



ENERGY FOUNDATION

能源基金会

# From greening stimulus and the 14th Five Year Plan towards China's modernization: a new growth story about natural capital

## 从绿色刺激措施和“十四五”规划到中国现代化：围绕自然资本谱写新的增长故事

### *A Synthesis of Opinions* 观点综述

Zou Ji, CEO and President, Energy Foundation China

20 May 2020, Beijing, China

邹骥，能源基金会首席执行官兼总裁

中国北京，2020年5月20日

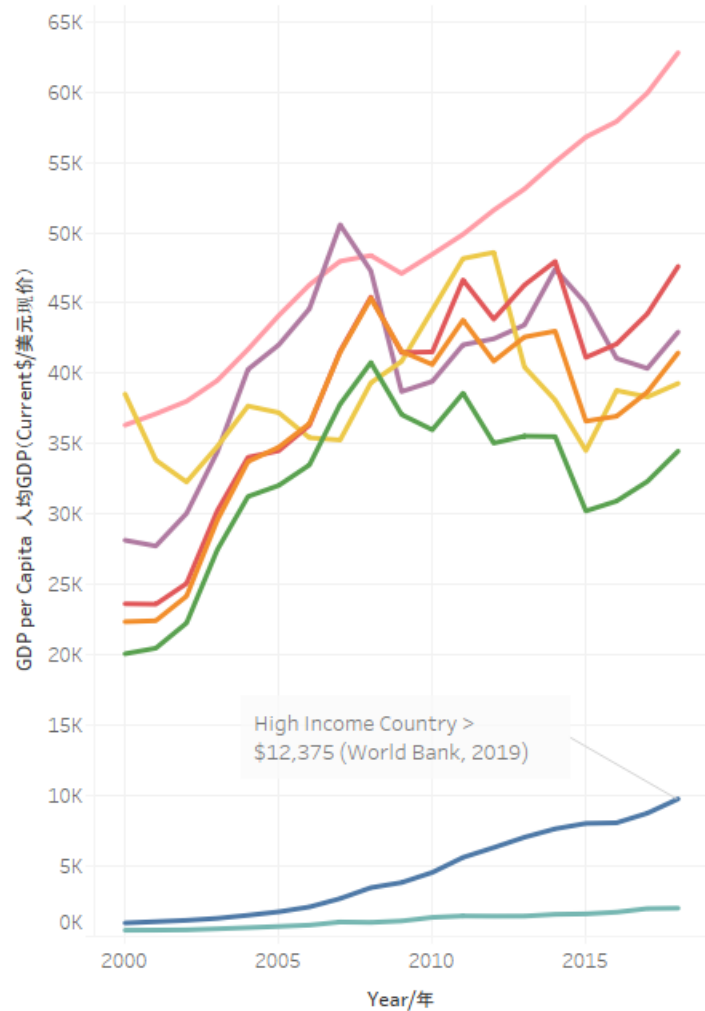


# Outline 目录

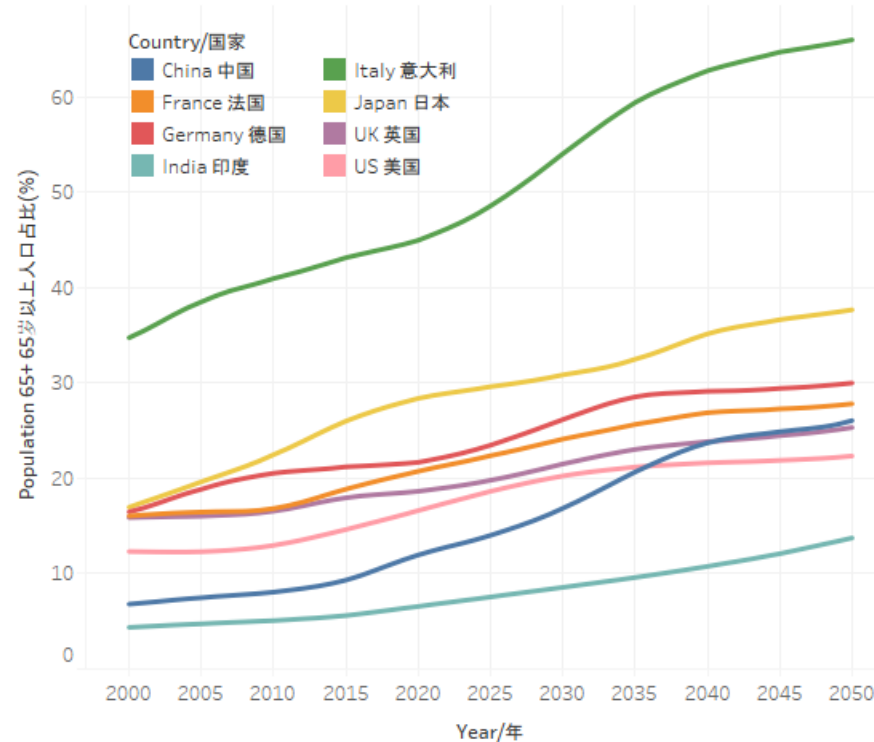
- ① **Scene Setting 背景**
- ② **New Growth Story about Natural Capital 围绕自然资本谱写新增长故事**
- ③ **Opportunities of Sustainable and Green Transition from the COVID-19 Outbreak 新冠疫情后可持续绿色转型的机会**
- ④ **Targets and Several Prioritized Areas 目标和重点领域**
- ⑤ **Institutional and Policy Reforms for Incentive Compatibility 激励相容的制度和政策改革**

# Background: New Development Stages 背景：新发展阶段

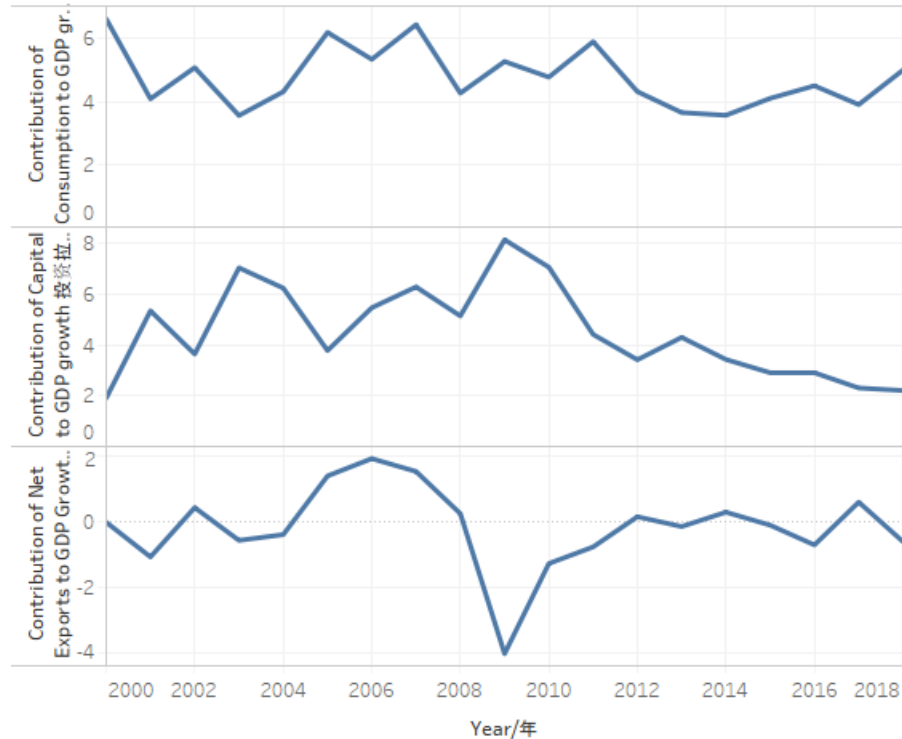
GDP per Capita 人均GDP



Aging Share 老龄化



Growth Driver 增长来源



Gini Index 基尼系数



Data source: China yearbook of Household survey 2019; World Population projection 2019; World Bank Database

# Scene Setting: Longer Term Vision 情景设定：更长期愿景

1. **Demographic:** larger aging group and middle income group 人口趋势：更大规模的老龄人口和中等收入群
2. **Development stage:** transition to high income stage with new economic agenda and capacity 发展阶段：向高收入国家迈进，形成新的经济发展议程和能力
3. **Higher demand for** safety, health, and amenity with redefining welfare and wealth composition 对安全、卫生和便利设施的需求增加，重新定义福利和财富构成
4. **Investment:** lower return from conventional areas and need new ones with potentials for higher return 投资：传统领域的回报较低，需要开拓有可能带来更高回报的新领域



## New Growth Engine/Pattern

### 新增长动能/方式

1. Restructuring the composition of physical, human, **natural**, and social capital 调整实物资本、人力资本、**自然资本**和社会资本的构成
2. Investment in **natural capital** as a lever to create additional engines of growth in sectors 投资**自然资本**，以此为**杠杆**向行业注入额外的增长动力
3. Deepen supply side structural reform for maintaining necessary growth rate 深化供给侧结构性改革以维持必要增速

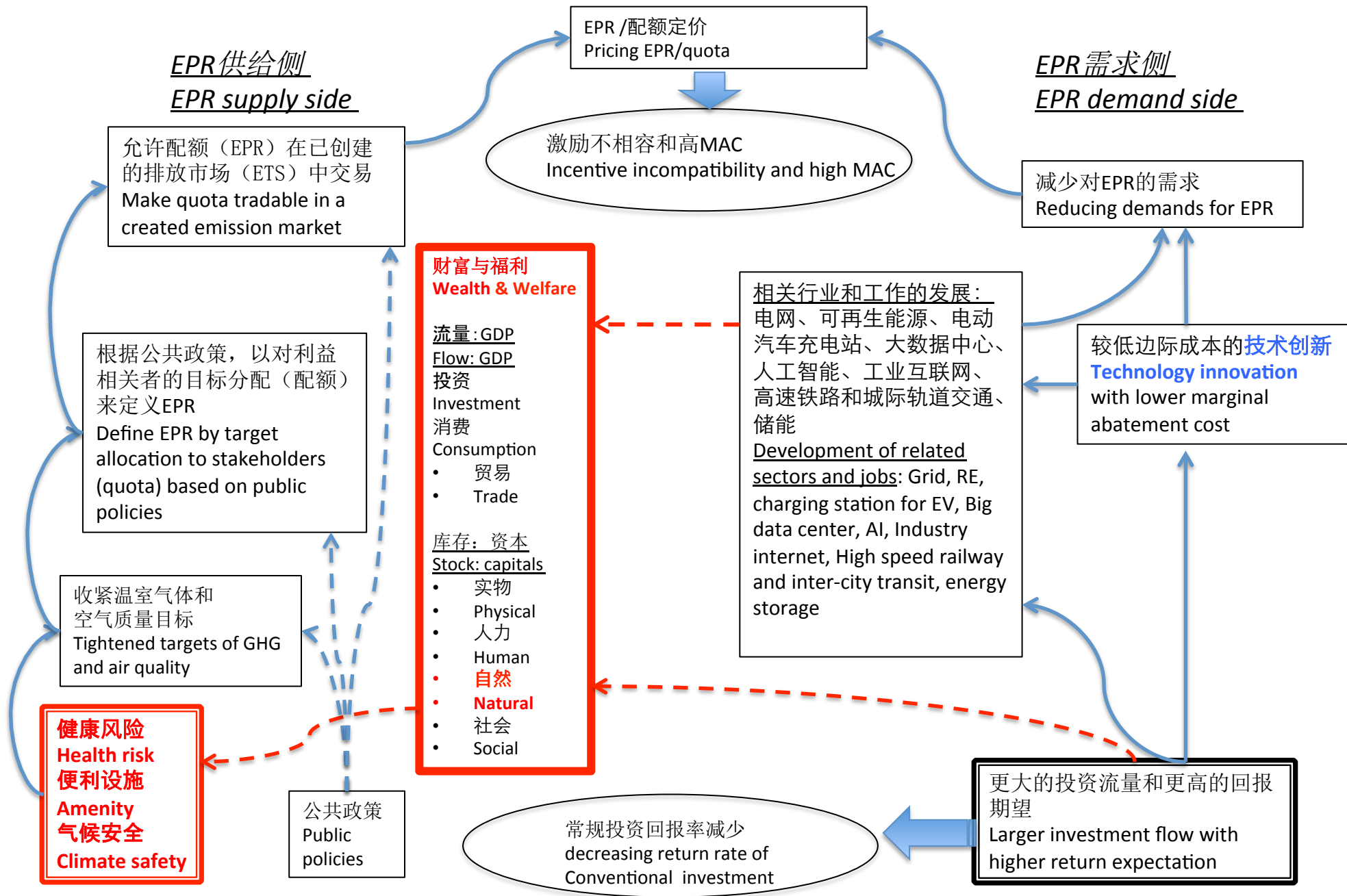
**A matter of a new growth story about natural capital 关于自然资本的新增长故事**

**A detour on the ecological civilization will pay huge social economic price 生态文明没有弯路可走**

# New Growth Story About Natural Capital 围绕自然资本谱写新增长故事

1. Higher air quality target needed with lower health risk and larger demand for amenity for aging and higher income groups. However, natural capital is the biggest shortcomings with highest input-output efficiency. 老年人和更高收入群体要求设定更高的空气质量目标，更低的健康风险，同时对便利设施的需求更大。自然资本是最大的短板，加大投入的投入产出效益最高
2. Marginal Abatement Costs increase over time 边际减排成本随时间增加
3. Environmental externality leads to incentive incompatibility for investors to make adequate and efficient investment in natural capital “环境外部性”导致对投资者的激励不相容，投资者无法充分有效地投资自然资本
4. Environmental public policies can define property right (PR) of environmental assets (EPR) and determine their price by 环境公共政策可以定义环境资产产权（EPR），并通过以下方式确定其价格：
  - Setting up and allocate ambitious environmental targets as quota for market players 建立并分配有力度的环境目标作为市场参与者配额
  - Making this quota (EPR) tradable in a created factor market 允许该配额在已创建要素市场中交易
5. Investment can flow into EPR for return with incentive compatibility, optimizing wealth composition, and *levering* new engines of growth 投资可以流入EPR，通过激励兼容、财富构成优化并*利用*新增长动力来获得回报
6. *Linked sectors development: Renewable equipment and devices; Grid, machinery; AI, Digital related, EV and charging stations, electrified end users (industries, buildings, transport, ), Energy Storage, ..., leveraged by EPR* 关联行业发展：EPR所利用的可再生设备和设施；电网、机械、人工智能、相关数字技术、电动汽车和充电站、电气终端用户（工业、建筑、运输），储能等。

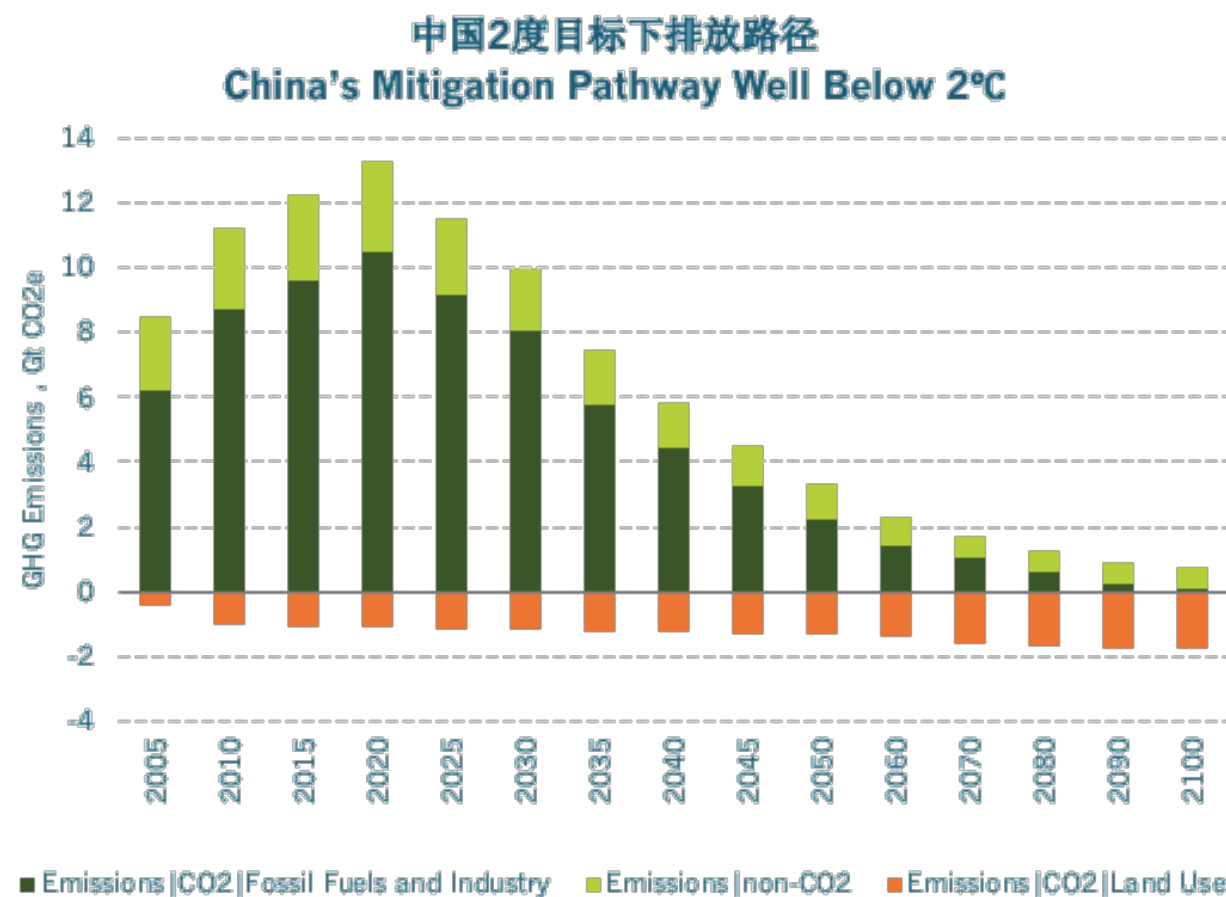
# New Growth Story About Natural Capital 围绕自然资本谱写新增长故事



# Tightened environmental targets 趋紧的环境气候目标（2020-2050）

Year 年	PM <sub>2.5</sub>					
	Standard 标准	BTH 京津冀	BJ 北京	YR 长三角	GBA 大湾区	National 全国
2018	35	60	51	44	31	39 (43%)
2020	35	54	46	39	28	35 (50%)
2025	25	42	35	30	21	27 (80%)
2030	25	33	28	24	17	21 (95%)
2035	15	26	22	19	13	17 (88%)
2050	10	12	10	8	7	8 (74%)

Source: EFC LTS and AQ Taskforce



## Opportunities from COVID-19 outbreak 新冠疫情带来的机会

- The stop/recession of different sectors and companies caused by COVID-19 is a natural opportunity to reset the economy由新冠疫情导致的各个行业 and 企业的停业及衰退，是重置经济的好机会
- Stimulus complying with green and low carbon thresholds will help to accelerate green structural transition符合绿色和低碳阈值的刺激措施将有助于加速结构性绿色转型
- Rescue scheme can serve for both the fights against COVID-19 pandemic and just transition援助计划既可用于应对新冠疫情，也可用于推动公正转型



## Green Criteria for Stimulus 刺激措施的绿色标准

- Higher air quality targets 更高的空气质量目标
- More ambitious GHG targets 更有力度的温室气体目标
- Standards and benchmark for companies 企业标准和基准
- EIA for specific investment projects, incl. GHG 针对特定投资项目的环境影响评估，包括温室气体
- Other guidelines and regulations, incl. permits and hard negative lists of investment 其他指南和法规，包括许可和负面投资清单
- MRV equipped by modern technologies and based on transparent governance framework 采用现代技术并以透明治理框架为基础的MRV体系

# 14<sup>th</sup> FYP Targets : Air Quality, Green Energy, and GHGs “十四五” 目标：空气质量、绿色能源和温室气体

No.	Key metrics 主要指标	Key targets for 2025 2025年目标	Existing targets by 2020 “十三五” 目标
1	Peaking year for CO2/CO2达峰	Peaking around 2025	Peaking around 2030 for CO2
2	Total energy-related CO2 emission/ CO2 排放总量(Gt)	10~10.3 Gt CO2	NA
3	Energy-related CO2 emission intensity per GDP/单位GDP能源相关CO2排放强度	18~20% below 2020, around 59~60% below 2005	18% below 2015 by 2020, 60-65% below 2005 by 2030
4	Share of non-fossil fuels in primary energy/非化石能源占比 (%)	18~21%	15
5	Output value of green low-carbon industry/绿色低碳产业产值	>20 Trillion RMB	10 trillion RMB
6	Non-CO2 GHG Emission Targets/其他温室气体控排目标	Peaking around 2025, or specific targets for HFCs, CH4, etc.	NA
7	Reduction of Average PM2.5/ PM2.5下降	10-15% below 2020	18% below 2015
8	Ozone concentration/臭氧浓度	135ug/m3, reduced by 10%	NA
9	Reduction rate of major pollutants/主要空气污染物下降	10% for Nox/VOCs	SO2 15%, Nox 15% below 2015
10	Carbon Emission Peaking or Cap for Key Sectors/重点行业达峰	Peaking: Industry,2020; building 2025; transport 2030	NA
11	Coal consumption cap/煤炭消费总量	<3.9 billion ton/yr	<4.1 billion ton/yr
12	Share of coal in energy mix/煤炭占比	<49-51%	below 58%
13	Share of non-fossil fuel in power capacity/非化石能源发电装机占比	50%	39%
14	Installed wind capacity/风电装机	250-400 GW	210 GW
15	Installed solar pv capacity/太阳能装机	350-500 GW	105 GW
16	Installed coal power capacity/煤电装机	1150-1200 GW	below 1100 GW
17	Electrification rate in final energy/电气化率	28-33%	27%

# Priorities in the green stimulus and the 14th FYP绿色刺激措施和“十四五”规划的重点

Categories 类别	Prioritized Areas 优先领域		Investment/投资规模 (2020-2025)	Financial Sources and instruments 资金来源、途径
Environmental & Climate Friendly New Infrastructure 环境气候友好的基础设施	Information infrastructure 信息基础设施	1. 5G base stations 5G基站 2. Big data center 大数据中心 3. IoT 工业互联网	1.2 trillion (1.2万亿) 2 trillion(2 万亿) 1 trillion(1 万亿)	Public + market-based debts, loans and stocks 基于公共+市场债务、贷款和股票
	RE friendly power system 可再生能源友好的电力系统	4. Centralized/distributed RE, power system flexibility and smart grid 集中式/分布式可再生能源、电力系统灵活性和智能电网	2.1 trillion (2.1 万亿)	Public + market-based debts and loans 基于公共+市场债务与贷款
	Green and low-carbon urbanization and modern cities 绿色低碳城镇化和现代城市	5. High speed railway and inter-city transit in city clusters, charging piles for EBs, Clean heating and cooling, low-carbon building, public service facilities 城市群高速铁路及城际交通、电动汽车充电桩、清洁供热制冷、低碳建筑、公共服务设施等	>10 trillion (>10万亿)	Market-based debts, loans and stocks 基于市场债务、贷款和股票
	Innovative infrastructure 创新基础设施	6. Innovative infrastructure for key science and technology research, science and education, and product development 重大科技基础设施、科教基础设施、产业技术创新基础设施	300 billion (3000亿)	Public + market-based debts and loans 基于公共+市场债务与贷款
Digital & green upgrade of traditional industries 传统产业数字化升级和绿色改造	1. Digitalization for selected application scenes 特定场景的数字化应用 2. Electrification in selected sectors and processes 特定部门和过程的电气化 3. Reshaping integrated supply chains in specific regions or city clusters, targeting at SMEs 针对特定地区、城市群的中小企业的集成供应链重组 4. Structural improvement of environmental quality (taking carbon into account) 环境质量的结构性改善（考虑碳排放）		2.8 trillion (2.8万亿)	Market-based debts, loans and stocks 基于市场债务、贷款和股票
Enlarge and shape green consumption 扩大和重塑绿色消费	1. Green/low-carbon consumption: Appliances with high energy efficiency and EVs 绿色低碳产品消费：高能效电器和电动汽车 2. Low-carbon life style in smart cities: Health care, care for the elderly, sports, education/training, entertainment 智慧城市的低碳生活方式：医疗、养老、运动、教育/培训、娱乐			Public subsidies and private consumption 政府刺激/补贴+私人消费

## Making Green Mountains become Golden Mountains by policy reform 通过政策改革使绿水青山变为金山银山

A catalyst to create new engines of growth from the boost of low carbon-related sectors **这是一个在低碳相关行业推动下创造新增长动力的催化剂**

- Target setting and allocation management 目标设定和分配管理
  - More ambitious target for lower costs 为更低的成本设定更高的目标
  - Market oriented allocation: target at companies and households 市场化配置：以企业和家庭为对象
  - The roles of local governments 地方政府的作用
- Emission pricing: incentive compatibility 排放定价：激励兼容
- MRV based on modern technologies and governance 采用现代技术和治理理念的MRV体系
- Contributing to the global public goods of climate 为全球气候公共产品做出贡献





ENERGY FOUNDATION  
能源基金会

# THANK YOU