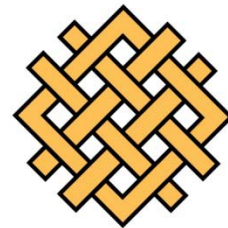# LESSONS LEARNED FROM GUIYANG CASE

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能源与气候经济学项目
PROGRAMME OF ENERGY
& CLIMATE ECONOMICS

WORLD RESOURCES INSTITUTE

Use of toolkit package to support low carbon strategy and planning: main issues

- Calibration of the GHGs emissions of base year at municipal level

- Scenario studies for GHGs emissions in the future

- Selection and determination of low carbon development indicators

- Setting of carbon intensity target and its decomposition

- Evaluation of GHGs reduction/control potential in key sectors and their contribution to the implementation of the overall target

- Identification and selection of key technologies

- Cost benefit analysis and risk benefit analysis

Action Plan for Low-Carbon Development in Guiyang (Outline) (2010-2020)

Action Plan for Low-Carbon Development in Guiyang (Outline)

- On July 30, Guiyang Municipal Government launched ***Action Plan for Low-Carbon Development in Guiyang (2010-2020) (Outline)***

- Technical supports provided by PECE, Renmin University of China

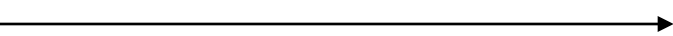# Press Briefing for Guiyang's Low Carbon Action Plan
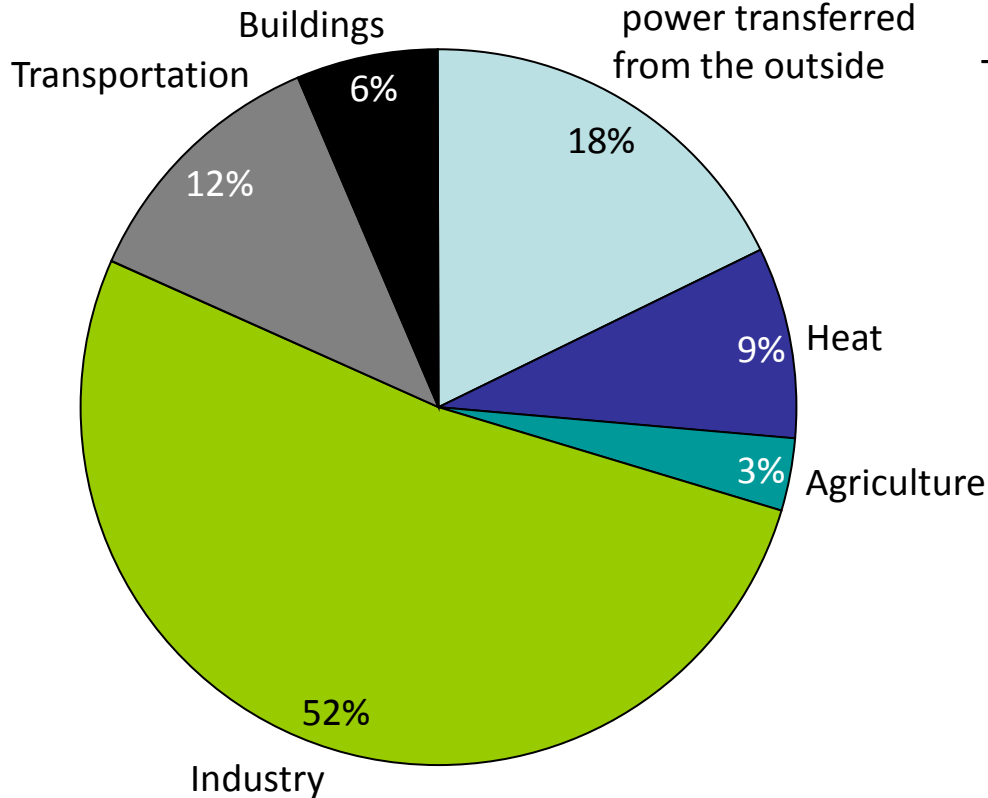
Guiyang's CO$_2$ Emissions in 2009

Emissions corresponding to power transferred from the outside: 7.08 million tons

27.04 million tons of CO2

34.13 million tons of CO2

Power-excluding power transferred from the outside

Buildings
Transportation
6%
12%
18%
9% Heat
3% Agriculture
52%
Industry

Power-including power transferred from the outside

Buildings
Transportation
5%
9%
32%
6% Heat
2% Agriculture
46%
Industry
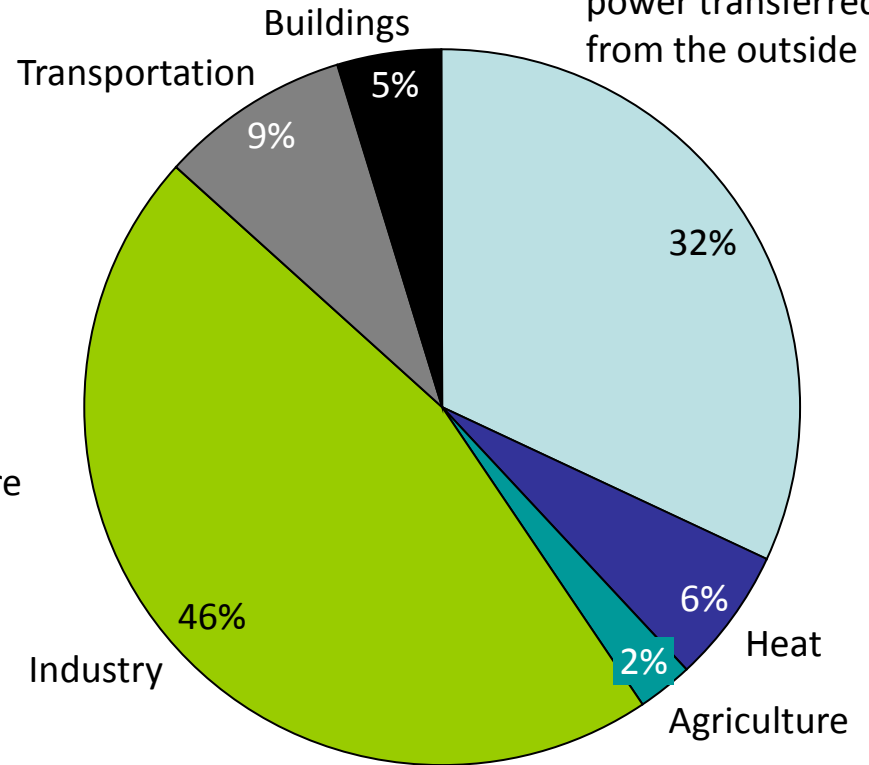
Guiyang's CO$_2$ Emissions by Sectors in 2007

Total CO2 emissions in 2007: 24.23 million tons

Heat 9,5%

Agriculture 3,5%

Power-excluding power transferred from the outside 28,6%

Industry 40,3%

Buildings 10,5%

Transportation 7,6%

395,4 (41%) Nonferrous metal smelting and processing

251,9 (26%) Manufacturing of chemical materials and products

Manufacturing of nonmetallic minerals

89,8 (9%)

179,2 (19%) Ferrous metal smelting and processing

49,7 (5%) Others

Industry
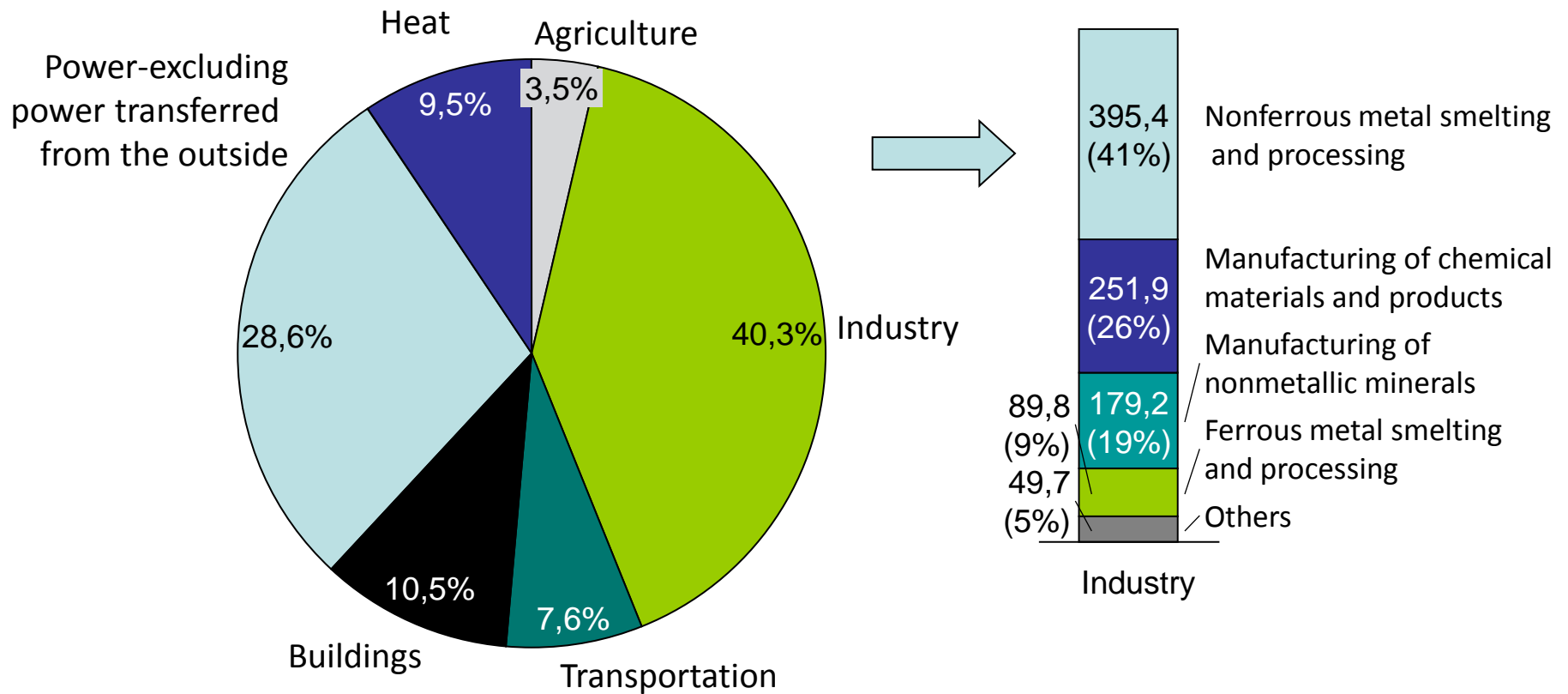
Low-carbon Development Scenario of Guiyang (without considering power transferred from the outside)

HOW？

Million tons of CO$_2$

— When carbon intensity remains unchanged at 2010's level
— When carbon intensity is reduced by 40%
— When carbon intensity is reduced by 45%

104,1

-23,6 (-23%)

-29,8 (-29%)

80,4

54,1

74,3

45,4

29,3

19,8

-8,6 (-16%)

Note: It is assumed that the average growth rate of GDP is 13% in 2010-2015 and 14% in 2015-2020.

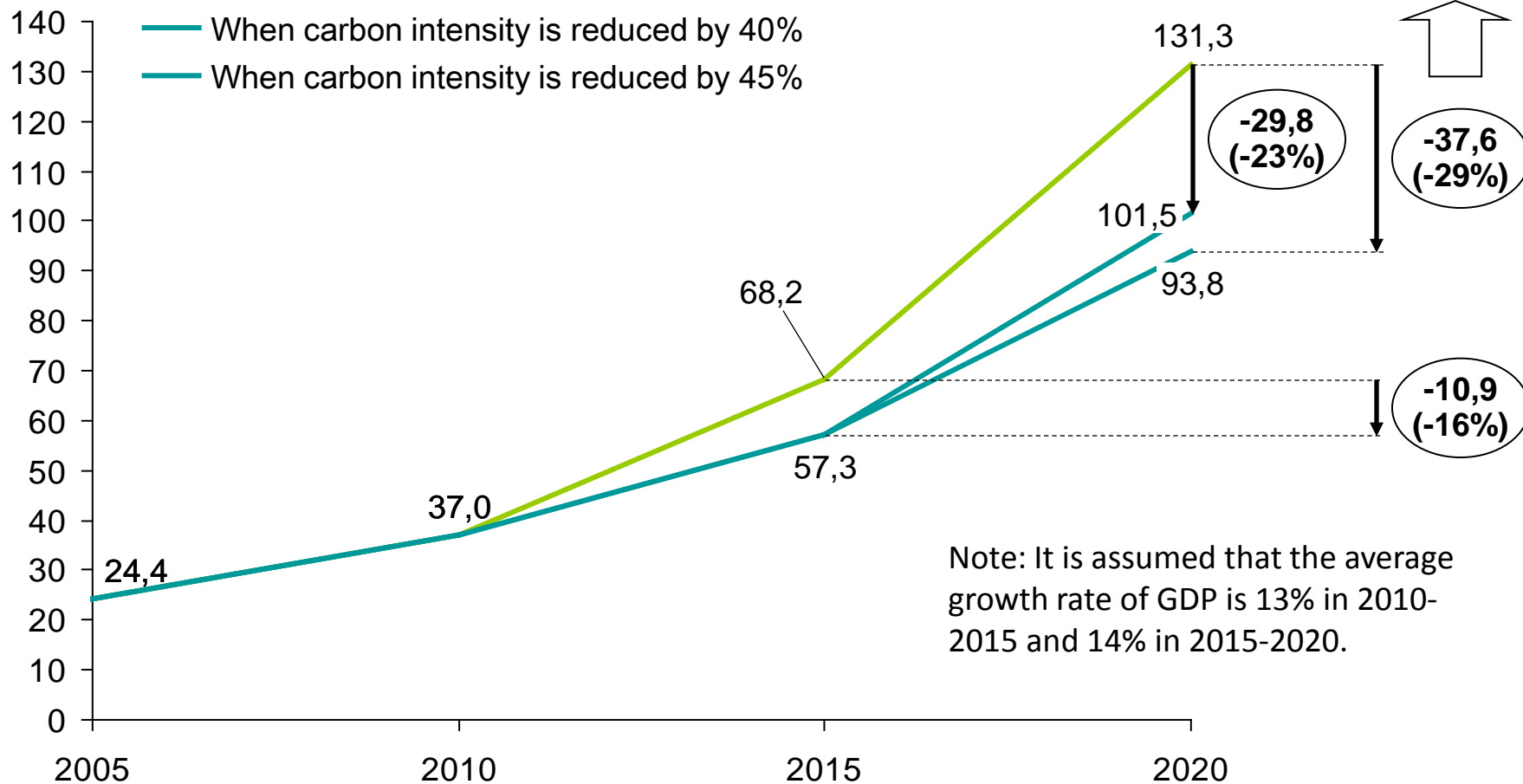2005   2010   2015   2020
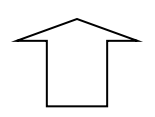
110
100
90
80
70
60
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40
30
20
10
0
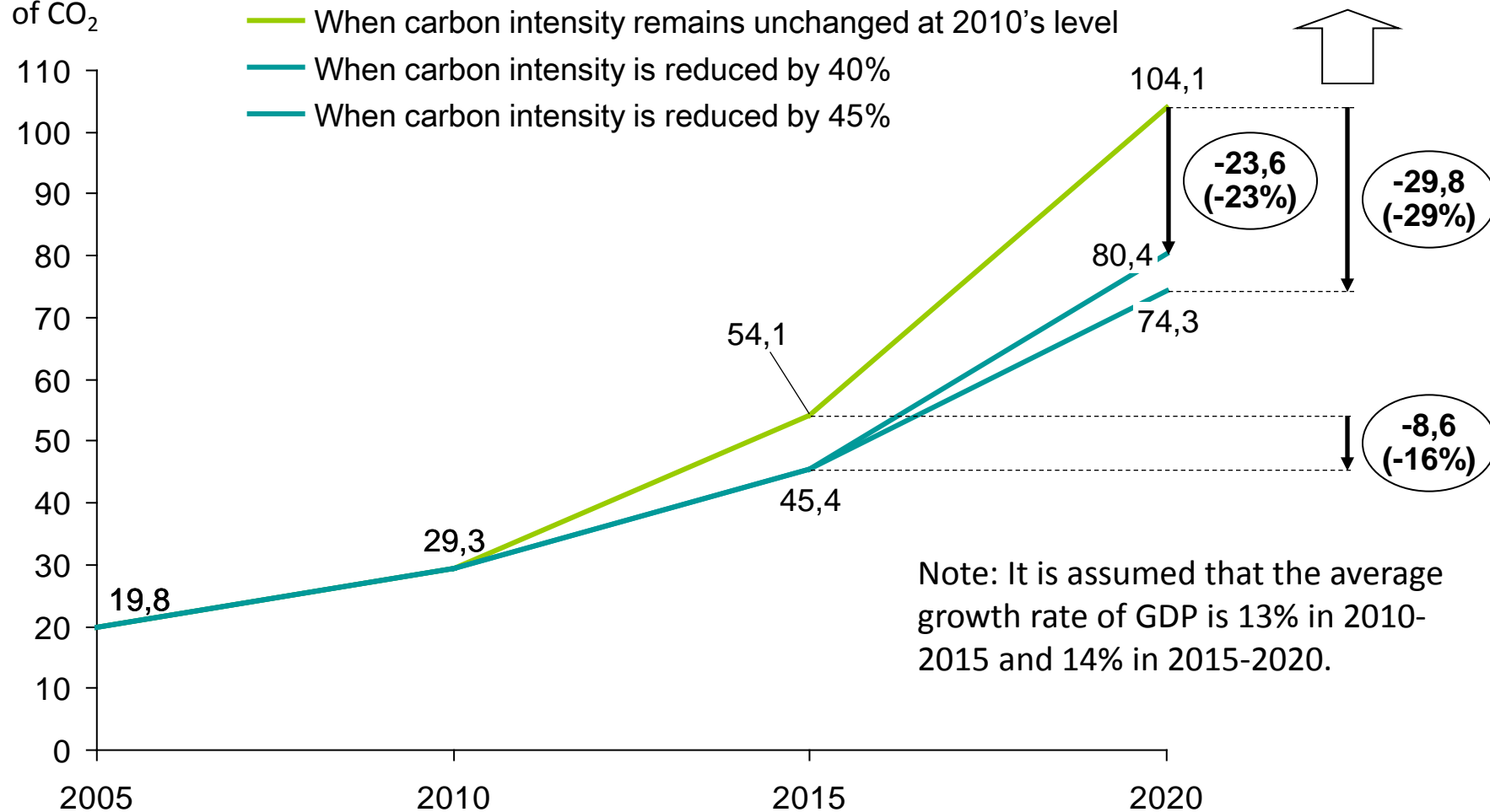
Target Low-carbon Development of Guiyang

(considering power transferred from the outside)

Million tons of CO2

HOW?

— When carbon intensity remains unchanged at 2010's level
— When carbon intensity is reduced by 40%
— When carbon intensity is reduced by 45%

131,3

-29,8 (-23%)

-37,6 (-29%)

101,5

68,2

93,8

-10,9 (-16%)

57,3

37,0

24,4

Note: It is assumed that the average growth rate of GDP is 13% in 2010-2015 and 14% in 2015-2020.

2005   2010   2015   2020

Major Fields and Specific Actions for Low-carbon Development

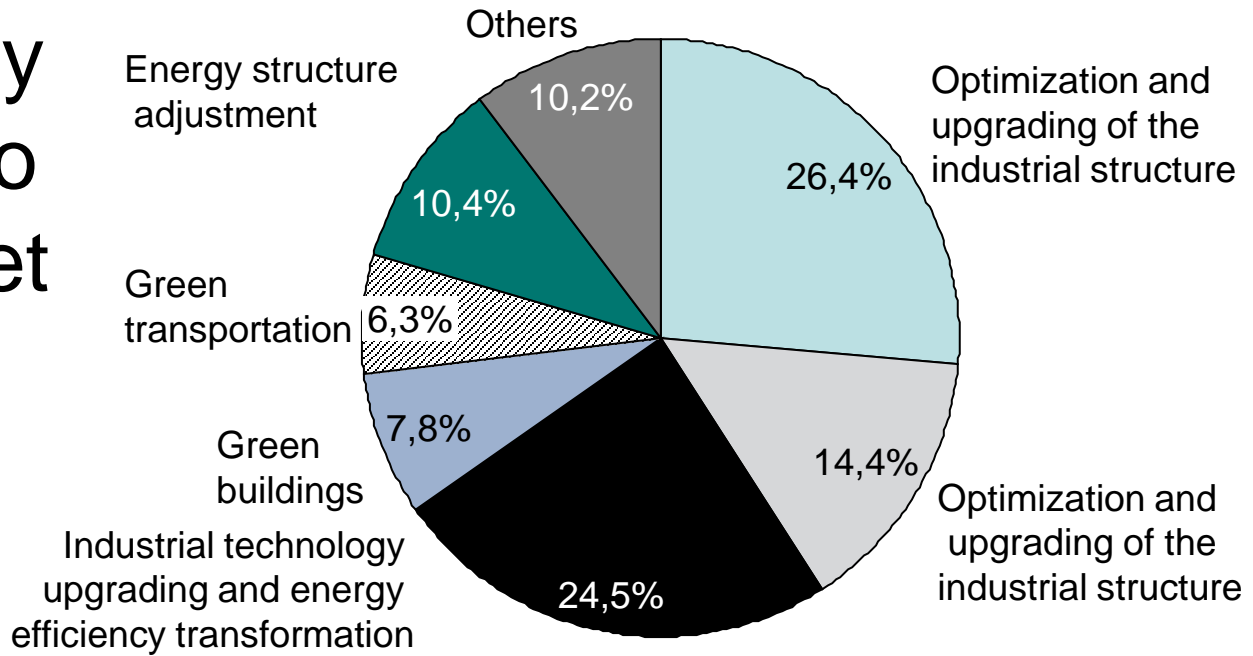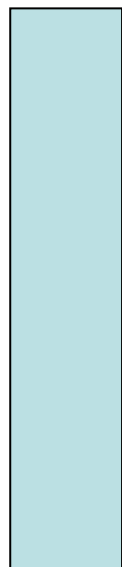|			Year 2015 (35% reduction in emission intensity)		Year 2020 (40% reduction in emission intensity)		Year 2020 (45% reduction in emission intensity)	
Emission Reduction Target (MT CO_2) (not considering power transferred from the outside)			8.6		23.6		29.8	
	Planned Low-carbon Actions		Emission Reduction (MT CO_2)	Contribution to the Target (%)	Emission Reduction (MT CO_2)	Contribution to the Target (%)	Emission Reduction (MT CO_2)	Contribution to the Target (%)
No	Major Fields	Specific Actions	8.1	93.9%	22.7	96.1%	26.7	89.8%
1	Optimization and upgrading of the industrial structure	Reduce emissions by restructuring the three industries	2.4	27.5%	7.8	33.2%	7.8	26.4%
2	Optimization and upgrading of the industrial structure	Adjust industrial and product structures to increase added value of products	2.1	24.0%	3.6	15.1%	4.3	14.4%
3	Industrial technology upgrading and energy efficiency transformation	Increase efficiency of the supply of thermal power	0.80	9.2%	1.20	5.1%	1.33	4.5%
		Reduce line loss rate	0.08	0.9%	0.30	1.3%	0.47	1.6%
		Improve energy efficiency and recycle waste heat and pressure	1.44	16.7%	3.56	15.1%	5.49	18.4%
		Synthetic ammonia	0.40	4.6%	1.26	5.3%	2.02	6.8%
		Yellow phosphorous	0.18	2.1%	0.33	1.4%	0.53	1.8%
		Cement	0.21	2.4%	0.40	1.7%	0.52	1.7%
		Alumina	0.13	1.5%	0.53	2.2%	0.89	3.0%
		Electrolytic aluminum	0.33	3.8%	0.58	2.4%	0.88	3.0%
		Heating	0.20	2.3%	0.45	1.9%	0.65	2.2%
4	Develop low-carbon, green buildings	Green lighting (generalizing LED lamps for roads, parks and other municipal and scenic zones)	0.0085	0.10%	0.0081	0.03%	0.0120	0.04%
		Green lighting (LED lamps and energy-saving lamps in government buildings, shopping malls, office buildings, hotels, etc.; energy-saving lamps in residential houses)	0.067	0.77%	0.204	0.86%	0.335	1.12%
		Provide home appliance subsidies to generalize energy-efficient electric appliances	0.294	3.40%	0.822	3.48%	1.325	4.45%
		Implement of energy-efficiency standards	0.061	0.71%	0.280	1.19%	0.309	1.04%
		Generalize solar water heaters in areas with favorable conditions	0.035	0.41%	0.092	0.39%	0.167	0.56%
		Promote replacement of coal by fuel gas and LPG among residents	0.05	0.59%	0.10	0.44%	0.16	0.53%
5	Build up a low-carbon transportation system	Substitute traffic fuels, introduce fuel economy criteria, establish systems on vehicle testing and the elimination of heavy-polluting vehicles, etc.	0.83	9.55%	1.58	6.67%	1.87	6.29%
6	Energy structure adjustment	Energy structure adjustment (including planned mega-kW hydropower stations and biomass energy)	0.00	0.00%	3.15	13.34%	3.10	10.43%

Contribution by Major Fields to the 40% Target by 2020
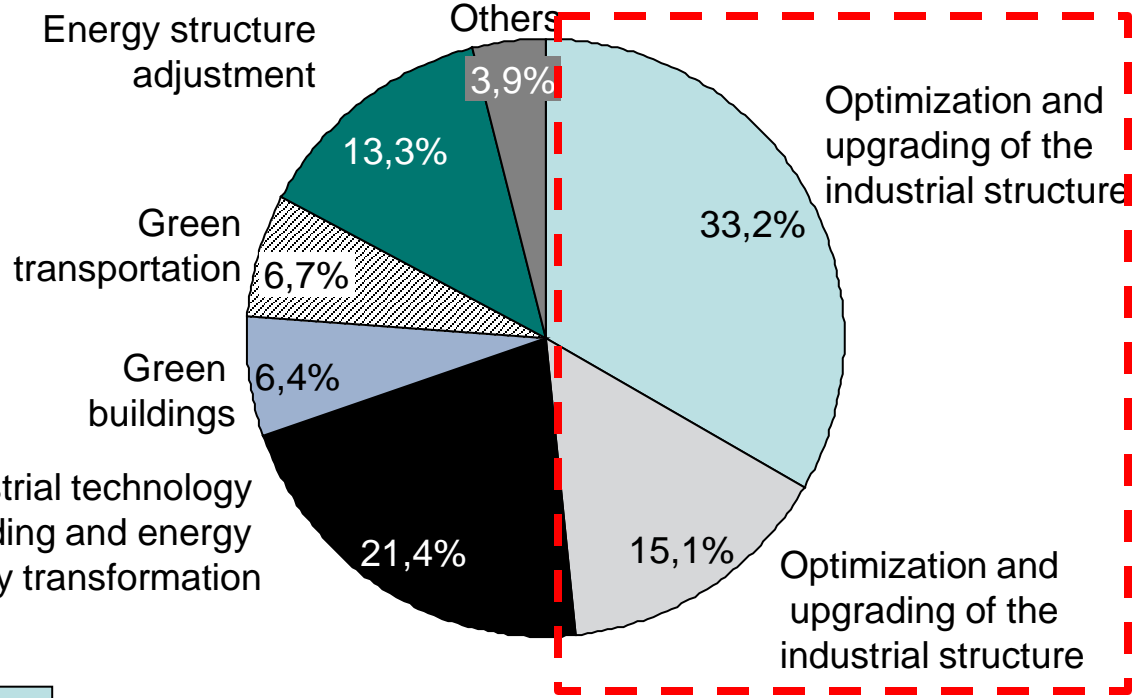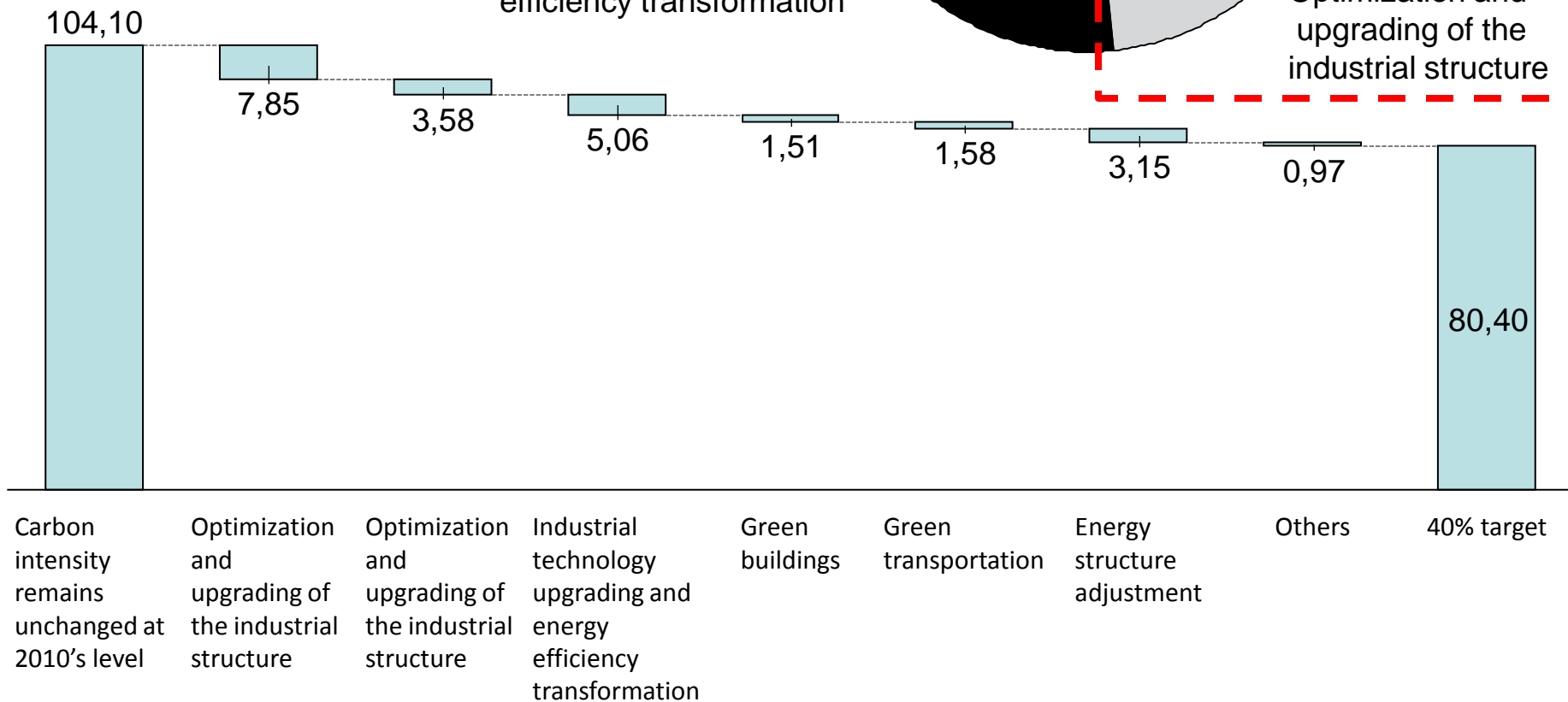
Contribution by Major Fields to the 45% Target by 2020

Others 10,2%

Energy structure adjustment 10,4%

Optimization and upgrading of the industrial structure 26,4%

Green transportation 6,3%

Green buildings 7,8%

Industrial technology upgrading and energy efficiency transformation 24,5%

Optimization and upgrading of the industrial structure 14,4%

Million tons of CO2

104,10	7,80	4,30	7,09	2,31	1,87	3,10	3,33	74,30
Carbon intensity remains unchanged at 2010's level	Optimization and upgrading of the industrial structure	Optimization and upgrading of the industrial structure	Industrial technology upgrading and energy efficiency tra	Green buildings	Green transportation	Energy structure adjustment	Others	45% target

Lessons learned

- Low carbon development strategy and planning need to exceed the traditional category of energy conservation and emissions reduction planning

- The most important thing is to integrate low carbon development planning into the overall urban development strategy in accordance with local conditions and to boost the leapfrogging socioeconomic development especially for western provinces/cities

Lessons learned (continued)

- Simplified and practical tools are necessary to match current accounting and management system and the availability of data information

Lessons learned (continued)

- Main problems and future tasks are initially identified based on case studies:
  - Calibration of base year's emissions with currently available data and Information
  - Dispute on emission control responsibility derived from import/export of electricity cross provinces and/or cities
  - Re-categorization of sectors and estimate of emissions from transport and building sectors
  - others