduction

- **Institutional Arrangement**

Founded in 2007, currently chaired by Premier LI Keqiang, including more than 20 ministries

The office of the leading group has been moved to MEE in 2018 due to institutional reform

High level, Inclusiveness, Coordinating role

- **Main role**

Formulate major national strategies, guidelines for addressing climate change

Coordinate working mechanism of climate change

Supervision on international cooperation and negotiation

Implement the State Council's work on energy conservation and emission reduction

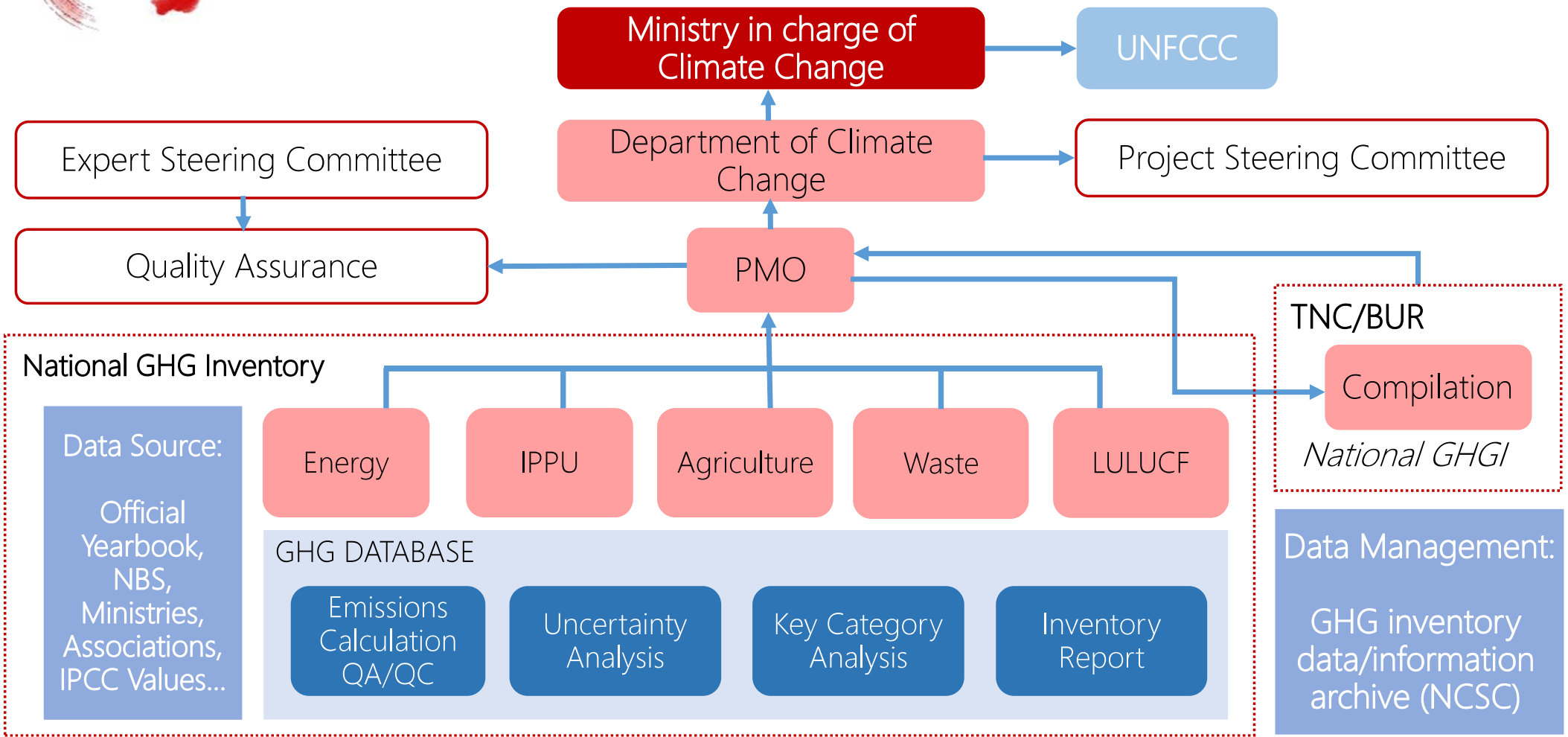
Formulate major policy recommendations, and coordination of major issues in the work.



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National GHG Inventory

Institutional Arrangements for Preparing GHGI





2

National GHG Inventory — Methods and Data sources

- IPCC Guideline used: 1996 + GPG (+2006)
- Activity data:
 - Mainly from national official statistics
 - Complemented by statistic from sectors, industries and local government
 - Investigation from enterprises
 - Expert judgement
- Emission factors:
 - Mainly country-specific parameters, especially for KC
 - Complemented by on-site measurement
- More complete and comparable than 2005 inventory

Methods used for the National GHGI of 2012

Source/Sink Categories	CO ₂		CH ₄		N ₂ O	
	method	EF	method	EF	method	EF
Energy industries (1A1)	T2	CS	T1	D	T1	D
Manufacturing industries and construction (1A2)	T2	CS	T1	D	T1	D
Transport (1A3)	T2	CS	T1,T3	D,CS	T1,T3	D,CS
Other sectors (1A4)	T2	CS	T1	D	T1	D
Other (1A5)	T2	CS	T1,T2	D,CS	T1	D
Fugitive emissions from solid fuel (1B1)			T1,T2	D,CS		
Fugitive emissions from oil and natural gas (1B2)			T1,T3	D,CS		
Mineral products (2A)	T1,T2	D,CS				
Chemical industry (2B)	T1,T2	D,CS			T3	CS
Metal production (2C)	T1,T2	D,CS	T1	D		
Enteric fermentation (4A)			T1,T2	D,CS		
Manure management (4B)			T1,T2	D,CS	T1,T2	D,CS
Rice cultivation (4C)			T3	CS		
Agricultural soils (4D)					T1,T2	D,CS
Field burning of agricultural residues (4F)			T1	D	T1	D
Changes in forest and other woody biomass stocks (5A)	T2	CS				
Forest and grassland conversion (5B)	T2	CS	T1	D	T1	D
Solid waste disposal on land (6A)			T1,T2	D,CS	T1	D
Waste-water handling (6B)			T1,T2	D,CS	T1,T2	D,CS
Waste incineration (6C)	T2	CS	T1	D	T1	D

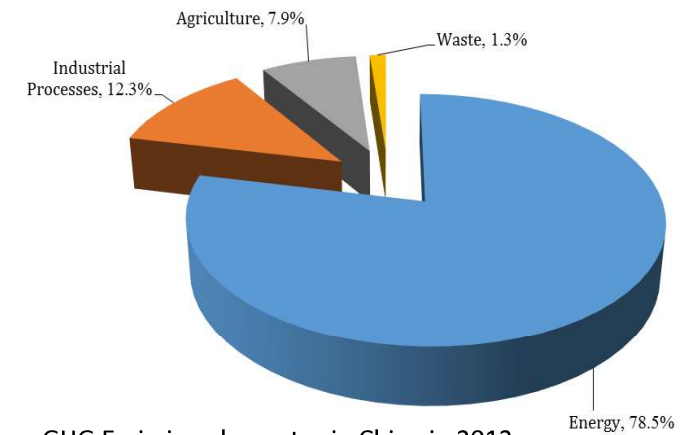


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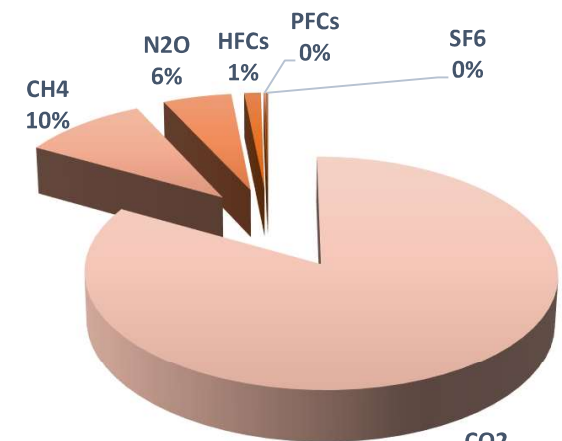
National GHG Inventory

GHG inventory of 2012 (100 Mt CO₂ eq)

	CO ₂	CH ₄	N ₂ O	HFCs	PFC	SF ₆	Total
Energy	86.88	5.79	0.69				93.37
Industrial processes	11.93	0.00	0.79	1.54	0.12	0.24	14.63
Agriculture		4.81	4.57				9.38
Waste	0.12	1.14	0.33				1.58
Land-use change and forestry	-5.76	0.00	0.00				-5.76
Total (excluding LUCF)	98.93	11.74	6.38	1.54	0.12	0.24	118.96
Total (including LUCF)	93.17	11.74	6.38	1.54	0.12	0.24	113.20



GHG Emissions by sector in China in 2012



GHG Emissions by gases in China in 2012



2

National GHG Inventory — Emissions from Energy Sector

GHG inventory of Energy Sector in 2012 (Gg)

Source/Sink categories	CO ₂	CH ₄	N ₂ O
Total (including LUCF)	9317408	55915	2059
1. Energy	8688288	27586	224
Fuel combustion	8688288	2620	224
Energy industries	4078222	48	89
Manufacturing industries and construction	3205343	204	52
Transport	788625	78	22
Other sectors	542600	758	7
Others	73498	1531	55
Fugitive emissions from fuel		24966	
Solid fuels		23847	
Oil and gas		1119	

- Total GHG emissions: 9337 Mt CO₂ eq.
- Fuel combustion: 8813 Mt CO₂ eq, 94.4%
- CO₂ emissions: 8688 Mt, all from fuel combustion.
- CH₄ emissions: 27586 kt, fugitive emissions accounted for 90.5%.
- N₂O emissions: 224 kt, all from fuel combustion.



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National GHG Inventory — Quality Assurance and Quality Control

- Emissions from key categories
 - higher-tier methods
 - country-specific EFs
- For activity data
 - sector statistical reporting system
- For emission factors
 - relevant parameter statistical survey system
 - conducted researches to obtain country-specific emission factors and related parameters and incorporate result from other teams
- Established a database system
- Exchange
 - with Canada, the United States, the Netherlands, Japan, Korea, FAO on data management and quality control.

国家温室气体清单数据库

水平分析 数据评估

选择年份 2012年 选择LULUCF 不选LULUCF

关键类别水平分析

清单类别代码	清单类别	燃料类型	排放气体种类	CO2	甲烷	sum	占比	累计占比
1A1a	公用电力和热力	固体	CO2	244240.50	244240.5	885359.7758	27.59%	27.59%
2C1	钢铁	固体	CO2	90866.20	90866.2	885359.7758	10.26%	37.85%
2A1	水泥生产	—	CO2	52424.00	52424	885359.7758	5.92%	43.77%
1A1f	建材	固体	CO2	47457.30	47457.3	885359.7758	5.36%	49.13%
1A1b	造纸	液体	CO2	41972.40	41972.4	885359.7758	4.74%	53.87%
1B1a	井工开采	—	CH4	33276.90	33276.9	885359.7758	3.76%	57.63%
2B	化工	固体	CO2	30173.30	30173.3	885359.7758	3.41%	61.04%
4A	钢铁冶炼	—	CH4	23076.90	23076.9	885359.7758	2.61%	63.65%
2C1	钢铁	气体	CO2	18111.50	18111.5	885359.7758	2.05%	65.69%
1A1b	造纸	固体	CO2	17688.20	17688.2	885359.7758	2.00%	67.69%
4C	水稻种植	—	CH4	16701.30	16701.3	885359.7758	1.89%	69.57%
1A1c	煤炭开采加工	固体	CO2	15392.00	15392	885359.7758	1.74%	71.31%
4B	源自管理土壤的N2O直接排放	—	N2O	15069.1	15069.1	885359.7758	1.70%	73.02%
1B2	油气开采加工	液体	CO2	14713.90	14713.9	885359.7758	1.66%	74.68%
1A1b	有色金属	固体	CO2	11882.40	11882.4	885359.7758	1.34%	76.02%
2A2	石灰生产	—	CO2	10409.00	10409	885359.7758	1.18%	77.20%

National GHGI database (under construction)



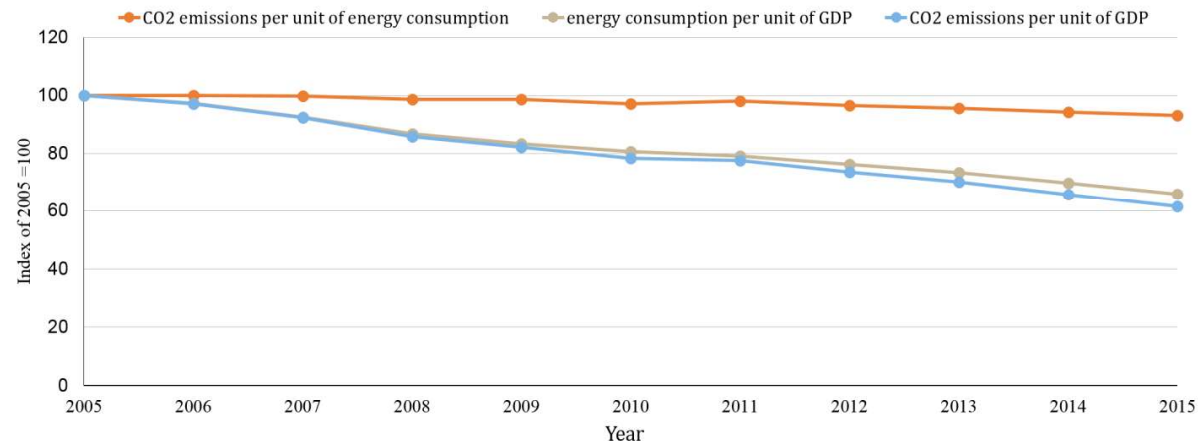
China-US MRV workshop on CH₄ controlling and database



3 Mitigation Actions and their Effects

China's NAMAs for 2020

- Lower CO₂/GDP by 40%-45% compared to 2005
- Increase the share of non-fossil fuels in primary energy consumption to around 15%
- Increase forest coverage by 40 million hectares and forest stock volume by 1.3 billion m³



Achievements by 2015

- CO₂/GDP dropped by 38.6% as against 2005 and by 21.7% as against 2010
- Non-fossil fuels accounted for 12% of the total energy consumption
- Forest area and stock volume increased respectively by 32.78 million hectares and about 2.68 billion m³



3

Mitigation Actions and their Effects —

Energy Conservation and Efficiency Improvement

- Strengthening Performance Assessment of Energy Conservation Targets
- Adjusting and Optimizing the Industrial Structure
- Implementing Key Energy-Conservation Projects
- Improving Economic Incentive Policies for Energy Conservation
- Improving Energy Efficiency Standards and Labeling
- Promoting Energy Conservation Technologies and Products
- Enhancing Energy Efficiency of Buildings
- Promoting Transport Energy Conservation

Year	Total Energy Consumption (Mtce)	Energy Consumption per Unit of GDP (tce/RMB 10 thousand yuan)	Energy Consumption Per Unit of GDP Reduction Rate (%)	Annual Amount of Energy Saved (Mtce)
2010	3606.48	0.87		
2011	3870.43	0.86	-2.03	80.08
2012	4021.38	0.82	-3.67	153.14
2013	4169.13	0.79	-3.79	164.25
2014	4258.06	0.75	-4.81	215.20
2015	4299.05	0.71	-5.55	252.53

- From 2005 to 2015, China's energy consumption per unit of GDP fell by 34%, saving 1.57 billion tons of standard coal, equivalent to a reduction of 3.58 billion tons of carbon dioxide emissions.
- According to the World Bank's research report, in the past two decades, China's energy savings have accounted for more than half of global energy savings.

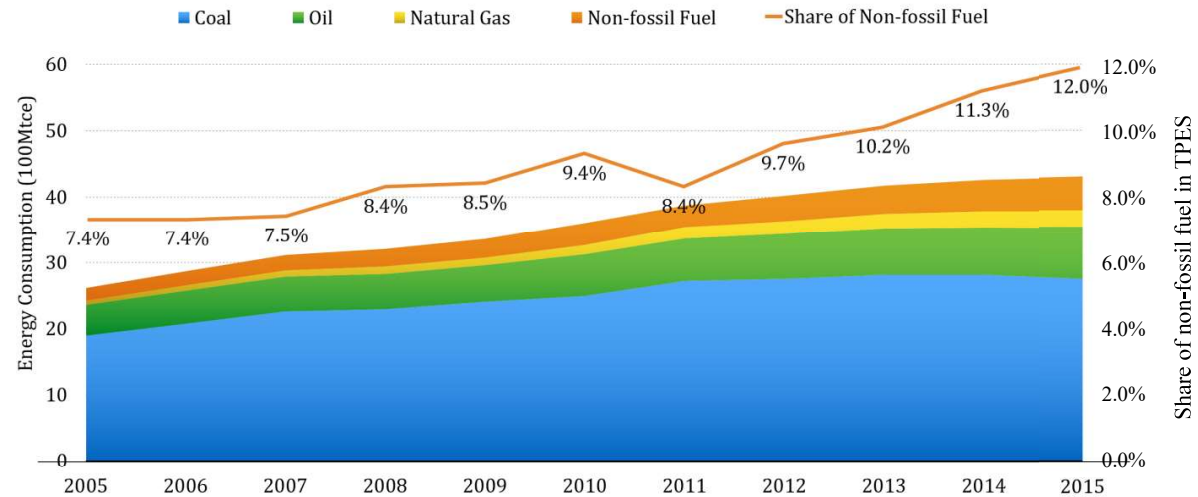


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Mitigation Actions and their Effects — Optimizing Energy Mix

Optimizing Energy Mix

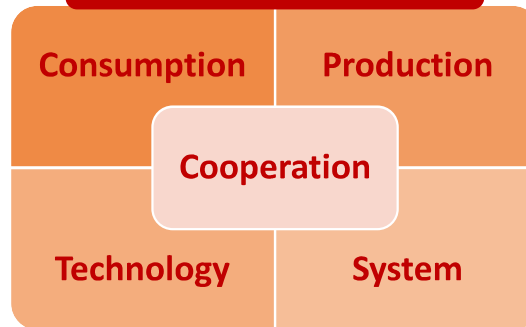
- Promoting Non-Fossil Fuels Development
- Strict Control of Total Coal Consumption
- Sped-up Development of Clean Energy including Natural Gas
- Advancing low carbon transformation in energy structure



Total Installed RE Capacity, Global Share in 2015



Energy Revolution



Share Reduction of Coal in TPES

2010 → 2015

