

ANGVA2U Info 2/2018. 26th Jul'18. (for ANGVA members only)

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1.0 NGV Related News

There are three NGV related online news that are periodically sent out to subscribers via emails without any charge. These are “News of the Day” by NGV Journal (www.ngvjournals.com), “NGV Global News” by NGV Global (www.ngvglobal.com), and “Newsletter” by GNV Magazine (gnvmagazine.com):



Members not in the mailing lists of these online news but would like to receive the news in their mailbox please visit the respective websites to subscribe.

2.0 NGV Market in Asia Pacific – China, world’s largest NGVs population



Map of China

Human Population (2017): 1.386 Billion. **GDP (2017):** USD 12.238 Trillion.
Annual GDP Growth (2017): 6.861 %. **GNI per capita (2017):** USD 8,690,000.
Natural Gas – Total Proved Reserves (end 2017): 193.5 Trillion Cubic Feet (5.5 Trillion Cubic Metres).
Oil – Total Proved Reserves (end 2017): 25.7 Thousand million barrels (3.5 thousand million tonnes).

Vehicle Population (March 2017): 300.3 million (two thirds were cars). **Note:** China is now the world largest producer of vehicles followed by USA and Japan. In 2017 China produced 29.01 million vehicles (24.80 million cars and 4.21 million commercial vehicles) i.e. 29.8% of the world production of 97.3 million vehicles. In 2017, USA produced 11.19 million vehicles (3.03 million cars, 8.16 million commercial vehicles), while Japan produced 9.69 million vehicles (8.34 million cars, 1.35 million commercial vehicles).

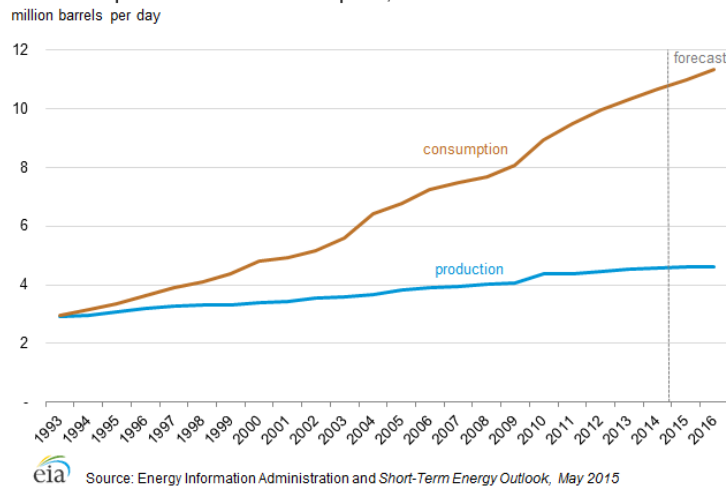
2.1 China Oil and Gas Sector Highlights

China has the world biggest population and has an economy that is rapidly growing which fuels the high overall demand for energy in the country. China has risen to the top ranks in global energy demand over the past few years and became the largest global energy consumer in 2011 and the world's second-largest oil consumer behind the United States.

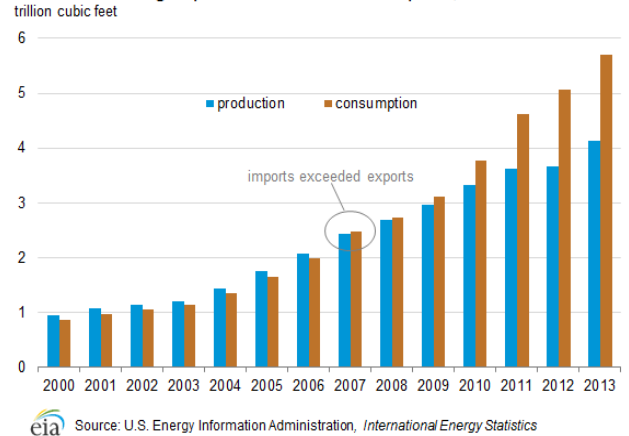
Natural gas use in China has also increased rapidly over the past decade, and China has sought to raise natural gas imports via pipeline and as liquefied natural gas (LNG).

The two charts below showed that in China the oil and natural gas consumptions were much more than productions and demand for oil and natural gas were growing rapidly.

China's oil production and consumption, 1993-2016



China's natural gas production and consumption, 2000-2013



In 2017, China was the world's fastest-growing natural gas market. Consumption grew by 15 %, more than twice the rate of economic growth. LNG imports grew by a staggering 46%. Government targets imply strong natural gas demand growth for at least the next decade – although infrastructure constraints could limit consumption in the short and medium terms.

The IEA's World Energy Outlook 2017 (WEO 2017) projected that China will provide a quarter of the projected rise in global gas demand and it was projected that imports in 2030 will be 280 billion cubic metres (bcm), second only to those of the European Union. And China will overtake the United States as the largest oil consumer around 2030, with net imports reaching 13 million barrels per day (mmbpd) in 2040.

WEO 2017 stated that China is entering a new phase in its development. The President's call for an "energy revolution", the "fight against pollution" and the transition towards a more services-based economic model is moving the energy sector in a new direction - with the emphasis in energy policy now firmly on electricity, natural gas and cleaner, high-efficiency and digital technologies.

2.2 Status of NGVs in China

China has the world largest population of natural gas vehicles (NGVs). NGV was first introduced in China in 1966 in Zigong in the Province of Sichuan. The NGV market in China only started to grow rapidly from March 1989. By the end of 2017, there were 6.08 million NGVs (including 350,000 LNG vehicles) and 8,400 NGV Refueling Stations (including 3,100 LNG refueling stations) in China. Natural gas consumption by the NGV sector was about 35 billion cubic meters (with the 350,000 LNG vehicles consuming almost half of the total). This is 15% of the total national natural gas consumption of 237.3 billion cubic metres.

Table 1: China Natural Gas Vehicles and Refueling Stations Growth, 2011-2017

Year	2011	2012	2013	2014	2015	2016	2017
Total Natural Gas Vehicles (NGVs) (in thousands)	1,443	2,160	3,365	4,595	5,190	5,576	6,080
Yearly Growth Rate	32.8%	49.7%	55.8%	36.6%	12.9%	7.4%	9.0%
Total NGV Refueling Stations (in thousands)	2,500	3,614	5,576	6,955	7,350	7,800	8,400
Yearly Growth Rate	31.6%	44.6%	54.3%	24.7%	5.7%	6.1%	7.7%
CNG Segment							
CNG Vehicles (in thousands)	1,405	2,085	3,235	4,411	4,960	5,316	5,730
Yearly Growth Rate	30.5%	40.4%	55.2%	36.6%	8.8%	7.2%	7.8%
Number of CNG Refueling Stations	2300	3014	3732	4455	4700	5100	5300
Yearly growth rate	27.8%	31%	23.8%	19.4%	5.5%	8.5%	3.9%
LNG Segment							
LNG Vehicles (in thousand)	38	75	130	184	230	260	350
Yearly Growth Rate	280%	97.4%	73.3%	41.5%	25.0%	13.0%	34.6%
LNG Refueling Stations	200	600	1844	2500	2650	2700	3100
Yearly Growth Rate	100%	200%	207%	35.6%	6%	2%	14.8%

2.2.1 Promotion of NGV by Chinese Government

Following are the policies and support provided by the Government for the development and growth of NGV in China:

- “National Energy Development Strategy 2014-2020” called to “sturdily develop natural gas powered transportation”.
 - this document asked for the compilation of medium and long term development plan on natural gas powered transportation,
 - speeding up the construction of natural gas refueling stations; Focusing on city taxis, public buses, actively developing LNG and CNG automobile
 - sturdily developing private natural gas cars, inter-city buses, heavy duty trucks and ships.

- “Energy Saving & New Energy Technology Developing Roadmap” (by Ministry of Industry & Information Technology) calls for natural gas vehicle as the PRIMARY DIRECTION of future vehicle production.
- The Ministry of National Finance and Treasury will enlarge the range of governmental green purchase, to include qualified CNG, LNG clean energy vehicles into the green purchase range.
- The Ministry will give financial support to the development and utilization of LNG vehicles. Decreasing 50% of the vehicle & ship taxes to qualified energy saving vehicles, such as heavy duty commercial natural gas vehicles, etc.

2.2.2 Future Forecast of NGV in China

Following are the forecast on the future development and growth of the NGV market in China:

- The NGV population in China would be 10 millions in 2020 (LNGV would be 500,000), NGV refueling stations would be 12,000 (LNG stations would be 4000).
- NGV would be the first type of vehicle to meet National Emission Standard VI during China’s 13th 5 year PLAN (2015-2020).
- In China’s 13th 5 year PLAN, CNG vehicles population in Shandong province would be over 1million, in Sichuan & Hebei provinces would be both over 50,000.
- With the technical breakthrough and new generation NGV vehicles meeting the National Emission Standard VI and widespread usage of high working pressure as storage, the population of NGVs during the 13th 5 year PLAN period is expected to increase rapidly.

Sources:

- (1) U.S. Energy Information Administration (EIA), USA. www.eia.gov
- (2) World Bank. International Energy Agency (IEA). www.worldbank.org
- (3) BP Statistical Review of World Energy. June 201. www.bp.com
- (4) International Organization of Motor Vehicle Manufacturers. www.oica.net
- (5) International Energy Agency (IEA), www.iea.org
- (6) Columbia University – SIPA Center on Global Energy Policy. <https://energypolicy.columbia.edu>
- (7) Paper/ presentation by Yongchang Li, Special Expert, Society of Automotive Engineers of China & Deputy Secretary-General, Sichuan Clean Energy Auto Industry Association, China. May 2018.

3.0 Selected news

3.1 Renewable Natural Gas / BioCNG / Biomethane. Toronto, Canada

Enbridge and City of Toronto to build one of the first renewable natural gas facilities in Ontario. 20th July 2018.

Enbridge Executive Vice President Cynthia Hansen congratulates Mayor John Tory on the joint project to construct the City's first renewable natural gas facility, located at the Dufferin Organics Processing Facility. Together, Enbridge Gas Distribution and the City of Toronto will build and install equipment that will turn the City's organic waste (apple cores, egg shells, coffee grounds, etc.) into clean energy.

Almost 50 per cent of household waste (by weight) is organic material. When organic waste breaks down, methane is created. Many municipalities burn the methane produced from waste facilities and sewage treatment plants, throwing away this valuable energy resource and opportunity to lower their greenhouse gas emissions.

Instead, through this facility, the methane can be captured, cleaned and used like traditional natural gas. It is carbon neutral, and has the same environmental benefits as renewable electricity. Expected to be completed in 2019, the project supports the City's vision of using Toronto's organic waste to offset greenhouse gas emissions.

As an added benefit, the newly created carbon-neutral, renewable natural gas will be injected into the natural gas distribution system to fuel the very trucks that picked up the Green Bin waste.

FACTS

- *Renewable natural gas (RNG) is a type of green gas. It is a carbon-neutral, sustainable fuel that is created from decomposing organic waste.*
- *From a greenhouse gas emissions perspective, RNG demonstrates tremendous benefits. Methane that otherwise would have entered directly into the atmosphere is transformed into RNG. The Ontario Ministry of Energy (Fuels Technical Report) believes that RNG can replace up to 15 per cent of Ontario's conventional natural gas supply by 2035.*
- *Converting fleets, public transit, and heavy-duty vehicles from diesel to natural gas will reduce greenhouse gas emissions by approximately 15 per cent and save up to 40 per cent on fuel costs. Further, vehicles running on RNG are considered net neutral (with respect to emissions.)*
- *Ontario is ready: a survey commissioned by Enbridge reveals that 75% of customers would support the introduction of RNG into the natural gas system.**
- *Enbridge and the City of Toronto estimate that more than 5 million cubic metres of RNG could be produced each year at this facility. That's enough to fuel 132 garbage trucks, 90% of the City's fleet (or heat more than 2,000 homes).*

Source: <https://markets.businessinsider.com/news/stocks/enbridge-and-city-of-toronto-to-build-one-of-the-first-renewable-natural-gas-facilities-in-ontario-1027386562>

3.2 Vietnam

HCM City plan to introduce CNG buses faces delays. 24th July 2018



A HCM City Programme to introduce new compressed natural gas (CNG) buses is facing difficulties due to a lack of financial support from the city and poor infrastructure.

VNS File Photo

The Programme envisaged that, starting in 2014, the city would have 1,680 new buses, most of them running on CNG. But few bus operators and co-operatives have launched these new environment-friendly buses.

According to a transport firm, the purchase and maintenance costs of CNG buses are too high compared to diesel-run buses, while the two types receive the same level of State financial support.

According to Phung Dang Hai, chairman of the HCM City Transportation Coop, a CNG bus costs VND2.2-2.75 billion (US\$96,000-120,000), nearly double that of a diesel bus. Maintenance costs are also more expensive. Besides, there are only four CNG filling stations in the city (in Thu Duc, Tan Binh, Binh Chanh, and District 12), resulting in more operational costs for these buses.

Nguyen Van Thao, chairman of Transportation Coop No 15, said transport operators would pay 30 per cent of the cost of a bus and obtain bank loans for the remaining 70 per cent with interest rates subsidised by the city. But they would face difficulties in even paying their share of 3 per cent interest on the loans since revenues from these buses are not high.

Efforts made to accelerate programme

According to the municipal transport department, the programme to introduce 1,680 new buses has been hindered by multiple obstacles, including setbacks in building CNG filling stations, affecting the development of the CNG bus routes. The progress has also been hit by the delay in the provision of financial supports to bus operators despite the department's efforts to ease loan procedures.

A spokesman for the department said it had also urged the State-owned oil group (PetroVietnam) to speed up construction of CNG filling stations and make efforts to stabilise the prices of CNG supplied to public transport companies in the city. City authorities have also approved subsidies for the programme and urged relevant agencies to quickly disburse the money for buying the 1,680 new buses.

Tran Chi Trung, director of the department's Public Transportation Management Centre, said the city was willing to spend more on CNG buses because they were eco-friendly.

Tran Quoc Toan, general director of the Sai Gon Transportation Mechanical Corp, producer of CNG buses for the city, said the company also planned to provide a number of electric buses for the city. Toan also said the locations of CNG filling stations in HCM City were very important and the city had identified 19 possible locations for them. In addition to the four existing filling stations, five more were planned to be set up. Trung said the city had urged CNG suppliers to speed up the construction progress.

Source: <http://english.vietnamnet.vn/fms/society/205598/hcm-city-plan-to-introduce-cng-buses-faces-delays.html>

4.0 End

It is hope that this second issue of ANGVA2U Info provides beneficial information to ANGVA members. Any comments and suggestions on the topics and information covered and to be covered in future are most welcome. Please send your comments and suggestions to Lee Giok Seng at email: leegs@angva.org