



## **ANGVA2U Info** 08/2023. 28<sup>th</sup> August 2023 (for ANGVA members only)

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### **1.0 Selected News / Articles**

#### **1.1 India**

##### **India's city gas firms bet on CNG expansion**

25<sup>th</sup> August 2023. By Rituparna Ghosh

India's decarbonisation drive has prompted its government to push for more compressed natural gas (CNG) vehicles, which are expected to take over from gasoline and gasoil cars in the long run along with electric vehicles.

City gas distribution companies are at the forefront of this initiative as they build CNG charging stations across the country, as well as expanding the gas transmission network to ensure that more areas in the country are better connected.

The push for lower greenhouse gas emissions from the automobile sector has accelerated, as it contributes to 12pc of the country's carbon emissions. The government aims to achieve net zero emissions by 2070, while targeting the share of natural gas in its primary energy mix to increase to 15pc by 2030 from the current 6.8pc.

The attraction of CNG-powered engines continues to support its sales in the country, increasing by 40.71pc from a year earlier to 318,752 units over the April 2022-March 2023 fiscal year, accounting for 8.8pc of overall retail sales out of the 3.6mn passenger vehicles in India, the government's Vahan database showed.

CNG refilling infrastructure is rising at its fastest pace as the government has fixed a target to set up around 17,700 CNG stations across the country by 2030, junior oil minister Rameshwar Teli said in the upper house of parliament in April this year, adding that were 5,118 CNG stations were built as of 31 January 2023.

Most Indian auto manufacturers are building CNG or hybrid cars that have two engines, one running on gasoline and another on electricity. Following the oil ministry's plea to ban diesel cars by 2027, India's largest vehicle producer Maruti Suzuki has discontinued making diesel models. Fellow auto producers Tata Motors and Honda India also have announced that they will discontinue smaller capacity diesel engines.

CNG prices are also as much as 20pc lower than gasoline prices in India. CNG in New Delhi costs 73.59 rupees/kg (89¢/kg) against gasoline prices at Rs96.72/l.

With the city gas distribution sector getting priority allocation for domestic gas, along with the introduction of ceiling and floor prices for administrative price mechanism (APM) gas, CNG prices have dropped significantly this year to further support increased sales of CNG vehicles.

"The volume growth is expected to pick up in the next quarters [July onwards] as we are yet to see the full impact of reduction in the CNG prices made by the company after

implementation of Kirat Parikh committee report," Indian state-controlled city gas distributor Indraprastha Gas said in its earnings review on July, adding that CNG vehicle conversion is already on the rise.

Following the implementation of revised APM pricing, savings that CNG customers can get over alternate fuels have also increased to 45-50pc, Gujarat Gas said in its earnings review.

### **Network expansion**

City gas distributors are remaining optimistic as they plan to build more CNG stations in the coming years.

State-controlled gas distributor Gail subsidiary and gas supplier Mahanagar Gas in Maharashtra state is planning to add 200 CNG stations in the next five years from an existing 313 stations.

Gail is targeting 3,000 CNG stations across India by 2025. By next year it will add 400 CNG stations and provide pipeline gas connections to more than 1mn households. Gail operates about 42pc of all the CNG stations in the country at around 2,360.

Private-sector Adani Total Gas also has plans to build more than 1,800 CNG stations in the next 7-10 years, executive director Suresh P Manglani said in the company's annual report, adding that the firm currently operates 277 stations in the country.

**Source:** <https://www.argusmedia.com/en/news/2483064-indias-city-gas-firms-bet-on-cng-expansion?backToResults=true>

## **1.2 Nigeria**

### **FG's alternative to petrol, CNG projected to cost ₦250 per litre**

23<sup>rd</sup> August 2023. By SOLOMON EKANEM

**Special adviser to the President on media and publicity noted that 11,500 new CNG-enabled vehicles will be rolled out very soon and will focus more on easing difficulties in the mass transit systems across all states of the federation.**



CNG was developed as a cheaper source of fuel and targets the mass transport scheme for low-income earners who have been affected by the effects of the sudden removal of petrol subsidy, a development which arbitrarily shot up the price of petrol from ₦190 to over ₦600.

*Natural Gas (Credit: Wikipedia)*

According to Ajuri Ngelale, the special adviser to the President on media and publicity, the Presidency proposed the usage of the product to ameliorate the hardship Nigerians are currently encountering by making it available for mass transport operators.

Ngelale added that to show the FG's seriousness, 11,500 new CNG-enabled vehicles will be rolled out very soon and will focus more on easing difficulties in the mass transit systems across all states of the federation.

Despite the FG's move to provide custom-made CNG-enabled transport buses, checks have revealed that the exorbitant cost of converting petrol vehicles to CNG vehicles is a significant challenge in kicking off the project.

According to data published by HydroCIS, the conversion of a 1.6-litre engine petrol vehicle would cost between ₦300,000 and ₦400,000 while tricycles with 4 Stroke engines will cost between ₦100,000 to ₦200,000.

The conversion cost for lorries and vans was projected to cost higher at ₦1.8 million while the projected cost for 4-Stroke Petrol generator engines was about ₦90,000.

The presidential spokesperson also noted that the FG has authorised the immediate rollout of 55,000 new CNG conversion kits for vehicles currently running on PMS to further increase the adoption rate and speed the transition from PMS to CNG.

Ngelale confirmed that the FG, through the Nigerian National Petroleum Company Limited (NNPCL), has partnered with the Nigerian Independent Petroleum Company (NIPCO) to enhance product supply.

“[The deal] effectively is going to roll out 56 new CNG filling stations across all states of the federation within the next 16 months — 21 new CNG filling stations within the next nine months and then 35 CNG filling stations between April 2024 and April 2025, which essentially takes us to the midterm of his first term in office,” he said.

*Source:* <https://www.pulse.ng/business/domestic/fgs-alternative-to-petrol-cng-projected-to-cost-naira250-per-litre/5lwzrwp>

### 1.3 India

#### **Yogi govt will set up CNG and CBG plants in every district**

23<sup>rd</sup> August 2023. Published by Press Release

**As per the draft of the Uttar Pradesh State Bioenergy Policy 2022 prepared by the government, various types of incentives will be provided to agriculture residue-based bio-CNG and bio-CBG (compressed bio-gas) units. The Chief Minister has already announced that such units will be set up in every district.**



Lucknow: Aiming to reduce the pollution caused by stubble burning, the Yogi government has decided to provide bio-decomposers to 17 lakh farmers to convert paddy straw into bio-compost. The move is aimed at finding part of Chief Minister Yogi Adityanath’s efforts to find a permanent solution to this problem through penalties, awareness campaigns, and

other possible methods.

Notably, after harvesting paddy and wheat, the main Kharif and Rabi crops, it has become a common practice to burn the residue of these crops to prepare the fields for the next crop which becomes severe due to moisture in the weather in some areas.

#### **Planters will get concessions**

As per the draft of the Uttar Pradesh State Bioenergy Policy 2022 prepared by the government, various types of incentives will be provided to agriculture residue-based bio-CNG and bio-CBG (compressed bio-gas) units. The Chief Minister has already announced that such units will be set up in every district.

### **A plant in Gorakhpur will start soon**

A plant of this kind, costing around Rs 160 crore, is being set up by Indian Oil in Dhuriapar, Dakshinanchal, Gorakhpur. It is expected to be operational by March 2023. It will utilize rice and wheat straw, rice husk, sugarcane leaves, and cow dung and each material will have a fixed rate. In this way, the stubble of the crops will also get the price.

Apart from the employment provided in the plant, large scale employment will be generated at the local level in the field of gathering, loading, unloading and transportation of raw materials for the requirement of the plant. The compost manure that will be available after the production of CNG and CBG will be made available to the farmers at cheap rates.

Meanwhile, programs to educate farmers about the negative impacts of stubble burning will continue through agricultural science centers and farmer welfare centers.

### **Stubble has a treasure of nutrients**

Research has shown that the amount of NPK in remaining crop residues is 0.5%, 0.6%, and 1.5% respectively. Instead of burning them, if these residues are composted in the field, the soil will have access to these nutrients. This can lead to a savings of around 25 percent on fertilizers in the next crop, resulting in reduced costs and increased profits. It also helps in retaining soil's organic matter, preserving bacteria-fungi balance, environmental conservation, and reducing the impact of global warming.

According to a study by the Gorakhpur Environmental Action Group, burning stubble not only releases nutrients, but also leads to the loss of around 400 kilograms of valuable carbon per acre, along with 10-40 crore bacteria and 1-2 lakh fungi in every gram of soil.

According to Dr. BK Singh, former zonal manager of UP Livestock Development Council, about 18 quintals of crop residue are produced from every acre of land. With the market value of crop residue to be around Rs 400 per quintal during the season, burning this residue results in the loss of Rs 7200 worth of fodder. This later becomes a cause for fodder scarcity.

### **Other benefits of crop residue:**

- The covering of soil with crop residues keeps the temperature of the soil cool, which enhances the activity of microorganisms. These microorganisms provide essential nutrients for the next crop.
- The moisture retention capacity of soil covered with residues increases, which improves the soil's water-holding ability. This reduces the amount of water required for irrigation and also conserves scarce water resources.

### **Consider these alternatives:**

Instead of burning stubble, try deep ploughing it into the field and irrigating the land. Before sowing the next crop, you can apply around 5 kilograms of urea per acre to enhance its quick decomposition.

**Source:** <https://newsroompost.com/india/yogi-govt-will-set-up-cng-and-cbg-plants-in-every-district/5273093.html>

## 1.4 Sweden

### **Biokraft says launches world's largest biomethane liquefaction unit**

24th August 2023. By LNG Prime Staff

**Sweden-based bio-LNG producer Biokraft International, previously known as Scandinavian Biogas, has launched what it says is the world's largest biomethane liquefaction unit at its biogas plant in Sodertorn.**



The newly built liquefaction plant, connected to the company's biogas plant in Sodertorn, located south of Stockholm, delivered its first batch of bio-LNG on Thursday, according to Biokraft.

Biokraft said the shipment consisted of 34 tons of bio-LNG to be used by trucks in northern Europe.

*Image: Biokraft*

“A filled container holds 17 tons of bio-LNG which is enough for fossil-free driving with a fully loaded long-haul truck for approximately 50,000 kilometers,” it said.

Biokraft produces biogas by digesting collected food scraps and slaughterhouse waste from municipalities in Greater Stockholm.

#### **50 tons of bio-LNG per day**

The newly built liquefaction plant is located directly adjacent to the digesters in Sodertorn and converts biomethane into liquid through cooling.

“The unit has a production capacity of 220 GWh per year and is thus the world's largest (with a production capacity of 50 tons of bio-LNG per day),” Biokraft said.

Also, the company's potential market is significantly broadened towards heavy road transport, shipping, and industry thanks to liquefaction.

Bio-LNG has a high energy content per unit volume and can be transported long distances at a “reasonable” cost to meet a strong demand in Northern Europe, it said.



#### **\$30 million**

The Stockholm bio-LNG project started two years ago and the investment is about 330 million Swedish crowns (\$30.2 million).

Biokraft financed the project with equity, bond loans, and government investment support from Klimatklivet.

*Image: Biokraft*

“The Stockholm bio-LNG project will be in the commissioning phase for some months while production is scaled, and functions and delivery parameters are tested,” it said.

Biokraft expects the facility to be transferred to regular production towards the end of the year.

“The launch of Stockholm bio-LNG is a major strategic milestone and strengthens our market position as one of Europe's leading bio-LNG producers in the Northern European market,” Matti Vikkula, CEO of Biokraft, said.



“The project also shows that, in line with our strategic growth plan, we have the competence and capacity to build and operate large-scale biogas plants,” he said.

Biokraft recently secured land for a new bio-LNG production plant it plans to build in Perstorp, Sweden.

Earlier this year, Scandinavian Biogas decided to build a new bio-LNG plant worth about \$75 million in Monsteras, Sweden.

Biokraft intends to expand its current production capacity to at least 3 TWh by 2030.

The company has a supply deal with German fueling station operator Alernoil, as well as a multi-year deal to supply bio-LNG to the transport sector in Sweden and the Nordic region.

**Source:** <https://lngprime.com/lng-terminals/biokraft-says-launches-worlds-largest-biomethane-liquefaction-unit/89767/>

## 1.5 United States of America

### **Sugar Valley Energy, STARS collaborate on biogas-to-hydrogen**

24<sup>th</sup> August 2023. By California Ethanol & Power



*Source: STARS Technology Corp.*

Sugar Valley Energy, a subsidiary of California Ethanol & Power LLC (CE+P), and STARS Technology Corp. have announced a groundbreaking collaboration agreement to deploy cutting-edge hydrogen production technology at SVE’s planned, fully permitted 160-acre sugarcane ethanol biorefinery, bioelectric, biogas and wastewater treatment facility in Imperial Valley, California.

The SVE-STARS agreement envisions the deployment of up to 80 STARS-250 H2 Generators, producing low-cost, renewable hydrogen that meets the new federal clean hydrogen standard. These generators would be installed at SVE’s low-carbon ethanol plant that will produce more than 70 million gallons of low-carbon ethanol each year. The hydrogen generators would also potentially be installed at nearby hydrogen fueling stations.

“We are excited about the potential to partner with STARS Technology Corporation to bring their state-of-the-art hydrogen production technology to our low carbon renewable sugarcane ethanol and power project,” said Dave Rubenstein, president and CEO of CE+P. “This collaboration aligns with our commitment to sustainable energy solutions and will revolutionize the production and utilization of clean hydrogen.”

“This collaboration between SVE and STARS represents a significant milestone in advancing clean energy solutions and propelling sustainable development in Imperial Valley and beyond,” said Robert S. Wegeng, STARS president and chief technology officer.

## **Clean Hydrogen from the Biofuel Production Process**

The biogas created from the waste products of the locally grown sugarcane to ethanol process would provide feedstock to the STARS H2 Generators. Collectively, the 80 STARS-250 H2 Generators can produce up to 20,000 kilograms of clean hydrogen per day, the equivalent to the typical daily fueling needs of more than 30,000 fuel cell light-duty passenger vehicles or more than 500 hydrogen fuel cell buses.

Biomethane derived from the organic byproducts of ethanol production will be used for on-site hydrogen production using STARS H2 Generators and this hydrogen will fuel the trucks and heavy equipment involved in sugarcane cultivation. Onsite hydrogen production will also enable the on-site production of ammonia, supplying SVE with a low-carbon crop fertilizer. In addition, SVE plans to inject a portion of its biomethane into nearby pipelines as renewable natural gas (RNG). This RNG can then be converted into clean hydrogen using distributed STARS H2 Generators at filling stations throughout the region.

The collaboration between SVE and STARS can establish an unprecedented agricultural-energy cycle where virtually all energy and materials produced by SVE will be converted into high-value products for use within the region while creating long term stability for growers and clean energy jobs.

The effort to grow sugarcane for the SVE project is expected to support an estimated 2,000 agricultural jobs, along with approximately 200 on-site employees who will run the energy campus. The three-year construction of the project will support thousands of additional construction jobs, local economic activity as well as city and county revenue.

The integration of STARS' advanced technology with SVE's sugarcane ethanol and power facility can provide significant benefits throughout Imperial Valley, California, and Arizona for years to come. These benefits extend to energy, transportation, as well as the environment, economy, and society of the region.

*Source:* <https://biomassmagazine.com/articles/20324/sugar-valley-energy-stars-collaborate-on-biogas-to-hydrogen>

## **1.6 India**

### **India govt sets emission limit for hydrogen to qualify as 'green'**

19<sup>th</sup> August 2023. Reuters. Reporting by Swati Bhat; Editing by Tomasz Janowski

MUMBAI, Aug 19 (Reuters) - The Indian government has set an emission limit of two kilogram carbon-dioxide for every kilogram of hydrogen produced to be classified as "green" from renewable sources, the Ministry of New and Renewable Energy said on Saturday.

It said in a statement its notification would bring widely-awaited clarity for green hydrogen production in India.

"With this notification, India becomes one of the first few countries in the world to announce a definition of Green Hydrogen," the ministry said in the statement, which detailed what emissions would be accounted for.

India wants to become a global hub for the production of green hydrogen and is aiming for annual production of 5 million metric tons of the fuel by 2030, which would cut about 50 million metric tons of carbon emissions and save more than \$12 billion on fossil fuel imports.

It is an ambitious plan for a country whose hydrogen consumed currently is produced mostly with fossil fuels.

While hydrogen fuel only emits water when used as fuel, it is made by electrolysis plants that split water molecules and at issue is what energy is used to produce it and carbon emissions involved in the process.

India, which holds the rotating Group of 20 presidency this year, was suggesting a 1 kg CO<sub>2</sub> emissions limit for green hydrogen, half of the threshold announced on Saturday.

Although first production is expected only in 2026, India has been negotiating bilateral agreements with the European Union, Japan and other countries to start exporting the fuel.

**Source:** <https://www.reuters.com/sustainability/climate-energy/india-govt-sets-emission-limit-hydrogen-qualify-green-2023-08-19/>

## 1.7 Singapore

### **Neste restarts Singapore renewable diesel production**

15<sup>th</sup> August 2023. By Ryan Ang

Finnish biofuels producer Neste said it restarted renewable diesel production at the expanded part of its Singapore plant in early August.

Production was shut down in June because of "unexpected equipment repairs" just after the completion of the expanded 2.6mn t/yr refinery in May.

But the ramp-up of production at the expansion refinery continues and is expected to be completed by the end of this year, with sustainable aviation fuel production scheduled to begin this quarter.

**Source:** <https://www.argusmedia.com/en/news/2479517-neste-restarts-singapore-renewable-diesel-production>

## 1.8 Malaysia

### **Shell, KNOC joins the South Korea-Malaysia CCS Project**

17<sup>th</sup> August 2023.

PETRONAS, SK Energy, SK E&S Company Limited, Samsung Engineering, Samsung Heavy Industries, LOTTE Chemical have signed a memorandum of understanding (MoU) with Korea National Oil Corporation (KNOC), Hanwha Corporation, Air Liquide Korea, and Shell Gas & Power Developments B.V. for a carbon capture and storage (CCS) project between Malaysia and South Korea.

The Shepherd CCS project will capture carbon emissions from industrial complexes, accumulate it at a local hub, and then transport and store it at a facility in Malaysia. The aim is to develop an entire value chain.

The participating companies are currently conducting a feasibility study and are exploring sites for additional hubs in South Korea and carbon storage in Malaysia.

**Source:** <https://southeastasiainfra.com/shell-knoc-joins-the-south-korea-malaysia-ccs-project/>

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