

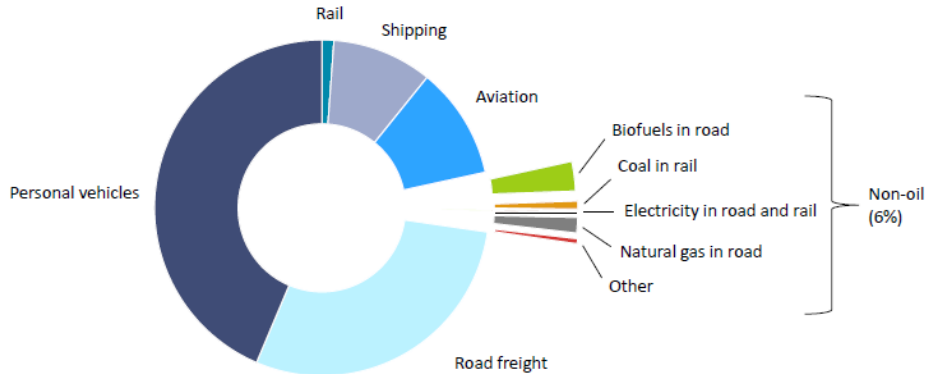
# ANGVA2U Info 3/2018. 2<sup>nd</sup> August 2018. (for ANGVA members only)

*ANGVA2U Info* aim is to share information, data, and news related to NGV with ANGVA members. However, these information, data, and news are collected and shared in good faith, without any guarantees of accuracies. Members are advice to use these information and data prudently and at their own risks.

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## 1.0 NGVs – Facing the Challenges

The transport sector is a major consumer of energy and a major source of air pollution and contributor to Global Warming. Oil accounts for more than 90% of transport energy demand (final energy consumption) mainly in the form of gasoline and diesel. The transport sector consumed more than half (56%) of global oil demand in 2016 and demand had been growing at an annual average of 1.5 % over the last ten years.



Source: IEA, 2016

**Oil supplies 94% of transport energy, three-quarters of which is used on road.**

The transport sector contributed around half of all energy related nitrogen oxide (NO<sub>x</sub>) emissions and was a significant source of primary particulate matter (accounting for around 10 % of total energy-related primary PM<sub>2.5</sub> emissions). Road transport was by far the largest source of transport sector’s NO<sub>x</sub> and primary PM<sub>2.5</sub> emissions (58 % and 73% of the total), while the marine segment accounted for the largest share of sulphur oxide (SO<sub>x</sub>) emissions.

A shift towards cleaner and sustainable fuels, other than gasoline and diesel, for the transport sector is needed to ensure sustainable economic growth and wellbeing of the environment and people. It will also contribute to meeting the target of carbon emissions reduction in many countries to meet their COP21 Paris Agreement commitments.

Natural gas with its abundant reserves, readily accessible and affordable, and its cleaner combustion properties (the cleanest among all fossil fuels), is a natural choice for the transport sector in the Asia Pacific region. However there are many challenges that need to be overcome before sustainable NGV markets can be realized in countries in the Asia Pacific region.

Three challenges obstructing the growth of the NGV markets in the Asia Pacific region are:

**1. Lack of NGV refuelling infrastructure / stations.**

- a. *Low retail price of natural gas (CNG/LNG) for vehicles makes it commercially unattractive for gas companies / suppliers to invest in NGV business and build more refuelling stations. Sale / retail prices of CNG/LNG need to be commercially attractive for gas supplier / retailers and vehicle owners to invest and participate in the NGV industry.*
- b. *Low oil price – making gasoline and diesel cheaper, thus less or no savings from switching / using of CNG / LNG for vehicles.*
- c. *Natural gas is consistently cheaper than oil on per energy basis. Thus sale / retail price of CNG/LNG should be consistently cheaper than gasoline and diesel. This price differential must be incorporated into a published Pricing Mechanism that is clear, transparent and sustainable in the long term*

**2. Natural gas is still a fossil fuel, thus still a ‘dirty and polluting’ fuel.**

- a. *Natural gas is the cleanest among the fossil fuels. It is the cleanest fossil fuel commercially available now.*
- b. *There are large reserves of natural gas worldwide and now natural gas, in the form Liquefied Natural Gas (LNG), is a commodity, traded and delivered worldwide thus ensuring availability and stable / security of supply.*
- c. *Upgraded biogas (Biomethane / BioCNG / Renewable Natural Gas) provides opportunity for the NGV industry to be green, renewable and sustainable.*

**3. Government focusing on Electric Vehicles (EVs) and Hydrogen (Fuel Cell).**

- a. *Electric and fuel cell vehicles still have a long journey towards large scale utilization. Meanwhile the world must do something immediately to reduce emission from the transport sector to help combat climate change before it is too late.*
- b. *Technologies of NGV (in the form of CNG and LNG) are bridges towards usage of hydrogen fuel cell vehicles e.g. hydrogen needs to be stored onboard fuel cell vehicles either as compressed or liquefied hydrogen similar to CNG and LNG.*
- c. *Electric Vehicles has its own challenges:*
  - i. *Lack of charging infrastructure / stations.*
  - ii. *Limited range (Range Anxiety) of vehicles.*
  - iii. *Use of ‘dirty fuels’ to generate electricity at power plants.*
  - iv. *Vehicle prices still expensive and not affordable by many people.*



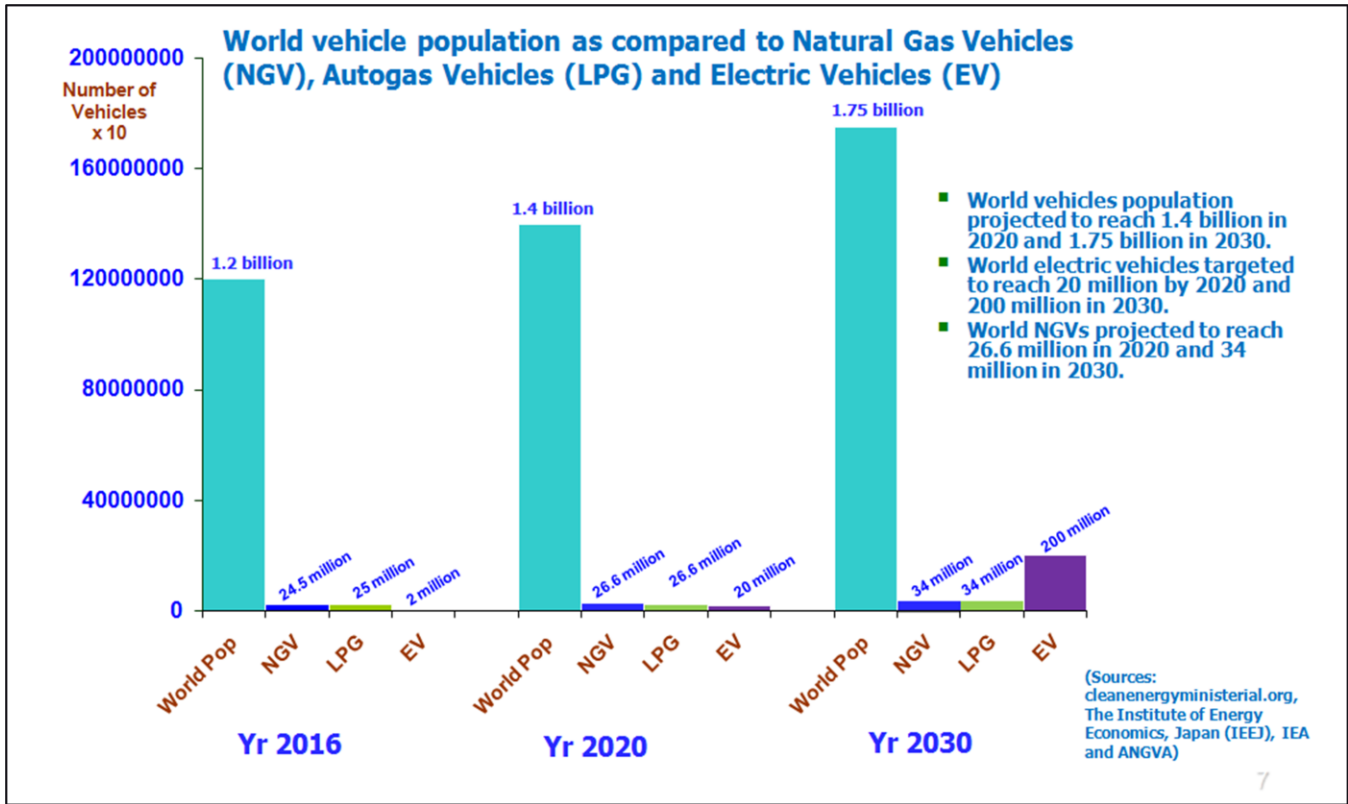


Figure 1: Projected numbers of Electric Vehicles in future are still a small percentage of world vehicle population

## 2.0 Selected News

### 2.1 Vietnam

Hanoi to launch first CNG-fuelled bus routes. 31<sup>st</sup> July 2018.



Hanoi will pilot three bus routes using Compressed Natural Gas (CNG) from August 1. (Photo: tienphong.vn)

**Hanoi (VNA)** - Hanoi will pilot three bus routes using Compressed Natural Gas (CNG) from August 1, according to the city's Department of Transport.

The proposed routes are from My Dinh Bus Station to Son Tay Bus Station, Yen Nghia Bus Station to Dang Xa Urban Area and the National Hospital of Tropical Diseases to Times City. The three routes will be managed by Bao Yen Tourism, Construction and Services Co. Ltd.

Buses, which have a capacity of carrying 50 passengers, will run every 15-20 minutes with fares of 9,000 VND (38 US cents) on the first and second routes and 8,000 VND (0.34 US cents) on the third one.

According to the Hanoi Public Transport Management and Operation Centre, CNG has many advantages. It does not adversely affect human health or the environment and compared with other fuels CNG is cheaper so it can help reduce production costs.

Experts say the price for 1 tonne of CNG is about 318 USD, nearly half the price of gasoline and 42 percent of the price of diesel. They calculated that buses running on CNG would save 8,308 USD in fuel compared to diesel each year.

The buses were supposed to go into operation on July 1 but there were delays due to the development of the gas pipelines and CNG filling stations, the centre said.

There is currently only one CNG filling station in Hanoi at Bao Yen's headquarters in Dong Anh district.-VNA

Source: <https://en.vietnamplus.vn/hanoi-to-launch-first-cngfuelled-bus-routes/135639.vnp>

## 2.2 Vietnam

### **Vietnam's first regasification terminal to open door for LNG imports.** *1<sup>st</sup> August 2018*

The Thi Vai LNG terminal, Vietnam's first regasification facility, could begin operations in late 2020. (PV Gas is a major shareholder in the company developing the Thi Vai LNG terminal project).

Construction of the terminal, which would turn liquefied natural gas (LNG) back into its gaseous state, could begin early 2019 after tenders are issued for the project in October or November this year, said Pham Van Phong, director of Liquefied Natural Gas (LNG) Vietnam JSC, a subsidiary of the state-run PV GAS.

Phong told *VnExpress International* that the feasibility study and front-end engineering design (FEED) for the Thi Vai LNG terminal in the southern province of Ba Ria-Vung Tau, has been completed.

"We have submitted the regasification terminal proposal, valued at some \$285 million, to the Ministry of Trade and Industry for approval. We plan to call Engineering, Procurement and Construction tenders for the project in October or November as prescribed in the 2013 Law on Bidding, once the project is ratified by the ministry," he said.

The terminal, with a designed capacity of one - three million metric tons (mt) per annum, is expected to begin operations in late 2020. It will serve gas-fired power plants in the southeastern region.

Another regasification project – the Son My LNG terminal in the central province of Binh Thuan – is under negotiation.

PV Gas had discussed a joint venture with US-based AES Corporation to develop the Son My terminal, according to an LNG Vietnam JSC source.

The Son My terminal may have a designed capacity of 10 million mt per annum. Project construction is set to begin in 2019-2020, Phong said.

He expected that construction of the LNG reserve and liquefaction bases, as required by overseas sellers, will help remove bottlenecks and pave the way for LNG imports.

Vietnam's development plan envisages the building of four more terminals in addition to the two mentioned above. Together, the six projects need a total capital investment of more than \$6 billion.

Under the revised National Power Development Plan VII, Vietnam will strive to increase its total power generation capacity to around 129,500 megawatts (MW) by 2030.

Of this 19,000 MW will come from power plants fired by gas, including LNG.

In its Q1 2018 report, the Wood Mackenzie global research and consultancy group estimates that Vietnam's LNG imports can start by 2023 and go up to 2.5 mt per annum by 2030. Vietnam is among the countries that will import LNG to replace declining domestic gas production.

Source: <https://e.vnexpress.net/news/business/industries/vietnam-s-first-regasification-terminal-to-open-door-for-lng-imports-3786132.html>

### 2.3 Malaysia

#### **Sarawak Energy building pilot hydrogen production plant, refuelling station. 30<sup>th</sup> July 2018**



*Pic: Abang Johari taking a closer look at a model of the hydrogen production plant and refuelling station. Also with him are Dr Rundi (second left), Hamed (right) and Sharbini (left). Photo by: Muhammad Rais Sanusi.*

**KUCHING:** Sarawak Energy is building a pilot hydrogen production plant and refuelling station here to evaluate the viability of hydrogen and fuel cells to power Sarawak's transportation sector in the future.

Scheduled for completion in the first quarter of 2019, the pilot facility will be built next to Sarawak Energy's Western Region Office at Jalan Belian here and will be the first dedicated for transportation in Southeast Asia.

Sarawak Energy chairman Datuk Amar Hamed Sepawi said with this ground-breaking pilot facility, the utility company's focus for now is to enhance its knowledge in this area.

“Over the past decade, Sarawak Energy has transformed into a vertically integrated power utility and energy development company with regional aspirations. We have been entrusted by Sarawak to spearhead green energy related research, of which hydrogen and fuel cells application could potentially play a significant role.

“While we may still have a long journey ahead of us, today’s (yesterday) earth-breaking ceremony marks a significant milestone for Sarawak,” he said at the earth-breaking ceremony for the pilot facility which was officiated by Chief Minister Datuk Patinggi Abang Johari Tun Openg at Sarawak Energy’s Western Region Office here yesterday. He pointed out that the hydrogen production plant and refuelling station is designed to be automated thus requiring minimal manpower operation.

“In line with the strong emphasis on health, safety and environment (HSE) throughout our organisation, safety features have been well-incorporated into the plant design.”

Sarawak Energy is building the facility in partnership with Linde Malaysia, part of the global Linde Group and a leading industrial gas supplier in Malaysia. The two corporations signed a memorandum of understanding (MoU), which was witnessed by Abang Johari, to explore potential markets for hydrogen, and to undertake a joint technical study to assess the technology of the whole value chain.

Signing on behalf of Sarawak Energy was its group chief executive officer Sharbini Suhaili while Linde Malaysia was represented by its South Asia and Asean regional managing director Rob Hughes.

Hughes described the partnership with Sarawak Energy as a testament of a team ready to embrace the sustainable agenda on a greater scale. “Linde is proud to be partnering with Sarawak Energy in this project, contributing our knowledge and expertise as a pioneer in the entire hydrogen value chain. “Linde has worked with partners in delivering around 150 hydrogen fuelling stations around the world and the success is now extending its focus to Asia,” he said.

Among those present at the ceremony were Utilities Minister Dato Sri Dr Stephen Rundi Utom, Assistant Minister of Water Supply Datuk Liwan Lagang and Assistant Minister of Rural Electricity Dr Abdul Rahman Junaidi.

## 2.4 Pakistan

**Three injured in Chauburju petrol station blast.** *31<sup>st</sup> July 2018.*



**LAHORE:** At least three people were injured after a cylinder exploded at a petrol station in the Chauburji area of the provincial capital on Tuesday.

As per the details, a cylinder filled with compressed natural gas (CNG) exploded at a petrol station located near the Miani Sahib Graveyard on Bahawalpur Road.

Rescue teams rushed to the site of the blast and shifted the injured to a nearby hospital while police units cordoned off the area. The injured were identified as Farhan, Nasir and Fahad.

The petrol station, a mosque, several vehicles as well as nearby buildings, including the adjacent Surayya Azeem Hospital, were also damaged due to the impact. Shattered glass could be seen all over the area. No loss of lives was reported in the incident.

Source: <https://www.pakistantoday.com.pk/2018/07/31/three-injured-in-chauburji-petrol-station-blast/>

### 3.0 Event Update

Please note that the following event has been postponed to November 2018. Actual dates of this event will be announced later:

Optimizing LNG and LPG Trade in Asia 2018. (ANGVA Supported Event. Organized by AEG).	<del>St Regis Hotel, Bangkok, Thailand.</del>	<del>11-12<sup>th</sup> Sept '18</del>
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### 4.0 End

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](mailto:leegs@angva.org)