

ANGVA2U Info 04/2020 20th March 2020. (for ANGVA members only)

ANGVA2U Info aims 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 guarantee of accuracies. Members are advised to use these information and data prudently and at their own risks.

+++++

1.0 Selected News / Articles

1.1 India

Why switch to Natural Gas Vehicles? We have a strong reason!

www.moneycontrol.com 20th March 2020



Indian cities can no longer afford to have vehicles releasing high levels of sulphur dioxide, particulate matter and NOx, and it has become critical for more and more private vehicle owners too, to switch to natural gas for fuel needs.

Can you tell the difference in pollution levels between cities using natural gas and petrol/diesel in their public transport systems? Of course, yes. Indian cities that switched to natural gas in their public transport system can justify the claim.

Take Delhi, for instance. The National Capital switched to the CNG programme in late 1990s and converted its bus fleet to CNG. Soon, many vehicles, such as three-wheelers, small commercial vehicles, some private vehicles and taxis started switching to the cleaner fuel, putting less burden on Delhi's air and their own pockets. The then reports by several publications including Washington DC based 'Resources For the Future' showed significant improvements in the quality of air due to the switch to CNG. Although at present, Delhi air quality remains a topic of public debate. Imagine the situation if the Capital hadn't adopted to cleaner fuels for its transportation needs and greener mobility.

There's no denying the fact that vehicles running on petrol or diesel cause more air pollution, damage the environment, pollute the air and consequently affect public health. Indian cities can no longer afford to have vehicles releasing high levels of sulphur dioxide, particulate matter and NOx, and it has become critical for more and more private vehicle owners too, to switch to natural gas for fuel needs.

To lead by example in greener mobility, the government is also pushing for CNG-based vehicles. Recently, to make CNG as the eco-friendly option for long distance transport in India, Shri Dharmendra Pradhan, Minister of Petroleum & Natural Gas and Steel, unveiled India's first long distance CNG bus fitted with composite CNG cylinders, which can travel around 1000 kms in a single fill.

The Minister said that the government is committed to promote CNG and LNG as transportation fuels to fight air pollution in India.

Evidently, there are many benefits of using natural gas as transportation fuels. Compared to petrol and diesel, natural gas are low emitters of greenhouse gases and burn clean, without leaving any residue. They release negligible particulate matter and produce no evaporative emissions. The environmentally accepted fuels reduce NOx emissions, which is the principle ingredient to cause smog and odour.

The above mentioned facts put less stress on the air quality, prevent particulate matter from getting accumulated on the surfaces, thereby subsiding harmful respiratory diseases, especially among children.

In addition to environmental benefits, natural gas such as CNG and LNG are more affordable than petrol and diesel.

Thus, switching to cleaner fuels does entail several benefits and makes way for greener mobility solutions.

Source: <https://www.moneycontrol.com/news/trends/features-2/why-switch-to-natural-gas-vehicles-we-have-a-strong-reason-5022901.html>

1.2 India

Tata Motors delivers India's first LNG-powered bus

www.lngworldnews.com 3rd March 2020



Inauguration ceremony of India's first LNG bus; Image: Tata

Tata Motors, India's largest commercial vehicle manufacturer, has completed the delivery of the country's first LNG-powered bus order.

Tata said on Monday that the two units of 36-seater Starbus LNG AC models were delivered to LNG Petronet in Dahej and two units in Kochi, Kerala.

The company added that it indigenously developed and delivered the LNG buses in the stipulated timeframe. The conclusion of the order and country's first LNG bus project was conducted during an event held at the Kochi LNG terminal.

Rohit Srivastava, VP of the bus product line at Tata Motors, said: "Tata Motors has taken a significant leap forward with a slew of alternate fuel technologies for sustainable mobility solutions and with the delivery of first Starbus LNG bus, we have ushered into a new era of transportation.

"We are proud to work with LNG Petronet in an effort towards creating a lower-carbon future. Our in-depth understanding of sustainable public transport, while developing reliable and environment-friendly public transit options, has led us to excel in this competitive industry."

The Starbus LNG is the first passenger vehicle with an integrated LNG system developed for the Indian market. Apart from the model delivered to LNG Petronet, Tata also offers 40-seater and 56-seater options.

The fuel carrying capacity of the LNG buses is up to 2.5 times more than CNG ones and can operate up to 600-700 kilometers in one tank fill.

According to Tata, LNG buses are lighter in weight thus offer enhanced levels of payload and significantly lower the overall cost of operation. Also, the LNG system operates at lower pressure and evaporates quickly – reducing the chances of a fire hazard – hence offering a safe mode of mass transport.

Source: https://www.lngworldnews.com/tata-motors-delivers-indias-first-lng-powered-bus/?utm_source=lngworldnews&utm_medium=email&utm_campaign=newsletter_2020-03-05

1.3 India

Inox, Shell partner up on LNG distribution in India

www.lngworldnews.com 18th March 2020



zoom Image courtesy of Siddarth Jain (Inox India executive director)/Twitter

Inox India has signed a memorandum of understanding with Shell Energy India, a unit of the Hague-based LNG giant Shell, to partner up on liquefied natural gas supply by road in Gujarat.

The MoU envisages deployment of distribution infrastructure including logistics and receiving facilities at customer end and will offer LNG access to customers not connected to the pipelines, Inox said in its statement.

This is aimed to help increase penetration and consumption of LNG by commercial and industrial users in India. The MoU also covers the cooperation in developing a larger market for LNG as a transport fuel for long-haul heavy-duty trucks and busses.

Shell owns and operates a 5 mtpa LNG receiving, storage and regasification facility at Hazira in Gujarat (Hauira LNG terminal). Shell Energy India is currently building a truck loading facility at the terminal and expects the partnership with Inox to help it develop the market for LNG as a preferred fuel.

Speaking of the MoU, Ashwani Dudeja, country head, Shell Energy India said that there is a growing demand for gas from the city gas distribution sector, commercial and industrial customers and as a fuel for heavy-duty transport.

The company aims to explore this new segment a develop similar partnerships in order to meet India's long-term demands.

Source: https://www.lngworldnews.com/inox-shell-partner-up-on-lng-distribution-in-india/?utm_source=lngworldnews&utm_medium=email&utm_campaign=newsletter_2020-03-19

1.4 Germany

German logistics company expands fleet with LNG-fueled trucks.

www.lngworldnews.com 18th March 2020



Image courtesy of Hegelmann Group

German-based cargo and freight company Hegelmann Group has acquired five LNG-powered trucks from IVECO.

The company noted in its statement the acquisition is a part of its plan to have sustainable vehicles make up at least 20 percent of its total fleet by 2025.

Sustainable solutions are gaining more and more attention in the transportation and logistics industry, the statement reads.

As a way to respond to this and become even greener, the cargo and freight company acquired five trucks from IVECO, powered by liquified natural gas (LNG).

Hegelmann Group began its operations in 1998, providing shipping services across Europe.

Now, Hegelmann Group has taken one step further towards its goal of having sustainable vehicles make up at least 20 percent of its total fleet by 2025, by acquiring five LNG-powered trucks from IVECO, of the model Stralis 460 NP.

According to Siegfried Hegelmann, a shareholder in the Hegelmann Group, the acquisition was driven by their goal of becoming more environmentally responsible.

Source: https://www.lngworldnews.com/german-logistics-company-expands-fleet-with-lng-fueled-trucks/?utm_source=lngworldnews&utm_medium=email&utm_campaign=newsletter_2020-03-19

1.5 Malaysia

Gas Malaysia subsidiary gets 10-year licence to import LNG

by Lai Ying Yi. theedgemarkets.com 18th March 2020



KUALA LUMPUR (March 18): Malaysia's Energy Commission has granted Gas Malaysia Bhd's wholly-owned subsidiary Gas Malaysia Energy and Services Sdn Bhd (GMES) a 10-year licence to import liquefied natural gas (LNG) for regasification in the country.

In a statement to Bursa Malaysia today, Gas Malaysia said the licence allows GMES to import the LNG into Malaysia by any means other than by transshipment.

"The licence has been granted under the Gas Supply Act 1993 [Act 501] (as amended by the Gas Supply (Amendment) Act 2016) and will take effect commencing 17 March 2020 and shall be valid for a period of 10 years.

"The issuance of the licence will have no material effect on the earnings and financial position of Gas Malaysia Group for the financial year ending 31 December 2020," Gas Malaysia said.

At 5pm today, Gas Malaysia's share price closed up one sen or 0.39% at RM2.56, valuing the company at RM3.29 billion.

The stock saw some two million shares traded.

Source: <https://www.theedgemarkets.com/article/gas-malaysia-subsiary-gets-10year-licence-import-lng>

1.6 International

Here's the problem with electric cars

by Stephen Edelstein. www.motorauthority.com 8th March 2020

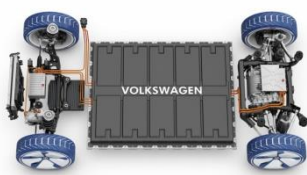


The need to reduce carbon emissions has led automakers to make [major investments in electric cars](#), but sales remain low. Globally, electric cars made up around 2 percent of new-car sales in 2019. Jason Fenske of *Engineering Explained* offers an explanation for why EV adoption may be stagnating.

The main issue, according to Fenske, is that batteries simply aren't as energy dense as gasoline. That means more space is required to hold a given amount of energy with batteries than with good old dinosaur juice. A gallon of gasoline is equivalent to 33.7 kilowatt-hours of energy, according to Fenske. So that one gallon contains more energy than the entire battery pack of a first-generation Nissan Leaf.

However, electric cars are generally more efficient than gasoline cars, Fenske noted. The 2ZR-FXE engine used in the Toyota Prius is one of the most efficient internal-combustion engines in production, at around 40 percent, according to Toyota. But most electric motors can consistently operate at 90 percent efficiency, according to Fenske.

But the efficiency difference is largely negated by other factors, Fenske said. Differences in driving conditions and cold ambient conditions can lower the efficiency of electric cars, he said.



VW Battery Packs

The extra weight and complexity of a battery pack compared to a fuel tank is also an issue. Getting sufficient range from an electric car involves adding more battery cells, which take up space and increase a car's curb weight, Fenske said.

This isn't as much of an issue for electric passenger cars as it is for other types of electric vehicles, according to Fenske. The weight of semi trucks, for example, is limited by regulations. So getting enough range out of an electric semi truck could severely limit the amount of cargo it can carry, Fenske said.

That hasn't stopped companies from trying to develop electric semi trucks. Tesla has said its Semi will have a maximum range of 500 miles, and the truck has attracted interest from companies like Budweiser and Walmart. It's worth noting that early electric semi trucks will likely be used on shorter runs between dedicated terminals, ensuring they're never too far from a charging station.

Energy density could also impact the many electric pickup trucks currently in development. Towing inherently lowers efficiency, but that generally isn't a problem for gasoline and diesel pickup trucks. Even if they're getting worse fuel economy by towing, large fuel tanks ensure drivers won't be inconvenienced. In contrast, towing with an electric vehicle can sharply decrease range.

Source: https://www.motorauthority.com/news/1127239_here-s-the-problem-with-electric-cars

1.7 United States of America

Scientists find fast charging destroys electric vehicle batteries

By Matthew Beedham. *thenextweb.com* 13th March 2020



For time-crunched EV drivers, fast-charging points are a boon to minimizing enforced stoppages. But scientists have found that continually using high-powered, fast-charging points can decrease the life of EV car batteries.

Engineers from the University of California, Riverside (UCR) say that commercial fast-charging stations subject EV car

batteries to high temperatures and resistance which can cause cells to crack, leak, and lose storage capacity.

As a control, the group of engineers and scientists charged a set of Panasonic lithium-ion cylinder cells (similar to what's found in Tesla's power packs) using the same method as is found at many public fast-charging stations.

The researchers also charged a set of cells using a new algorithm-based protocol, which charges the batteries as fast as possible but takes into consideration the battery's internal resistance.

According to the engineers, high internal resistance in a battery can cause problems when charging. If these go unaddressed, battery cells can be permanently damaged.

To prevent such potential damage, the UCR's proposed charging method cuts out when internal resistance gets too high. In theory, this limits damage to cells.

Battery life dramatically reduced

Using the industry standard charging process, battery capacity was reduced by as much as 40% after 40 charge cycles. However, using the internal resistance-based method battery capacity was only reduced by about 20% by the 40th charge cycle.

According to the researchers, the standard process effectively killed the batteries after just 25 charging cycles. An EV car battery is considered end-of-life when it holds less than 80% of its original total capacity.



Credit: Ozkan Lab/UCR After 60 fast-charge cycles EV batteries begin to deteriorate. In some cases, cells cracked and exposed their internal components.

After 60 charge cycles under the industry standard process, the cells began to crack, exposing the internal components. In extreme cases, this can be enough to cause fire.

If you are an EV driver that enjoys the convenience of fast charging, there are some things you can do to be on the safe side, though.

The UCR Battery Team recommends minimizing the use of commercial fast chargers, recharging your EV before the battery is totally empty, and be sure not to overcharge.

In reality, most people will rarely charge their electric vehicle from zero to full. But it's good to know that doing so might not be a great habit to slip into.

Researchers recently published their full findings in the *Energy Storage* journal, [read their full research paper here](#).

Source: <https://thenextweb.com/shift/2020/03/13/scientists-fast-charging-destroys-electric-vehicle-batteries-tesla-panasonic/>

1.8 International

Every Day 10,000 People Die Due To Air Pollution From Fossil Fuels

by Roger Pielke. Contributor. . www.forbes.com . 19th March 2020



I research and write about science and technology in policy, politics and in sport



Heavy smog covers the Keranigonj area as air pollution reaches the "very unhealthy" level, ... [+]. NURPHOTO VIA GETTY IMAGES

Climate change is not the only consequence of the burning of fossil fuels. A study published last week in the journal *Cardiovascular Research* estimated that in 2015, the deaths of more than 3.6 million people worldwide could have been avoided if air pollution from fossil fuels were reduced to zero.

These numbers are staggering. They equate to about 10,000 deaths per day, every day, under the study's mean estimates. Excess deaths from fossil fuel air pollution comprises about 40% of all air pollution deaths. The estimates in this new study are about twice as large as past estimates of excess mortality from air pollution.

Overall, the authors claim that the loss of life expectancy globally "from air pollution surpasses that of HIV/AIDS, parasitic, vector-borne, and other infectious diseases by a large margin. It exceeds the [loss of life expectancy] due to all forms of violence by an order of magnitude and that of smoking by a third."

The study finds that "the mortality from air pollution is dominated by East Asia (35%) and South Asia (32%), followed by Africa (11%) and Europe (9%)." China and India lead the way with an estimated 1.6 million and 700,000 deaths, respectively, in 2015. The United States ranks third, with almost 200,000 deaths in 2015. Europe, as a whole, had an estimated 430,000 deaths. Air pollution mortality is global, as air pollution occurs everywhere.

Air pollution is also a silent killer and thus easy to overlook. It ends life prematurely, particularly for those with heart or lung diseases. The study's authors note that "Humans typically fear violence most, but rational evaluation shows that, only in exceptional cases (Syria, Afghanistan, Honduras, Colombia, and Venezuela)" is the risk of violence to human health greater than that of air pollution.

The burning of fossil fuels includes "includes emissions from power generation, industry, traffic, and residential energy use" but also includes the small-scale burning of biomass (like wood) and coal, particularly in residences in some parts of the world for cooking and heating. Modern society is built on fossil fuels, but fortunately technological and societal innovations have created alternatives for many of the applications of fossil fuels, including the production of electricity and many forms of transportation.

For most people, recognizing the large effects of air pollution on human health has no doubt been masked by the long-term trend of increasing human lifespans – which in no small part has been driven by energy consumption from fossil fuels. But as the paper notes, "The global mean life expectancy increased from 52 years in 1960 to 72 years in 2015 (and 80 years in high-income countries), but in many low-income countries, including sub-Saharan Africa, it is still below 60 years."

The new estimates of mortality from air pollution due to fossil fuels reinforce another recent study which estimated the air pollution consequences of Germany's nuclear phase-out. That study, published by the

National Bureau of Economic Research, focused on the shut-down of 10 of Germany’s nuclear power plants from 2011 to 2017.

The NBER study found that “the switch from nuclear power to fossil fuel-fired production resulted in substantial increases in global and local air pollution emissions.” A key reason for the increased air pollution was that “lost nuclear production was replaced by electricity production from coal- and gas-fired sources in Germany as well as electricity imports from surrounding countries.”

The study concluded that “the phase-out resulted in more than 1,100 additional deaths per year” due to excess mortality from the consequences of increased air pollution. Since 2011 that totals more than 10,000 deaths, far more than [all deaths attributable to nuclear power in history](#).

The study’s authors observe that the additional risks to human health created by the nuclear phase-out create tensions for policymakers, who must deal with public pressures on climate change at the same time that nuclear power is deeply unpopular in some places, like Germany. When it comes to energy technologies, there are no simple choices – trade-offs are inevitable.

The burning of fossil fuels has many consequences. The health effects of air pollution are often overlooked in policy debates over energy transitions in favor of the long-term consequences of climate change, which are often projected to the end of the century. But air pollution effects are a clear, short-term impact, scientifically well-supported, and without the political overlay that often accompanies debates over climate.

Consequently, the importance of reducing air pollution deaths might occupy a greater role in policy debates that are centered on climate change. Air pollution policies have in the past largely focused on making fossil fuel burning cleaner, but it may be time to include a focus on more rapidly phasing-out of fossil fuels as a central element of air pollution policies.

Consider that by 2030, based on a simple extension into the future of these new research results, more than 35 million people worldwide may die from air pollution-related health effects resulting from fossil fuel combustion. This is about the combined population of New York, Los Angeles, Chicago, Houston, Phoenix, Philadelphia, San Antonio San Diego, Dallas, San Jose plus the entire state of Colorado.

The question to ask is not whether the benefits of fossil fuel use exceeds its costs in terms of air pollution deaths. The more relevant policy question to ask is whether the benefits of transitioning off of fossil fuels exceeds the human costs of continuing to burn coal, oil and natural gas.

We do not need any other reason beyond the health effects of air pollution to more rapidly transition to cleaner sources of energy, including nuclear power, with far less human impact. If such a transition also reduces the risks of long-term climate change, so much the better. The mathematics here are simple: no air pollution from fossil fuels, no excess mortality.

Source: <https://www.forbes.com/sites/rogerpielke/2020/03/10/every-day-10000-people-die-due-to-air-pollution-from-fossil-fuels/#3840ee172b6a>

2.0 ANGVA related / participated events

There are no ANGVA related and participated events at least for the next three months.

3.0 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