绿色创新发展中心
iGDP Innovative Green Development Program

Low Carbon Cities in China: National Policies and City Action Factsheets

Almost half of China's population resides in cities, which are responsible for consuming around 85% of China's total energy use and emiting more than 90% of China's carbon dioxide (CO_2) emissions(Weiguang Wang et al., 2013). Unlike cities in developed countries, the industrial sector is still the main source of CO_2 emissions in China's cities. Emissions from the transportation and building sectors are projected to increase dramatically as China's urbanization brings more than 350 million people to cities in the next 15 years. Low carbon development of China's cities will be critical to achieve the nation's climate mitigation goals and to maintain global climate stability.

Fortunately, China's national government and an increasing number of local leaders recognize the importance of a low-carbon development alternative. Since 2010, various regulations and policies from both the central and local government have comprised a systematic policy framework for low carbon development in cities. This policy framework starts with macro and long-term low carbon development planning, aimed at understanding opportunities to decarbonize economic development patterns and carbon emissions mitigation potentials. Policies and actions aimed at carbon emissions mitigation include actions to improve industrial energy efficiency, reduce building energy use, improve transportation fuel economy performance, and promote urban form strategies in favor of non-motorized travel. Clean energy supply and clean coal development policies are also fundamental for low carbon cities due to the fact that fossil fuel continues to be a dominant energy source for a long time in China. China's cities are also preparing for climate adaptation due to increasing probability of being impacted by natural crises in coming years.

China has also initiated 42 low carbon pilots, including 6 provinces and 36 cities, which represent various geographic locations, resource endowments, economic growth patterns, industrial mixes, and energy-use behaviors. These pilots have developed and implemented many policies, programs, and measures to achieve low carbon development paths at the provincial and municipal levels in the long term. Factsheets in this document are based on analyzing actions in 10 cities out of the 42 low carbon pilots.

CONTENTS

Disclaimer: *The factsheets are compiled based on publically available data sources. The views and opinions expressed in this paper are those of the authors and do not necessarily reflect the organization, advisors and sponsors.*

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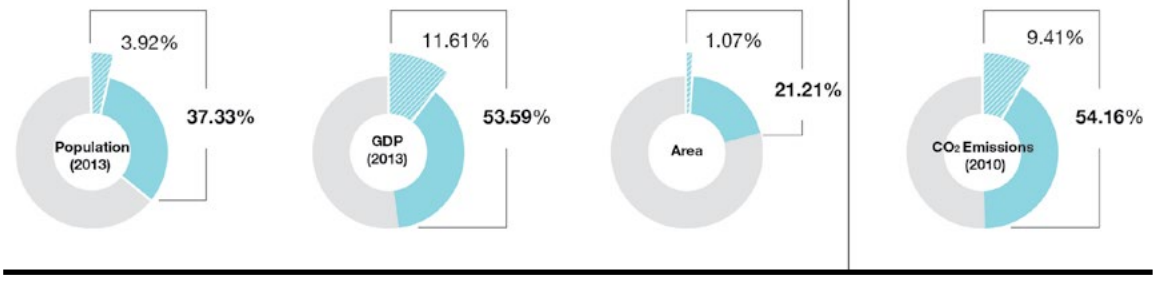
China's Low Carbon Pilots in a Snapshot

China's 42 low carbon pilots covered approximately 37 percent of the population, 54 percent of GDP, 21 percent of total land area, and 54 percent of carbon emissions in 2013. The case cities, which are part of the low carbon pilots, accounted for 4 percent of the population, 12 percent of GDP, and 9.4 percent of carbon emissions in 2013.

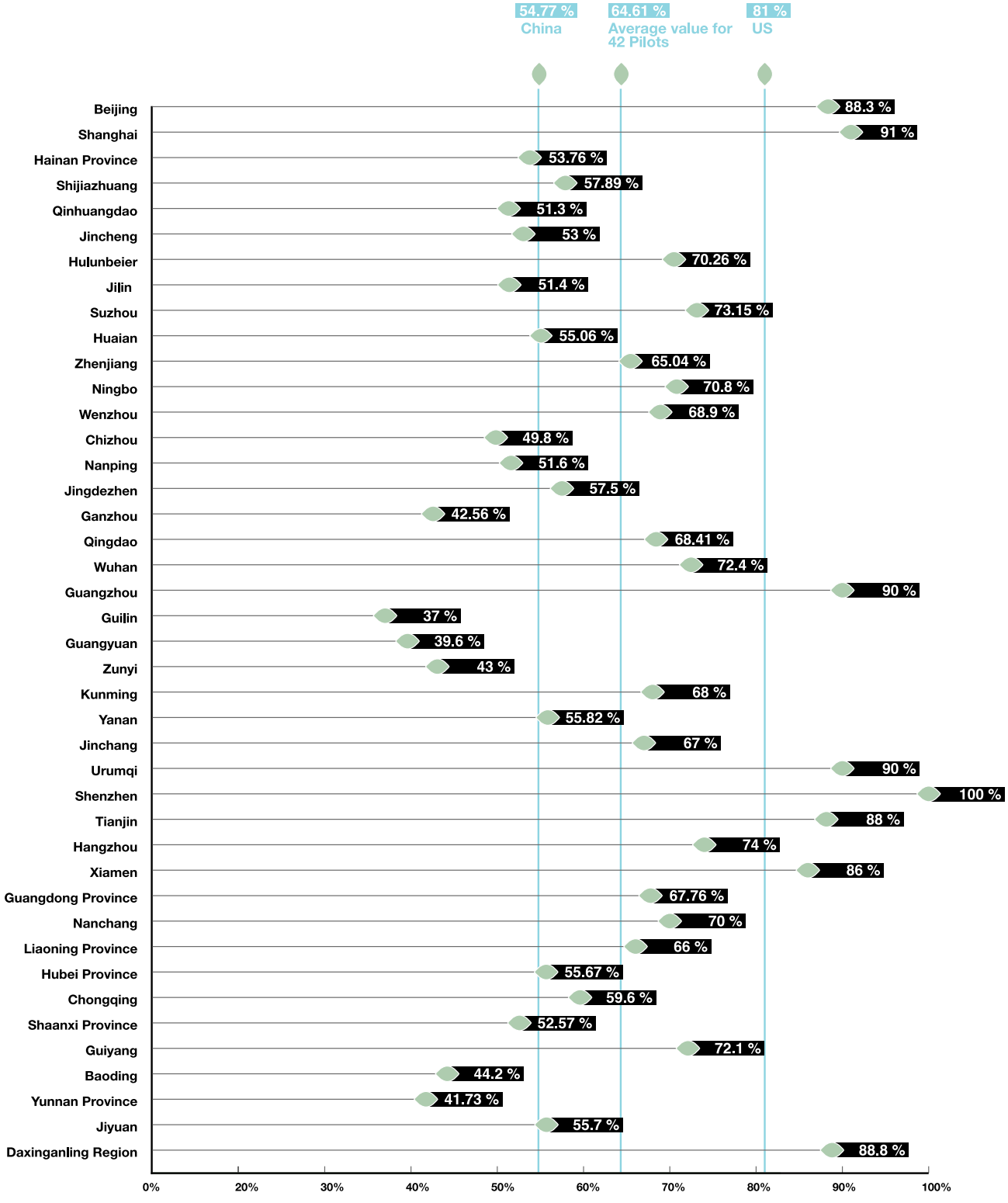
China's National Development and Reform Commission issued two executive orders in July 2010 and November 2012, identifying altogether 42 low carbon pilots. The executive orders require these pilots to develop a low carbon development action plan and a greenhouse gas (GHG) emissions inventory. The pilots must also establish a policy framework to promote carbon mitigation and clean economic growth.

Basic Information of Low Carbon Pilots



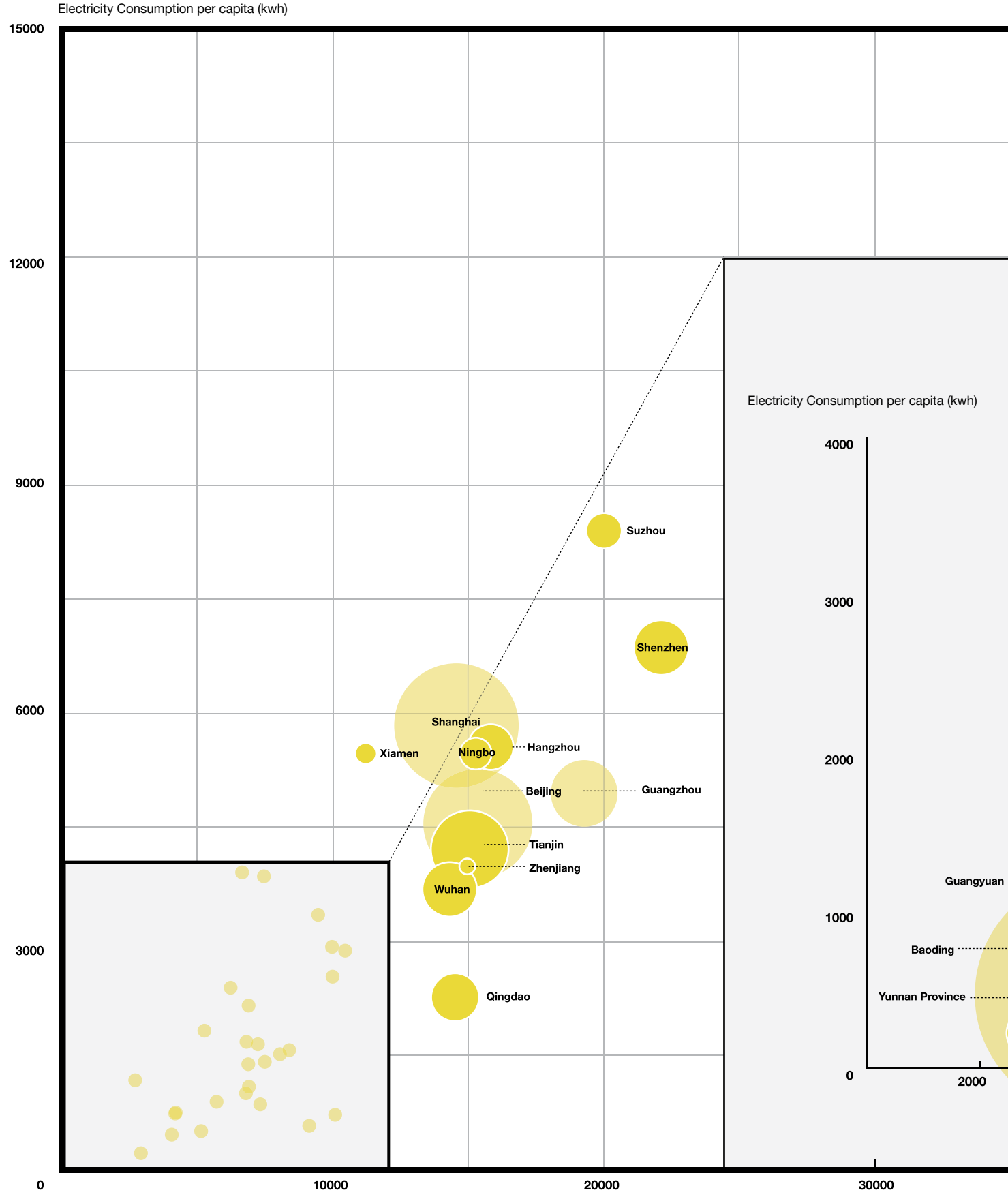
Data sources: 2013 Annual Statistical Report of the above cities
Data sources for GHG emissions from (National Climate Strategy Center, 2013)
Carbon emission data does' not include Yan'an.

Difference in Urbanisation Rate of 42 Low Carbon Pilots

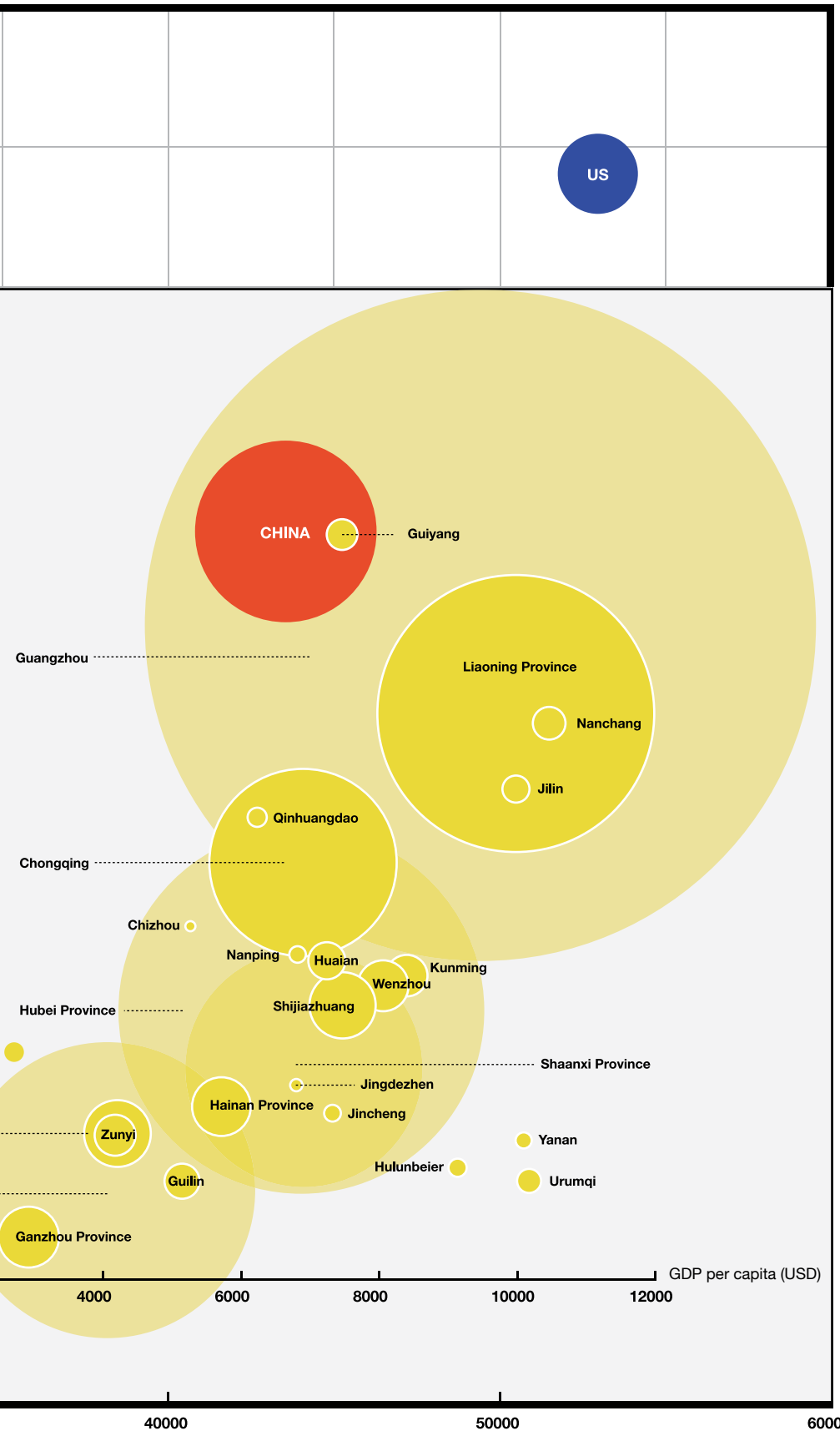


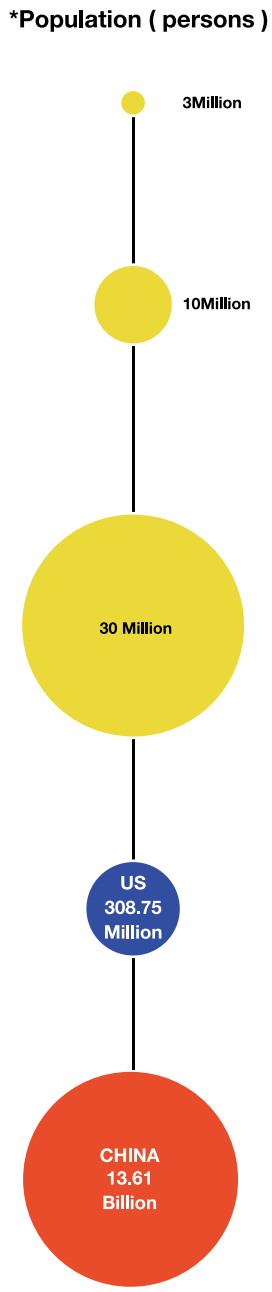
Data sources: 2014 Annual Statistical Report of the above cities, World Bank

Energy Use and Economic Development Status For 42 Pilots



Per capita GDP of China's low carbon pilots vary significantly among regions. The highest per capita GDP is in Shenzhen, at above 20,000 USD; and the lowest GDP per capita is in Guiyang, at less than 3000 USD. Meanwhile the U.S. average was above 50,000 USD in 2013. Electricity use per capita in the U.S. is also almost five times greater than in China.





Data sources: China City Statistical Yearbook, 2014, 2013 Annual Statistical Report of the above cities, World Bank
Notes: Lack of Data for Dalinganling, Jiyuan and Jinchang
Notes: 1USD=6.2RMB(2013)

Policies and Practices for Low-Carbon City Development in China

	National And Sectoral Policies Influencing City Actions	City Actions*
CARBON EMISSIONS GOALS	National Target for Peaking Total CO_2 Emissions around 2030	Municipal Target to Peak Total Carbon Emissions
	National Target to Reduce CO_2 Emissions per Unit of GDP 40%-45% by 2020 and 60%-65% by 2030 from the 2005 Level	Municipal Targets for Reducing CO_2 Emissions per Unit of GDP
	National Targets for Reducing Energy Consumption per Unit of GDP by 2015	Municipal Targets for Reducing Energy Consumptions per Unit of GDP by 2015
	National Non-CO_2 GHG Emissions Reduction Programs	Municipal Non-CO_2 GHG Emissions Projects
Climate Actions		Municipal Climate Change Legislation
	National Plan on Climate Change, Energy Conservation, and Low Carbon Development by 2015 and 2020	Municipal Low Carbon Development Action Plans Low Carbon City Pilot Work Plans
	National GHG Emissions Inventory Development	Municipal GHG Emissions Inventory Development
	National GHG Reporting and Registry Rules	GHG Reporting and Registry
		Carbon Emissions Data Platform
	National Carbon Market Preparation	Carbon Market Pilot
		Carbon Emissions Impact Assessment Requirement
Decarbonize Economic Development	National Plans and Goals to Promote Development of Service Sector	Policies to Promote Development of Service Sector
	National Plans and Goals to Promote Development of Clean Industries	Policies and Goals to Promote Development of Clean Industries
	National R&D Investment Share of GDP	Municipal R&D Investment of Local GDP
Energy Supply	National Sustainable Energy Development Plan	Municipal Sustainable Energy Development Plan City Strategic Plan to Develop Renewable and Alternative Energy
	National Total Energy Consumption Reduction Targets	City Total Energy Consumption Reduction Targets
	National Target to Increase Non-Fossil Fuel Share in Primary Energy Consumption to around 20% by 2030	Municipal Targets for Renewables Development
	National Goals of Installed Capacity for Wind Power, Solar Power, and Solar Thermal Energy	GHG Reporting and Registry
	National Feed-in Tariff Policies	Financial Incentives for Renewable Energy
		Renewable Energy Development Pilot Program
	National Coal Consumption Cap	State and City Coal Consumption Reduction Plan City Coal-Free Zone
	Nationwide Minimum Performance Standards for Coal Power Plants	Advanced Clean Coal Pilot Projects
	Demand Side Management Guideline	Demand Side Management Program
	CCS Piloting Programs	CCS Pilot
Decarbonize Economic Development	Enhance Afforestation	Urban Forestry Management
		Municipal Program Promoting Afforestation
	Waste Management System	Improve Waste Separation and Recycling System Methane Capture and Conservation for Landfills

City Actions List aims to assemble all policies and actions of all kinds of cities to promote low carbon development. For a specific city, its action often only cover part of the actions based on local needs, and cities may also have innovative actions, which are not included here.

Since 2010, various regulations and policies of China's central and local governments have comprised a systematic policy framework for low carbon development in cities. Cities need to implement carbon emissions mitigation goals, policies, rules, and standards set by provincial or national governments. Cities can also develop more stringent policies, standards, and innovative piloting programs and provide financial support to improve the implementation of all policies. The following table presents this framework, including national and sectoral policies influencing cities and city actions.

National And Sectoral Policies Influencing City Actions	City Actions*	
Industrial Energy Conservation Action Plans	Municipal Industrial Energy Conservation Action Plans	**Industry**
Energy Consumption per Unit of Industrial Total Value-added	Municipal Energy Consumption per Unit of Industrial Total Value-added	
Mandatory Energy Efficiency Standards for Industry Equipment and Products	More Stringent Sub-national Standards	
Top Runner Program	Local Implementation Projects of Top Runner Program	
Top 10,000 Energy Conservation Program	Energy Efficiency Audit and Benchmarking; Energy Manager Training; Energy Management Standards, etc.	
Financial Incentives and Rewards for Industrial Energy Efficiency	Financial Incentives and Rewards for Industrial Energy Efficiency	
	Differential Electricity Pricing	
	Low Carbon Industrial Park Pilots	
Energy Efficiency Improvement Target for Building Sector	Energy Efficiency Improvement Target for Building Sector	**Buildings**
National Guidelines for Energy Efficiency Retrofit Subsidies for Existing Buildings	Energy Efficiency Retrofit Subsidies for Existing Buildings	
National Building Codes for Public Buildings	More Stringent Building Codes for Public Buildings	
National Residential Building Codes	More Stringent Building Codes for Residential Buildings	
Green Building Codes	More Stringent Local Green Building Codes	
	Subsidies for New Buildings that Exceed Building Codes	
	Zero Emission Building Pilots; Targets for Efficiency and Renewables in Buildings	
Appliance Efficiency Standards and Labeling	Financial Incentives for Energy Efficiency Appliances	
	Public Campaigns Promoting an Energy Conservation Life-Style	
Energy Efficiency Improvement Goals for Transportation Sector	Municipal Energy Efficiency Improvement Goals and Action Plans for Transportation Sector	**Transportation**
Policies and Financial Incentives to Promote Electric Vehicles and Construction of Charging Stations	Policies and Financial Incentives to Promote Alternative Energy Vehicles and Construction of Charging Stations; Municipal Targets for Electric Vehicle Ownership	
	Municipal Electric Vehicle Promotion Program	
Fuel Economy Standards for Light-duty Vehicles	Tax Credits for Efficient and Low Emission Cars	
Targets for Public Transit Share in Motorized Travel in Large- and Medium-sized Cities	Municipal Targets for Public Transit Share in Motorized Travel	
	Bicycle and Pedestrian Path (Non-Motorized Transportation) Networks	
	Public Bicycle System	
	Integrated Transportation Planning Program	
	Policies to Control Private Vehicle Ownership Growth	
	Policies to Control Motorized Commuting (Parking Fee, Vehicle License Policies)	
	Public Transit City Programs	
National Guidelines Promote Low Carbon Green Urbanization, Low Carbon Community Development, etc.	Low Carbon Community Pilots Low Carbon / Eco-City Planning Programs	

Including but not limited to:
China's Enhanced Actions on Climate Change: China's Intended Nationally Determined Contributions (2015)
National Program on Climate Change (2014-2020)
The Work Plan For Controlling Greenhouse Gas Emissions during the 12th Five-Year Plan Period (2011)
The Comprehensive Work Plan For Energy Conservation and Emissions Reduction for the 12th Five- Year Plan Period (2011)
Emissions Reduction and Low-Carbon Development, and the National Plan on Climate Change (2014-2020)
Action Plan of Industries Addressing Climate Change (2012-2020)
The Notice of Initiating Low Carbon Pilot Provinces and Cities Department, Climate Change Department, National Developmeng Reform Commission(NDRC), (2010)
The Notice of Initiating Low Carbon Pilot Provinces and Cities Department, Climate Change Department, NDRC (2012)
The Notice of Initiating Emission Trading Pilots, Climate Change Department, NDRC (2012)
National Development Plan for Strategic Emerging Industries during the 12th Five-Year Plan Period (2011-2015), State Council
China's Science and Technology Actions on Climate Change.
Action Points for China's Forestry Departments in Response to Climate Change During the 12th Five Year Plan (2011-2015)
National Afforestation Plan (2011-2020) and Forestry Development Plan During the 12th Five-Year Plan Period
The Plan for Coal-bed Gas Exploration and Utilization During the 12th Five-Year Period
The Guidelines for Developing Distributed Energy Systems (DES) of the 12th Five-Year Plan Period, NDRC, 2011
Development Plan for a Circular Economy During the 12th Five-Year Plan Period, 2011
Green Building Action Plan, the State Council, 2013
Energy Development Strategy Action Plan (2014-2020) , State Council, 2014.
Action Plan on Upgrading and Transforming the Energy Conservation and Emission Reduction of Coal-Fired Power (2014-2020), NDRC, MEP, and the NEA
Implementation Plan for Top Runner Program to improve the energy efficiency, State Council, 2014
Energy Development Strategy Action Plan (2014-2020)
Guidelines on low-carbon community pilot construction, NDRC, 2015

Other National Pilot Programs Promoting Low Carbon City Development

	Beijing	Jilinng	Guiyang	Qingdao	Wuhan	Yan'an	Jinchang	Guangzhou	Shenzhen	Zhenjiang
Sustainable Urbanization Pilots Program	■	■		■	■		■	■	■	
Smart-City Pilots Program	■	■	■	■	■	■	■	■	■	■
Integrated Energy Conservation and Emission Reduction Cities Pilots Program	■	■	■						■	
Alternative Energy City Pilots Program	■		■				■		■	
Low Carbon Industrial Zone Pilot Program	■	■	■	■	■					
Renewables in Buildings Pilots Program	■		■	■	■				■	
Alternative Fuel Vehicles Pilots Program	■	■		■	■			■	■	
Low Carbon Integrated Transportation Planning Pilots Program	■		■	■	■			■	■	■
Public Transit City Pilots Program	■		■	■	■			■	■	

■ Yes ☐ No

While piloting low carbon development in 42 pilots, agencies of the central government are also piloting other programs that reinforce energy savings and carbon emissions mitigation goals. These pilots may overlap geographically in many regions. The above table, taking 10 cities as cases, maps out related pilots and how they reinforce each other.

Data Sources: Data was collected from websites of the National Development and Reform Commission(NDRC) , Ministry of Housing and Urban-Rural Development (MOHURD), Ministry of Industry and Information Technology (MIIT), Ministry of Science and Technology (MOST), Ministry of Finance (MOF), Ministry of Transport (MOT)

Jinchang: east of Hexi Corridor in Gansu province; a small city; In 2014, GDP: 24.45 billion yuan (4 billion US. .Dollars); GDP growth rate: 7.8%; per capita GDP: 45,364 yuan (7,388 U.S. Dollars); share of the tertiary industry: 23.60%; urbanization rate: 67%; Coal-dominated energy mix, in particular, coal takes up a large share in industrial energy consumption; In 2012, total energy consumption was 4.6376 million tons, among which energy consumed by six energy-intensive industries was 3.8774 million tons, 97.5% of the energy consumed by large scale industries

Yan'an: South of the Shanbei region of Shaanxi province, on the middle reaches of the Yellow River; In 2014, GDP: 1,386.1 billion yuan (225.75 billion U.S. Dollars); GDP growth rate: 6.5%; per capita GDP: 62,714 yuan (10,214 U.S. Dollars); share of the tertiary industry: 21.9%; urbanization rate: 55.82%; Typical energy-based city in Shanxi province; rich in mineral resources (coal, oil and natural gas); energy plays an important role in its economic growth.

Wuhan: Capital of Hubei province; the largest central city and the only city with sub-provincial status in Central China; a megacity on the middle and lower reaches of the Yangtze River; In 2014, GDP: 1,006.9 billion yuan (164 billion U.S. Dollars); GDP growth rate: 9.1%; per capita GDP: 98,527 yuan (16,046 U.S. Dollars); share of the tertiary industry: 51.6%; urbanization rate: 67.60%; An important industry base and transportation hub;
Short of energy resources; coal, oil and natural gas supply mainly rely on transmission; high energy transmission dependency.

Zhenjiang: southwest of Jiangsu province, southern bank of the Yangtze River, tip of the Yangtze River Delta; In 2014, GDP: 325.2 billion yuan (52.97 billion U.S. Dollars); GDP growth rate: 10.90%; per capita GDP: 102,651 yuan (16,718 U.S. Dollars); share of the tertiary industry: 45.10%; urbanization rate: 65.4%; Short of energy resources; all primary energy supply (coal, oil) relies on transmission; In 2013, energy consumption of six energy-intensive industries was 9.7448 million tons, 81.64% of the energy consumed by large-scale industries.

Shenzhen: east bank of Pearl River Delta; China's first Special Economic Zone (SEZ); sub-provincial administrative status; a specifically designated city in the state plan; In 2014, GDP: 1,600.2 billion yuan (260.62 billion U.S. Dollars); GDP growth rate: 8.80%; Per capita GDP: 14,9497 yuan (24,337 U S Dollars); Share of the tertiary industry: 60%; Urbanization rate: 100%; Shortage of energy resources, mainly relying on transmission.

Jilin: northeast China; second largest city in Jilin Province; an old northeast industrial base and typical resource-based city;
In 2014, GDP: 273 billion yuan (44.47 billion U.S. Dollars); GDP growth rate: 6.00%; per capita GDP: 63,731.8 yuan (10,415.4 U.S. Dollars); share of the tertiary industry: 41.10%; urbanization rate: 51.40%; Rich in oil shale, oil, and coal; forest area (% of land area): 55%; In 2013, energy consumption of six energy-intensive industries: 12.7524 million tons of coal equivalent, 87.3% of the energy consumed by large-scale industries.

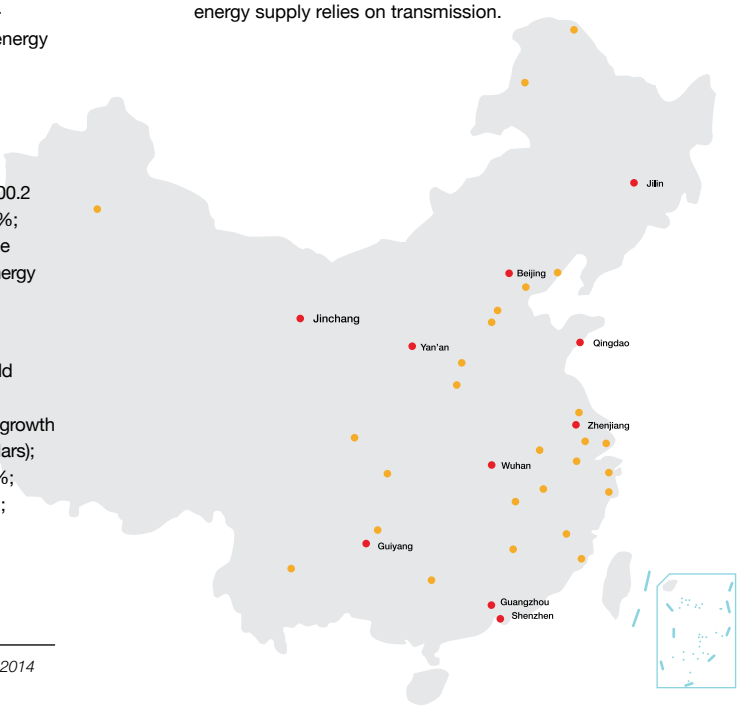
Data sources: 2014 Annual Statistical Report of the above cities. 2013 and 2014 Statistical yearbooks of the above cities.

Guangzhou: South China; capital of Guangdong province; third largest city in China; In 2014, GDP: 1,670.7 billion yuan (272.1 billion U.S. Dollars); GDP growth rate: 8.6%; per capita GDP: 124,083 yuan (20,208 U.S. Dollars); share of the tertiary industry: 65.02%; urbanization rate: 90%; Energy transmission-dependent city, all primary energy supply (coal, oil) relies on transmission; energy consumption in 2012 was 66.93 million tons of coal equivalent.

Beijing: northern tip of the North China Plain; capital and the second largest city of China; a directly-controlled municipality under the national government; China's political, economic and cultural center; In 2014, GDP: 2,133.08 billion yuan□347.41 billion U.S. Dollars□; GDP growth rate: 7.3%; per capita GDP: 99,100 yuan (16,278 U.S. Dollars); share of the tertiary industry: 77.90%; urbanization rate: 88.02%; Shortage of energy resources; energy consumption in 2013: 73.542 million tons of coal equivalent.

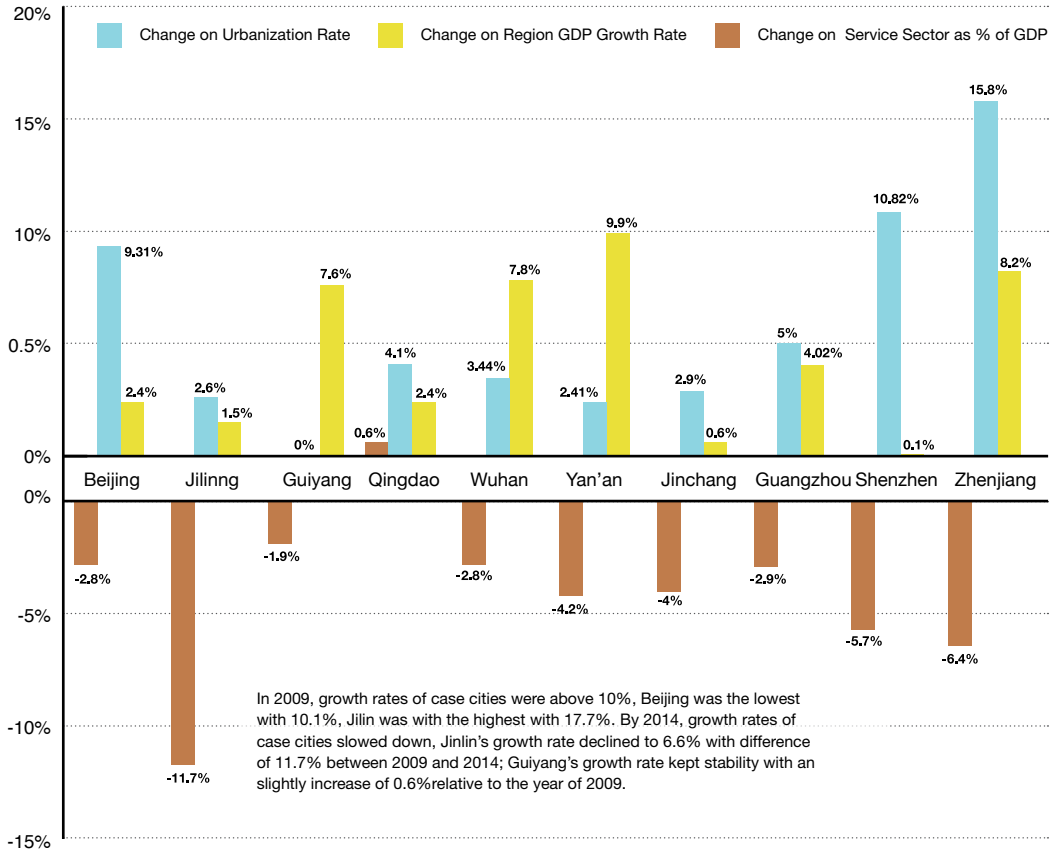
Guiyang: east of the Yunnan–Guizhou Plateau, Southwest China; Capital of Guizhou province; In 2014, GDP: 249.7 billion yuan (40.67 billion U.S. Dollars); GDP growth rate: 13.9%; per capita GDP: 55018 yuan (8,960.59 U.S. Dollars); share of the tertiary industry: 46.60%; urbanization rate: 72.10%. Nickname: The Forest City; forest area (% of land area) ranks among the top in China; Coal-dominated energy mix, coal consumption accounts for over 65% of the total; In 2013, energy consumption of six energy-intensive industries was 6.4946 million tons, 79.64% of the energy consumed by large scale industries.

Qingdao: southwest of the Shandong Peninsula; administered at the sub-provincial level; a specifically designated city in the state plan; In 2014, GDP: 869.2 billion yuan (141.57 billion U.S. Dollars); GDP growth rate: 8.00%; per capita GDP: 96524 yuan (15,720.52 U.S. Dollars); share of the tertiary industry: 56.9%; urbanization rate: 68.41%; Energy transmission-dependent city, all primary energy supply relies on transmission.



City Action Factsheets: Ten Case Cities

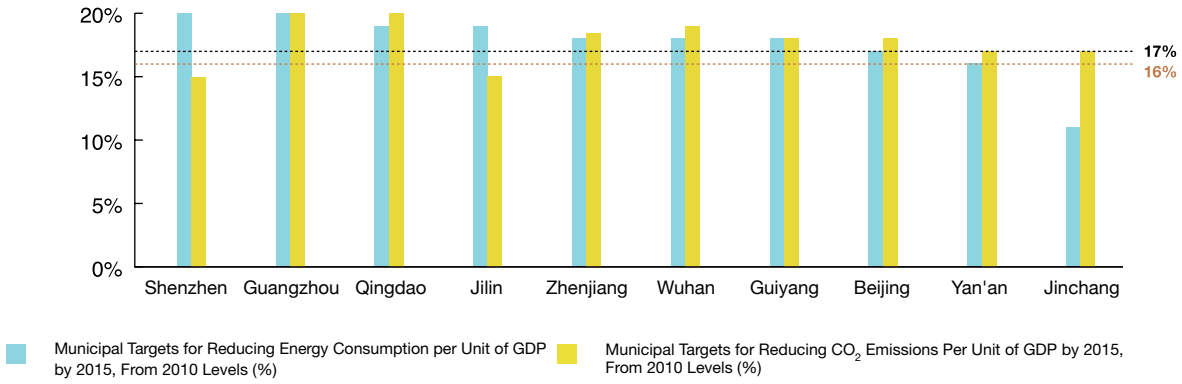
Policies and practices of low carbon development vary among cities based on local needs and emission conditions. Taking ten cities as cases, 38 typical actions in China's 12th Five Year Plan (FYP) are categorized.
By categorizing and comparing these actions among 10 case cities, a learning-by-doing process is encouraged to promote low carbon city development in China.



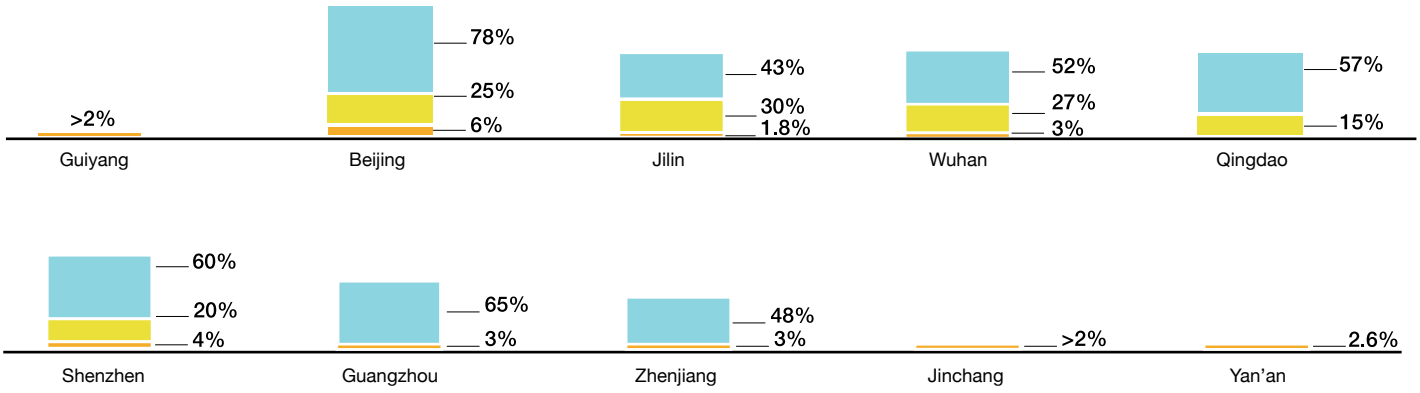
Data sources: 2009 and 2014 Annual Statistical Report of the above cities

The new normal of China's economic growth provides opportunities and challenges to China's low carbon city development. In 2014, the case study cities' GDP growth rate slowed down, though with continued growth in urbanization and the service industry.

Carbon Emission Goals



Decarbonizing the Economy

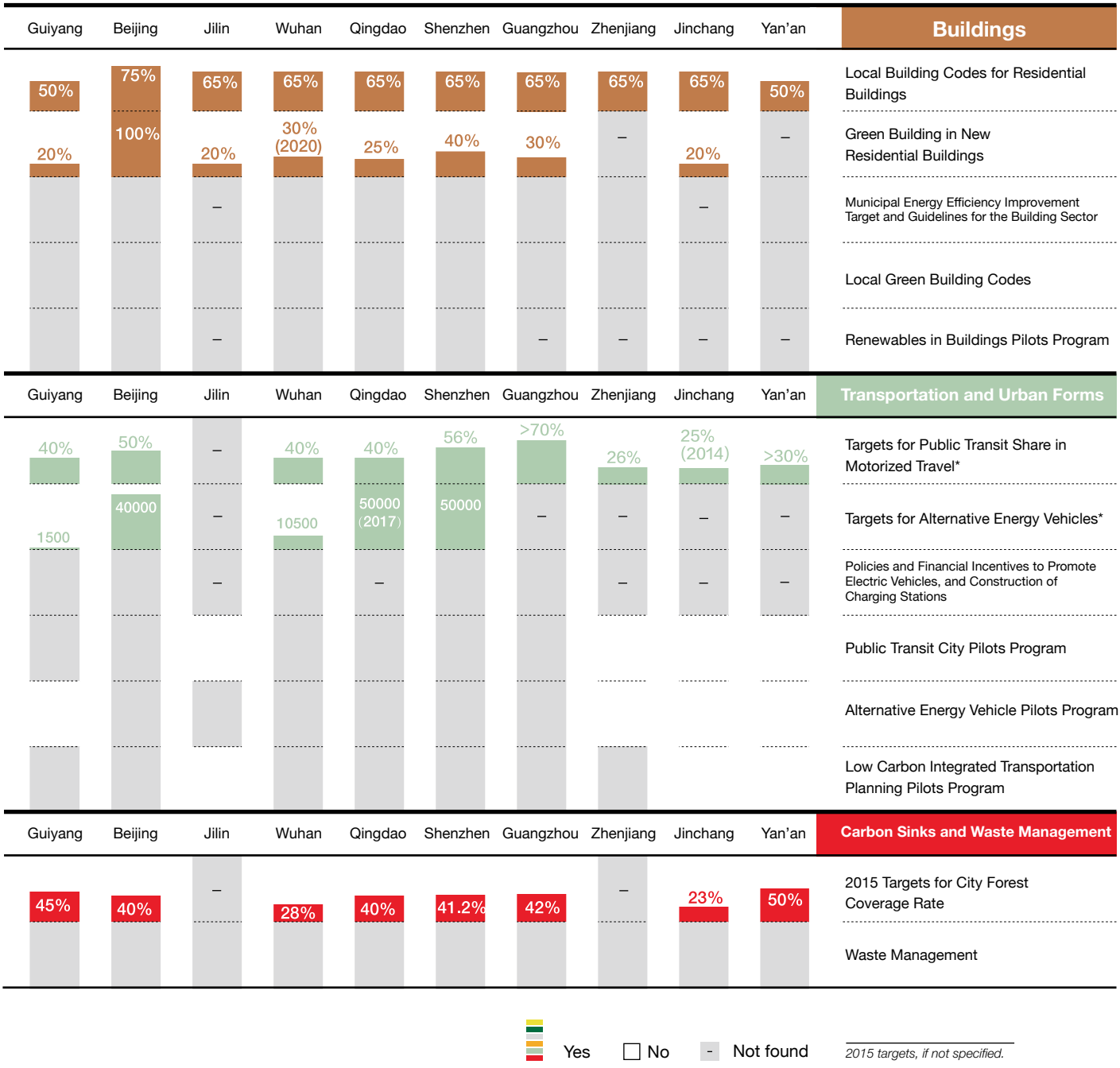


[1] *This represents the local governments' goal to optimize the structure of the economy through increasing the share of the service sector in order to develop a low carbon economy.*
[2] *This represents the local governments' goal to optimize the structure of the economy through increasing the share of strategic industries to propel economy transition to high-value, high-technology goods.*
[3] *This is used as an indicator of an economy's relative expenditure on new knowledge.*

Climate Actions	Guiyang	Beijing	Jilin	Wuhan	Qingdao	Shenzhen	Guangzhou	Zhenjiang	Jinchang	Yan'an
Municipal Low Carbon Development / Climate Change Plans										
Low-Carbon Pilot Development Guideline										
GHG Emissions Inventory Development										
GHG Reporting and Registry										
Carbon Emissions Impact Assessment Requirement										
Carbon Market										

Industry	Guiyang	Beijing	Jilin	Wuhan	Qingdao	Shenzhen	Guangzhou	Zhenjiang	Jinchang	Yan'an
2015 Target to reduce Energy Consumption per unit of Industry Value-Added, from 2010 Levels	25%	21%	–	–	17%	20%	20%	20%	20%	–
Industry Structural Change Guidelines		–	–	–			–			–
Top-10,000 Program Implementation Incentive Policies									–	
Low Carbon Industrial Zone Pilot Program										

Energy Supply	Guiyang	Beijing	Jilin	Wuhan	Qingdao	Shenzhen	Guangzhou	Zhenjiang	Jinchang	Yan'an
2015 Target to Increase Non-Fossil Fuel Share in Primary Energy Consumption	10%	around 6%	–	–	3%	15%	20% (2020)	8-12%	8%	5%
Municipal Strategic Plan to Develop Renewables and Alternative Energy										
Total Energy Consumption Control Targets										
Total Coal Consumption Reduction Targets						–				
National Alternative Energy City Pilot Program										


Guiyang
Beijing
Jilin
Wuhan
Qingdao
Shenzhen
Guangzhou
Zhenjiang
Jinchang
Yan'an
Buildings
50%
75%
100%
65%
20%
65%
30% (2020)
65%
25%
65%
40%
65%
30%
65%
–
65%
20%
50%
–
Local Building Codes for Residential Buildings
Green Building in New Residential Buildings
Municipal Energy Efficiency Improvement Target and Guidelines for the Building Sector
Local Green Building Codes
Renewables in Buildings Pilots Program
Transportation and Urban Forms
40%
50%
40000
1500
10500
40%
40%
50000 (2017)
56%
50000
>70%
26%
25% (2014)
>30%
Targets for Public Transit Share in Motorized Travel*
Targets for Alternative Energy Vehicles*
Policies and Financial Incentives to Promote Electric Vehicles, and Construction of Charging Stations
Public Transit City Pilots Program
Alternative Energy Vehicle Pilots Program
Low Carbon Integrated Transportation Planning Pilots Program
Carbon Sinks and Waste Management
45%
40%
28%
40%
41.2%
42%
23%
50%
2015 Targets for City Forest Coverage Rate
Waste Management
Yes
No
Not found
2015 targets, if not specified.

U.S. and China Comparison of Policies and Practices for Low-Carbon

Climate Goals and Actions	China	U.S.	Notes
Carbon Emissions per Capita in 2010 (t)	6.2	17.5	
Emission Targets: CO_2 Emissions Peaking Year Goal	●	NA	China's goals mainly refer to energy related CO_2 emissions, while the U.S. goal covers all GHGs. Some Chinese cities have set targets to peak their GHG emissions by certain years. Emissions from most U.S. cities have started declining; therefore, their emission targets are absolute reduction targets from a baseline year. Some cities also have targets for emissions per capita.
Emission Targets: Total GHG Emissions Cap	NA	●	
Emission Targets: Target for Reducing CO_2 Emissions per Unit of GDP	●	●	
Emission Targets: Target for Emissions per Capita		●	
Climate Action Plans: National Plans	●	●	
Climate Action Plans: Provincial / State and Municipal	●	●	Source: NDRC, GHGs Reporting Program on Major Emitters. NDRC Climate Change Division, number 63, 2014. EPA. Greenhouse Gas Reporting Program (2009).
GHG Reporting System: Threshold	≥13,000 tCO_2e	≥25,000 tCO_2e	
GHG Reporting System: Frequency	1	4	U.S. has completed 4 reports. NDRC requested emitters to report for the first time in 2014.
Carbon Market: National Carbon Market	In Progress		China plans to launch the national carbon market within 1-3 years.
Carbon Market: Regional / Local Carbon Markets	●	●	China now has 7 carbon market pilots, while the U.S. has 1 regional and 1 state carbon market.

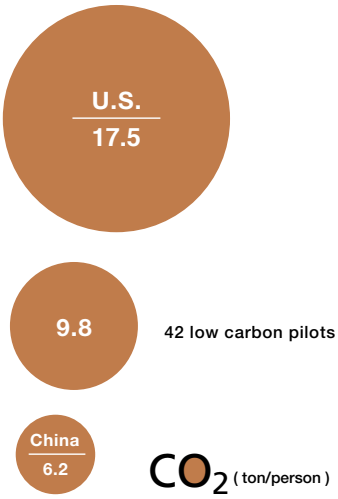
Energy Supply	China	U.S.	Notes
Electricity per Capita in 2011 (kWh)	3,500	13,000	
Emissions per kWh Electricity in 2011 (gCO_2/kWh)	596	461	The U.S. has set more stringent emission standards than China, i.e., no more than 635g CO_2 per kWh. That means new coal power plants cannot achieve that standard without carbon capture and storage. Coal power plants will be replaced by gas generators. The U.S. has also set emission intensity targets for the power sector from all the states.
Sector Goals: National Primary Energy Consumption Cap	●		
Sector Goals: CO_2 Emission Standards for Electricity Generation		●	China's standard requires coal consumption per kWh to be no more than 300g. Nationwide CO_2 emissions per unit of fossil fuel power will be reduced by 3% from 2010 to 2015. By 2015, large power companies must achieve their CO_2 intensity target of no more than 650g per kWh.
Emission Performance Standard for New Thermal Power Plants: Coal Efficiency Performance Standards	●		
Emission Performance Standard for New Thermal Power Plants: CO_2 Emission Standards		●	
CO_2 Emission Standards for Electricity Generation: Target for Non-Fossil Fuel Share	●	●	

Industry	China	U.S.	Notes
Energy Savings Potential for Iron and Steel Production in 2010 (GJ/t of Product)	6.4	2.3	China's Top-10,000 Program is mandatory and targets the largest energy consuming industrial plants. On the other hand, the U.S. "Better Buildings and Better Plants" is a voluntary incentive program. Overall, China's industrial energy efficiency policies are more rigid than those in the U.S.
Energy Saving Potential for Cement Production in 2010 (GJ/t of Product)	1.1	1.6	
Energy Efficiency Standards for Industrial Equipment and Products	Mandatory Standards for 73 Products	Industrial Motors	
Energy Conservation Program for Industrial Plants	●	●	

and Climate Smart Cities

Buildings	China	U.S.	Notes
Floor Space per Inhabitant in 2010 (m2/capita)	30-40	80	
Energy Use for Heating, Cooling and Appliances 2010/2011 (kwh/m^2)	94	357	
Building Codes for New Buildings – Public Buildings/Commercial	●	●	The U.S. and China have similar building code systems with similar levels of stringency. In China, the national government sets up building codes. Meanwhile, local governments can have their own more stringent standards. In the U.S., state governments set up building codes. The U.S. is more stringent on appliance efficiency standards. However, energy use per square meter is much higher in the U.S. than in China, due to wider use of appliances, and more importantly, difference in lifestyle.
Building Codes for New Buildings – Residential Buildings	●	●	
Targets for Renewables in Buildings	●	●	
Building Retrofitting Programs	●	●	
Appliance Efficiency Standards and Labeling	●	●	
Transportation			
Car Ownership in 2010 (Passenger Cars per 1,000 Persons,)	44	423	
Fuel Economy Performance of New Cars in 2010 (l/100km)	7.7	8.1	Both the U.S. and China have fuel economy standards for new cars. China has a slightly stronger standard for cars for 2020 but has not yet set one for 2030. The U.S. has implemented standards up to the year 2025.. Standards also apply to trains and biofuel vehicles in both countries.
Vehicle Fuel Economy Standards – Light Duty Vehicles	●	●	
Vehicle Fuel Economy Standards – Heavy Duty Vehicles	●	●	
Vehicle Fuel Economy Standards – CO_2 Emissions Standards		●	
Public Transit and Non-Motorized Transit – Targets for Public Transit Share in Motorized Travel in large- and medium-sized Cities	●		
Public Transit and Non-Motorized Transit – Bicycle and Pedestrian Path (Non-Motorized Transportation) Networks Pilots	●	●	
Public Transit and Non-Motorized Transit – Policies to Control Motorized Commuting (Parking Fee, Vehicle License Policies)	●	●	
Urban Planning and Land-Use – Transit-oriented Development Plan	●	●	
Urban Planning and Land-Use – Urban Growth Boundary	●	●	
Financial Incentives – Policies and Financial Incentives to Promote Electric Vehicles, and Construction of Charging Stations	●	●	
Financial Incentives – Tax Credits for Efficient and Low Emission Cars	●	●	

Carbon Emissions per Capita in 2010



Data Sources: *Höhne, N. et al., 2014 World Bank Website: data.worldban,.org/indicator*

● Yes ☐ No NA:Not found

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