# CLIMATE POLICIES IN CHINA

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## AGENDA

## CLIMATE POLICY IN CHINA

Political economy of climate policies in China

### CHINA'S DOMESTIC CLIMATE TARGETS

Dual carbon goal, 1+N policy system, NDCs

### CHINA'S CLIMATE COMMITMENTS ABROAD

Ban new coal, develop RE, financial support, set standards

#### IMPORTANT INTERNATIONAL COLLABORATIONS

China-Africa climate declaration, China-US



#### TRANSPARENCY

How to better ensure information disclosure on China-Africa collaborations?

#### EXPERIENCE SHARING

How are China's energy transition experiences relevant (or not) to African countries? How can China support energy transition and development in productive ways?

#### THIRD PARTY

What roles can third party/nongovernment entities play?

# THE POLITICAL ECONOMY AROUND CHINA'S CLIMATE POLICY

## STARTING WITH BASICS

#### What determines total carbon emissions?



## CHINA'S CLIMATE TARGETS

## The History



## **DRIVERS OF CHINA'S CLIMATE POLICY**

Aligning with the Development Strategy



Resources-intensive growth to High-quality growth New growth engine: clean technologies



Air Quality Improvement Conservation Forestation

**GLOBAL LEADERSHIP** 

**Geopolitical Competition** Common Ground for multilateral/bilateral dialogues

> 2050 Mid-level Developed Countrw



#### May 2015 🔘

State Council Made in China 2025

Ministry of Agriculture National Sustainable Agricultural Development Plan (2015-2030)

December 2016

National Development and Reform Commission (NDRC)

Energy Supply and Consumption Revolution Strategy (2016-2030)

February 2017 State Council State Council National Population Development Plan (2016-2030)

National Land Planning Outline (2016-2030)

#### () June 2019

NDRC Green and High-Efficiency Cooling Action Plan

#### July 2020 🌘

Ministry of Housing and Urban-Rural Development Green Building Innovation Action Plan

> Ministry of Transport, NDRC Green Travel Innovation Action Plan

#### April 2021 厳

National Energy Administration Medium- and Long-term Development Plan for Pumped Storage (2021-2035)

#### October 2021

#### NDRC

Opinions on Strict Energy Efficiency Constraints to Promote Energy Conservation and Carbon Emission Reduction in Key Areas

#### CPC Central Committee, State Council

Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy

#### State Council

Action Plan for Carbon Dioxide Peaking before 2030 9/28/2022

#### 2021 NDC IS A RESULT OF CHINA'S DOMESTIC STRATEGIES AND POLICIES Enhanced 2021 NDC

#### November 2020

State Council New Energy Automobile Industry Development Plan (2021-2035)

June 2021 Government of China China ratified the Kigali Amendment

# Inform

# Enhanced 2021 NDC

## CLIMATE ACTIONS & MARKET OPPORTUNITIES Electric Vehicles, Solar Panels, Off-Shore Wind, Air Conditioners.....

## Global battery and solar value chains are highly geographically concentrated

Current share of global processing/production capacity, by location



9 September 23, 2022

BloombergNEF



## A SIMPLIFIED CLIMATE POLICY SYSTEM

- The Climate Policy are in the forms of energy, environment, conservation policies
- Whether these legislations, rules, standards should be applied to oversea investment and market?



# CHINA'S CLIMATE TARGETS

## ON SEPTEMBER 22, 2020, CHINA ANNOUNCED ITS "DUAL-CARBON" TARGETS



Carbon Peak Net emissions will reach its highest by 2030 and will decline afterwards



Carbon Neutral Net emissions will essentially reach zero by 2060 Net emissions refers to the sum of all emissions and sinks, which are things that absorb more GHG than they emit

The scope of emissions generally include all major GHGs (i.e. CO2, CH4, N2O, and F-Gases)

Global warming potential (GWP) measures the heat absorbed by any GHG as a multiple of the heat that would be absorbed by the same mass of CO2





# SIGNIFICANCE OF THE TARGET

#### GLOBAL CLIMATE TARGETS AND STATUS

Country	Peak	Neutral (Target)	GDP and Emissions per Capita @ Carbon Peak Year	
UK	1970s, plateau, 40% of peak	2050	20,000-50,000 USD(2010), 10-22t CO2	
Germany	1970s, plateau, 35% of peak	2050		
US	2007, slow decline, 20% of peak	2050		
Japan	2013, future trend TBD	2050		
South Korea	Not yet	2050		
China	By 2030 (target)	2060	14,000 USD (2010), 8t CO2	
India	2040-2045 (expected)	2070		

#### IN COMPARISON

Later than developed countries targets, but shorter time span between peak and neutral

Peaking at **lower** GDP per capita and emissions per capita, partially due to technological advancement

## EMISSION TARGETS ARE BACKED BY ENERGY AND SECTORAL TARGETS, DOMESTIC AND INTERNATIONAL

## Domestic 1+N Strategy and Policy System Public Participati on President Xi's Announcements at UN and Other Occasions Green and LC R&D Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of The New Development Philosophy "1": 2030 Early Peaking Action Plan of the State Council Carbon Sink "N": Sectoral Action Plans IGDP



Sectors		"1+N" Policy System				
Macroeconomic		关于加快建立健全绿色低碳循环发展经济体系的指导意见				
Energy		关于完善能源绿色低碳转型体制机制和政策措施的意见				
Ecology		减污降碳协同增效实施方案				
ndustry		<ul> <li>&gt; 钢铁行业碳达峰实施方案</li> <li>&gt; 建材行业碳达峰实施方案</li> <li>&gt; 石化化工行业碳达峰实施方案</li> <li>&gt; 有色金属行业碳达峰实施方案</li> <li>&gt; 有色金属行业碳达峰实施方案</li> <li>&gt; 消费品行业低碳发展路线图</li> <li>&gt; 浅备制造行业低碳发展路线图</li> <li>&gt; 电子行业低碳发展路线图</li> <li>&gt; 曳彻落实碳达峰碳中和目标要求推动数据中心和5G等新型基础设施绿色高质量发展实施方案</li> <li>&gt; 《全国煤电机组改造升级实施方案》</li> <li>&gt; 关于加强产融合作推动工业绿色发展的指导意见</li> </ul>				
Urban and Rural Development		关于推动城乡建设绿色发展的意见				
Transportation		交通运输部 国家铁路局 中国民用航空局 国家邮政局贯彻落实《中共中央 国务院关于完整准确全面贯彻新发展理念做好 碳达峰碳中和工作的意见》的实施意见				
Agriculture and Rural Villages		农业农村减排固碳实施方案				
Consumption		促进绿色消费实施方案				
Cross-Sectoral		<b>关于推进中央企业高质量发展做好碳达峰碳中和工作的指导意见</b> 深入开展公共机构绿色低碳引领行动促进碳达峰实施方案				
		Otl	her Supporting Mechanism	S		
Fiscal	财政支持做好碳达峰碳中和工作意见			For updated policies and original policy document, please visit <u>ccnt.igdp.cn</u> , our bilingual policy database for all of China's dual-carbon policies at national, provincial, and city levels.		
Finance	创设碳减排支	2碳减排支持工具,设立支持煤炭清洁高效利用专项再贷款				
Technology	科技支撑碳达峰碳中和实施方案(2022—2030年)		0年)			
MRV	关于加快建立统一规范的碳排放统计核算体系实施方案		系实施方案			

	2021 NDC & MID-CENTURY LONG-TE	2015 NDC	
	2030	2060	2030
Total Carbon Emissions	<ul> <li>Peaking before 2030</li> <li>Establish absolute total CO<sub>2</sub> (carbon cap) emissions control system</li> <li>To develop non-CO<sub>2</sub> GHGs control system</li> <li>HFCs reduction goal regulated by Kigali Amendment</li> </ul>	• Net Zero Before 2060	• Peaking
Carbon Emission Per Unit GDP Reduction Compared with 2005	• Over 65%		• 60-65%
Non-Fossil Fuel Share of Primary Energy Consumption	<ul> <li>Over 25%</li> <li>Total Solar and Wind Capacity to reach 1,200GW</li> </ul>	• Over 80%	• 20%
Fossil fuel	<ul> <li>Coal consumption increase will be strictly controlled between 2021-2025 and decline between 2025-2030.</li> <li>petroleum consumption will reach its peak plateau by 2030</li> </ul>		Total consumption control
Industry Decarbonization	<ul> <li>Energy efficiency in key industries will reach the advanced international level</li> </ul>	<ul> <li>Economy-wide energy efficiency reach international advance level</li> </ul>	<ul> <li>Mandatory industrial products energy consumption standards.</li> </ul>
Transportation	<ul><li>NEVs share will reach about 40%</li><li>Ground transportation oil consumption peak</li></ul>		
Buildings	<ul> <li>By 2025, 100% of new buildings need to meet green building codes.</li> <li>Rooftop PV installed in 50% new public buildings and industrial buildings</li> </ul>		
Increase forest stock volume increase compared with 2005	6 billion cubic meters		• 4.5 billion cubic meters
Others	<ul><li>Enhance MRV system</li><li>Set national low carbon transition fund</li></ul>		

International commitments are informed by domestic policies

## Enhancement compared with 2015 NDC

Supplementary Reading: Understanding China's 2021 Nationally Determined Contribution (iGDP) Total Primary Energy Consumption (2020)

~55% Coal
~30% Oil and gas
~15% Renewables



## ENERGY TARGETS

Strictly control coal consumption growth during the 14<sup>th</sup> FYP, and gradually reduce consumption during the 15<sup>th</sup> FYP.

Oil consumption plateaus during the 15<sup>th</sup> FYP

Non-fossil %: 2025 – 20%, 2030 – 25%, 2060 – 80%

## ACHIEVING TARGETS REQUIRES SPECIFIC MEASURES AND ACTIONS



#### ENERGY SYSTEM



#### PRINCIPLES OF EMISSION REDUCTION

#### Reduce

Reduce energy use or emitting processes

#### Replace

Shift to cleaner fuels or processes with fewer emissions

#### Capture

Capture and store emissions when needed

# EMISSIONS BY SECTOR - BEST POLICY SCENARIO (MMT CO2E)





9/28/2022

IGDP

## ELECTRICITY

Sector (10^4t)

6000

5000

4000

3000

2000

1000

#### CURRENT STATE

The Electricity Sector is the biggest CO2 emitting sector, accounting for more than half of all CO2 emissions

Coal capacity has been increasing in recent years, accounting for the majority of emissions from the electricity sector; however, as renewable capacity is increasing faster, % of coal capacity has decreased from 73% (2010) to now 55%

#### NEW ELECTRICITY SYSTEM UNDER CARBON NEUTRALITY

Majority RE, with coal as source of **flexibility** and **security** 





50% renewable generation by 2030 1200GW of solar and wind by 2030 40GW of new hydro by 2025, an additional 40GW by 2030 Demand response capacity reaches 5% of peak load by 2030







#### POLICIES IN PLACE

Renewable energy consumption responsibility (i.e. RPS) Power market reform Transmission capacity improvement Transition from subsidy to grid parity Strengthen industry standards

RE

## ELECTRICITY

For more information on the power cuts and future power system reform and development, listen to our podcast with Environment China at <u>this link</u>, or find Environment China on any major podcast platforms and search for "China's power shortages and solutions – with Xi Xi of iGDP".

#### **POWER CUTS**

This summer and last fall, China experienced **serious power cuts** in different provinces. Last year's power cut was due to **shortage of coal supply and increasing industry demand**, while this year's cut was a result of **severe drought and extreme heat** in the southwestern province of Sichuan. Both power cuts reflected the risk of having a power structure with one dominant power source, lack of flexibility in the grid, exacerbated by climate change.

#### SHORT-TERM SECURITY VS LONG-TERM TRANSITION

China and many countries are dependent on coal power. As the energy system, especially the electricity system, is fundamental to daily operation of the economy, changing its current structure and system can be daunting. However, climate change will exacerbate existing risks. Therefore, developing an energy system with a balanced portfolio of diverse power sources and flexibility grid should be the priority.

## INDUSTRY

#### CURRENT STATE

The Industry Sector is another major emitting sector, especially with non-CO2 gases

Emissions consist of energy-related/combustion emissions, as well as emissions from industrial processes, such as cement and steel production

Raw material production accounts for 28% of industrial production in terms of value-add, while emissions from high energy intensity industries account for 80% of emissions

#### **KEY EMISSION REDUCTION MEASURES**

Energy efficiency, material recycling Fuel shifting: electrification, green hydrogen; process improvement CCS

#### **KEY POLICY TARGETS**

30% of production reaches high standard energy efficiency standards by 2025, all high energy intensity industry reaches international level by 2030

## BUILDINGS

## TRANSPORTATION

#### **KEY EMISSION REDUCTION MEASURES - BUILDINGS**

Different technologies target different building components: lighting, cooling and heating, appliance, cooking, etc.

Energy efficiency, improved insulation Electrification, heat pumps, distributed energy/rooftop solar

#### **KEY EMISSION REDUCTION MEASURES - TRANSPORTATION**

Transportation structure optimization, public transportation, biking, improved fuel economy Electric vehicles, hydrogen vehicles, biofuels, ammonia

# CHINA'S CLIMATE COMMITMENTS ABROAD

TION ROOM 2

COP26 TV

On September 21, 2021, the President announced to the UN Assembly that China would increase support for green and lowcarbon energy in developing countries, and **not build any new coal-fired power** projects overseas.



## BAN NEW COAL

Opinions on Promoting the Co-construction of the "Belt and Road" Green Development (NDRC):

- a full stop to new coal power projects overseas (12.8 GW, 15 plants)
- cautious progress on those already under construction (37 GW, 32 plants)
- green and low-carbon development of overseas coal power projects which have already been built (17 GW, 18 plants)

Source: CREA

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DEVELOP RE

#### Investment (Million \$)







#### Source: AEI

9/28/2022

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FINANCIAL SUPPORT



#### State-owned Financial Institutions

- Exim Bank: 3 billion yuan (US\$425 million) in green bonds earmarked for clean energy investment to fund the construction and operation of renewable energy projects such as hydropower and wind power
- China Development Bank (CDB): memoranda of understanding on funding climate action with both the Green Climate Fund and the United Nations Development Programme
- China Export and Credit Insurance Corporation (Sinosure): speed up approval for RE projects and set up RE analysis team
- Standards for evaluation is key

#### **Commercial Banks**

- Bank of China and Postal Saving Bank of China: no new coal
- Industrial and Commercial Bank of China: will produce a roadmap and timetable for a gradual withdrawal from financing coal
   Source: China Dialogue

9/28/2022

IGDP

28

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SET STANDARDS

Guidelines for Ecological Environmental Protection of Foreign Investment Cooperation and Construction Projects (MEE, MOFCOM)

- where local regulations are insufficient, companies are encouraged to **apply international or Chinese environmental rules and standards** across the life of a project
- better guidance for environmental protection on **pollution and climate**, and most importantly on biodiversity conservation

## Belt and Road Initiative (BRI) International Green Development Coalition

- Green development guidelines with screening system
- Handbook for companies and financial institutions

# CHINA'S CLIMATE COMMITMENTS ABROAD

## INTERNATIONAL COLLABORATION

### Mechanisms and Platforms

## CHINA-AFRICA

Declaration on China-Africa Cooperation on Combating Climate Change

SOUTH-SOUTH \$100b from developed countries BRI Green Investment Principles Climate mitigation Green recovery Support RE projects, ban new coal

CHINA-US China-US Joint Glasgow Declaration on Enhancing Climate Action in the 2020s



## INTERNATIONAL COLLABORATION

Mechanisms and Platforms



Global carbon market, mini deals on methane, coal phase-out, deforestation, etc.

## BRICS

Joint Statement issued at the BRICS High-level Meeting on Climate Change

CHINA-EU

High-level Conversation: CBAM, green finance, F-Gases (Kigali Amendment), RE, biodiversity





#### TRANSPARENCY

How to better ensure information disclosure on China-Africa collaborations?

#### EXPERIENCE SHARING

How are China's energy transition experiences relevant (or not) to African countries? How can China support energy transition and development in productive ways?

#### THIRD PARTY

What roles can third party/nongovernment entities play?

## **Innovative Green Development Program (iGDP)**



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