加州伯克利

中国CO_2减排目标与实施对策
China's CO_2 Emission Mitigation Target and Implementation Strategy

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1. APEC会议期间中美发表《气候变化联合声明》，中国确立的2020年后减排目标，是统筹国内能源/环境/经济协调发展与全球应对气候变化的战略选择(1)

Under the U.S.-China Joint Announcement on Climate Change, China set its post-2020 mitigation target, based on coordinating domestic Energy /Environment /Economy with global climate change

- 联合声明提出：气候变化是“人类面临的最大威胁”，应对气候变化可以带来推动创新、提高经济增长等广泛效益，将增强国家安全和国际安全。
  The Joint Announcement acknowledges that climate change is “one of the greatest threats facing humanity”, and addressing climate change will drive innovation, strengthen economic growth, and will also strengthen national and international security.

- 中国计划2030年左右CO_2排放达到峰值且努力早日达峰；2030年非化石能源占一次能源消费比重提高到20%左右。
  China intends to achieve a CO_2 emissions peak around 2030 and to make its best effort to peak earlier, and intends to increase the share of non-fossil fuels in primary energy consumption to around 20% by 2030.

- 该目标是一个积极紧迫和有力度的目标，是一个付出艰苦努力可以实现的目标。
  This target is pressing and ambitious, and can only be accomplished through extraordinary efforts.

1. APEC会议期间中美发表《气候变化联合声明》，中国确立的2020年后减排目标，是统筹国内能源/环境/经济协调发展与全球应对气候变化的战略选择(2)

Under the U.S.-China Joint Announcement on Climate Change, China set its post-2020 mitigation target, based on coordinating domestic Energy /Environment /Economy with global climate change

- 能源消费的CO_2排放是中国GHG排放及增长的主要来源。中国CO_2排放占全部GHG排放的80%，其中工业过程的CO2大体与森林增汇相抵销。
  - CO_2 emissions from energy consumption are the primary source of China's GHG emissions and its growth, accounting for 80% of total GHG emissions.
  - CO_2 emissions from industrial process are equal to the carbon uptake by forest growth.
- 中国经济社会快速发展不仅使CO_2排放呈加快增长趋势，也带来国内资源紧缺和环境污染的压力。推动能源生产和消费革命，是实现应对气候变化和可持续发展“双赢”的根本途径。
  - China's rapid economic and social development accelerates CO_2 emissions, resource shortages, and environmental pollution.
  - Promoting an energy production and consumption revolution is the basic solution to achieve win-win between addressing climate change and sustainable development.
- 确立积极的减排目标，有利于形成促进经济发展方式向绿色低碳转型的“倒逼”机制，促进国内可持续发展。
  - Establishing a proactive mitigation target forces transformation of the economic development model to green and low-carbon, and also improves domestic sustainable development.

2. 中国处于工业化快速发展阶段，减缓CO_2排放面临艰巨任务(1)

China is in a rapid industrialization development stage, faced with the daunting task of reducing CO_2 emissions

- 中国节能和减排CO_2取得显著成效，但由于经济快速增长，能源消费和CO_2排放仍呈快速增长趋势。

  Despite the great achievements in energy saving and CO_2 emissions reduction, China's energy consumption and CO_2 emissions are still increasing due to fast economic growth.

- 从1990-2013年，GDP增长9.3倍，人均GDP由370美元增加到6757美元，单位GDP能源强度下降59%，CO_2强度下降62%。经济发展和节能减排均取得显著成效。但同期能源消费总量增3.8倍，2005-2012年新增CO_2排放量约占世界增量的60%。

  From 1990 to 2013:
  - China's GDP experienced a 9.3-fold increase
  - GDP per capita grew from 370 US$ to 6,757 US$
  - Energy intensity decreased by 59%
  - Carbon intensity declined by 62%

  Much has been accomplished in both economic growth and energy saving and emissions reduction. During the same time period, total energy consumption increased 3.8 times.

  The increased emissions from 2005 to 2012 made up for nearly 60% of the total global CO_2 emissions increase.

2. 中国处于工业化快速发展阶段，减缓CO_2排放面临艰巨任务(2)

China is in a rapid industrialization development stage, faced with the daunting task of reducing CO_2 emissions

- 中国大力推广先进节能技术，淘汰落后工业产能，能效迅速提高，但单位GDP能耗仍处于较高水平。
  In China advanced energy saving technologies are promoted, outdated industrial capacities are closed, and energy efficiency is rapidly enhanced, but energy consumption per GDP remains high.
- 2005-2013年，淘汰落后产能，炼铁1.5亿吨，炼钢1.2亿吨，水泥8.7亿吨，火电机组9480多万千瓦。煤电站效率已达世界先进水平。
  From 2005 to 2013, the government closed outdated production facilities including 150 million tons of iron making, 120 million tons of steel making, 870 million tons of cement, and 94.8 million kW of coal-fired power capacity.
- The energy efficiency of coal-fired power plants reached the world advanced level.

- 2013年单位GDP能耗仍为世界平均水平1.8倍，美国2.3倍，日本3.8倍。主要是重化工业产业比重大和产品价值链低等结构性因素所致。
  In 2013, energy consumption per GDP is the 1.8 times world average, 2.3 times the U.S. value, and 3.8 times the value of Japan.
- The main reasons include the large share of heavy chemical industry and low product value chain.

2. 中国处于工业化快速发展阶段，减缓CO_2排放面临艰巨任务(3)

China is in a rapid industrialization development stage, faced with the daunting task of reducing CO_2 emissions

- 中国新能源和可再生能源发展迅速，但由于能源消费总量的快速增长，以煤为主的一次能源结构难以根本性转变。

  China has experienced fast growth in new and renewable energy; however, the coal-dominant primary energy supply has not fundamentally transformed due to the fast growth in energy consumption

  - 中国可再生能源发展迅速，投资规模、新增容量和增长速度均居世界第一。2013年水电、上网风电、上网光伏发电容量分别达2.8亿千瓦、7548万千瓦、1480万千瓦，均达世界前列。2014年底核电运行和在建装机4855万千瓦。

    China has experienced fast development in the field of renewable energy and is ranked first in terms of investment, added installed capacity, and growth rate.

    Generation capacities of hydro power, grid-connected wind power, and grid-connected photovoltaic power reached 280 GW, 75.5 GW and 14.8 GW in 2013, respectively - all among the first rank in the world. At the end of 2014 the installed capacity of nuclear power is 48.55 GW.

  - 煤炭等化石能源仍快速增长，煤炭在一次能源中比例一直在70%左右，2012年煤炭消费36.5亿吨，约占全球45%，2005-2011年新增煤炭消费占世界增量的68%。石油消费增加量占世界增量的47%。

    Coal is still growing rapidly, contributing around 70% of China’s primary energy.

    Coal consumption in 2012 was 3.65 billion tons, accounting for 45% of the world total.

    Increased coal and petroleum consumed from 2005 to 2012 accounted for 68% and 47% of world use, respectively.

3. 强化节能和能源低碳化转型是中国能源革命的核心，大幅度降低单位GDP的能源强度和CO_2强度是当前统筹经济增长和节能减碳的综合目标和核心对策(1)

Strengthening energy savings and low carbon energy transformation are central to China‘s energy revolution; greatly reducing energy intensity and CO_2 intensity per GDP are key targets for economic growth and energy savings as well as carbon reduction

- “十一五”制定GDP能源强度下降20%左右的约束性目标，实际达到19.1%，相应CO_2强度下降21%。
  In China’s 11th Five Year Plan, the government established legally binding targets for reducing energy intensity per GDP by around 20%; actual achievement was 19.1% and the CO_2 intensity per GDP decrease was 21%
- “十二五”制定GDP能源强度下降16%、CO_2强度下降17%的约束性目标。
  In China’s 12th Five Year Plan, the government establish legally binding targets for reducing energy intensity per GDP by 16% and reducing CO_2 intensity per GDP by 17%
- 从2005-2014年，GDP的能源强度下降29.9%，CO_2强度已下降32.7%，同期附件II国家下降幅度仅约15%
  - From 2005 to 2014, China’s energy intensity per GDP decreased 29.9% and CO_2 intensity per GDP decreased 32.7%
  - In the same period, the average decline of developed (Annex II) countries was only 15%
- 中国制定2020年单位GDP的CO_2强度比2005年下降40-45%的目标，“十三五”经努力有望超过45%。
  - China set a target for reducing CO_2 intensity per GDP around 40% to 45% in 2020 compared to 2005 levels
  - During China’s 13th Five Year Plan, the goal of 45% will probably be exceeded

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Strengthening energy savings and low carbon energy transformation are central to China‘s energy revolution; greatly reducing energy intensity and CO_2 intensity per GDP are key targets for economic growth and energy savings as well as carbon reduction

- 中国同时制定2020年非化石能源比例从2005年6.8%上升到15%的目标。
  China established a target of increasing the share of non-fossil fuel from 6.8% in 2005 to 15% in 2020
- 2013年非化石能源比例达9.8%，2015年规划达11.4%，今后每年供应量增速要达8-10%。
  In 2013, China’s share of non-fossil fuel was 9.8% and in 2015 the target of percentage of non-fossil fuel is 11.4%. and its annual growth of supply will be 8% to 10% in the future.
- 2020年非化石能源供应量将达7亿tce，相当日本能源消费总量。
  In 2020 China’s non-fossil fuel supply will be 700 million tce, equal to Japan’s total energy consumption.
- 加快天然气开发利用，天然气比例将由2005年2.6%提升到2020年10%以上。
  To speed up natural gas development and utilization, the share of natural gas in primary energy will increase from 2.6% in 2005 to more than 10% in 2020.

4. “十三五”及以后中国在进一步强化单位GDP的能源强度和CO_2强度下降目标的同时，将探讨能源消费总量的控制目标(1)

In the 13th Five Year Plan, China will continue to strengthen the energy and CO_2 intensity target, and explore control of total energy consumption

- 习近平主席提出：要推动能源消费革命，抑制不合理能源需求，坚决控制能源消费总量。并将其作为促进经济发展方式转变和环境治理的重要政策。

  President Xi Jinping: To promote energy consumption revolution, curb unreasonable energy demand, firmly control the total energy consumption. An important policy to promote the transformation of economic development patterns and environment governance.

  - “十三五”及以后，技术节能难度加大，成本增加，但钢铁、水泥等高耗能产品需求将趋于饱和。产业结构调整和升级带来的结构性节能效果更加显现。

    In China’s 13th Five Year Plan and after, technical energy–saving will become difficult and its cost will increase, but the demand for energy-intensive products such as steel and cement will tend to be saturated. Structural energy saving effect from adjusting and upgrading industrial structure will be more prominent.

  - “十三五”应实施能源消费总量（主要是煤炭）的控制目标，实施“强度”和“总量”的双控机制。2020年煤炭消费总量可控制在40亿tce以内。

    In China’s 13th Five Year Plan, the government needs to implement the control target of total energy consumption (mainly coal) and to implement a control mechanism for both “intensity” and “total quantity”.

  - In 2020 China’s coal consumption will probably be controlled to be within 4.0 billion tce.

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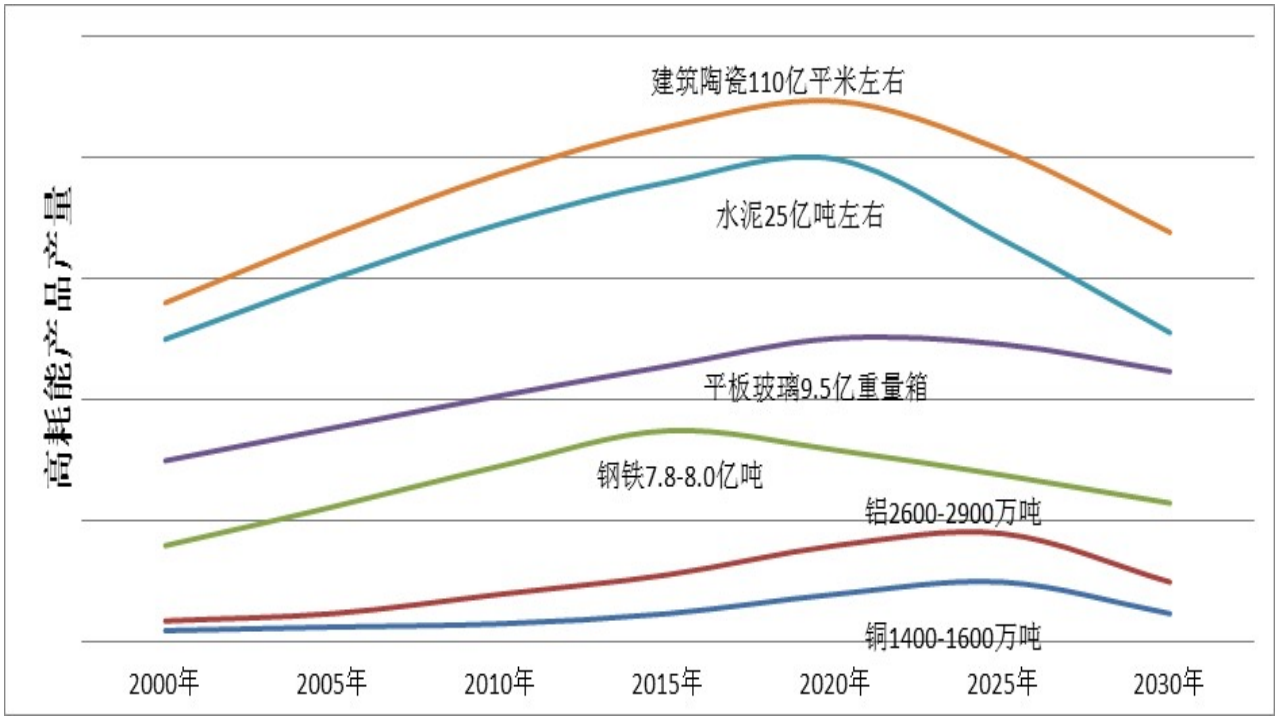
2030年前我国主要大宗矿产的需求变化趋势预测

Projection of China’s main bulk material demands before 2030



Architectural ceramics
11 billion square meters

Cement 2,500 million tons

Glass 950 million weight cases

Steel 780 – 800 million tons
Aluminum 26 – 29 million tons
Copper 14-16 million tons

5. 当前确立2020年后积极紧迫的CO_2减排目标和峰值目标，有利于推动能源生产和消费革命，形成促进经济方式低碳转型的有效机制

Currently establishing urgent post-2020 target of CO_2 emissions and peak, promoting energy revolution, and forming an effective mechanism to transform to a low-carbon economy

- 实现2030年左右CO_2排放达到峰值，2030年非化石能源比重达20%左右的目标，都需要超前部署，落实到每个5年规划，采取相应政策和措施。

  To achieve CO_2 emissions peak around 2030 and around 20% non-fossil energy structure in 2030, forward deployment is needed. The central government should implement the target within Five-Year-Plans (FYPs) and adopt corresponding policies and measures.

  - 以2030年目标为指导，制定“十三五”、“十四五”、“十五五”每个5年规划，制定约束性目标，并分解到各省市。

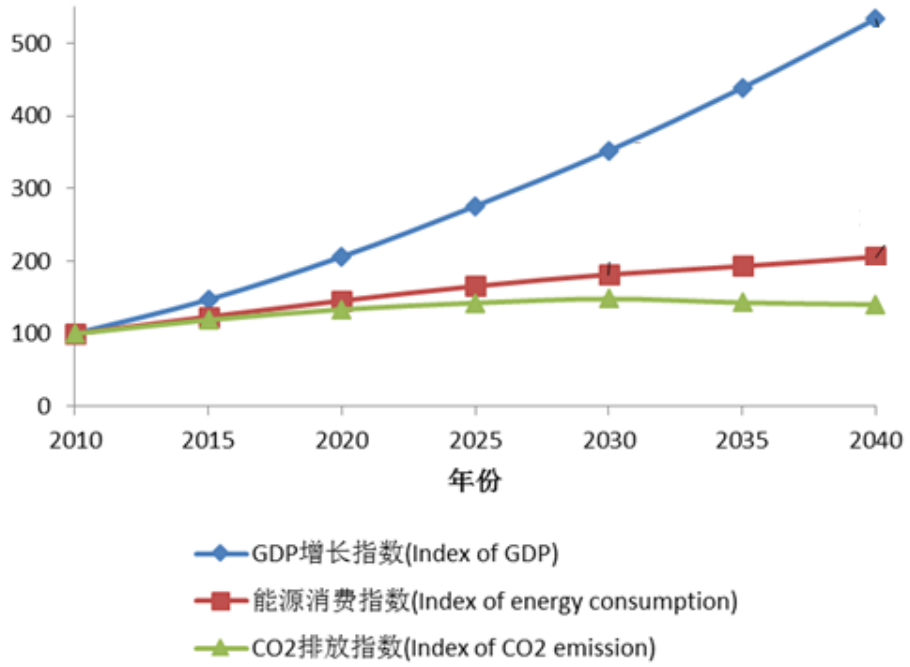
    Based on the 2030 target, the central government should establish “13th FYP”, “14th FYP” and “15th FYP”, set restrictive targets, and disaggregate the targets to all provinces and cities.

  - 从2030年目标推动能源生产和消费革命，形成促进发展方式向低碳转型的管理制度、政府体系和运行机制。

    Based on the 2030 target, the central government should promote an energy production and consumption revolution, form management statutes, government systems and operation mechanisms to accelerate economic and social low-carbon development.

6. 中国2030年左右实现CO_2排放峰值目标，需采取强有力的政策和措施，大幅度降低GDP能源强度和CO_2强度，在控制CO_2排放的同时支撑经济持续增长(1)

To achieve China's CO_2 emission peak target around 2030, strengthened polies and measures are needed; energy and CO_2 intensity will be reduced significantly, while maintaining economic growth and controlling CO_2 emissions



- 政策驱动 Policy Drivers
  - 投资/消费比例 Ratio of Investment/Consumption
    - 2020，57/43
    - 2030，36/64
    - 2040，30/70
  - 碳价 Carbon Pricing
    - 2020, $20
    - 2030, $38
    - 2040, $64
  - 煤炭总量控制：～40亿吨
    Coal Consumption Cap :
    ~4 billion tonne.
  - 征收可再生电力附加费， 2030年电价增30%
    Electricity surcharge for renewable power:
    The electricity tariff will increase 30% in 2030.
  - 非化石能源比例
    Share of non-fossil fuel
    - 2020, 15%; 2030, 20%

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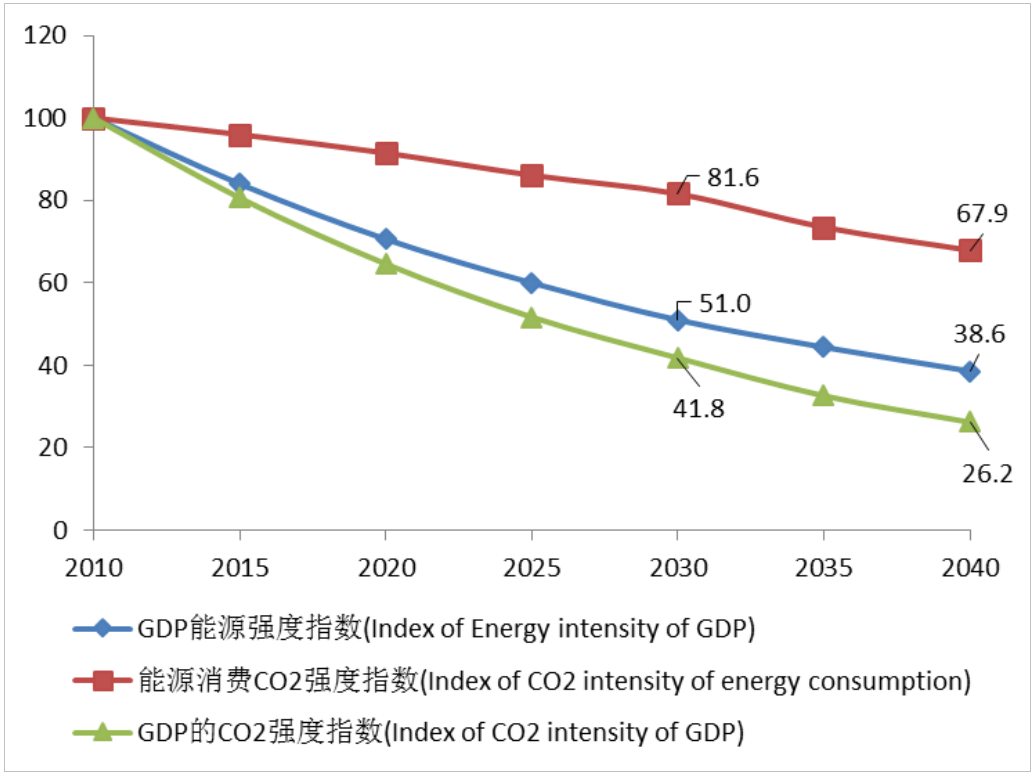
- 中国2030年GDP为2010年的3.0-3.5倍，单位GDP的CO_2强度年下降率要达4%以上。
- China's GDP in 2030 will be 3.0 to 3.5 times greater compared with 2010
- CO_2 intensity per GDP will decrease more than 4% annually



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- 2030年左右CO_2排放达峰值的条件分析。

  Conditions analysis of CO_2 emissions peak around 2030 in China.

①GDP的CO_2强度下降率>GDP年增长率

Annual decline in CO_2 intensity per GDP > annual growth rate of GDP

- 2030年左右，GDP能源强度下降不低于3%，能源消费的CO_2强度下降率1.2-1.5%，GDP的CO_2强度下降率大于4%，支持GDP年均4～5%的速度增长。

  With an GDP growth rate of 4-5% in around 2030, China's decline in energy intensity per GDP will need to be no lower than 3%. The decline in CO_2 intensity per energy consumption will be between 1.2%-1.5%, and the decline in CO_2 intensity per GDP will be higher than 4.0%.

②单位能耗的CO_2强度年下降率>能源消费年增长率

Annual decline in CO_2 intensity per energy consumption > Annual growth rate of energy consumption.

- 2030年左右，非化石能源比重达约20%，且以年均6～8%的速度增长，单位能耗的CO_2强度下降率可达1.2%以上，可支持总能源需求1.2-1.5%的增长。在能源消费弹性约0.3情况下，支持GDP年均4～5%的增速。

  With an energy consumption growth rate of 1.2-1.5% in around 2030, China's share of non-fossil energy will need to be around 20% with non-fossil energy supply growth maintained at 6-8% per year, and the decline in CO_2 intensity per energy consumption will be more than 1.2%. With an GDP growth rate of 4-5% in around 2030, China's energy elasticity will need to be below 0.3.

7. 2030年实现非化石能源比例达20%左右目标，是实现CO2排放峰值的重要保障(1)

The target of 20% non-fossil fuel in total primary energy consumption around 2030 is critical to achieving the CO_2 emissions peak

- 2030年非化石能源比重达约20%，供应量约12亿tce，为2010年2.8亿tce的4.3倍，需保持年均7.5%的增速。

  For the non-fossil fuel mix to be around 20% in 2030 there needs to be 1.2 billion tce (35 EJ) of non-fossil fuel, which is 4.3 times greater than 2010 (280 million tce/8.2 EJ) and requires an annual increase of 7.5% of non-fossil fuel.

- 从目前到2030年，新增核电、水电、风电、光伏发电、生物质发电等非化石能源装机8-10亿千瓦，非化石能源发电领域新增投资约达8万亿元。

  From now to 2030, newly installed non-fossil power including nuclear, hydro, wind, solar, and biomass will be 800-1000 GW, and new investment in non-fossil resources to produce electricity will be around ￥8 trillion ($1.3 trillion).

中国非化石能源装机发展情景设想 **Non-fossil fuel installed capacity scenarios in China**

	2010		2020		2030	
	installed （0.1 billion kw）	Converted primary energy （0.1 billion tce）	installed （0.1 billion kw）	Converted primary energy （0.1 billion tce）	installed （0.1 billion kw）	Converted primary energy （0.1 billion tce）
Hydropower	2.1	2.18	3.5	3.67	4.5	4.73
Wind power	0.4	0.26	2.0	1.44	4.0	2.88
Solar power	0.01	0.01	1.0	0.42	3.0	1.26
Biomass power	0.06	0.10	0.3	0.47	0.5	0.83
Nuclear power	0.11	0.27	0.58	1.32	1.36	3.07
Total	2.68	2.82	7.38	7.33	13.36	12.77

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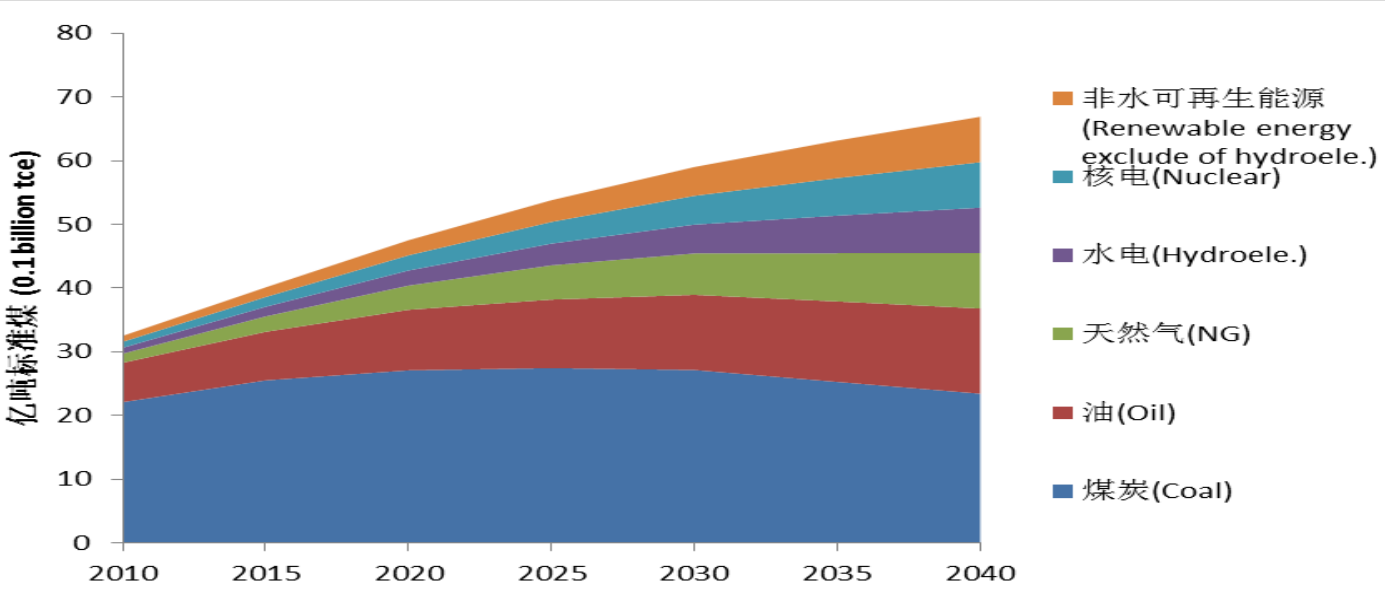
The target of 20% non-fossil fuel in total primary energy consumption around 2030 is critical to achieving the CO_2 emissions peak

- 中国2030年后能源消费仍会持续增长，但新增需求由非化石能源满足，CO_2排放不再增加。
  Energy consumption in China after 2030 will keep increasing, but the new increasing demand of energy will be supported by non-fossil fuel and total CO_2 emissions will not be increasing.
- 煤炭消费量达峰值时间需早于CO_2排放达峰值时间
  The peaking of coal consumption will be earlier than the peaking of CO_2 emissions.



8. 推动能源生产和消费革命的战略核心是建立高效、安全、清洁、低碳的可持续能源体系，需要前瞻性战略部署(1)

The core strategy for an energy production and consumption revolution is to build a sustainable energy system that is efficient, secure, clean, and low-carbon, and forward looking

- 能源战略要从传统保障供给转变到同时调控需求，控制能源需求总量的过快增长，促进发展方式的转变。强化节能优先，大幅度提高能效。

  The traditional energy strategy needs to be shifted from ensuring supply to coordinating energy supply and demand with an emphasis on controlling the over-speeded growth of the total energy consumption, promoting the transformation of China's development pattern. Enhancing energy saving and raising energy efficiency should be given priority.

- 加强技术创新，大力发展新能源和可再生能源技术和产业。2013年，非化石能源发电新增容量占比已达60%，新增投资占比达75%。并呈不断扩大趋势。

  To strengthen technical innovation, to develop technology and industries of new and renewable energy. In 2013, China's non-fossil power accounted for 60% of the increase in installed capacity, and investment in non-fossil power accounted for 75% of total power. The trend is growing.

8. 推动能源生产和消费革命的战略核心是建立高效、安全、清洁、低碳的可持续能源体系，需要前瞻性战略部署(2)

The core strategy for an energy production and consumption revolution is to build a sustainable energy system that is efficient, secure, clean, and low-carbon, and forward looking

- 在确保安全的基础上，稳步、高效发展核能。

  Nuclear energy should be promoted effectively on the basis of safety.

  - 核能将是我国未来可持续能源体系中的重要支柱，核能2030年装机达约1.5亿千瓦，到2050年可达3.5～4.5亿千瓦，将对我国CO_2排放达到峰值起关键作用。

    Nuclear energy will be a pillar industry in China's sustainable energy system in the future. The installed capacity of nuclear energy will be about 150 GW in 2030, and will rise to 350~450 GW by 2050, and will play a significant role in reaching a CO_2 emission peak.

- 加强国内能源资源的开发和科学高效利用，减少对外依赖，加强国际能源合作，保障能源供给安全。

  Promoting the sustainable and efficient use of domestic energy resources, strengthening international energy cooperation, and ensuring energy supply security.

  - 加强常规和非常规天然气的勘探开发，天然气在一次能源比例迅速提升。

    To enhance the exploitation and development of conventional and unconventional natural gas to rapidly increase the natural gas proportion in primary energy supply.

9. 加强经济、能源、环境和应对气候变化的协同治理，实现多方共赢的发展目标

To strengthen the cooperative governance among the economy, energy, environment and addressing climate change, and to achieve win-win for all

- 仅靠末端治理技术难以从根本上转变环境质量，东部沿海地区治理雾霾需要控制和减少煤炭消费量，有利于尽快实现CO_2排放峰值。

  It is hard to improve environmental quality by only using end-of-pipe control technology. To reduce the haze/pollution in the eastern coastal regions of China requires control and reduction of coal consumption, which will be helpful for realizing the CO_2 emissions peak as soon as possible.

- 河北省2013-2017年煤炭消费量要下降60Mt

  From 2013 to 2017, coal consumption in Hebei Province will be reduced by 60Mt.

- 应对气候变化下能源革命有利于促进经济发展方式的低碳转型，创造新的经济增长点和新的发展机遇，走上可持续发展的路径。

  Under the situation of addressing climate change, energy revolution will promote economic transformation to low carbon, will create new economic growth and new development opportunities, and will achieve sustainable development.

10. 我国面临经济发展方式转型的新时期，新常态的新形势下绿色低碳发展要有新的思路和新的举措

China is facing a new period of economic transition, so low-carbon development will have new ideas and new measures under the situation of “new normal”.

- 由注重GDP增长的速度和数量转向更加注重经济发展的质量和效益，GDP增速回落到7%左右中高速，产业结构调整加速，钢铁、水泥等高耗能原材料产品将陆续达到峰值，有利于降低GDP能耗强度，但各地仍存在为保增长继续扩充重化工业产能的倾向。
  - China will pay more attention to the quality and efficiency of economic development rather than focusing on speed and GDP growth.
  - The annual growth rate of GDP will fall to around 7% and industry adjustment will be accelerated.
  - Energy-intensive production of raw materials such as steel and cement will continue peak, which is helpful for decreasing the energy intensity per GDP.
  - But the tendency toward expansion of heavy industry production capacity continues.
- 能源需求增速放缓，有利于能源结构调整，提高清洁低碳能源的比例。但煤炭行业化解产业过剩也会挤占新能源的发展空间和市场。
  - The increase in energy demand is slowing which in turn helps with energy structure adjustment, and will increase the share of clean and low carbon energy.
  - But the coal industry needs to resolve overcapacity issues, which will take the space and market of new energy.
- 要强化绿色低碳发展是生态文明建设核心内容的发展理念，改变各级领导的发展观和政绩观，加快推动能源革命的制度建设和机制改革
  - To strengthen the concept of green and low development is the core of developing an ecological civilization.
  - To change leaders at all levels of development and achievement and to promote system construction and reform of energy revolution.

11.明确低碳发展在国家和地区总体发展战略中的定位，加强制度和政策保障体系的建设(1)

Strategically positioning low-carbon development in the overall national regional strategy of development, and establishing related regulations and policy system

- 生态文明建设在“五位一体”的总体布局中占据突出地位，低碳发展在国家总体发展战略中应具有优先权重。强化对各级政府节能降碳的目标分解和责任考核。

  Ecological protection plays a key role in China’s “Five-in-One” plan and low-carbon development should be given priority in the nation’s overall development strategy. The central government should intensify the targets for energy-saving and reducing carbon to all levels of government.

- 加快《应对气候变化法》和《低碳发展促进法》的立法进程，为低碳发展提供法律和政策保障。

  To accelerate the establishment of a *Climate Change Law and Low-Carbon Development Promotion Law* to provide legislation and policy guarantees for low-carbon development.

11.明确低碳发展在国家和地区总体发展战略中的定位，加强制度和政策保障体系的建设(2)

Strategically positioning low-carbon development in the overall national regional strategy of development, and establishing related regulations and policy system

- 加强财税金融政策体系和低碳消费激励机制的建设，建立并完善碳排放权交易等市场机制，为低碳发展创造良好的制度环境、政策环境和市场环境。

  To create a favorable regulations, policies, and a market-based environment through enhancing the establishment of financial and tax policy systems, low-carbon incentive systems, and through establishing and improving the emissions trading schemes.

  - 风电、太阳能发电上网电价补贴。上网电价：风电0.51-0.61元/kWh，太阳能发电0.9元/kWh

    Feed-in tariff of wind power and solar power: Wind power: 0.51 – 0.61 ￥/kWh ($0.08-$0.10/kWh), solar power: 0.9 ￥/kWh ($0.14/kWh).
  - 可再生能源基金。全国电费中收取0.015元/kWh

    Renewable energy fund: 0.015￥/kWh ($0.002/kWh) from electricity price.
  - 风电场增值税减半。风电2020年左右可取消补贴。

    Value-added tax of wind farm is by half, subsidies of wind power could be canceled around 2020.

12. 发挥市场机制，“十三五”在碳排放交易试点基础上发展全国统一的碳市场

To develop market-based mechanisms, China will establish a unified national carbon market during the “13th Five Year Plan” period based on the CO_2 emissions trading system pilots

- 发挥碳排放空间的紧缺资源和生产要素的属性，改革能源价格机制，推进碳排放额度交易市场建设。
  Reform of energy pricing mechanism and promotion of carbon market according to the property of carbon space as a scarce resource and a production factor.
  - 碳税和碳市场等“碳价”机制，引导先进能源技术创新和社会投资导向，促进能源体系变革和低碳发展。
    Introduction of carbon tax and carbon market as "carbon pricing" mechanism to guide advanced energy technology innovation and social capital investment as well as to promote the energy system revolution and low carbon development.

- “五市二省”碳排放交易试点进展顺利，2016年开始建立全国统一碳市场。
  The pilot of CO_2 emissions trading in five cities and two provinces has worked well, and China will establish a unified national carbon market in 2016.
  - 北京市碳交易市场年交易额超过1亿元，碳价稳定在45元/tCO2左右。
    The volume of trade in Beijing’s carbon trading market is more than 100 million yuan ($16 million US$), and the carbon pricing is stable at about 45 yuan ($7.20)/$tCO_2$

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13. 积极推进低碳城市建设试点，对全国实施应对气候变化和低碳发展战略起到引领和示范作用(1)

Actively promote low-carbon city pilots, to lead and demonstrate national addressing climate change and low carbon development

- 控制温室气体排放，确定CO_2减排目标和峰值目标

  Controlling GHG emissions and determining the CO_2 emissions reduction target and peak.
  - 镇江、宁波、青岛等城市已确定2020年左右CO2排放达到峰值。

    Cities which have established CO_2 emissions peaks goals around 2020 in China: Zhenjiang, Ningbo, Tsingdao, et, al.
- 加强基础能力建设 Strengthening basic abilities
  - 建立了应对气候变化的体系与机构；提前完成温室气体清单的编制工作，统计核算体系加强；低碳发展专项资金的建立；探索低碳发展的目标考核机制。

    Established systems and institutions to respond to climate change; to complete in advance the GHG list, and to strengthen the statistical system; to establish special funds to low carbon development; to explore the goal and examine mechanism of low carbon development.
- 努力创新机制 Innovative mechanism efforts
  - 推动低碳发展的政策措施和标准体系（碳排放交易试点、低碳产品认证试点、出台了低碳城区、低碳社区评价指标体系）。

    To promote the policy measures and standard system of low carbon development. (Pilot of CO_2 emissions trading, pilot of low carbon product certification, and the evaluation index system of low carbon city and low carbon community.)

13. 积极推进低碳城市建设试点，对全国实施应对气候变化和低碳发展战略起到引领和示范作用(2)

Actively promote low-carbon city pilots, to lead and demonstrate national addressing climate change and low carbon development

- 推进低碳发展示范项目建设

  Promote the construction of low carbon development demonstration projects

  - 低碳示范社区、产业低碳示范园区和低碳商业；

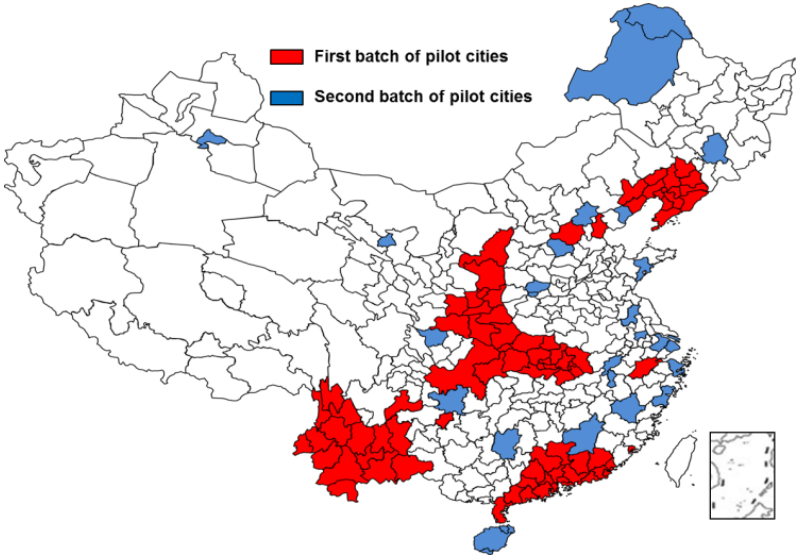
    Low carbon community demonstration, low carbon industrial zone demonstration, and low carbon businesses

- 推动低碳技术创新

  Promote low carbon technology innovation

  - 积极扶持低碳技术创新和产业化；各试点省市积极组织申报国家优先推广的低碳技术（低碳能源、原材料替代、碳捕获与封存）。

    Actively support low carbon technology innovation and industrialization; pilot provinces and cities actively organize to declare low carbon technology promoted by national priority (low carbon energy, raw material substitution, carbon capture and sequestration) .



14. 全球应对气候变化国际制度框架要促进各国的可持续发展，促进国际技术合作和互利共赢(1)

International framework on climate change regimes should promote the sustainable development of countries and facilitate win-win technology collaborations

- 促进能源体系变革，减少CO_2排放，具有经济、社会、环境多重效益，既是应对气候变化的核心对策，也是各国实现可持续发展的根本途径，存在合作共赢的空间。

  Energy system reform and CO_2 emissions reduction will bring economic, social and environmental benefits. It is a core strategy in addressing climate change, a radical approach to achieving sustainable development of the countries and it creates win-win space for the countries.

- 先进能源技术发展带来的减排作用的价值，提高了先进技术的经济效益和推广速度，也增大了国际技术合作和技术转移的空间和潜力。

  Development and deployment of advanced energy technologies creates great value in emissions reduction, increasing economic growth and expanding the pace and enhancing the potential of international technology cooperation and transfer.

- 充分发挥碳价的作用，促进UNFCCC框架下技术转让，有利于促进发展中国家的可持续发展，同时给发达国家企业带来更广泛的市场和商机，其获得减排信用也可带来可观的经济收益。

  Giving full play to the role of the carbon pricing, and promoting technology transfer under the UNFCCC framework creates favorable conditions for sustainable development in developing countries and brings wide market opportunities for the enterprises in developed countries. The emissions reduction credits generated will also bring developed countries considerable economic revenues.

14. 全球应对气候变化国际制度框架要促进各国的可持续发展，促进国际技术合作和互利共赢(2)

International framework on climate change regimes should promote the sustainable development of countries and facilitate win-win technology collaborations

- 全球应对气候变化下的能源变革要成为各国可持续发展的机遇，注重发挥减排CO_2与国内缓解资源环境压力的协同效应，促进各国自觉行动，不是“要我减”，而是“我要减”。

  Under the situation of addressing global climate change, energy transformation becomes a national sustainable development opportunity. Countries should pay attention to co-benefits of CO_2 emissions reduction with domestic resources and environmental protection, promote the nations conscious action, instead of “Want me to reduce” there is “I want to reduce”.

- 全球应对气候变化国际制度不仅着眼于减排责任和义务的分担，更应着重于发展机遇的共享，着重于形成促进世界范围内经济社会发展方式向绿色低碳转型，转变经济增长方式和社会消费方式，促进能源变革，大幅度提高“碳生产率”的制度和机制，使世界各国都实现可持续发展与CO_2减排的双重目标和共赢路径。

  International system of addressing global climate change is not only focusing on the sharing of emission reduction responsibilities and obligations, but also should focus on sharing development opportunities, on promoting the worldwide economy and society to become green and low carbon, transferring the pattern of economic growth and social consumption, promoting energy revolution, setting up mechanisms for increasing ‘carbon productivity’ substantially, so as to accomplish the dual target of sustainable development and CO_2 emission reduction worldwide.

Thank you!