

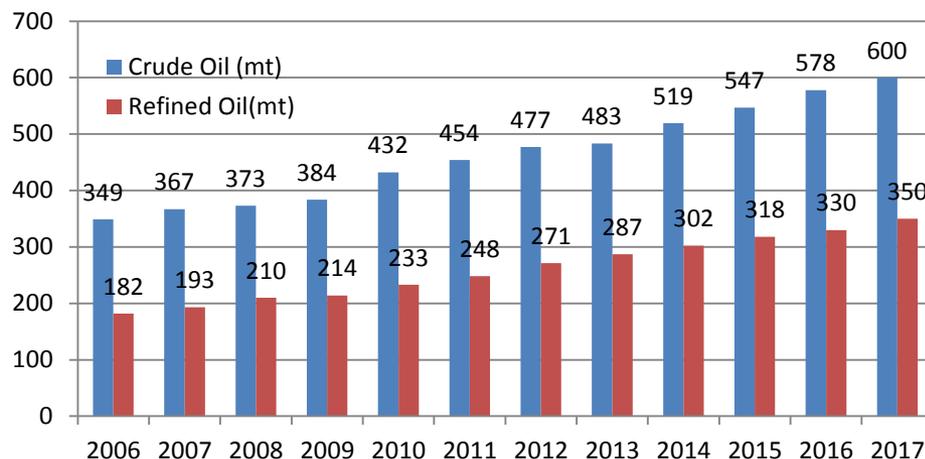
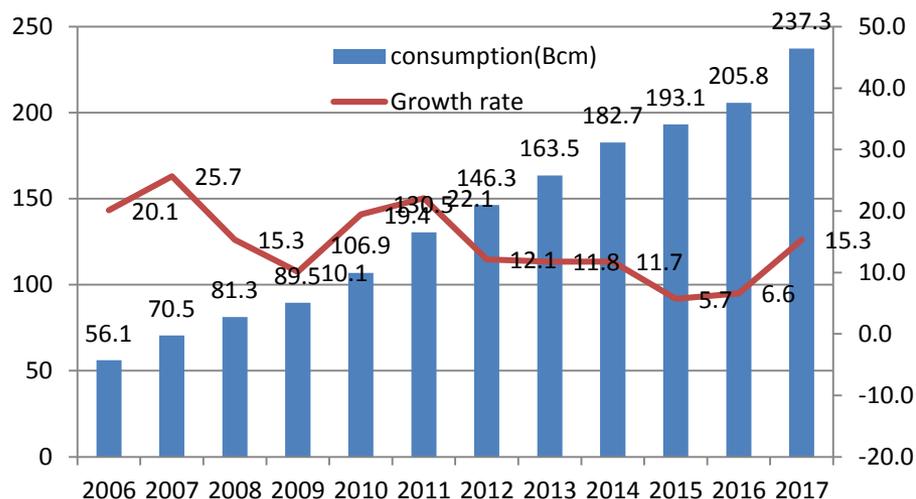
Update on OIL AND GAS SECURITY *(China)*

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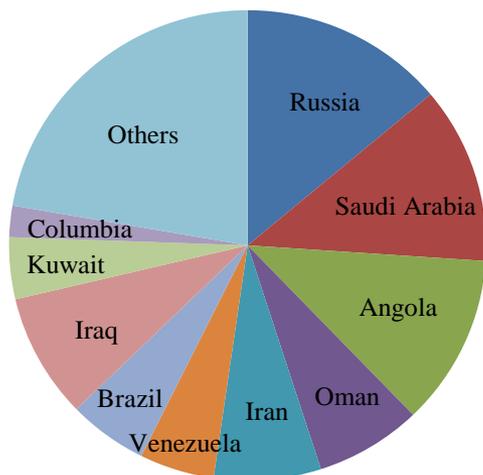
Oil and Gas Consumption

- In 2017, natural gas consumption accounted to 237.3 billion cubic meters of which domestic production was 148.7bcm.
- In 2017, Crude oil consumption accounted to 600 million tons of which domestic production was 188mt. Refined oil production in 2017 was 350mt.

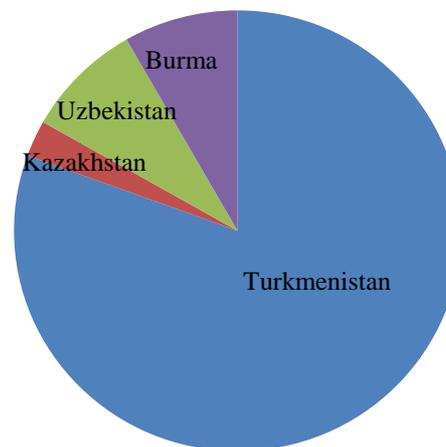


Oil and Gas Import sources

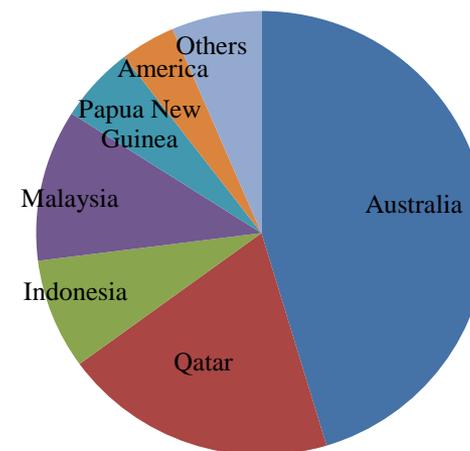
Crude oil imported by countries



Pipeline Gas imported by countries

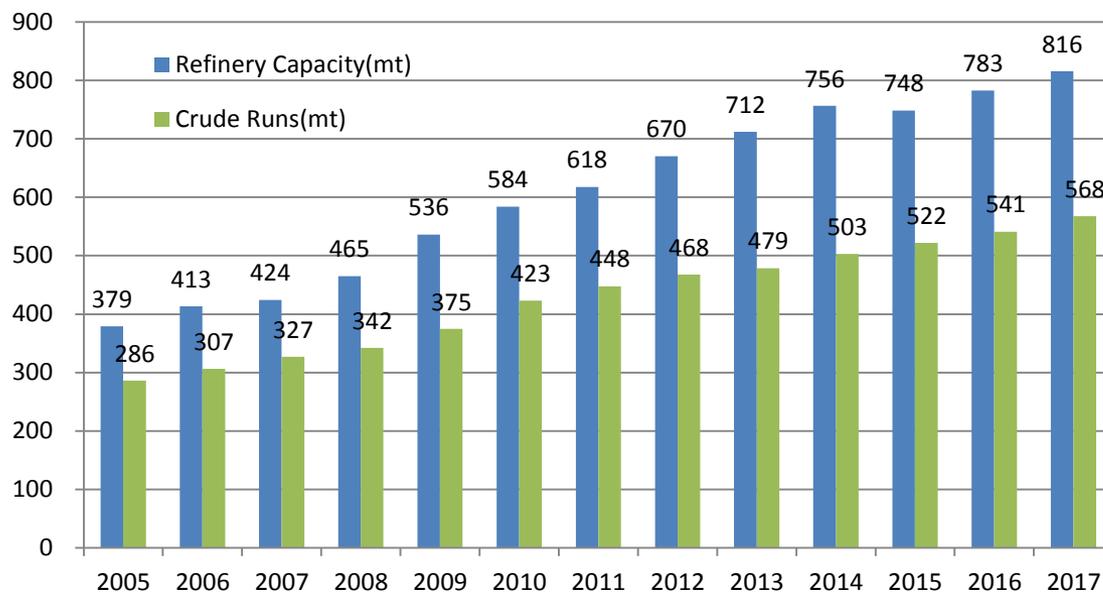


LNG imported by countries



Refinery capacity and production

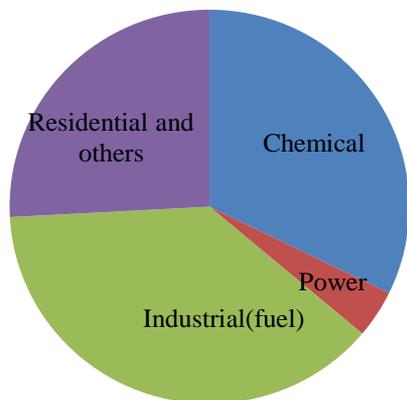
- Currently, NOC dominated the refinery industrial in China
- Comply with WTO commitment, more and more local refineries can import crude oil directly, and enlarge the shares in petroleum production.
- It's significant benefit for customers by encouraging competition between NOC and Locals.



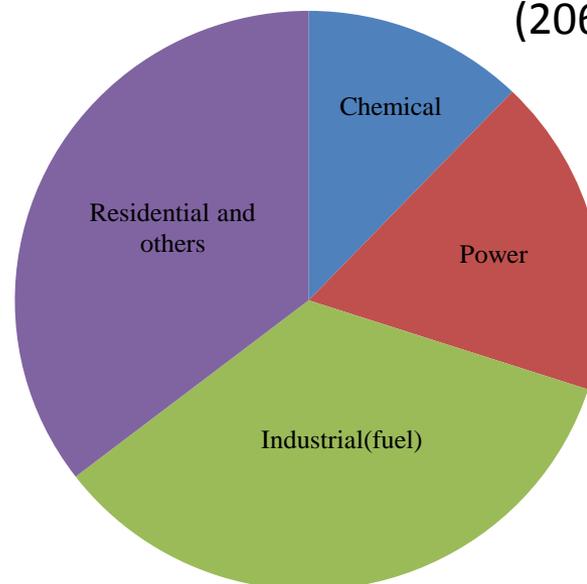
Gas Consumption Mix

- China gas industry took off in 2000s with the building of West to East pipeline.
- For gas consumption mix, the shares of power generation keep growing year by year, opposite the chemical aspect.
- In future, aiming to fighting air pollution and pushing energy transition, China will promote large-scale, efficient use of natural gas in residential use, industrial use, power generation and transportation.

Gas Consumption Mix in 2005
(48 bcm totally)

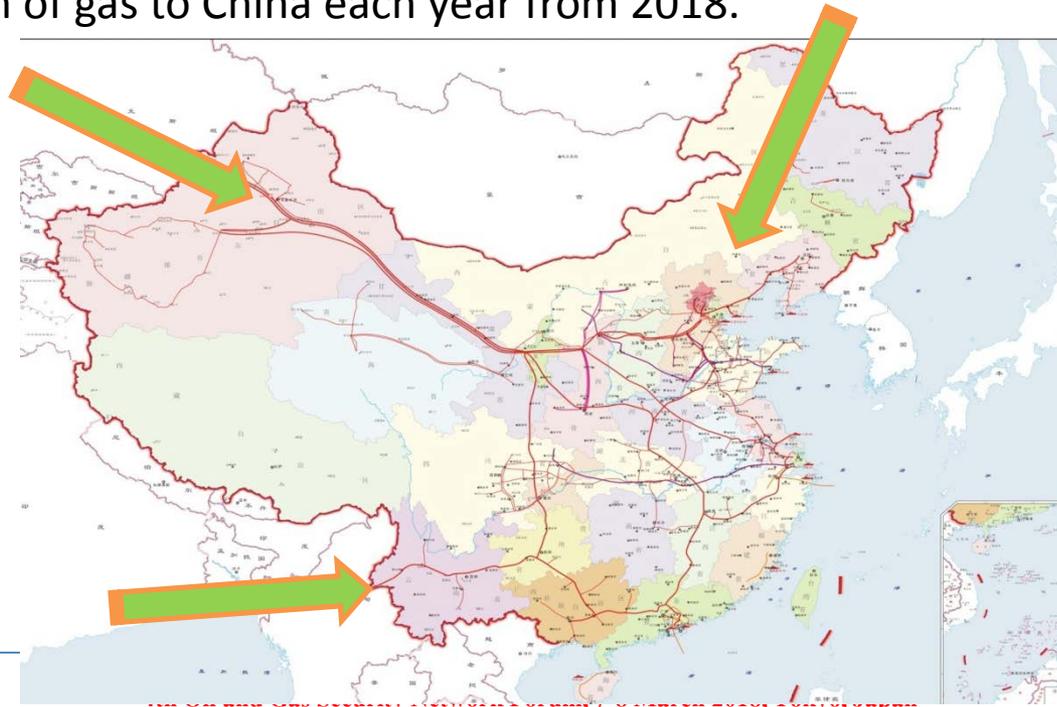


Gas Consumption Mix in 2016
(206bcm totally)



Gas Import Routes (pipeline)

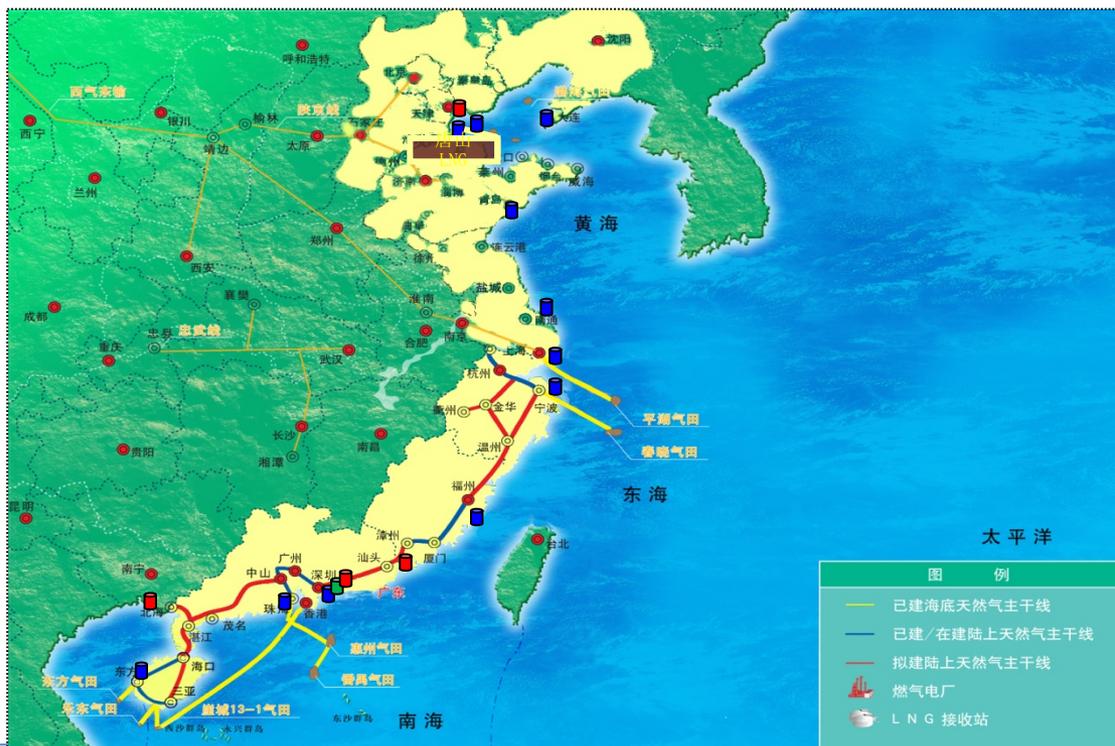
- Pipeline import
 - China-Central Asia gas pipeline. Line A,B,C total capacity is 55bcm per year. Line D is under construction. The gas is mostly from Turkmenistan, some from Kazakhstan and Uzbekistan. Import volume in 2017 is 38bcm.
 - China-Myanmar gas pipeline with capacity 12bcm per year of which the length is 2520km. Import volume in 2017 is 3.9bcm.
 - China-Russia East-Route Gas Pipeline is under construction. Chinese section of 3968km terminates in Shanghai. The pipeline is expected to begin sending up to 38bcm of gas to China each year from 2018.



Gas Import Routes (LNG)

■ LNG terminals

- By now, 15 LNG terminals with capacity 64.3 million tons per year. LNG terminals is located in every costal province.
- In 2017, LNG import volume is 49.4bcm, the first year to surpass pipeline import volume.



Oil Security Policy

- At the IEA ministerial meeting in 2015, China became one of the first countries to activate association status with the Agency. In 2017, signing an extensive three-year work programme. In 2018, China participated in the latest Emergency Response Exercise.
- Similar with IEA member countries, China has already established the national strategic oil reserve, by now the total amount can meet 30 days of domestic consumption.
- Also, we encourage the commercial crude oil and petroleum products stockpile. Due to the liquidity of commercial stockpile and tax income for local government, commercial stockpile is more welcomed.

Gas Security Policy

- The key issue is ensuring residential gas supply security.
- The local government is responsible for the residential gas supply security. If the residential gas is short supply, local government should take emergency measures, to reduce industrial gas supply (chemical, power generation, fuel using, etc).
- If the gas supply shortage became more serious, NDRC in national Level will intervene and guide local government as well as gas whole-chain companies to take action.
- According to current gas storage regulation, supply companies should have the storage capacity which account for at least 10% of gas supply. Local government also have an obligation, they should have storage capacity for 3 days' local consumption. Double counting between above obligation is forbidden.
- Now, which emergency measures to act is case by case. In future we want to forge the regulation, more focusing on the framework or mechanism issues.
- Also, we are considering to establish a graded gas supply security warning and response system.

Bilateral/Regional Agreements

- In 2014, China signed the International Energy Charter, to become the observer country of Energy Charter Treaty.
- Meet regularly with export countries and transit countries in high-level summit or forum, to increase mutual trust.
- For the huge flagship cooperation project, usually inter-government agreement will be signed before business contract.

Oil and Gas Security Policy Gaps

- More transparency of the market and effective information shares.
- Gas to gas pricing mechanism to balance the benefit between supply and demand.
- Open domestic market to encourage deep cooperation in commercial aspects.
- Declaration of Energy Transit Security Issues, even legally binding framework.

Thank you very much...

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