



China's Coal Supply and Future Development

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Progress of China's Coal Industry

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Coal Supply Security

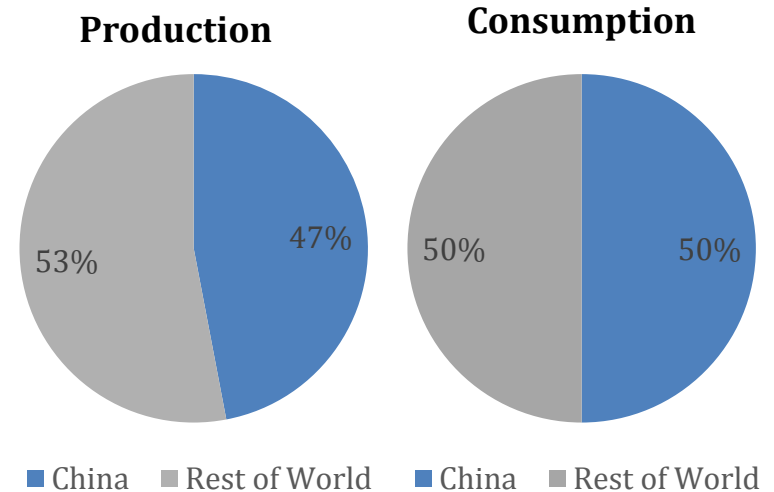
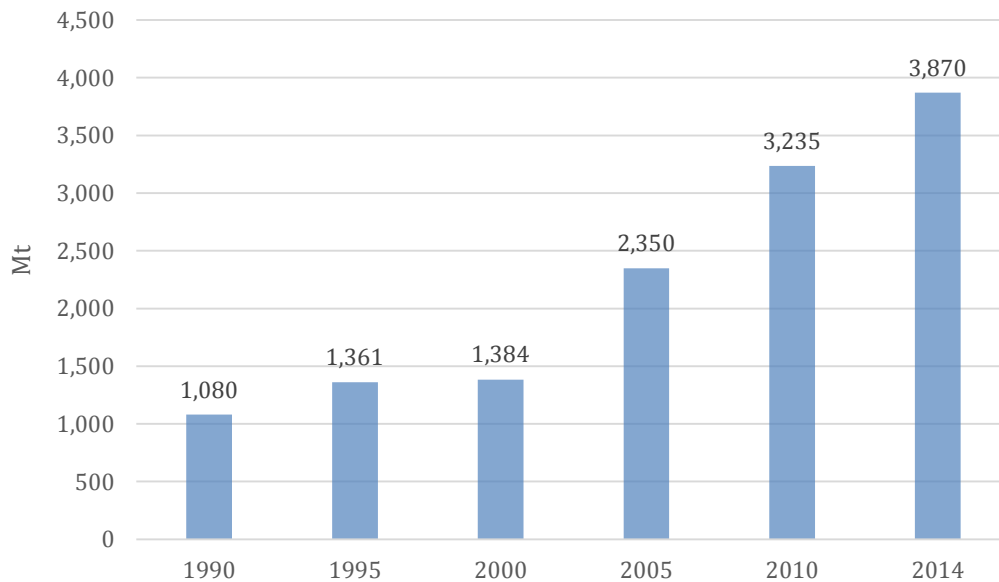
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Future development of Coal Industry

Coal production and consumption of China

- China is the largest coal producing and consuming country, accounting for 47% of global coal production and 50% of global coal consumption.

China's Coal Production

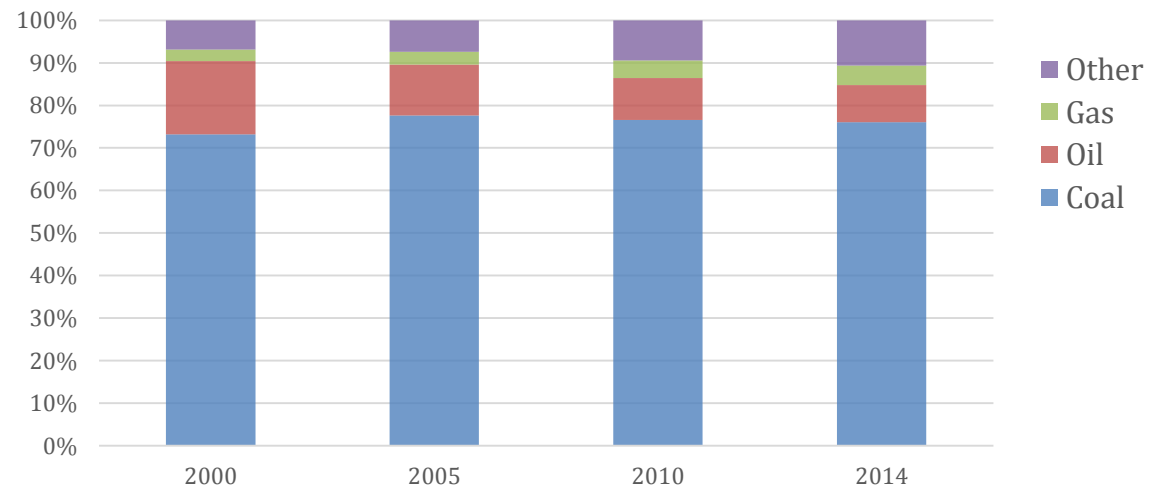


Coal in China's primary energy consumption



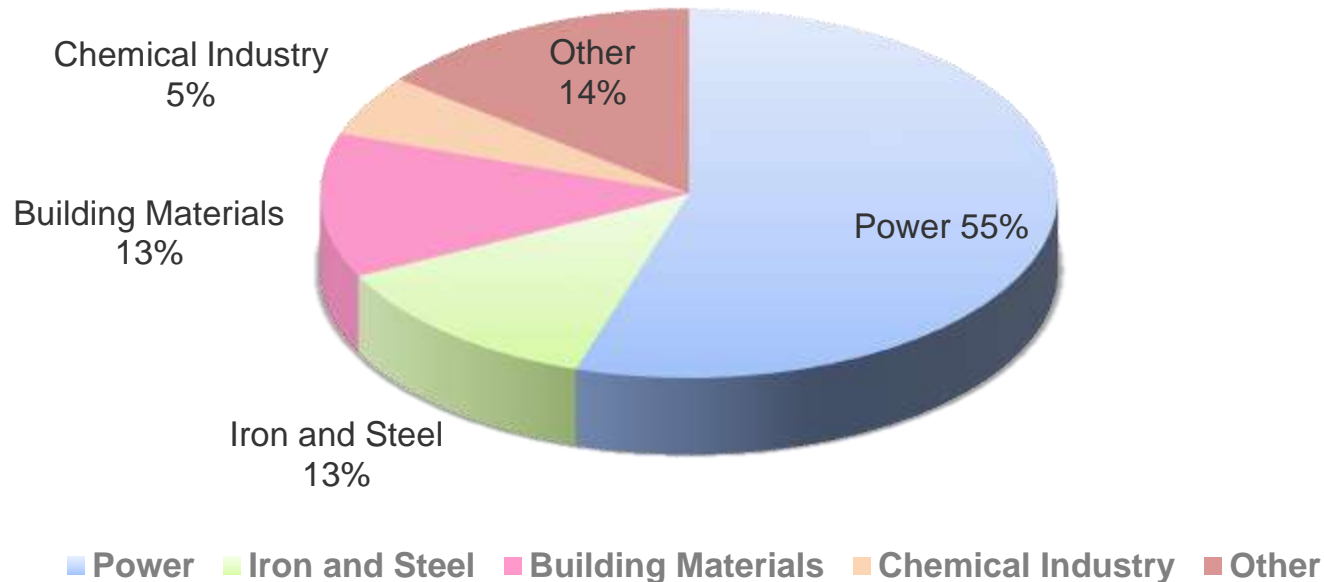
- Coal's share in China's primary energy consumption is slowly dwindling, but coal still plays a dominant role of 66% in primary energy consumption.

- Coal's share in primary energy production is even higher, always more than 70%.
- Therefore, coal supply is of most importance to China's energy security.

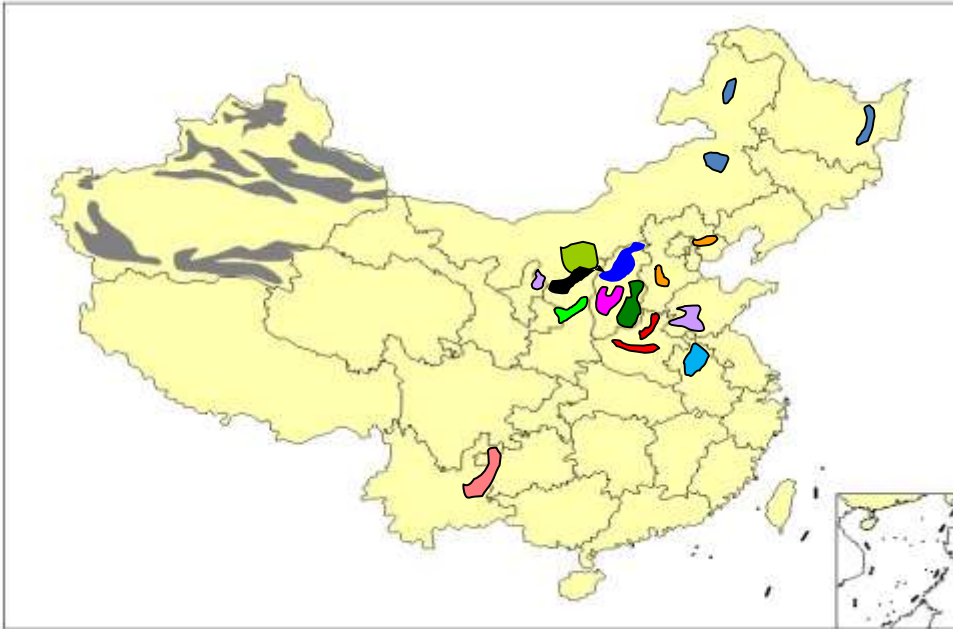


Coal consumption by sectors

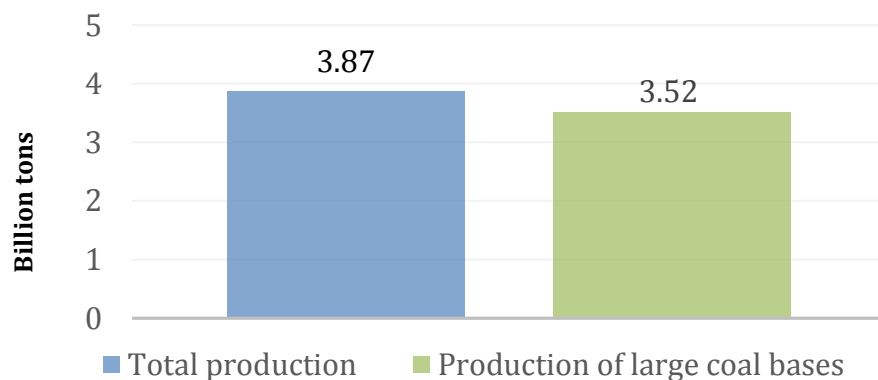
- Coal is mainly used in four industries in China. The largest user is power sector, which accounts for 56% of total coal use. Iron and steel industry, building material industry, Chemical industry account for 13%, 13% and 5% respectively.



Construction of Large Coal Production Bases

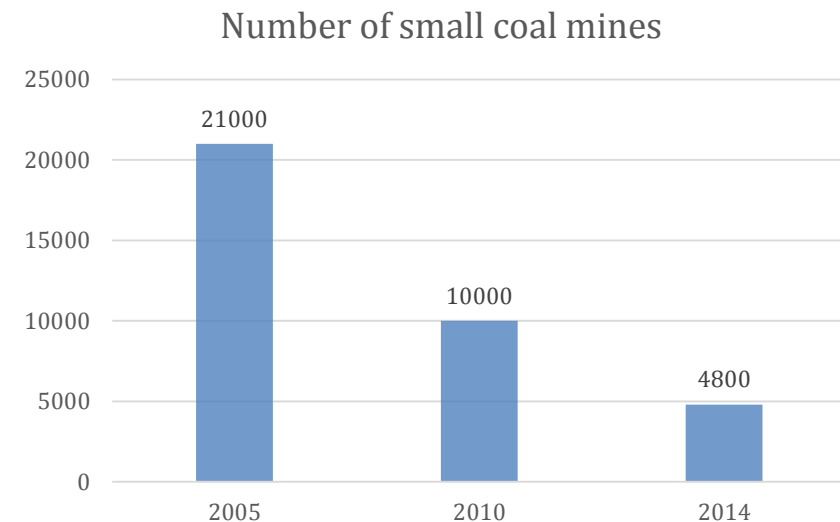


- Because of the importance of coal supply, China has done a lot to enhance coal supply. The most important program is to build 14 large coal production bases, including Shendong, Mengdong, Shanbei and Xinjiang .
- A number of large coal mines with production capacities of more than 10 million tons have been or will be built to enhance coal supply. The 14 large scale coal bases produced 3.52 billion tons of coal in 2014, accounting for 92% of China's total coal production.



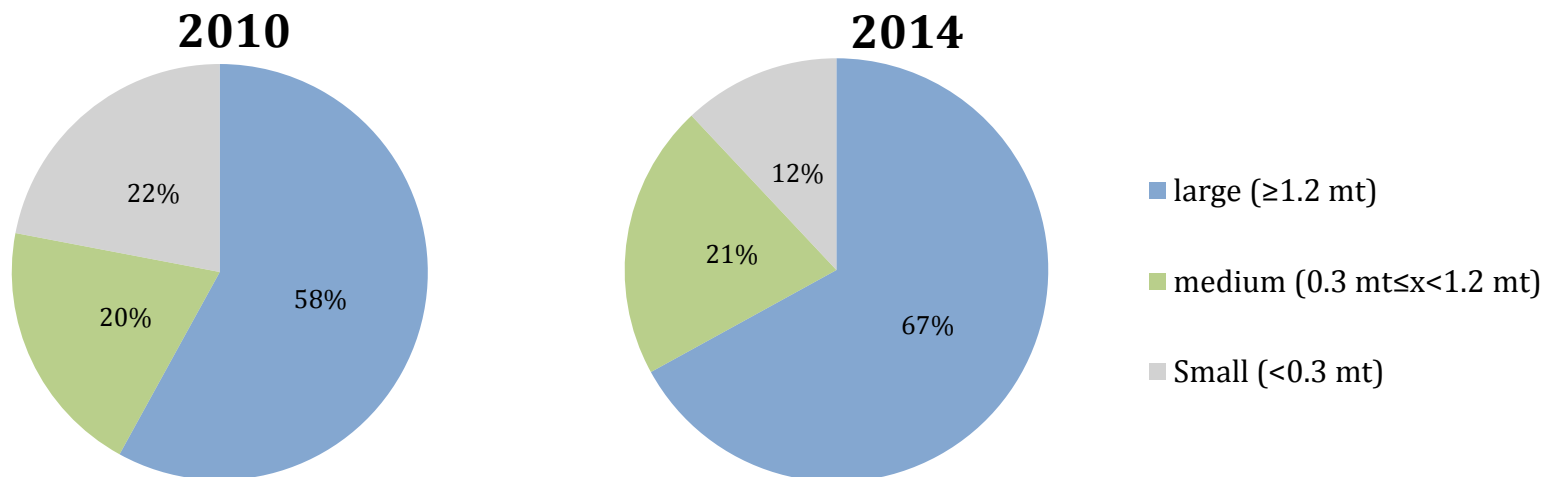
Eliminating backward production capacity

- China has accelerated eliminating backward production capacity to promote intensive development of coal . The government has shut down 5920 backward coal mines since 2010, with a total production capacity of 430 million tons.



Production structure optimization

- China has accelerated construction of large modern coal mines to optimize coal production structure. Large coal mines accounted for 67% of total coal production, an increase of 9 percentage points over 2010; while small coal mines accounted for 12%, a decrease of 10 percentage points over 2010.



Development of large coal enterprise groups

- Large coal enterprises have developed rapidly. There were 9 enterprise groups with coal production of more than 100 million tons, 12 with more than 50 million tons, and 32 with more than 10 million tons.



100 mt

– 9 companies accounting for 40% of total coal production

50 mt

– 12 companies accounting for 21% of total coal production

10 mt

– 32 companies accounting for 19% of total coal production

Technological advances in coal mining

- The mining mechanization rate increased to 75% in 2014 from 65% in 2010. Filling mining method and water conservation technology have been successfully applied to prevent land subsidence and water resources deterioration in mining area.



Shangwan Coal mine in Shandong

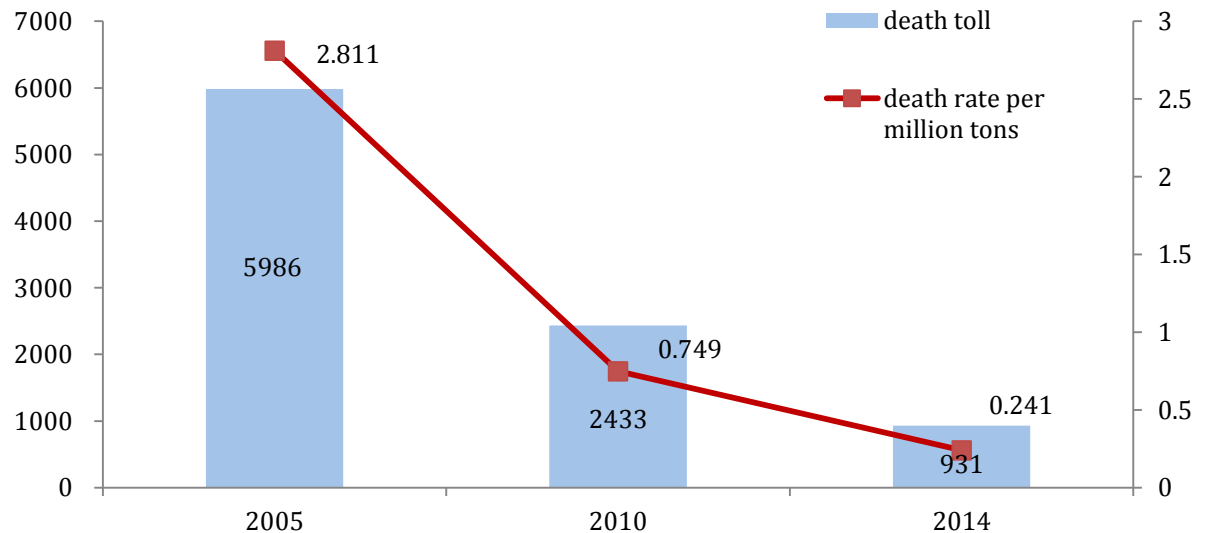


Improvement in safe production

- Coal miner used to be one of the most dangerous profession. In 2005, almost 6000 coal miners died of mining accidents.
- The government has taken a number of measures such as closure of dangerous small mines to improve production safety. The number of accidents and deaths have gradually declined year by year.

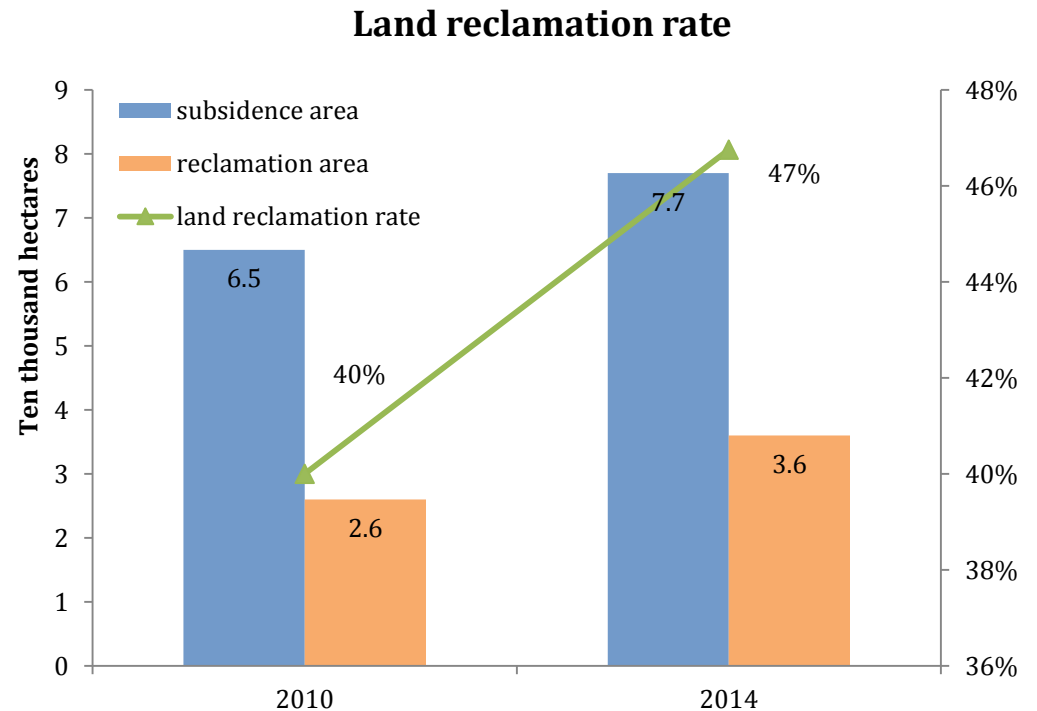


Death toll and Death rate of coal mines



Improvement in ecological environment

- The government has been promoting restoration of subsidence area, land reclamation and re-vegetation. The land reclamation rate increased to 47% in 2014, 7 percentage points higher than that of 2010.



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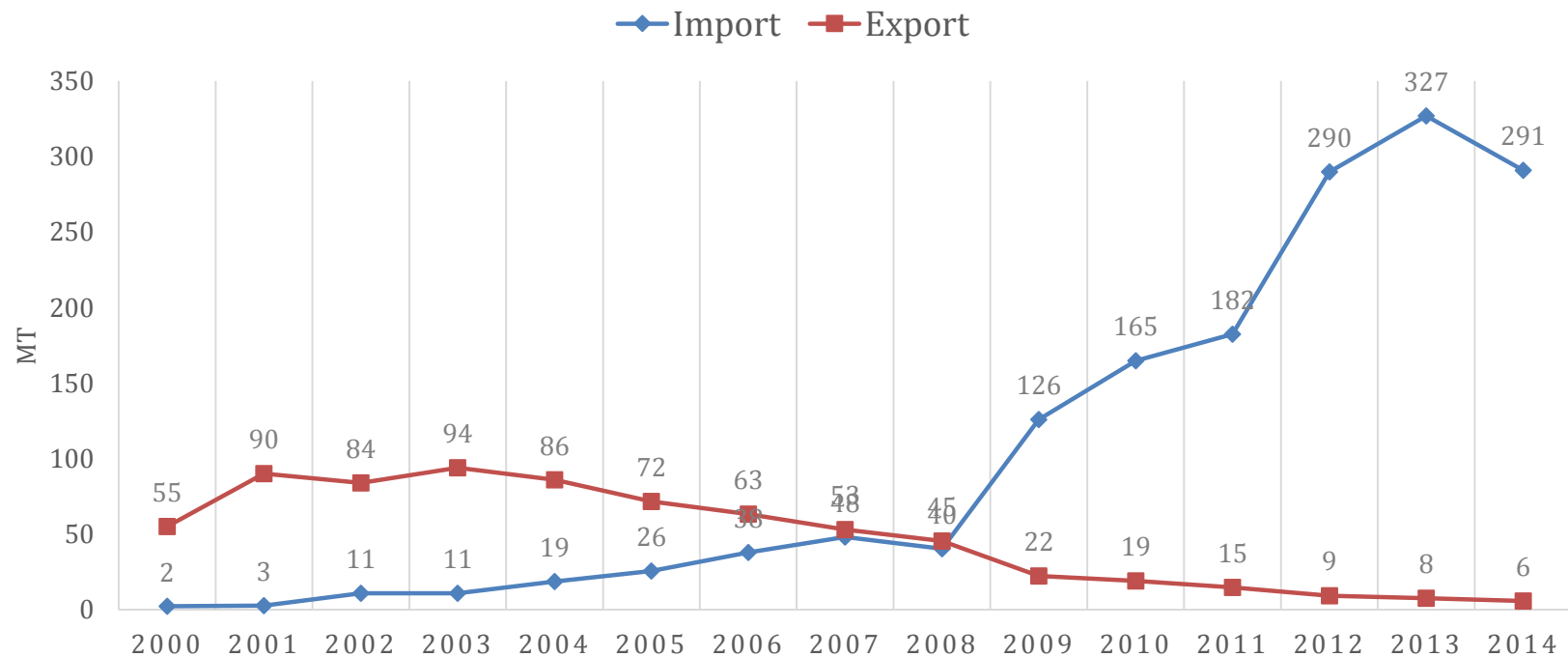
Coal Supply Security

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Future development of Coal Industry

China's coal import and export

- Although China has been the world's largest coal importer since 2011. It mainly relies on domestic production to meet its huge coal demand.



Coal supply risk factor

- Resource depletion in East China

- The uneven resource distribution of coal poses a threat to coal supply. East China consumes half of coal, but its coal reserve only accounts for 6%, and coal reserve of East China is depleting rapidly.



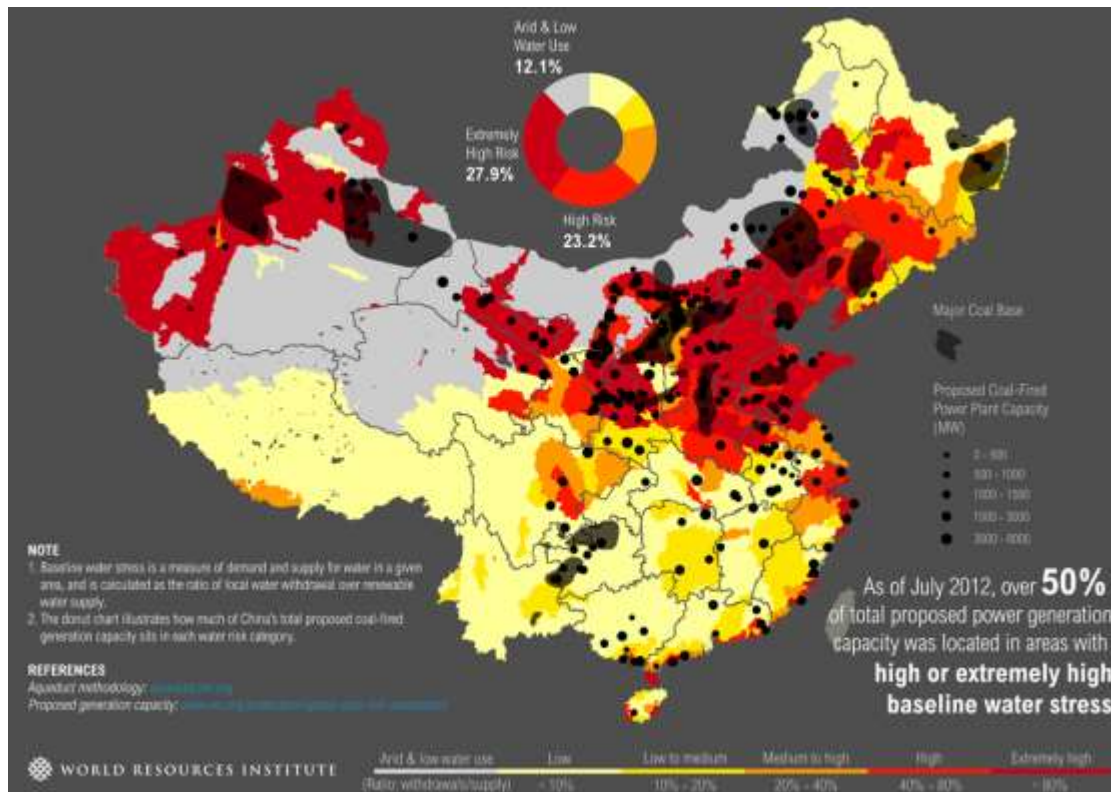
	Coal reserve	Coal Consumption
East China	6%	48%
Central China	25%	24%
West China	69%	28%



A underground coal mine of a depth of over 1000 meters in East China

Coal supply risk factor - Water stress and environment restrictions in West China

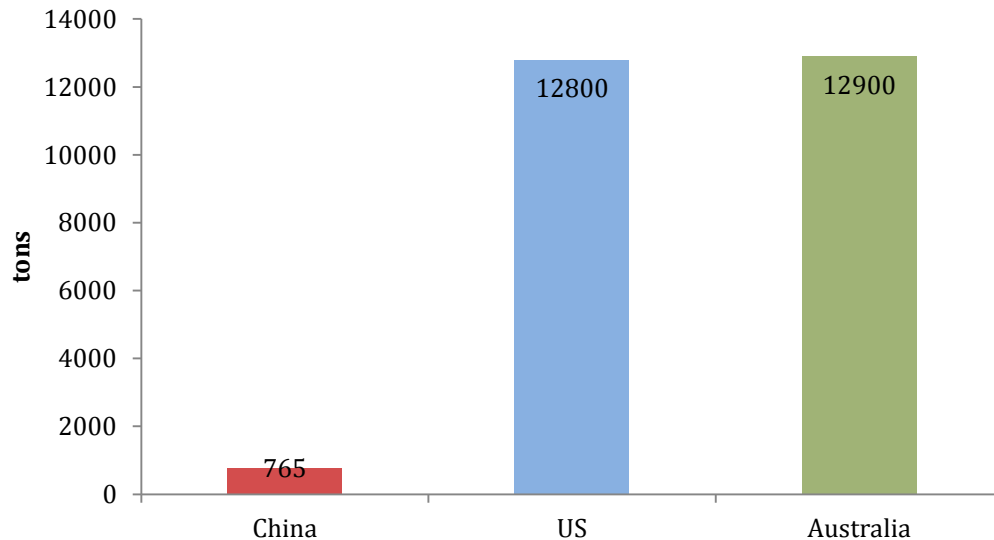
- West China is abundant of coal resources. However, coal production is limited by water stress and ecological fragile environment in Inner Mongolia, Shanxi and Xinjiang Province.



Coal supply risk factor – Inefficiency of coal companies

- Chinese coal companies are generally inefficient, especially those old state-owned coal companies. For example, the state-owned Heilongjiang LongMay Mining Group, which employs 266,000 workers across the province, produced only 50mt, and reported a 6 billion RMB loss in 2014.

annual coal production per miner



Almost 70% coal companies made a loss in 2014 due to overproduction and consequent low market prices

Coal supply risk factor – Bottlenecks in inland transport

- In land transport is another challenge for coal supply. Transportation infrastructure still need to be developed in Northwest China, where coal is abundant.

Xinjiang autonomous region has a potential production capacity of several hundred million tons of coal, but currently only 30 million tons can be transported to the east annually.



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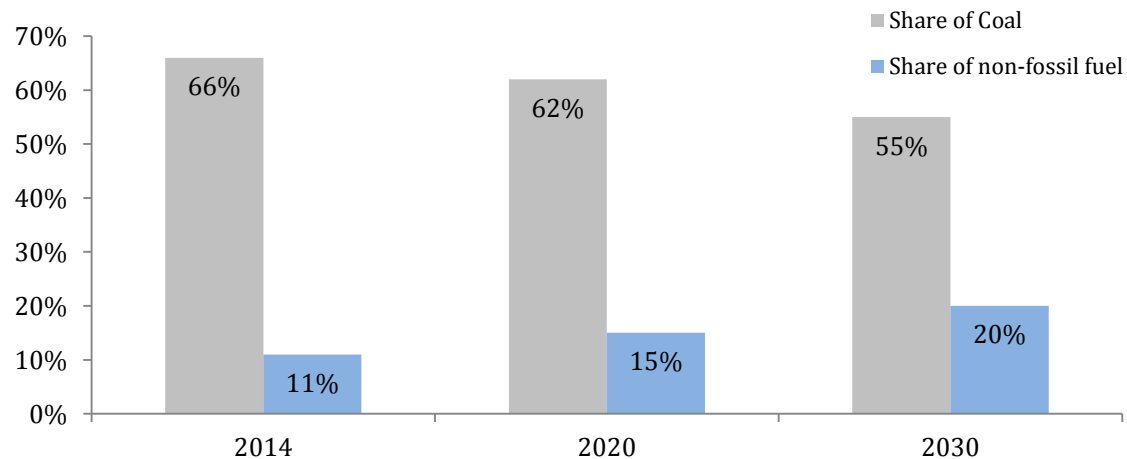
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Future development of Coal Industry

Coal's future in China

- China has proposed its energy development theory - “Promoting revolution in energy production, consumption, science and system”, as well as an “economical, clean and safe” development guideline. China has announced its intention to lower the emission intensity by 40% to 45% and increase non-fossil fuel to 15% of the primary energy by 2020. China has also committed its CO₂ emission to peak and non-fossil fuel to 20% by 2030. The coal industry have to rely on scientific and technological innovation, improve clean utilization to face the upcoming “coal revolution”.

Coal's share in China's total energy consumption



Future development

- More emphasis on quality and efficiency

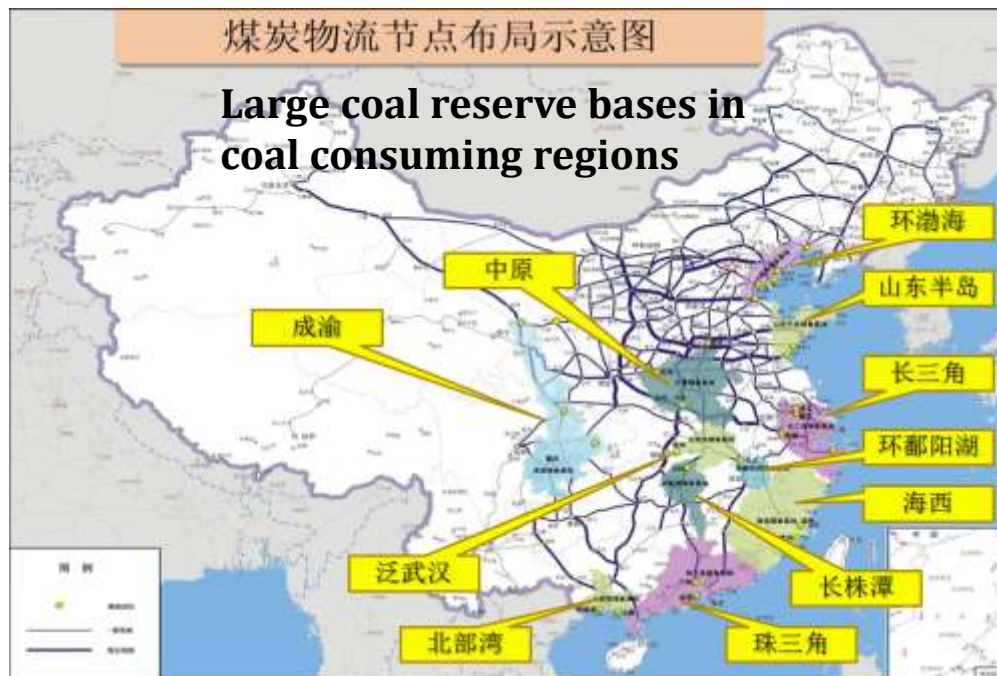
- China's economy has entered a new phase of a mid-to-high speed growth from previous high speed growth. The growth of coal will also slow down. The coal industry will adopt new technologies such as coal caving technology to increase productivity and labor efficiency, reduce production cost and improve competitiveness.



Future development

– Accelerating the development of coal logistics

- A number of coal logistics parks will be built in major coal consuming regions to facilitate coal processing and blending. The government has been promoting fine processing and distribution of coal product, as well as coal contingency reserve.



Future development – Relying on scientific and technological innovation

- China will pay more attention to coal technological innovation. China will invest more in coal technology, promote unmanned working face and develop intelligent coal mines. The coal management system will also be strengthened by using IT technologies such as big data and cloud computing.



Future development – More emphasis on ecological and environmental protection

- China is faced with serious problems such as resource constraints, environmental pollution and ecosystem degradation. We will pay more attention to “green” mining and clean utilization, adopt filling mining method, build a number of ecological friendly mining areas, and promote “zero gas emission” coal mines.



Future development

– Efficient and clean utilization

- China will vigorously develop CCT, promote advanced pulverized coal-fired boiler, reduce dispersed use of coal, develop coal chemical industry, promote cascade utilization of coal, CCUS and its application.



Advanced pulverized coal-fired boiler can improve combustion efficiency to 90%, which will save 200 mt of coal annually in China.



Future development

– More emphasis on law and governance

- China will continue to perfect energy legal system. The new *Environmental protection law* and the *Air pollution prevention and control action plan* impose stringent restrictions on pollution and emission, which requires coal companies to provide cleanest product.



Environmental protection law



Air pollution prevention and control action plan

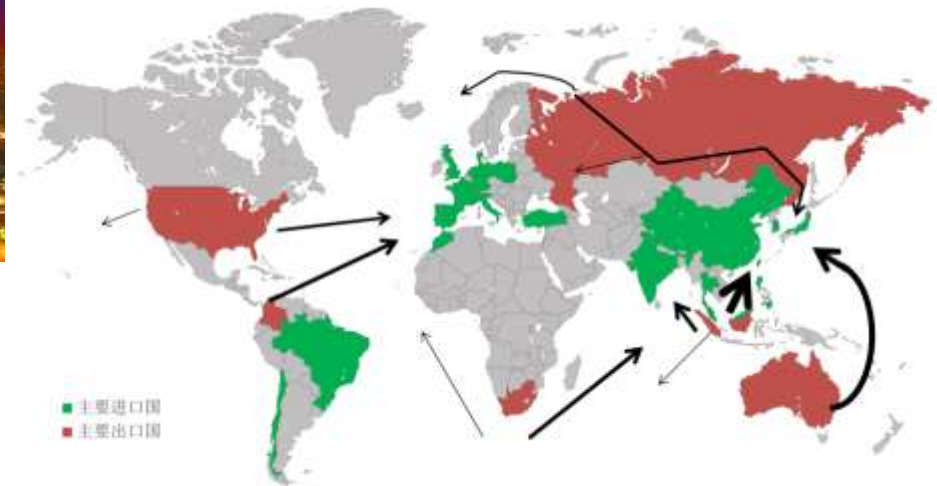
褐煤	其他煤种	其他指标
灰分 ≤ 30%	灰分 ≤ 40%	汞 ≤ 0.6 μg/g
硫分 ≤ 1.5%	硫分 ≤ 3%	砷 ≤ 80 μg/g
远距离运输(超过600公里)商品煤同时满足以下要求:		
褐煤	其他煤种	磷 ≤ 0.15%
发热量 ≥ 16.5MJ/kg	发热量 ≥ 18MJ/kg	氮 ≤ 0.3%
灰分 ≤ 20%	灰分 ≤ 30%	氟 ≤ 200 μg/g
硫分 ≤ 1%	硫分 ≤ 2%	

余小双 制图

Commercial coal quality regulation

Future development – International cooperation

- China is still in the process of industrialization and urbanization. China's energy consumption per capita is much lower than developed countries. The total energy consumption will continue to grow. The coal-dominated energy structure will not change for quite a long time due to resource constraints. Coal will still play an important role in the energy market. China will attach more importance to coal international cooperation, and encourage high-quality coal imports and overseas coal development.



Thanks for your attention!

