



中国石油经济技术研究院

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Shale Gas Development in China

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1. Shale Gas Development in China



- The Chinese government and oil companies have made great efforts and remarkable achievement for the development of shale gas in the past few years.

Progress of Shale Gas Development in China

	2-D seismic	3-D seismic	Well Drilling	Pipeline	2014 Output	Investment
Unit	kilometer	square kilometer	well	kilometer	billion cubic meters	billion RMB
Ministry of Land and Resources	210		66			0.66
Local Governments	739.82		45			0.46
Sinopec	4793.61	999.5	184	141.3	1.14	12.6
CNPC	6076	757	358	93.7	0.16	6.8
Yanchang	0	105.35	65			0.72
CNOOC	316.18		5			0.1
	2178.65	272	14			0.14
Others	7503.9		43			1.52
Total	21818.16	2133.85	780	235	1.3	23

2. Challenges for Shale Gas in China



□ Technical Challenges

- Key Technology
- Environmental conservation
(include water resources)
- Geological Conditions
- Infrastructure



2. Challenges for Shale Gas in China



□ Economic Challenges

“ Market Space

China's natural gas demand might be less than expected because of policy uncertainty.

“ High Cost **VS.** Low Price

Cost of shale gas is still too high compared with market price caused by weak economy and low oil price



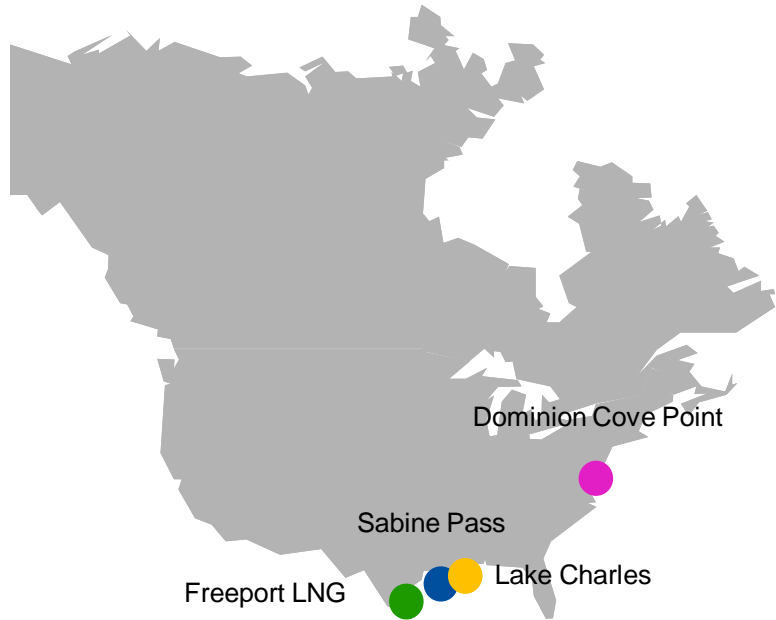
3. Oversupply of LNG will Last for Several Years

- Natural gas demand in European Union has been decreasing since 2010; Japan and South Korea will also reduce LNG import following the reborn of nuclear plants; demand growth of natural gas in emerging economies are all much slower than expected.
- In the next few years, there will be a lot of LNG projects put into operation, and the top priority for natural gas industry is market development.

Recent Australian LNG Plants(mtpa)

Projects	Capacity	Start Date
Queensland Curtis	8.5	2014
Australia Pacific	9	2015
Gladstone	7.8	2015
Gorgon	15	2016
Wheatstone	8.9	2016
Ichthys	8.4	2016
Prelude	3.6	2017
Total	61.2	

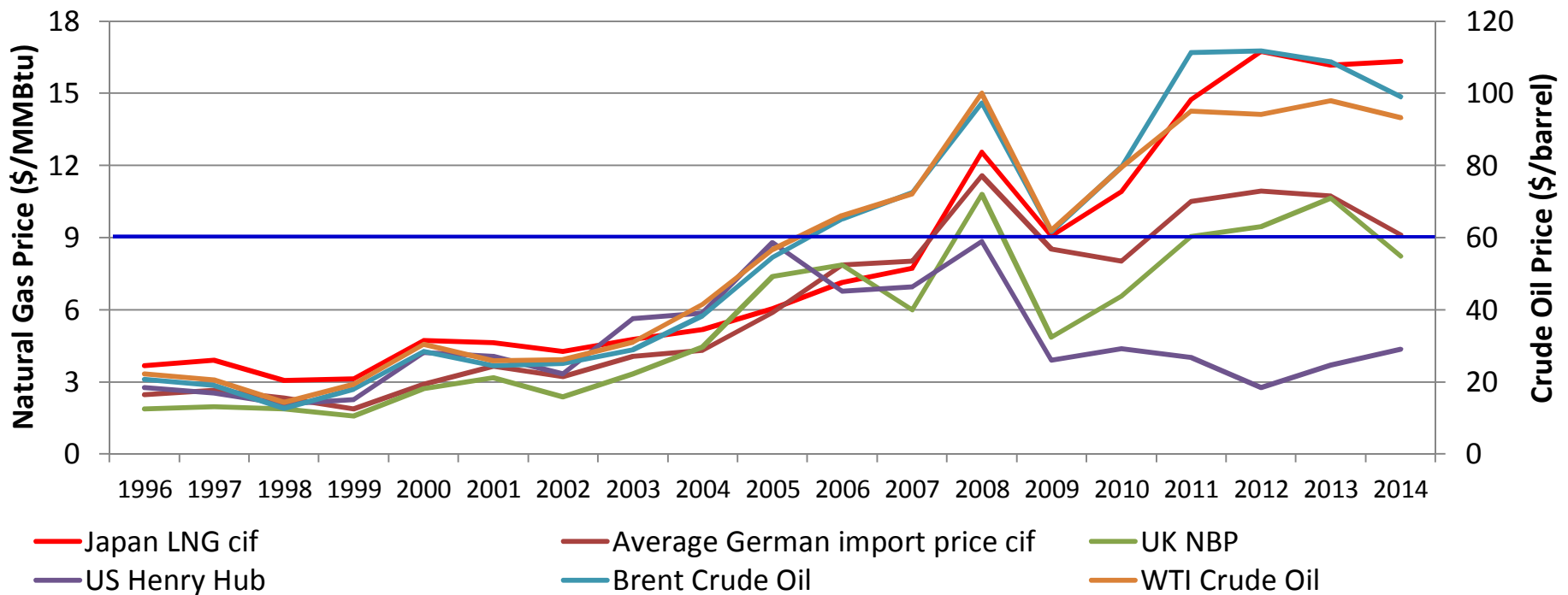
Resources: Argus





4. Uncertainty of US LNG

- How many US LNG projects will proceed as plan?
- Will US LNG still has price advantage under current low international crude oil price?
- If there is any probability that Henry Hub price will rebound to \$3-5 /MMBtu.
- How will Asian companies deal with long term US LNG contacts?



Resources: BP.



Thanks a lot!