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# ICIS China Gas Market Webinar

13 November 2014

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webinar - <http://bcove.me/41zphdnz>**

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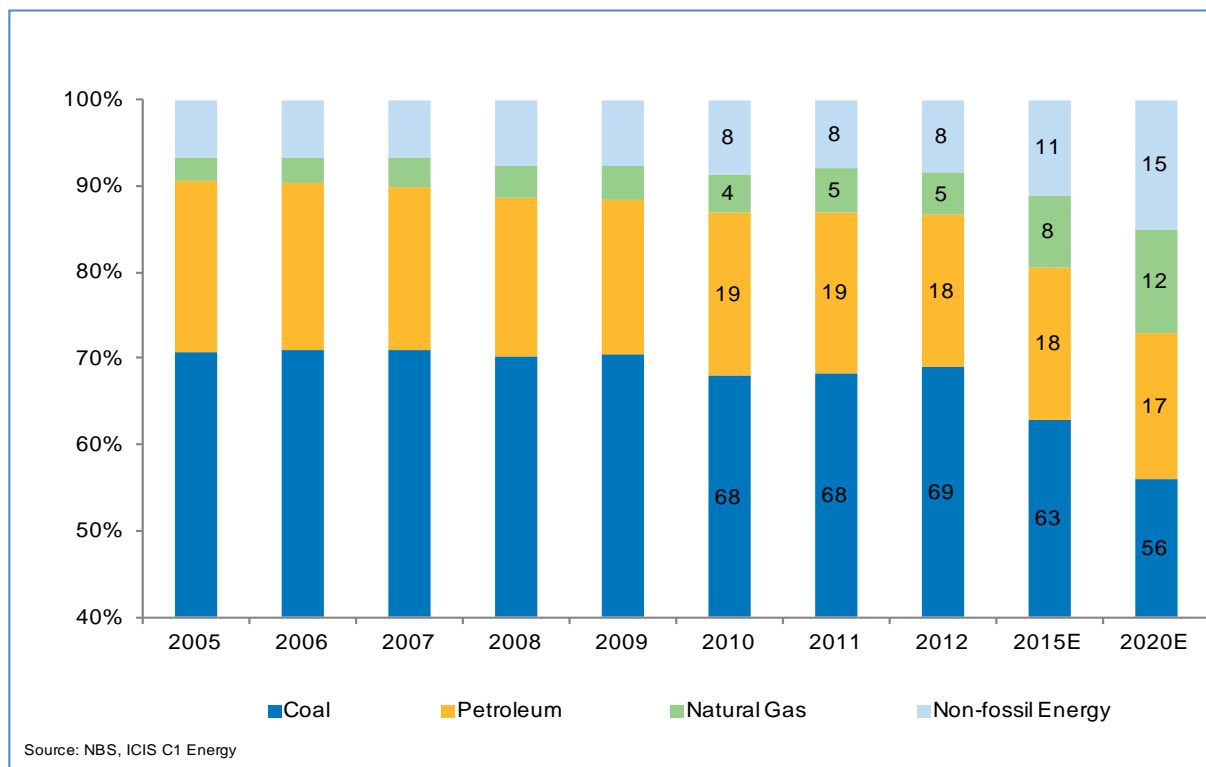
## Overview of China's Gas Market

# China's Energy Mix

◆ Under environment pressure, Chinese government is encouraging clean energy usage.

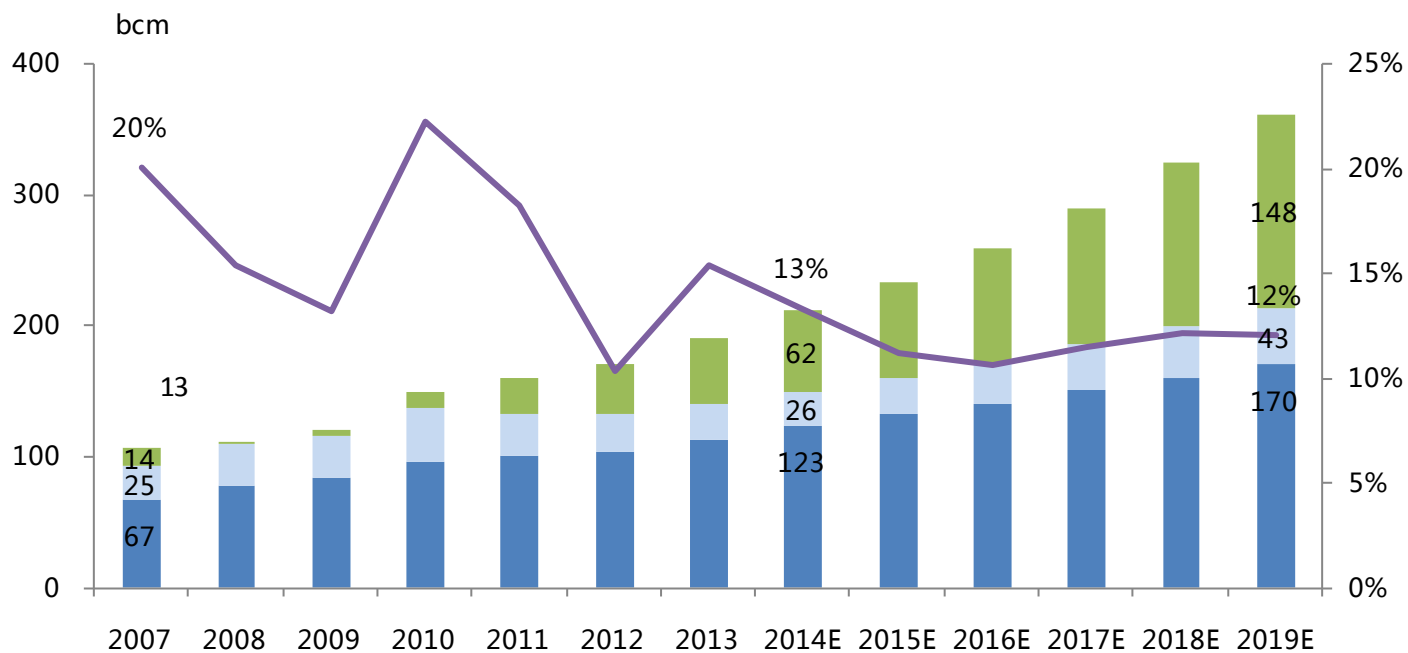
◆ Natural gas consumption is going to reach 15% of total primary energy mix by 2020.

## China's Energy Mix (2006-2020)



# China's natural gas Supply and Demand

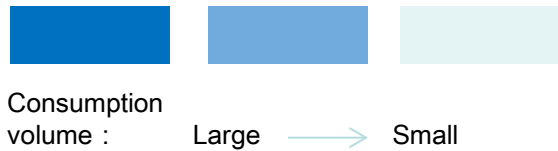
## Forecast of China's Natural Gas (2007-2019E)



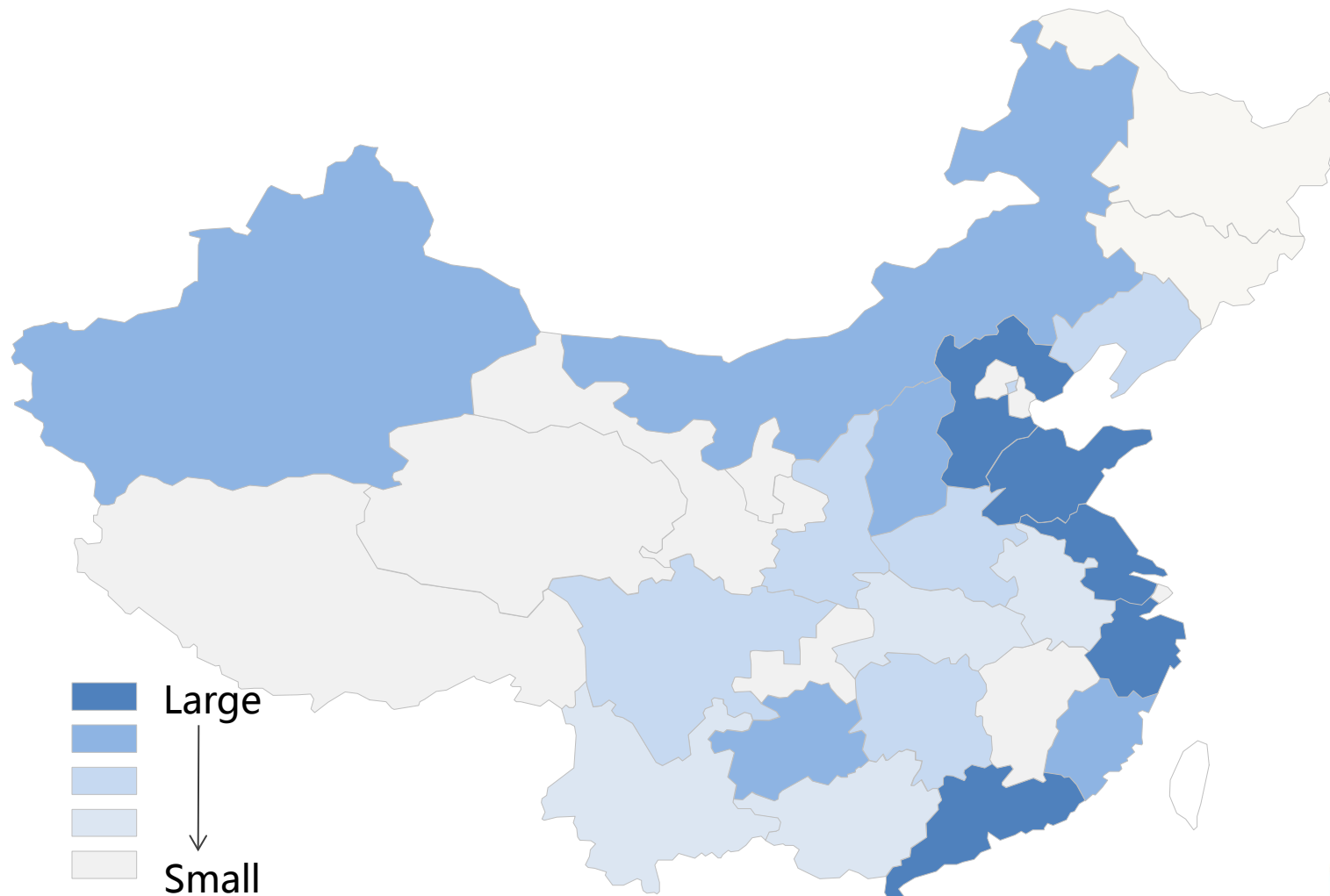
Source: ICIS

■ Net Import 
 ■ Export 
 ■ Production 
 — Consumption Growth Rate

# Gas Consumption by region in 2012



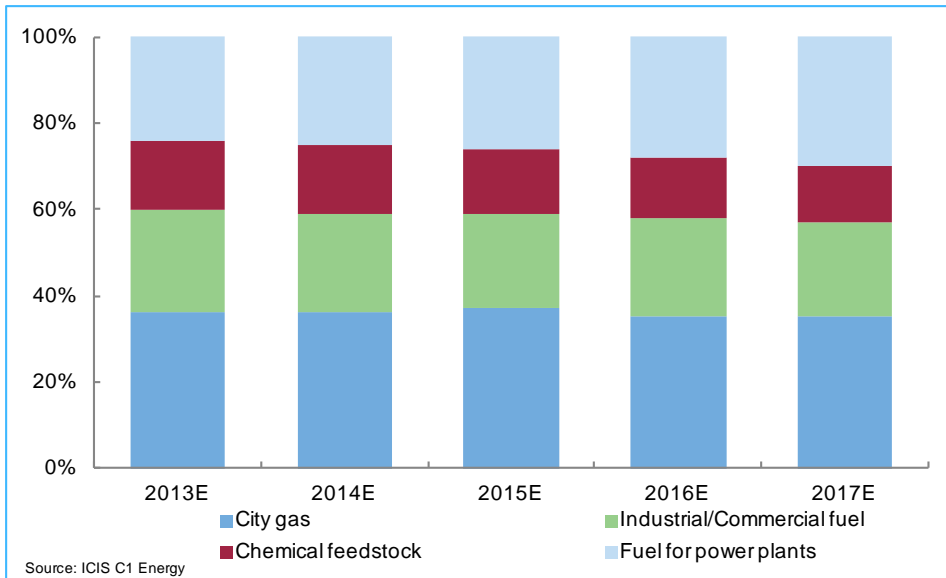
# LNG Consumption by region in 2013



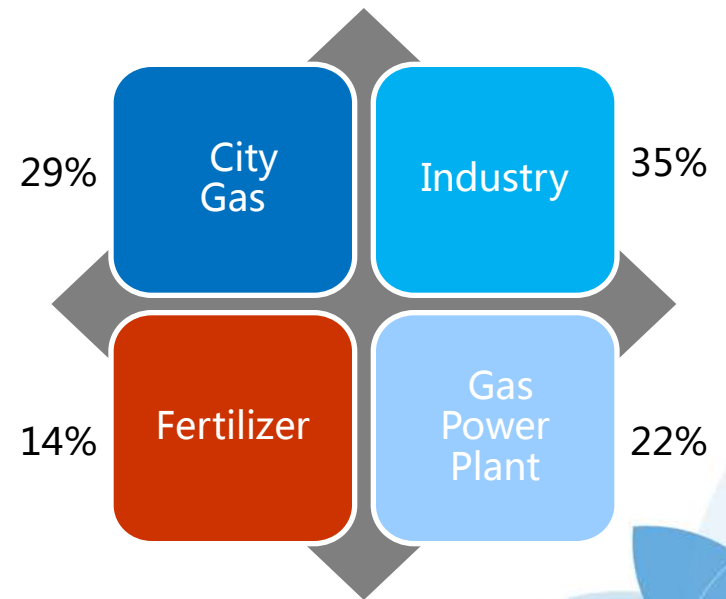


# Gas Distribution

Forecast of China's Natural Gas Consumption by Sector (2013-2017E)



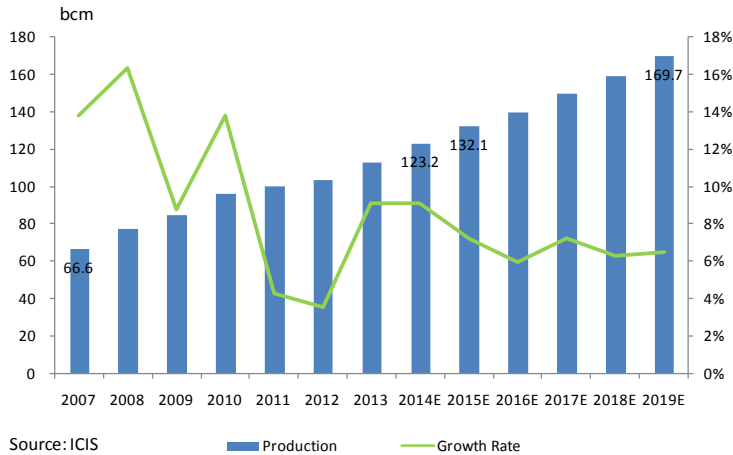
2013 China's NG consumption by Sector



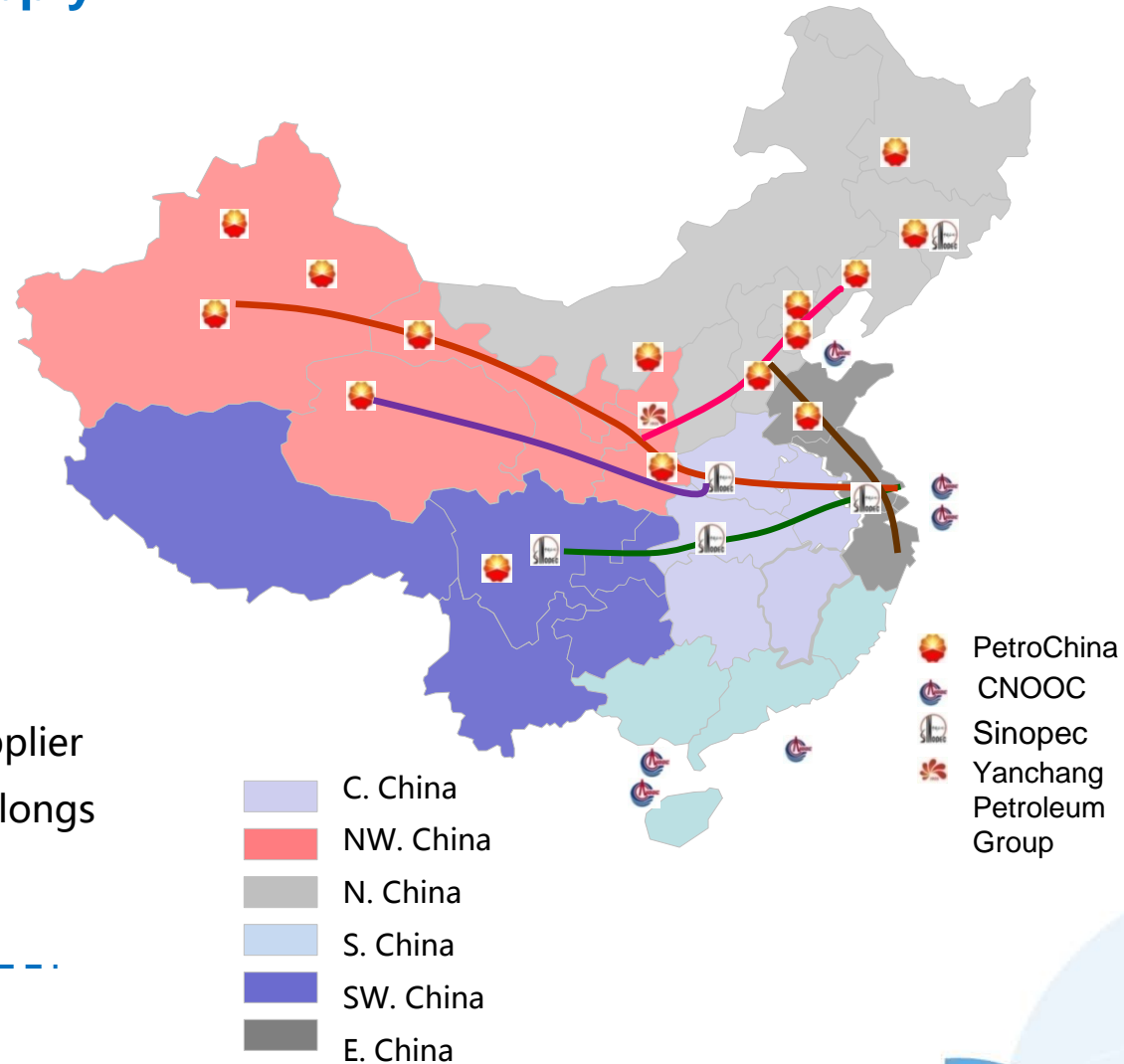
# Domestic Gas Supply

# Domestic Natural Gas Supply

Forecast of China's Gas Production (2007-2019)

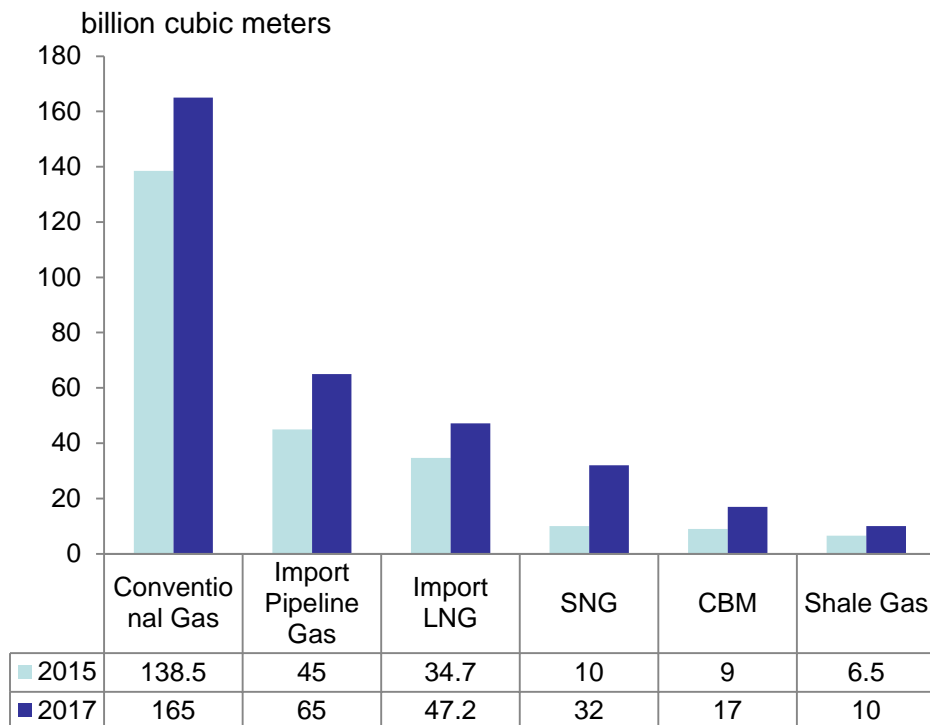


- ◆ PetroChina is the largest gas supplier
- ◆ Most of the conventional gas belongs to PetroChina, Sinopec, CNOOC

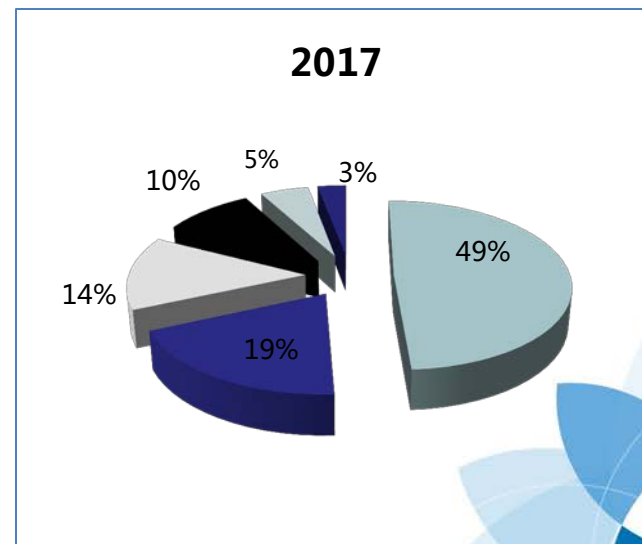
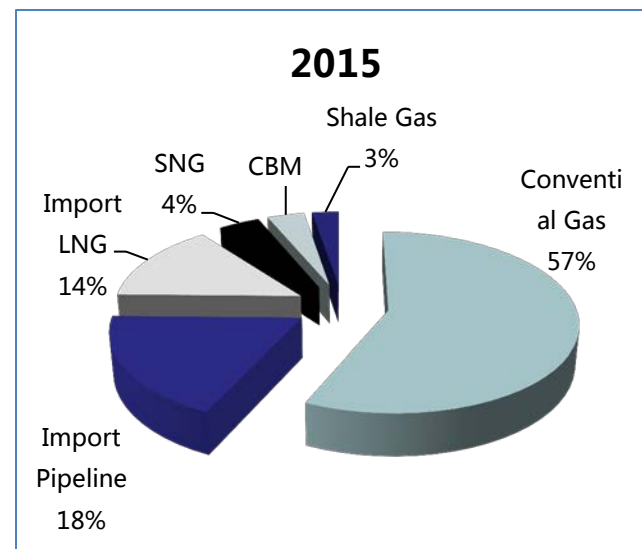


# Unconventional Gas Development

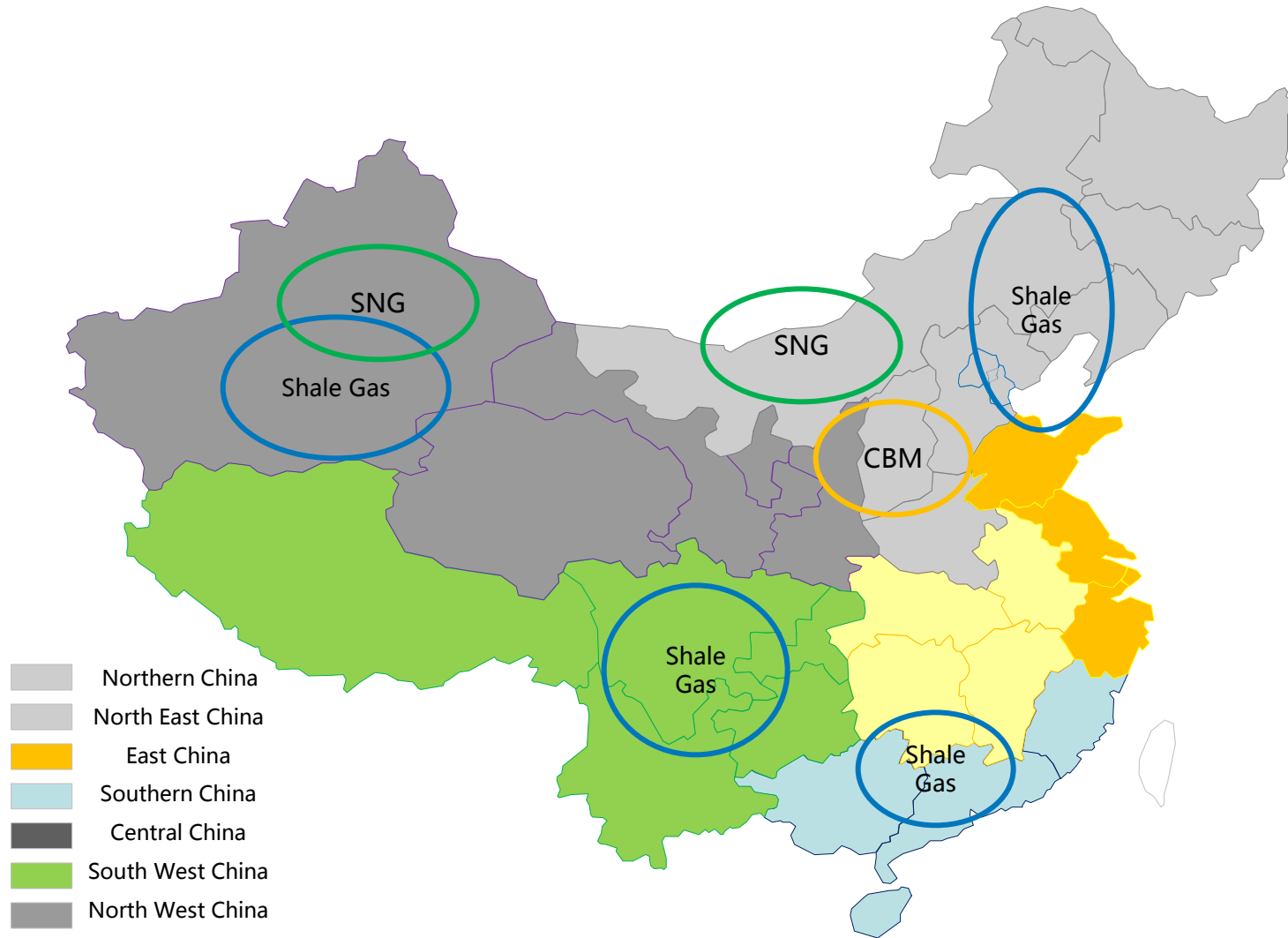
Supply target set by China government  
(2015, 2017)



Source: ICIS C1 Energy



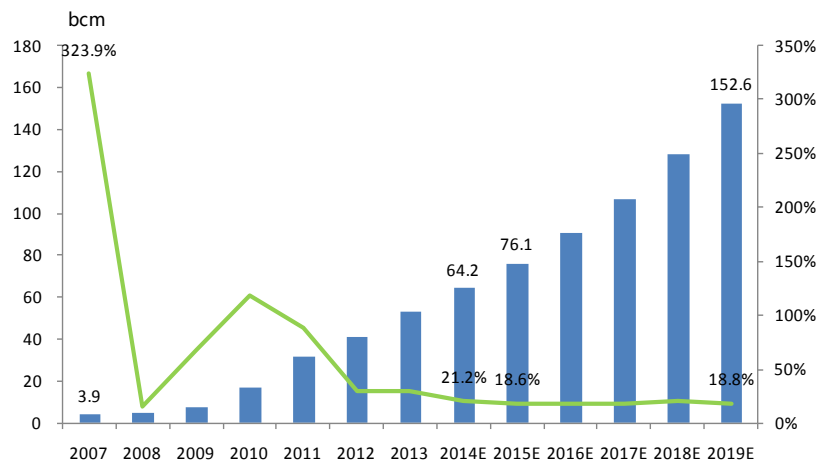
# Unconventional Gas Distribution



# Gas Import in China

# China's Gas Import

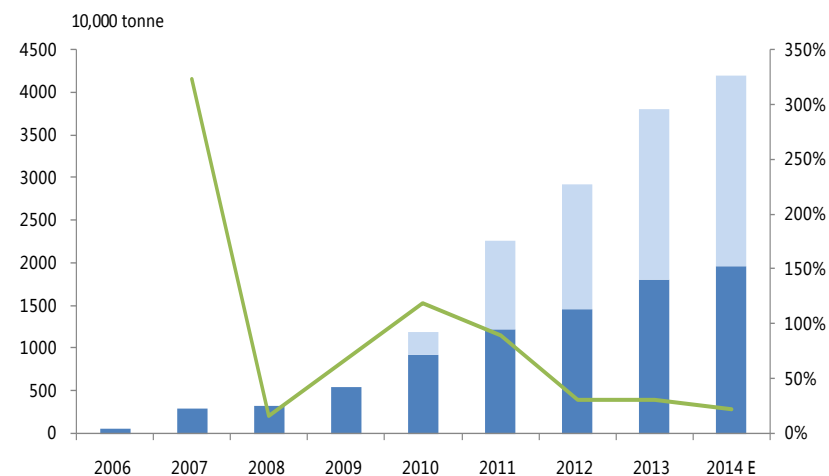
## Forecast of China's Gas Import (2007-2019E)



Source: ICIS

■ Import    — Growth Rate

## China's Gas Import (2006-2014E)



Source: GAC

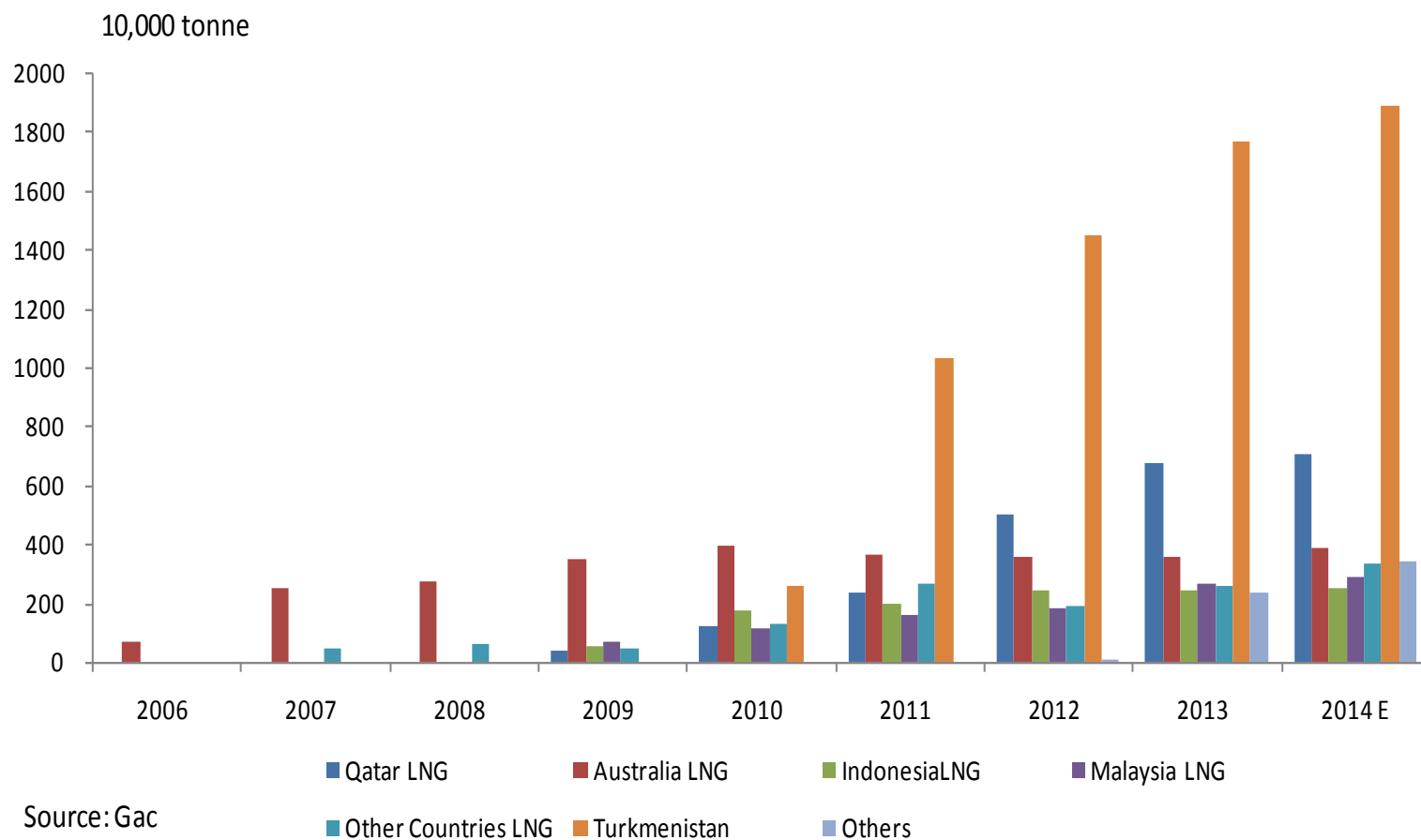
■ NG Import    ■ LNG Import    — Annual Growth Rate

# Gas Import Infrastructure



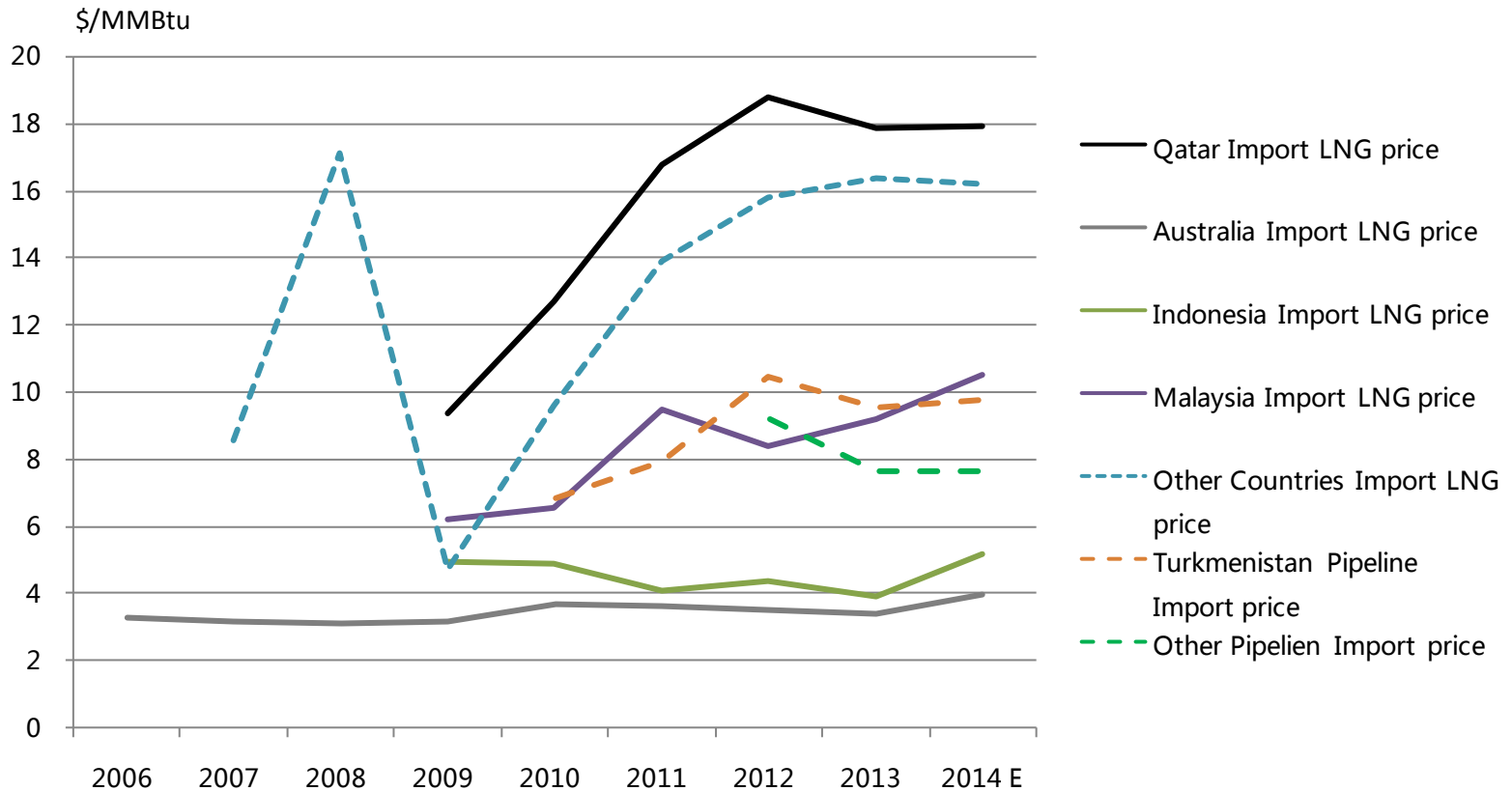


# Gas Import by Source



Source: Gac

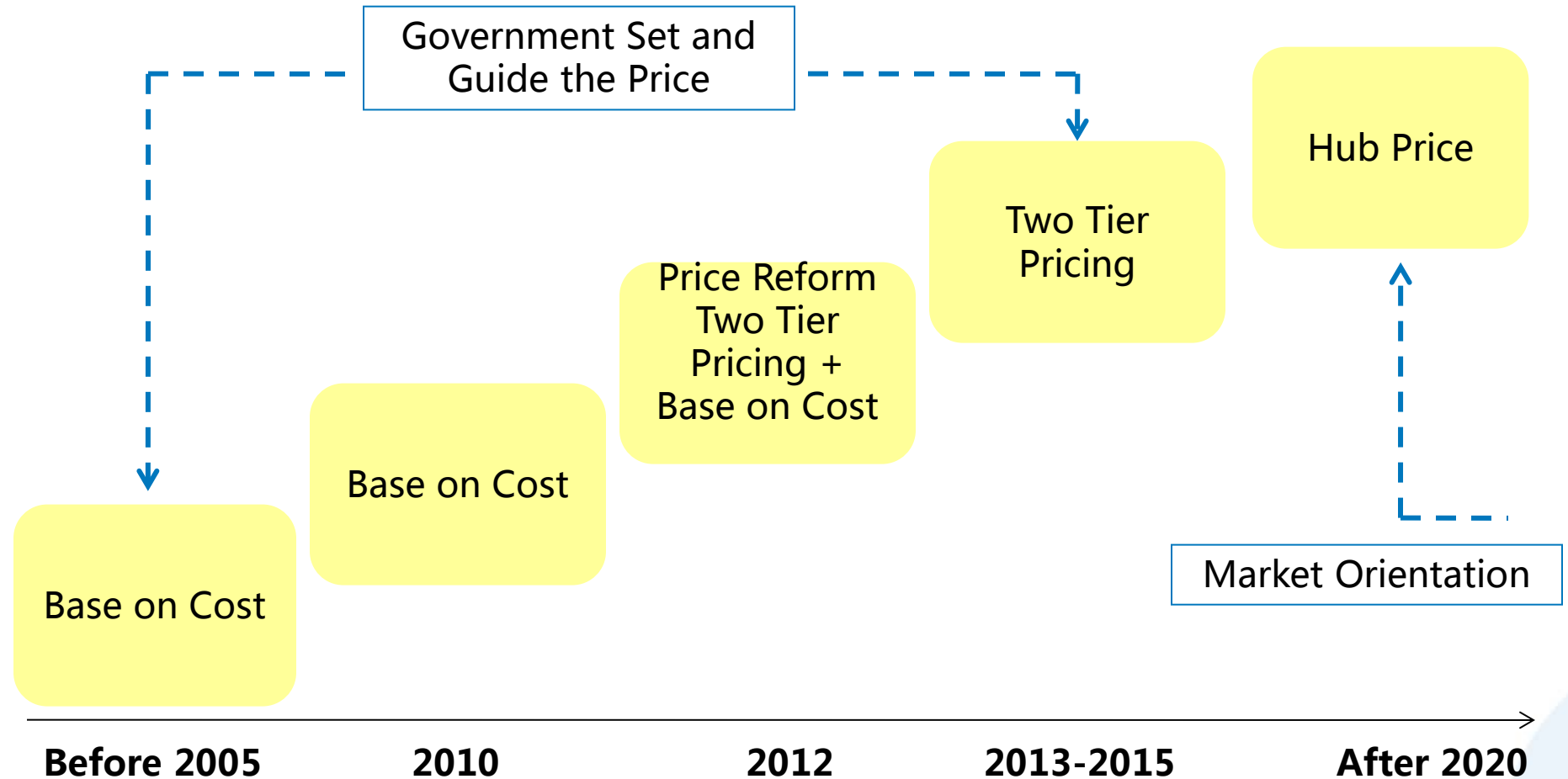
# Import Gas Price



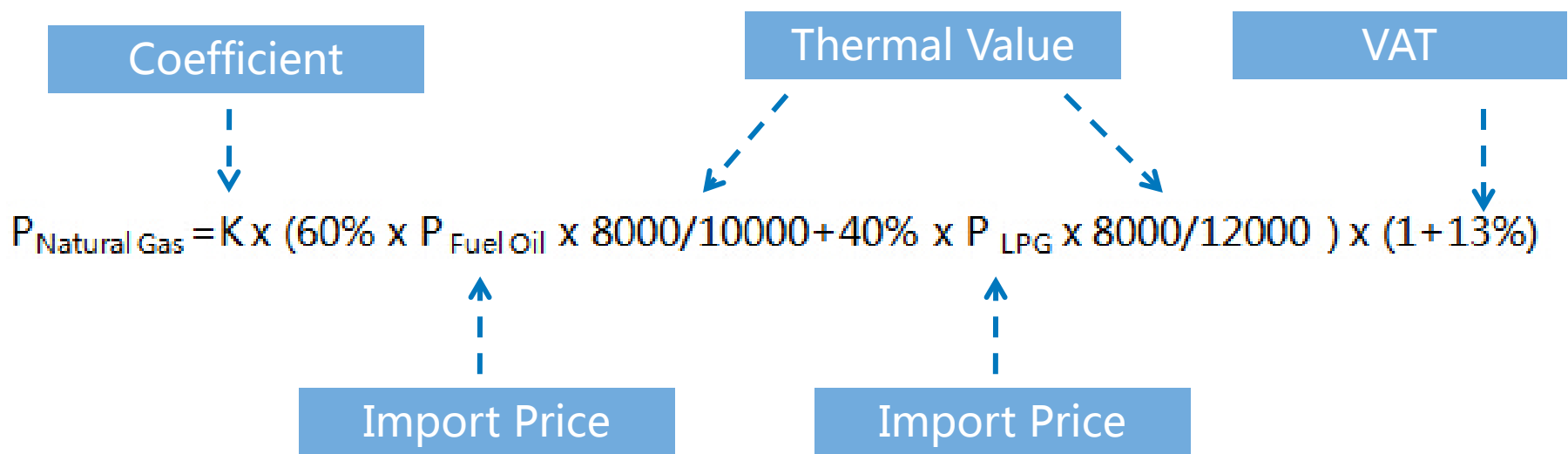
Source: GAC

## Price Reform

# Evaluation of China's Gas Pricing Mechanism



# Price Formula



# Regional Gas Price

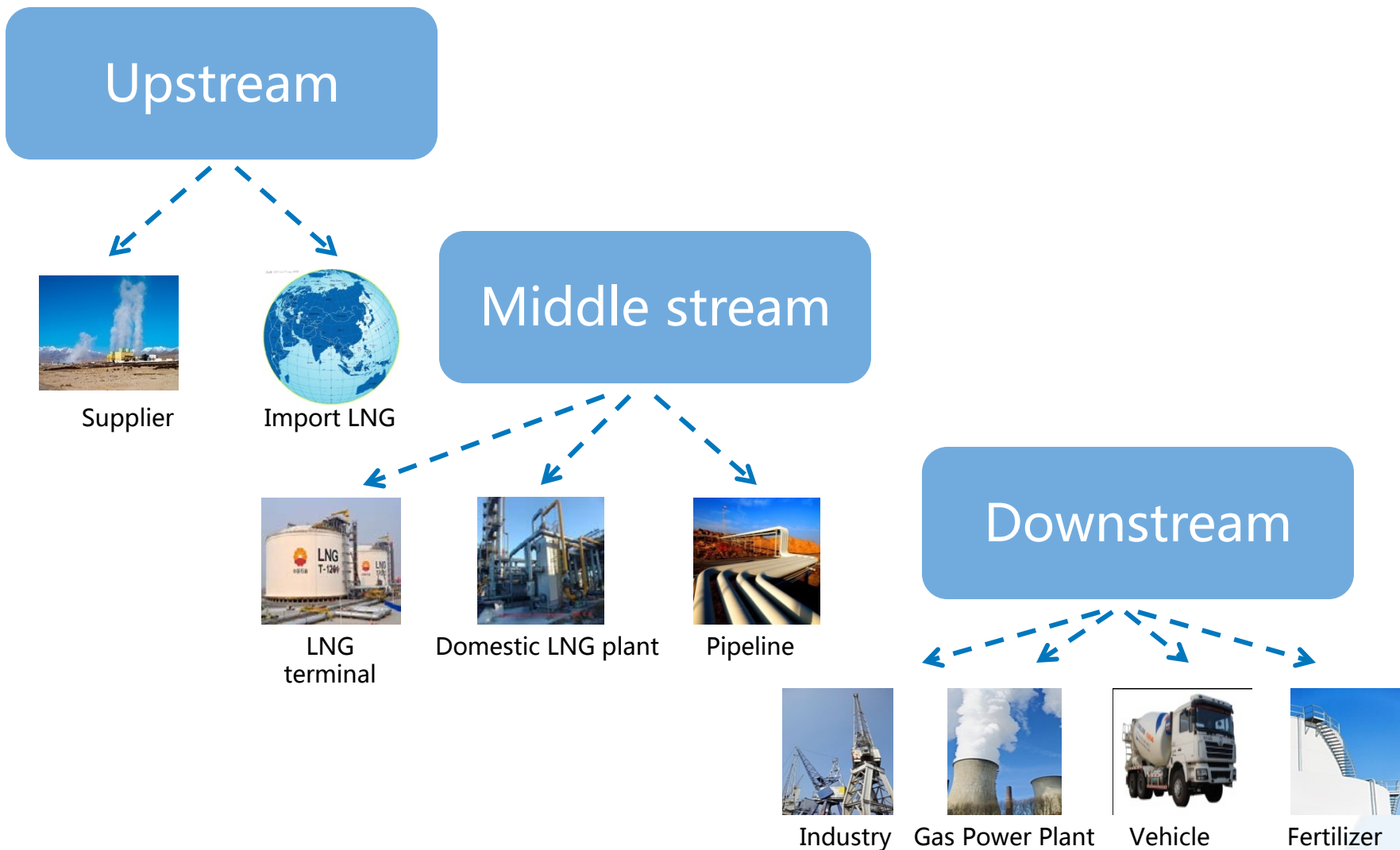
## Government-capped City-gate Prices of Natural Gas by Province/Municipality/Region

Province/Municipality/Region	Price for existing consumption		Price for outstanding consumption	
	RMB Yuan/cbm	USD \$/MMBtu	RMB Yuan/cbm	USD \$/MMBtu
Beijing	2.660	11.68	3.140	13.79
Tianjin	2.660	11.68	3.140	13.79
Hebei	2.640	11.59	3.120	13.70
Shanxi	2.570	11.29	3.050	13.40
Inner Mongolia	2.000	8.78	2.480	10.89
Guangdong	2.860	12.56	3.320	14.58
Guangxi	2.690	11.81	3.150	13.83
Heilongjiang	2.420	10.63	2.900	12.74
Shanghai	2.840	12.47	3.320	14.58
Jiangsu	2.820	12.39	3.300	14.49
Zhejiang	2.830	12.43	3.310	14.54
Anhui	2.750	12.08	3.230	14.19
Jiangxi	2.620	11.51	3.100	13.62
Shandong	2.640	11.59	3.120	13.70

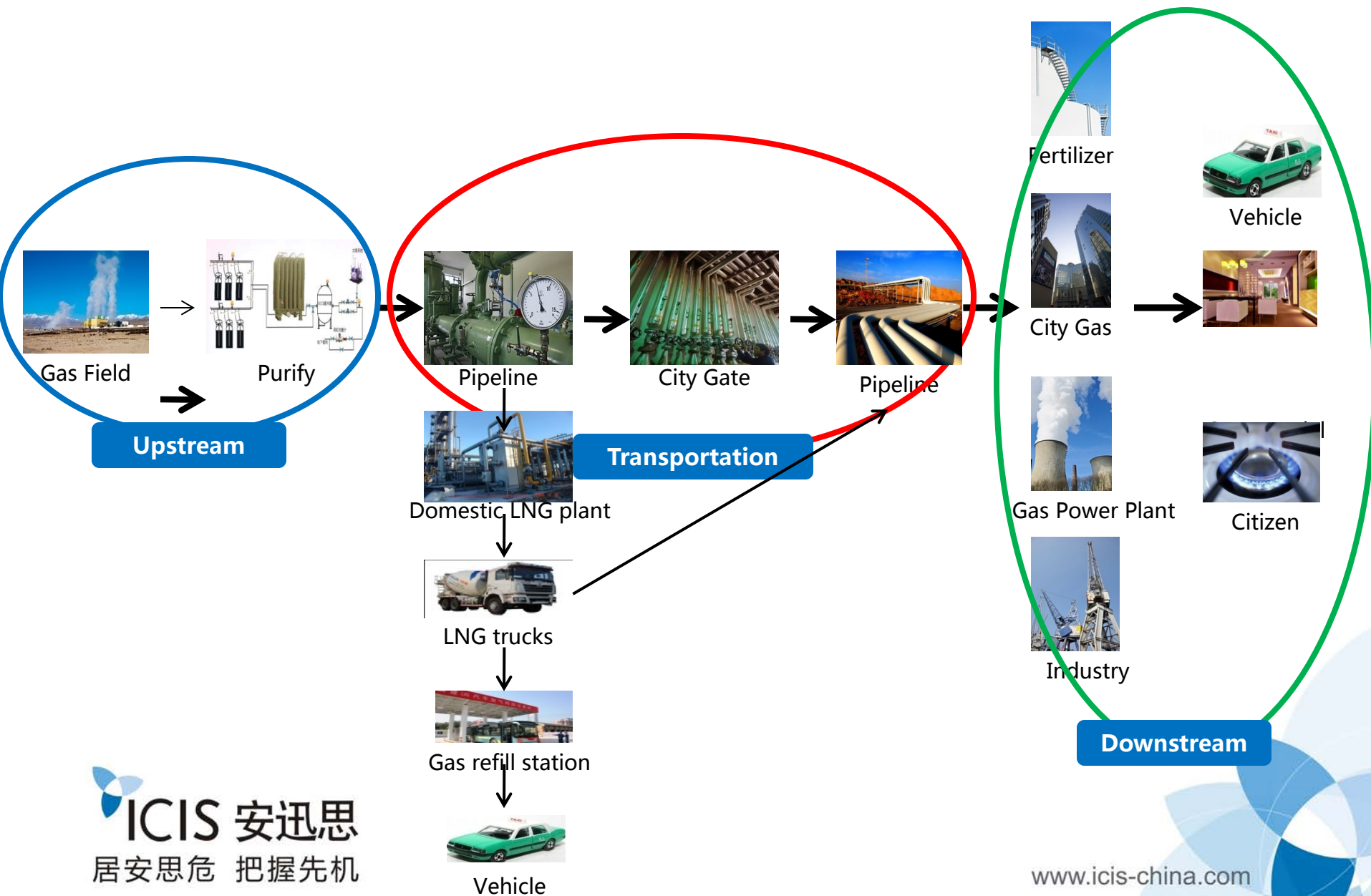
Note: The price is inclusive of value-added tax (VAT).

Source: National Development and Reform Commission

# Impact of Price Reform

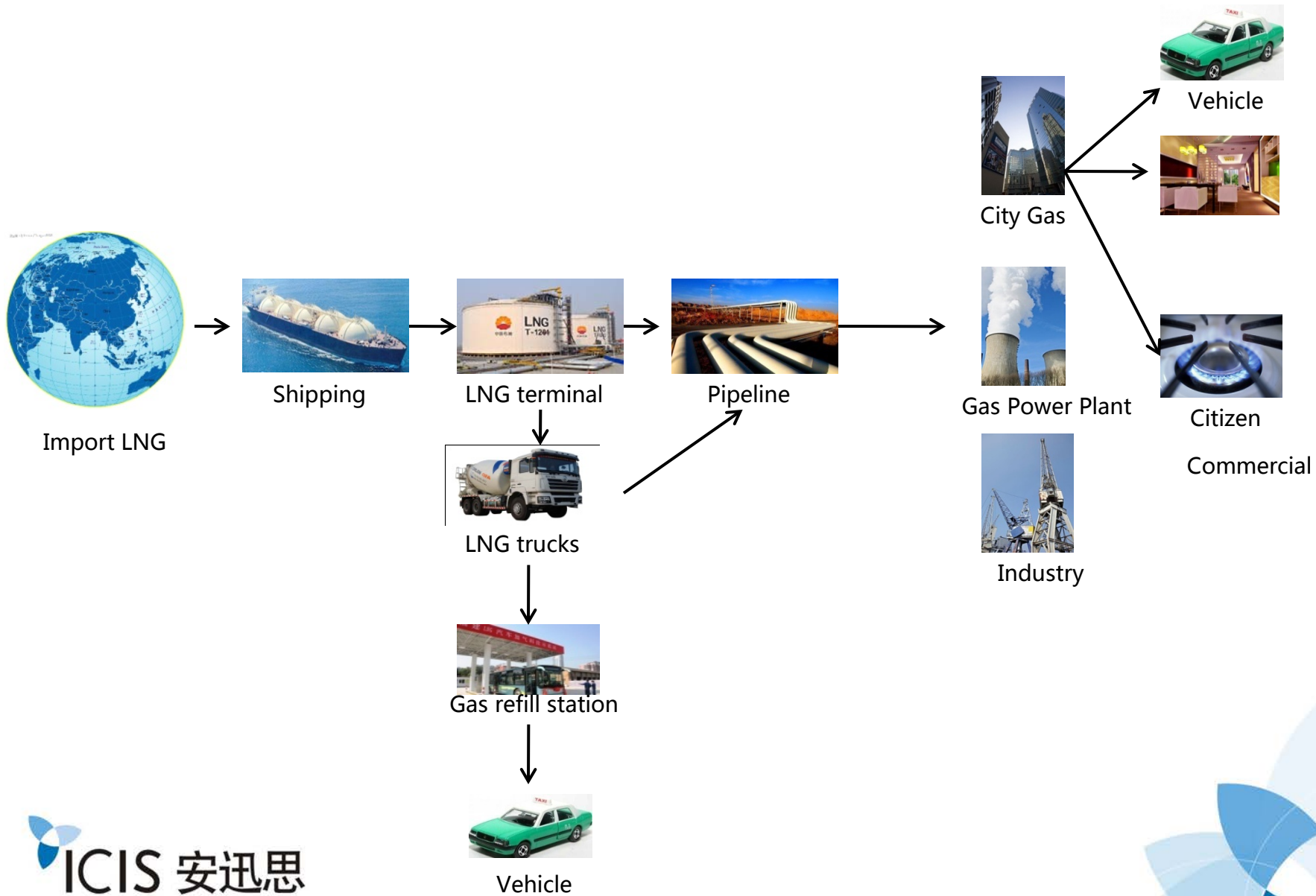


# Government Policies—Pipeline Gas





# Government Policies—LNG



# Chinese gas market reforms in a regional context

# Chinese import requirements uncertain but will impact wider region

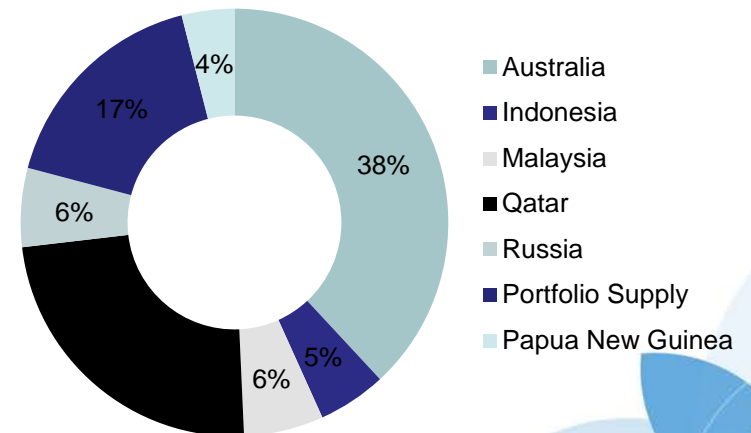
- Chinese domestic shale gas production uncertain. Government cuts targets – 30Bcm by 2020 down from 60-100Bcm in original 2011-2015 development plan.
- Imports from Turkmenistan set to reach 30Bcm in 2014, up to 65Bcm by 2021.
- Russia-China pipeline agreement via Eastern Route – up to 38Bcm/year .
- Gazprom-CNPC sign framework agreement in Nov '14 for 30Bcm/year via Altai (Western Route).
- Chinese buyers have signed SPAs to import more than 50mtpa of LNG in 2020

## China's LNG imports compared with NE Asia

	'08	'09	'10	'11	'12	'13	'14 end Sept
<b>China LNG imports (mt)</b>	3.37	5.74	9.60	13.1	14.65	18.6	14.67

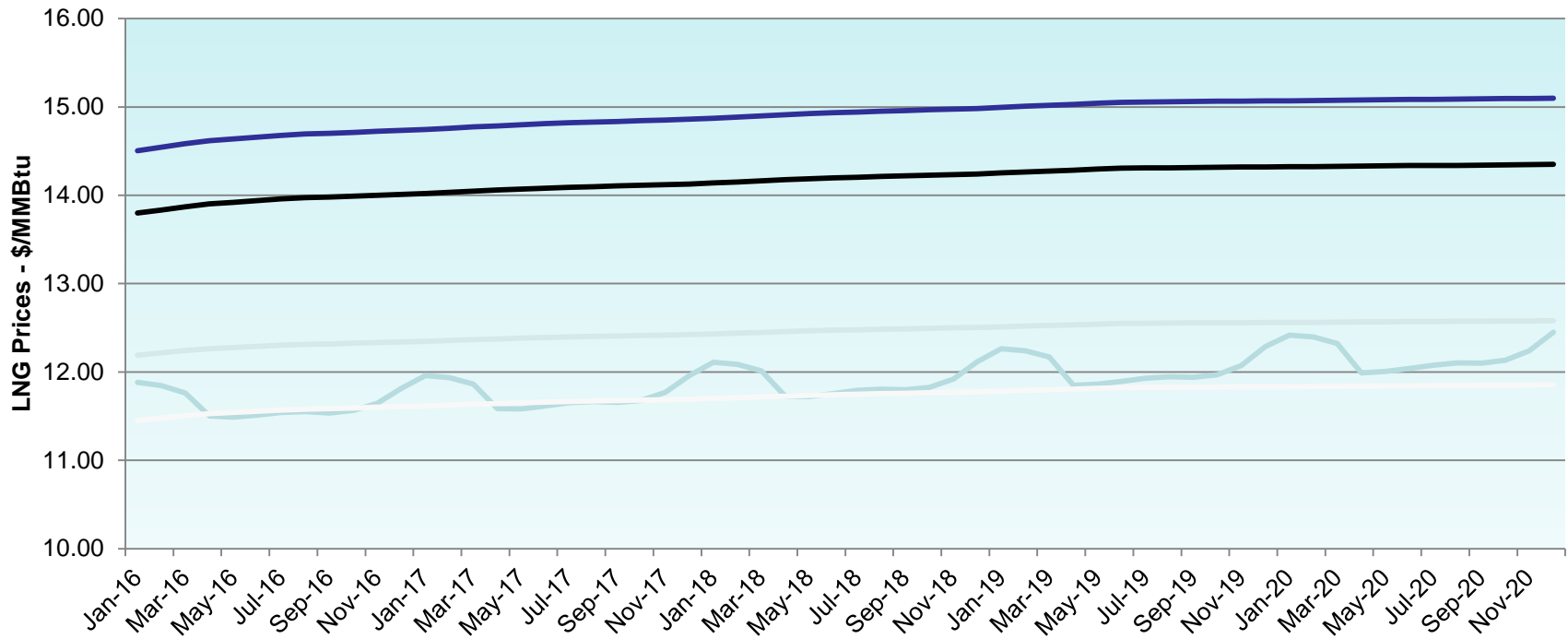
## Chinese LNG imports as percentage of regional demand

<b>NE Asia</b>	3.05	5.47	7.72	9.4	9.62	11.65	12.35
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# New Russian pipeline imports competitive with LNG

Selected LNG and pipeline import prices to China on forward curve (12 Nov 2014)



— US liquefaction DES Asia (Cheniere)\*  
— Russia-China (Shanghai delivery estimate)  
— Australia/China CSG S-Curve

— Qatar/China DES  
— Australia/China 2011/12

source: ICIS, CME and NYMEX  
 \* from Corpus Christi statement - March 2014

# Japan tries to align liberalisation and lower price goals



## Japan's swaps market nears debut, pending METI approval

A Japanese LNG swaps market could launch as early as 12 September, a source close to the project said.

The Japan OTC Exchange (JOE) is expected to submit a final application to the country's Ministry of Economy, Trade and Industry (METI) on 10 September, the source

tronic (TEPCO), Kansai Electric and Sojitz Corp, have pledged to participate in the swaps market, the source said.

Trading houses Vitol, Mitsubishi, Sumitomo and others have also expressed interest, but are still processing the necessary paperwork to join, the source added.

## Japan's power reforms seek purpose

Japan's government and private sector have started down the fast lane of liberalising the country's power industry, but questions still remain about the ultimate destination and how to get there

## Japan's TEPCO, Chubu to join forces in 50:50 JV

Tokyo Electric (TEPCO) and Chubu Electric, two of the three largest power utilities in Japan, are in formal negotiations to create a

TEPCO aims to eventually reduce its LNG costs by 20% by using a buyers' alliance to give it better bargaining power, importing

## Japan, India push against 'Asian price premium'

Japan and India have stepped up their protests against payi establish a multilateral group of...

12 Sep 2013 12:10 | GLM

# Chinese price reform raises questions for new contestable LNG supply

## East Africa

- Eni and Anadarko developing multi-train project in Mozambique. Eni also plan 2.5mtpa FLNG project offshore Area 4
- CNPC holds a 30% stake in Eni-led consortium developing Area 4.

## North America

- Nine liquefaction projects at various stages of development in Western Canada have been given export approval
- PetroChina and Sinopec stakeholders in two LNG projects
- Cost challenges and uncertainty over royalty tax
- Regulatory issues over Western US greenfield projects

## Australia/Russia

- Australian greenfield and FLNG projects under costs pressure – Browse, Bonaparte, Scarborough
- Russian LNG – (Sakhalin expansion/Vladivostok, Yamal LNG) – questions over financing, technology.

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