



Electric vehicles to account for 4% of electricity demand by 2030

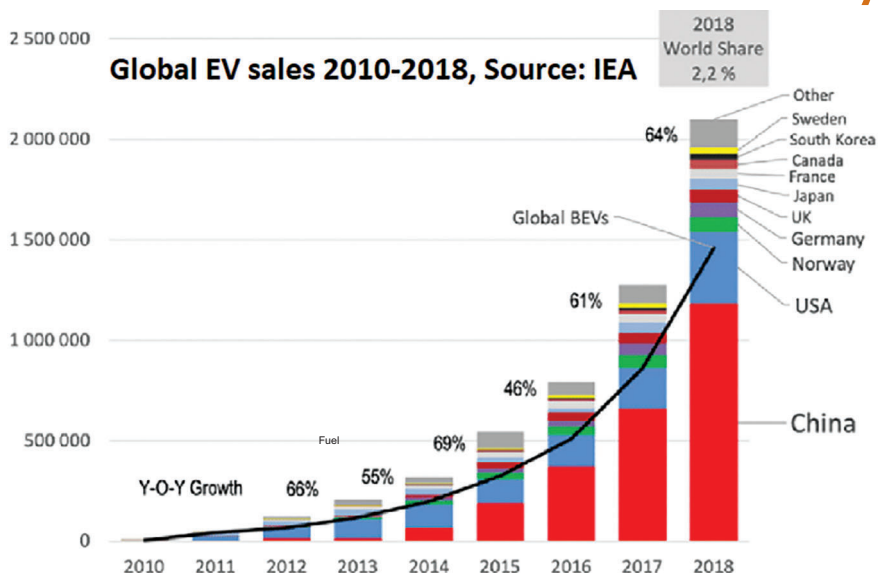
Analysts at the International Energy Agency (IEA) expect vehicles to account for around 4% of final electricity use by 2030, as electrification of transport is pushing up global energy demand. In the IEA's Announced Pledges Scenario (APS), electricity demand from e-vehicles will be 1,100 TWh in 2030 – equivalent to twice today's total electricity use in Brazil.

The APS scenario assumes that electric cars and trucks will account for over 30% of all vehicles sold globally in 2030. "While impressive, this is still well short of the 60% share needed by 2030 to align with a trajectory that would reach net zero CO2 emissions by 2050," analysts commented.

Costs for EV raw materials soar

Much of the slowdown in EV sales is due to the soaring cost of raw materials for batteries, especially cobalt, nickel and zinc.

The nickel price is forecast to jump by 45.9% to \$32,868 per million tonne over the course of 2022, according to a recent Nickel Commodity Briefing Service report. The average 2022 nickel price forecast is a 78% year-on-year increase, though analysts noted the assumption is subject to significant risks, triggered by major demand de-



struction as well as supply constraints given that 15.2% of global production of class 1 nickel used to come from the Russian Federation.

Commodity traders and battery manufacturers are hard pressed to source nickel and other precious metals from alternative markets, other than Russia. Disruptions of supply chains have slowed, or partially halted, the production of batteries and other components vital for manufacturers of electric cars.

Volkswagen Group, producer of Audi and VW, has committed to invest €30 billion in battery-powered vehicles until 2023. Despite

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Carbon-neutral fuels – a panacea for the energy transition?

Scaling up the carbon-neutral fuel market may be a panacea for the energy transition, as it allows turning intermittent renewable power supply into a fuel for industry and engine-driven power stations. But it will take time and a huge amount of investment to get there, Reed Smith cautions, hence fossil fuel producers look for interim solutions like "carbon-neutral" fossil fuel deals.

Carbon neutral broadly refers to the reduction and/or offsetting of CO2 emissions occurring as a result of the production, transportation, and use of a fossil fuel product with the aim of achieving a net-zero emissions outcome. For less carbon-intensive fossil fuels, such as LNG, a voluntary framework of carbon offsets is relatively well developed.

But, relatively few carbon-neutral LNG deals have transpired to date, and initiatives like the GIIGNL Framework are hoped to stimulate growth. The GIIGNL Framework caters to several decarbonization "pathways" for producers of LNG, with only one attracting the "GHG neutral" label. This one requires emissions reductions at source, off-



setting the balance of emissions, and a commitment to achieving long-term decarbonization.

Opt-in to voluntary carbon offsets

LNG producers hereby have the flexibility to "opt-in" to the pathway most in accordance with their commercial aims. "This is important given the potential for third-party gas suppliers and varying

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limited raw materials and few available e-car charging stations, there is "significant opportunity," analysts say, suggesting: "For auto manufacturers, it could be a case of evolve or die out."

China – the engine of global EV sales

China became the main growth driver for EV sales in 2021. More vehicles were sold in China last year (3.3 million) than in the entire world in 2020. Sales in Europe showed continued robust growth (up 65% to 2.3m) after the 2020 boom, and they increased in the United States as well (to 630 000) after two years of decline, IEA figures show.

The first quarter of 2022 showed similar trends, with sales in China more than dou-

bling compared with the first quarter of 2021 (accounting for most of global growth), a 60% increase in the United States and a 25% increase in Europe.

Growth still hinges on public support

Considering current policy plans of the world's major economies, EV will just reach 20% of sales in 2030, increasing the stock 11-fold from today's levels to 200 million vehicles, IEA analysts forecast. Growth in the EV market largely depends on public spending and incentives for businesses and private households to exchange their petrol cars with cleaner e-vehicles.

In 2020, countries like Germany launched a time-limited subsidy scheme for purchases

of e-cars costing less than €40,000 whereby the buyers get €9,000 reimbursed by the state, as well as reduced taxation. This scheme is, however, being reduced to around €4,000 in 2023 and €3,000 in 2024 and 2025.

Registrations of purely electric cars in Germany consequently increased 83% to reach a market share 14%, while the number of new hybrid cars (including plug-ins) rose more than 40% to a total share of 29%, over the past two years. The German government said it is prepared to support the European Commission efforts to phase out the combustion engine for newly registered passenger cars by 2035. "The future belongs to e-mobility," as Chancellor Olaf Scholz put it. ■

Investors in offshore wind should look beyond price and lease fees

Offshore wind, combined with energy storage, will cover a fast-rising share of the world's energy mix as power generators seek to limit their reliance on fossil fuels. Capex spending on offshore wind could reach \$1 trillion worldwide by 2031, Wood Mackenzie finds, calling on investors to look beyond bid prices and lease fees when scaling up projects.

The technology behind offshore wind is proven and investor's confidence in green power has grown since European Union set clear targets in its RePowerEU policy package about diversifying gas supplies and gain independence from Russian fossil fuels by 2030. To achieve that, the Commission and national government have set out supports schemes to help power producers retrofit gas power units for hydrogen co-firing, and accelerating the build-out of wind and solar power.

Offshore wind is expected to be one of the fastest rising green energy sources. By 2030, Wood Mackenzie expects 24 countries to have large-scale offshore wind farms, up from nine today. Total installed capacity will reach 330 GW, up from 34 GW in 2020.

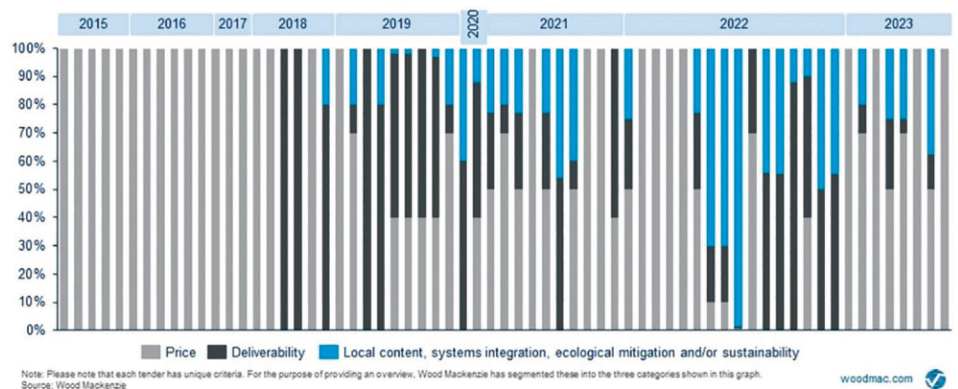
"Companies are now jostling to bag a share of the trillion-dollar offshore wind

industry. The pipeline of proposed projects grew 66% last year and is now nearly three times as high as our projected forecast offshore wind capacity in 2030," said Soeren

Lassen, head of WoodMac's Offshore Wind Research. But as more companies bid, lease payments skyrocket and subsidies drop, which means project returns are falling.

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Announced bidding criteria in global offshore wind tenders and lease auctions



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readiness to undergo intensive monitoring, reporting, and verification (MRV) of emissions," commented Reed Smith experts on the matter, James Atkin, Adam Hedley and Jake Williams.

For crude oil, by contrast, carbon-neutral voluntary initiatives are significantly less developed. "This is largely due to the increased offsetting costs associated with the higher carbon emissions generated from crude oil products, and the heightened complexity in measuring carbon emissions from crude oil products," the three experts noted, adding: "As a result, to date, we lack an industry-wide voluntary framework

for carbon-neutral crude oil."

Voluntary framework

Despite the absence of an established voluntary framework, some crude oil transactions have been reported to be carbon neutral. One of the first such deals took place in April 2021 between Lundin Energy AB and Saras, whereby the producer used an independent MRV certification scheme provided by Intertek Group to determine CO2 emissions and, for the carbon offsetting element, sourced carbon credits certified by the VCS.

But the use of MRV mechanisms that are not widely recognized was criticized by com-

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Uniper consortium to produce PtL aviation fuels in Hamburg from 2026

"Green Fuels Hamburg" is the brand name by which Uniper, Siemens Energy, Airbus and the chemical company Sasol ecoFT are looking to commercially produce green sustainable aviation fuels that can be also used for peakload power generation. The four partners cover the entire value-chain to produce Power-to-Liquid (PtL) kerosene and aim for 10,000 tons from 2026 onwards.

A feasibility study is underway, supported by the Technical University of Hamburg (TUHH) and the Hamburg Senate while Emirates Airline has expressed its interest in being involved in the use of the so-called PtL kerosene produced.

The Power-to-Liquid (PtL) plant would run on green hydrogen, to be made by a large-scale electrolyser in Hamburg Billbrook, where hydrogen will be generated from offshore wind energy. The potential PtL fuels plant would use the Fischer-Tropsch (FT) synthesis to produce CO₂-neutral PtL kerosene from green hydrogen and processed biogenic carbon dioxide.

If feasible, the production capacity re-

quired would be at least 10,000 tonnes of green kerosene annually for aviation in the first expansion stage from 2026. That means the plant in Hamburg alone could provide 20% of the blending quota of PtL kerosene, as specified by the German government in the PtL roadmap from 2026.

"The market ramp-up of hydrogen is one of the most important projects in northern Germany's economic and energy policy and is of immense importance for the whole of Germany. With a resurgence in passenger numbers, high air freight volumes and rising oil prices, alternatives to fossil kerosene and solutions for reducing



Airbus A380, running on green fuels

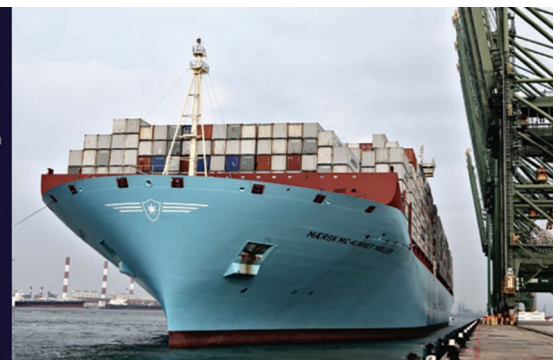
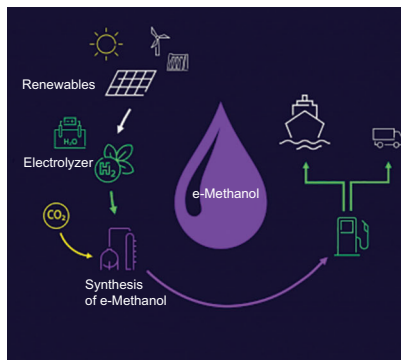
CO₂ emissions are indispensable," said Michael Westhagemann, Senator for Economic Affairs and Innovation.

"The climate-neutral aviation of the future needs global projects like "Green Fuels Hamburg" to take a decisive step forward with production," he commented. ■

Siemens Energy builds world's first e-Methanol plant in Denmark

An electrolyser in the 50 MW range is being deployed by Siemens Energy to the Danish town of Kassø, where it will be powered by a nearby 300 MW solar park. The green hydrogen plant will produce cost effective e-Methanol for sale to the shipping line Maersk and fuel retailer Circle K. Start of commercial production is slated for autumn 2023.

The customer of the electrolyser is European Energy, a Danish operator of green energy projects and developer of the world's first large-scale commercial e-Methanol production facility. Once in full swing, the Kassø electrolyser will ensure a steady fuel supply for Maersk's first e-Methanol driven container vessel – the starting point into CO₂-neutral shipping at large.



Start to CO₂-neutral shipping

Global shipping accounts for around 3,050 terawatt hours (TWh) of the world's final energy consumption – more than five times the electricity use of Germany. Fuelled mainly by bunker oil, the shipping sector emits about 1,000 million tons of CO₂ per year, about 13% of global transport emissions.

The International Maritime Organization (IMO) has already committed to halve shipping sector emissions by 2050, based on 2008 levels, and pushed for use of carbon-neutral electricity-based fuels (e-Fuels) for propulsion.

Hailing the e-Methanol project at Kassø as the first large-scale commercial Power-to-X-project of its kind in the world, Knud

Erik Andersen, CEO of European Energy called the order placement a "crucial moment ... as we move forward with the decarbonization of hard-to-abate sectors such as the shipping industry. We trust that Siemens Energy outstanding know-how of electrolyzers will become a strong foundation to expand our business of delivering sustainable fuels to the world," he added. ■

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mentators, and analysts noted "such transactions in the crude oil sector remain rare."

Greenwashing CO₂ or creating a 'level playing field'?

Calls have been made for governments to step in and develop a regulatory framework

for carbon-neutral fossil fuels. Critics say that calling fossil fuels carbon neutral is simply greenwashing, as they can never truly be carbon neutral by their intrinsic nature, and allowing the unregulated use of that label simply prolongs the life of the fossil fuel industry and delays the uptake

of renewable alternatives.

In contrast, the industry argues that mandatory regulation would "level the playing field" and "may ultimately drive prices up" given that the ability to attach a credible, globally recognized carbon-neutral label to a cargo "will add value," they say. ■



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German energy regulator warns of gas supply risk, price surge after July 11

Germany's Federal Network Regulator (BNetzA) has issued a stark warning that the country could face serious gas supply shortages from July 11 when Russia's Gazprom will start scheduled maintenance on the Nord Stream 1 gas interconnector through the Baltic Sea. BNetzA head Klaus Müller voiced concerns that Gazprom could completely stop supplies through Nord Stream which would more than triple prices for German industrial and household customers.

In an interview with the German state-owned television ARD, Müller said that the energy regulator fears Gazprom could use the maintenance as a pretext to further reduce gas flows through Nord Stream 1 from already reduced levels. "We cannot rule it out," Müller said.

The maintenance is only scheduled to last for several days and is actually an annual routine. "But this time the question arises as to whether Russia will actually turn on the gas tap again and state-owned company Gazprom has already severely curtailed its gas deliveries via Nord Stream 1," he explained.

Gas price could surge 80%

In the event of a delivery stop, the Bundesnetzagentur has calculated various scenarios. "Most of the scenarios are not nice and mean either too little gas at the end of winter or a very difficult situation in autumn or winter," Müller warned.

The Bundesnetzagentur confirmed that the recent increases in wholesale gas price have

not yet fully passed on to consumer. "The gas price increases of last autumn are already being passed on," Müller said, explaining this was an increase of up to 80%. Since then, the gas price has quadrupled as of last week and has now even increased six-fold.

"These are huge price jumps, which are not all passed on to consumers one-to-one. But doubling or tripling is definitely possible, depending on the storage situation," he commented.

Industry is already busy preparing for the risk of potential price increases and supply shortages given that the regulator has the right to reduce gas supplies to 'non-protected customers' in the event of an emergency.

Emergency plan at stage 2 of 3

Last week, the German government triggered the "alarm stage" of its 3-stage gas emergency plan in the face of steadily falling Russian supplies. With this move, Berlin seeks to ward-off energy shortages during



Map of key gas pipelines in Europe

the winter season. Stock are low, with filling levels of German underground gas storages at just over 58.3% – well below the 90% targeted for November 1.

Triggering stage 2 of the emergency plan could lead to a change in the law that would allow utilities to pass on cost increases to homes and businesses. If enacted, this would also increase the use of thermal coal for power generation to minimise gas consumption.

Stage 3, the highest emergency level, would allow the state to take full control of Germany's gas distribution network.

Müller also told utilities to dispatch more coal-fired power stations from an emergency reserve to safeguard gas supplies. To that end, he wants to adopt a law that will be debated by Germany's federal parliamentary chamber (Bundesrat) on July 8. In parallel, the economy ministry is preparing regulation to activate a so-called gas emergency reserve. ■

Scholz refuses to extend nuclear power despite gas crunch

Looming gas supply shortages have made Germany's business-friendly Liberal Party (FDP) to call for an 'open debate' on extending the runtime of the country's three remaining nuclear power stations. But Chancellor Olaf Scholz refuses, claiming it would take "at least 12 to 18 months" to purchase and get new fuel rods delivered to keep the three reactors running.

The phase-out of all German had been decided "a long time ago", with fuel supply aligned accordingly, Scholz argues. "The nuclear fuel rods currently last only until the end of the year," he told reporters, suggesting it would not be feasible to buy new fuel rod in time to facilitate a runtime extension beyond December 2022.

In the wake of Japan's Fukushima nuclear crisis in 2011, the German government – then led by Angela Merkel (CDU) – decided to gradually shut down all nuclear

power stations. Today, the last three remaining are the 1,410 MW Isar Ohu 2 nuclear power station in Bavaria operated by E.ON, the 1,310 MW plant Neckarwestheim-2 operated by the regional utility EnBW, and the 1329 MW plant Emsland operated by RWE. All three are scheduled to stop operations on the December 31, 2022.

Longer bridge needed than for "a single winter"

Calls for a nuclear run-time extension, if not renaissance are getting louder: Not only the FDP but also the Bavarian sister party of Scholz' Conservative CDU are urging the Chancellor to examine whether the three reactors, which are due to be shut down this year, could remain in operation until March or April.

But nuclear as a source of baseload

power supply might not only be necessary in winter 2022/23, given that gas supply shortages look set to become a medium-term problem that could extend until the end of the decade. If the remaining three remaining nuclear power stations are kept running for the next 8 years, the German government could stick to its coal phase-out plan and ensure the country stays on its path to reach Net Zero emission by 2045.

"It's not about a single winter that needed to be bridged, but about three to five years of energy supply in Germany and the shortage of gas," FDP head Christian Linder strongly underlined. The FDP is in a coalition government with Scholz's Social Democrats (SPD) and the Green Party, hence the three parties will have to find some sort of agreement on the future of the German power generation mix. ■



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Mozambique could save \$2bn by investing in RES and gas, rather than coal

Electrification and industrialisation drive Mozambique's energy demand, with an estimated 1.3 GW of additional power generating capacity estimated to be necessary over the next decade, and a further 2 GW for Beluluane Industrial Park in Maputo. Wärtsilä reckons that investing in renewables and gas would save \$2 billion and 25 million tons of CO₂ by 2032, compared to adding new coal-fired capacity.

In a study, compiled together with EdM (Electricidade de Moçambique), Wärtsilä used its Plexos modelling tool to examine how an optimized power system expansion would look like with the competing technologies and fuels available, under different demand increase scenarios from 2022 to 2032.

Temane CCGT helps balance renewables

The models consider existing power capacity, committed capacity additions, including the 450 MW Temane power plant to be commissioned in 2024, as well as capacity expansion candidates including coal, gas, and renewables. "Any coal fired power plant, in addition to the combined cycle gas-turbine plant which is currently under construction in Temane, would provide the country with significant baseload capacity,

without the flexibility required to integrate cheap renewables on the grid," analysts commented.

The Temane project, consists of a 450 MW gas-fired peaking plant and a LPG plant that will produce 30,000 tonnes of cooking gas annually and 4,000 barrels of light oil daily for export. Upon completion, the can cover the electricity demands of around 1.5 million households. All electricity generated from the power plant will be sold to EdM under a 25-year offtake agreement.

RES, flexible gas and energy storage

With its huge reserves of coal and the development of its immense gas fields, Mozambique has plenty of power generation potential. The country also has impressive yet untapped, low-cost wind and solar resources. "Renewables, together with flexible gas capacity and energy storage, is the optimal energy mix to support demand based on moderate growth projections," analysts argue.

By 2032, focusing on renewables supported by flexible gas would generate savings of 25 million tons of CO₂ emissions and \$2 billion dollars in total costs, when compared to a coal-based scenario, Wärtsilä analysis finds. To

provide the additional 2 GW of electricity to serve the Beluluane Industrial Park, the cost optimal solution would combine 1 GW of wind and solar capacity together with 2.6 GW of new baseload and flexible gas projects. ■



EdM's 450 MW Temane power plant is scheduled to start up in 2024

NEWS NUDGES

Ansaldo awarded twice for Intellectual Property

Italy's Ansaldo Energia has won two awards for Intellectual Property: "Best EMEA IP D4department –Patent Silver Award" at The International Legal Alliance Summit & Awards and "Best IP Department" at The Innovation & IP Forum and Awards. The honours were handed over in the context of a conference on worldwide in patent, trademark, IT, IP litigation and other related rights where 60 experts shared their experience in front of an audience of over 500 legal and energy professionals.

Crusoe takes over Easter-Owens

Crusoe Energy Systems has acquired Denver-based Easter-Owens, maker of modular data centers and specialized electrical systems. The takeover comes after years of cooperation between the companies as Crusoe has optimized and scaled its fleet of modular data centers that eliminate natural gas flaring and related emissions.

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Technologies need to cooperate, not compete

Though cost competitiveness will remain central for new onshore wind project, Lassen observes that a new set of bidding factors is gaining traction. In his view, it is four factors: "local content, systems integration, ecological mitigation and sustainability – [and these] will necessitate a strategic shift for competitors in offshore wind."

These new parameters "are difficult to tackle in isolation," he noted, not least green hydrogen, where offshore wind tenders can

be combined with projects that will help to grow the green hydrogen business. "It is crucial, therefore, that developers consider who they are partnering with, not just who they are competing against," he stressed.

Almost 80% of capacity connected this decade is expected to be influenced by local content policies. Each market has its own local content rules which are often influenced by the size of the economy in comparison to the size of the offshore wind opportunity.

System integration is another vital factor because renewable energy projects are easier to finance and operate when then can provide a stable revenue stream, which can be achieved by linking fluctuating wind power units with backup gensets or energy storage systems. Three wind-energy islands proposed in Denmark and Belgium already pair together offshore wind, interconnection to multiple power markets, and energy storage and hydrogen production in order to fully utilize excess volumes of wind energy to maximise returns. ■

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