

# 26<sup>th</sup> World Gas Conference

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NGV China Review

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# China's NGV Program

## Agenda

- China's NGV Market “Drivers”
- The Start of China's Program
- Progress of China's Program to date
- The Current situation & Summary

# “Driver’s” for China’s NGV Program



- Environment
  - Green House Reductions > 20%
  - No Particulates
- Natural Gas @ 5% target Minimum 15% within 15 years
- High Oil Import Costs
- Energy Security

# China's Progress with Natural Gas Vehicles

- **The First official large scale project was launched in:**

**1998**

**and incorporated a 21city project for the use of CNG for municipal refuse, and bus systems**

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- **The CNG program was supplemented by the first large scale LNG projects in:**

**2009**

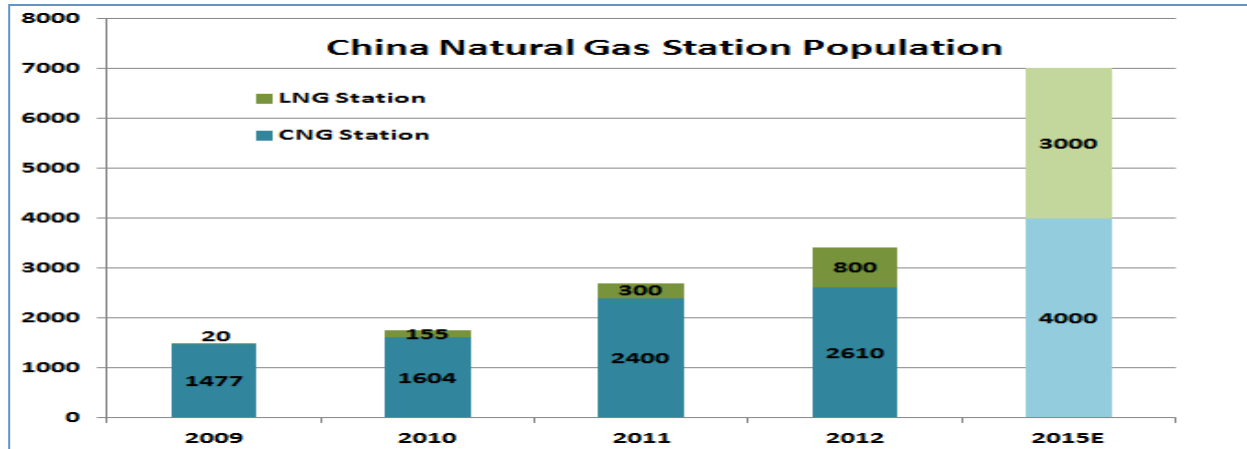
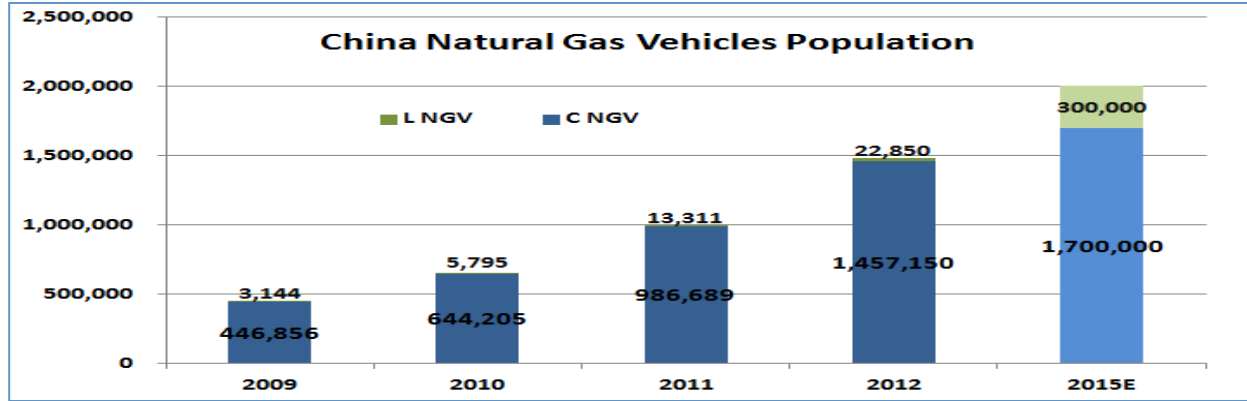


# China's LNG Terminal Program

Item	Location	TTL Capacity in MT/Y	
		Phase I	Phase II
1	ShenZhen Dapeng Bay	3.7	7
2	Fujian	1.6	6
3	Shanghai	3	6
4	ZheJiang Ningbo	3	6
5	Hebei QinhuangDao	2	3
6	Hainan Island	2	3
7	Zhejiang Wenzhou		3
8	Liaoning Yingkou	3	
9	Jiangsu Binhai	3	
10	Guangdong Shantou	2.5	
11	Jiangsu yangkou harbor	3.5	6
12	Hebei Caopeidian	6	10
13	Liaoning Dalian	2	5
14	Guangxi Qingzhou	3	
15	Shandong QingDao	3	5
16	JingSu Lian Yungang	3	
18	GuangDong Zhuhai	3	10
21	Guangdong Zhuhai Zhenro	3.5	
22	Jiangsu Nantong	3.5	

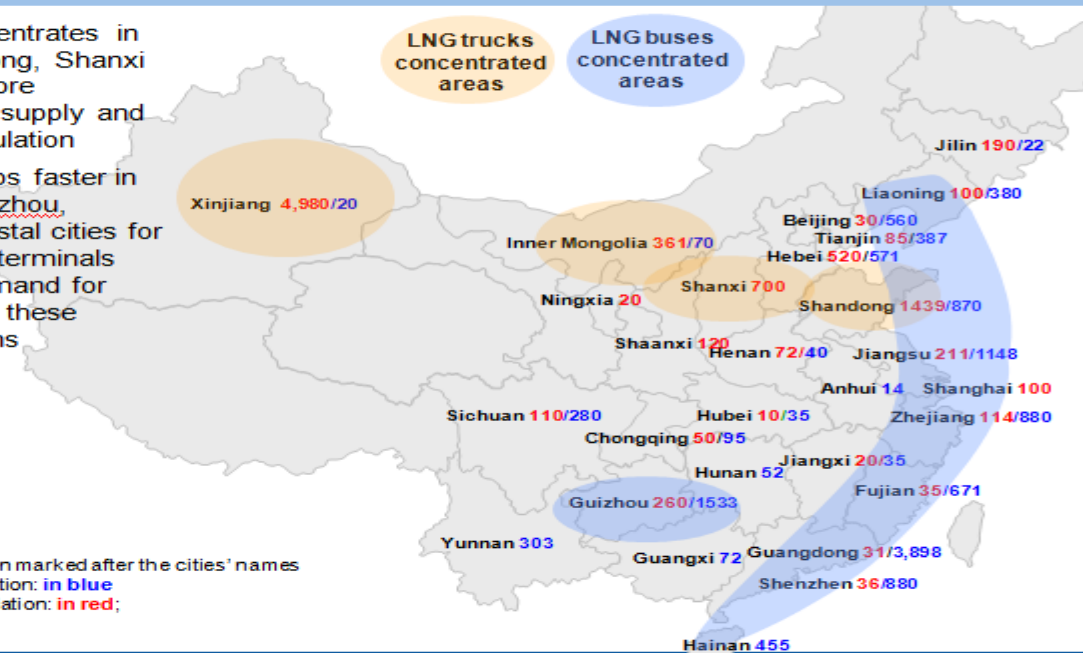


# NGV's vs. NGV Stations



# Concentration of LNG Buses & Trucks

- LNG Truck concentrates in Xinjiang, Shandong, Shanxi and Hebei for more convenient LNG supply and higher truck population
- LNG bus develops faster in Guangdong, Guizhou, Jiangsu and coastal cities for LNG support by terminals and stronger demand for environmental in these developed regions



Note: 1. LNGV population marked after the cities' names  
2. LNG bus population: in blue  
LNG truck population: in red;



# Beijing NGV Conference and Trade Show



	2012	2013	2014	2015	2016 Exp
Exhibiting Area (SQM)	15000	30000	45000	70000	80000
Exhibitors	300	350	450	500	550
Visitors	24000	28000	32000	30000	35000
Countries	20	25	30	30	35



# Current LNG Re-fueling Station Situation

	LNG Stations	New Stations	Average OP/ station, K RMB
End of 2012	612		3,000
End of 2013	1,486	874	1,500
End of 2014	1,962	476	1,200
End of 2015	2,500	538	

Data source: Zhuochuang Information

## Reasons for slow down in LNG station build program:

LNG stations operation profit significantly down in recent years

For truck fuel applications, LNG has temporarily lost economic advantage compare to diesel :

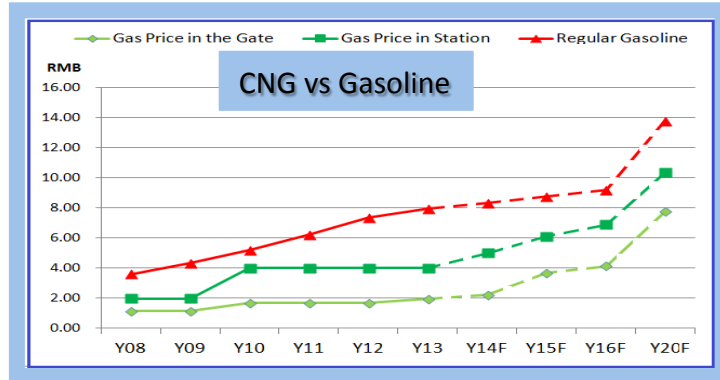
For each 100km consumption, LNG cost is about 168 RMB while diesel cost is 140 RMB

Compare to diesel vehicle, LNG vehicle has higher purchasing price and maintenance cost

## Mainstream enterprises changed strategy

Most station owners focus on operation level but hold on new investment

# Changes in the Chinese Market



***New NGV & Electrical Vehicles Programs supported by Government***

***Change in fuel tax calculations from: Central to local Government***

# Chinese Market Situation & Summary

- Market volatility due to current Oil Price
- National Regulations for CNG Stations
- Only Draft National Regulations for LNG Stations
- National Development Committee reviewing Major Projects
  - Contract investigations and audits
  - Investment / Cash flow delays
- Market Slows from a grow rate Circa +18%
- Market Slows - not Stalled
- The Outlook is still very positive 2 to 5 year window

Thank you