

Prices stable amid lack of end-user buying



LONDON (Reuters) – Liquefied natural gas (LNG) prices in Asia held largely steady this week, taking a breather after recovering from a significant dip in March.

LNG for delivery in northeast Asia in June is estimated at \$5.60 per million British thermal units (mmBtu), the same level as last week.

The July price is seen at a slight contango – a market structure in which prompt prices are below later-dated prices – and is estimated at \$5.65 mmBtu.

Demand kept coming from trading and portfolio companies who are optimizing their positions in the Far East. Deals for June cargoes were done between \$5.50-5.60 in the Platts market on close (MOC) window this week.

Several companies are in talks to optimize their July positions as well, an LNG trader said.

One is the trading arm of Russian producer Novatek, which is

looking to buy a cargo in the Pacific basin to cover a July delivery position in Asia, two market sources said.

A lack of end-user demand kept prices from rising however, with some buyers offering to sell cargoes. China's PetroChina was offering a cargo in the Platts MOC window for late June delivery.

A spot cargo offered from Malaysia's Bintulu for early June loading likely didn't find a buyer, a shipping market source said.

In Europe, Spain's delivery prices are increasing on the back of higher gas demand in the country, two trade sources said.

Offers rose to above the level of the Dutch gas hub benchmark price as sellers see Spain having to compete for cargoes with other markets, one of the sources said.

There were several spot cargo offers in Europe. Novatek is selling a late May delivery cargo to northwest Europe from the Yamal plant, two sources said.

PetroChina, another offtaker from Yamal, has offered three cargoes for June delivery to Europe, one industry source said.

Front-month gas prices in the Netherlands and Britain fell by around 20 cents to around \$4.63 and \$4.24 per mMBtu respectively.

There were two diversions of cargoes from Europe to Mexico in the past week, indicating more attractive prices in the recent tenders of Mexican utility CFE compared to Europe.

America's LNG exports could triple with Venture Global plan



Venture Global LNG Inc revealed a massive expansion of its plans to send super-chilled US natural gas overseas, a move that would almost triple the nation's ability to export the fuel. The Arlington, Virginia-based company will work with Baker Hughes to develop projects that could produce as much as 60mn tonnes of liquefied natural gas a year, double the previously announced amount. The increase is "based on customer demand," Venture Global said in a statement on Thursday. If Venture Global's plans come to fruition, the company would leapfrog Cheniere Energy Inc as the top US exporter, based on capacity. Venture Global just won approval to build its \$5bn Calcasieu Pass terminal in Louisiana and aims to break ground on another one twice the size by the end of this year. But competition in the industry is fierce. More than a dozen projects are vying to be part of the so-called second wave of US LNG exports, capitalising on the surge of gas production from shale basins. Demand for the

fuel is climbing worldwide as nations including China and India shutter or cancel coal plants in an effort to crack down on pollution. "This is going to be a strong year for LNG expansion and that will probably continue next year and beyond, simply because China and Asian demand for LNG is so strong," Stephen Ellis, equity strategist for Morningstar Inc in Chicago, said in a telephone interview. America's growing clout in the global energy market, including LNG, helps advance the nation's policy goals and contributes to security of supply across the world, Energy Secretary Rick Perry and Secretary of State Mike Pompeo said last week at the CER-AWeek by IHS Markit conference in Houston. To meet growing gas demand, the US needs to build more LNG export projects than it has planned, Perry said. For developers like Cheniere and Venture Global, signing long-term contracts is a critical part of securing financing and starting construction. But two projects backed by major oil companies got the green light without such agreements in place: LNG Canada, the \$30bn British Columbia terminal backed by Royal Dutch Shell Plc, and the \$10bn Golden Pass project being built by Qatar Petroleum and Exxon Mobil Corp in Texas.

Gas Tax for Infrastructure Sparks Fears of Political Backlash



Democrats and Republicans are quick to talk up a bipartisan infrastructure deal. Yet neither party wants to take the political risk of paying for it when all options are toxic – including the obvious choice of raising the national gas tax.

Increasing the gas tax is so politically fraught that it hasn't been touched in 26 years and it didn't even come up at a meeting at the White House Tuesday between President Donald Trump, House Speaker Nancy Pelosi and Senate Minority Leader Chuck Schumer to discuss an infrastructure plan.

While they agreed broadly on the need to upgrade roads, bridges and airports, they put off for three weeks the tougher conversation about coming up with ways to fund an estimated \$2 trillion in public works.

Taxes on fuel in the U.S. are among the lowest in the developed world, at 18.4 cents per gallon for gasoline and 24.4 cents per gallon for diesel, and infrastructure advocates see raising the levies for the first time since 1993 as the best short-term option to generate needed revenue.

Still, a measure that would disproportionately affect poor and rural drivers raises opposition at all levels of the political spectrum. It's also created strange bedfellows – aligning members of the conservative House Freedom Caucus, born from the Tea Party movement, and progressives such as Senator Elizabeth Warren of Massachusetts, a Democratic presidential candidate.

“Working people who have got to get to their job, get their kid to a medical appointment, shouldn't get hit again when multinationals are enjoying their big tax breaks and causing much of the wear and tear to the road,” said Ron Wyden of Oregon, the top Democrat on the Senate Finance Committee, who was at the meeting.

Roll-Back Cuts

Some Democrats, including Wyden and Schumer, have said they'd only consider increasing the gas tax if it's paired with a roll-back of tax cuts that benefited the rich in the 2017 tax overhaul. The 2018 Senate Democratic infrastructure plan called for raising taxes on top earners and corporations.

Even though Trump campaigned on a promise to invest at least \$1 trillion in infrastructure, the plan he released last year included only \$200 billion over a decade – mostly in incentives to spur investments by states, localities and the private sector.

Democrats said after their meeting with Trump on Tuesday that he offered no plan for financing infrastructure projects. They said they won't make any offers and will wait for the White House to make its proposal in three weeks. Democrats said Trump indicated he's soured on a public-private approach.

The White House statement after the meeting made no mention of an amount an amount or where the money would come from.

While Trump has said he's eager to work with Congress on

infrastructure, Democrats say Republicans won't go along unless the president publicly endorses a plan – especially if it includes a tax increase.

Closed-Door Meeting

Lawmakers who attended a closed-door meeting with Trump a year ago said he told them then that he'd support a 25-cent-per-gallon increase in the gas tax and take the political heat. But Republican congressional leaders were opposed, and Trump never backed the idea publicly.

Now Trump's signaling that he's unlikely to support a gas-tax increase. In a tweet last Friday, he said the fuel tax in California "is causing big problems on pricing for that state" and "speak to your governor about reducing." California approved a 12-cent-per-gallon increase in 2017 to help pay for road and bridge projects, and voters defeated a Republican-led ballot measure to repeal it last November.

Asked by reporters on Tuesday whether Trump would raise the federal gas tax to help pay for an infrastructure package, White House adviser Kellyanne Conway said "this president is the president who lowers taxes."

Michael Ireland, the president and chief executive officer of the Portland Cement Association, said, "They're all afraid to go first."

"The truth is only the president can provide cover for his caucus," added Ireland, whose group backs a gas-tax increase. "Likewise, only the speaker and the Senate minority leader can provide cover for their members."

'D-Plus Level'

Advocacy groups as diverse as the U.S. Chamber of Commerce, the AFL-CIO, the American Trucking Associations and others are advocating raising federal fuel taxes as the only realistic

way in the short term to generate the funding needed to address upgrades to public works from a “D-plus” level that the American Society of Engineers has estimated would cost \$2 trillion.

Still, a gas tax increase wouldn’t solve the problem. The Tax Foundation estimates that even raising the gas tax to 50 cents per gallon and indexing it to inflation would only generate about \$306 billion over a decade. That means lawmakers would have to agree on a whole package of tax measures – which is unlikely following the passage of Trump’s tax overhaul.

“Democrats are interested in raising income and corporate tax rates, but Republicans are not interested in unraveling their big signature achievement,” said Marc Gerson, a former House Ways and Means Committee aide who’s now at law firm Miller and Chevalier. “There is no agreement.”

Koch Campaign

Americans for Prosperity, the flagship political organization of the network led by billionaire Charles Koch, recently began a campaign targeting 20 states and 30 congressional districts with digital ads and a report with Freedom Partners Chamber of Commerce showing the impact of a 25-cent increase.

“Lawmakers in Washington must finally step up and focus on targeting transportation dollars toward critical road projects and reforming outdated and costly regulations,” the groups said.

Senate Majority leader Mitch McConnell, a Kentucky Republican, said last month that he’s willing to take up the infrastructure issue “once the president and Democrats and everybody says, ‘OK, here is how we’re going to pay for it.’”

State Increases

Some 30 states have raised their fuel taxes since 2003 – including Republican-led Ohio, Arkansas and Alabama this year – according to the Institute on Taxation and Economic Policy. States tack on an average tax of nearly 29 cents per gallon, according to the U.S. Energy Information Administration.

While infrastructure advocates point out that state lawmakers haven't lost elections as a result, the local increases have eaten away at additional taxes that the federal government could try to put on gasoline.

Representative Sam Graves of Missouri, the top Republican on the House Transportation and Infrastructure Committee, favors a system that charges a tax for every mile a vehicle travels. Even though some transportation experts say such a system poses privacy concerns and is still years away, Graves argues that a costly political battle to raise the gas tax would be a waste with greater fuel efficiency and more electric cars making it obsolete.

“I think where we're going to go ultimately is some kind of vehicle miles traveled tax,” said Senator Tom Carper, a Delaware Democrat. “Some of the discussions this week will be what will the bridge be that gets us to that future.”

Iran oil exports to slide in May, 'but not to zero'



LONDON (Reuters) – Iranian oil exports will slide in May as the United States tightens the screws on Tehran’s main source of income, industry sources said, deepening global supply losses caused by U.S. sanctions on Venezuela and OPEC-led cuts.

The United States reimposed sanctions on Iran in November after pulling out of a 2015 nuclear accord between Tehran and six world powers. Those sanctions have already more than halved Iranian oil exports to 1 million barrels per day (bpd) or less.

Washington, aiming to cut Iran’s sales to zero, said all sanctions waivers for those importing Iranian oil would end this week. Iran says this will not happen, although its officials are bracing for a drop in supplies.

One Iranian official familiar with oil policy said exports could drop to 700,000 bpd and as low as 500,000 bpd from May onwards. An OPEC source said Iranian exports would likely continue at about 400,000 to 600,000 bpd.

Iran would likely be able to maintain some shipments for debt

repayment to China and India, and into storage in China, and smuggle a limited extra amount as it did under previous sanctions, analyst Sara Vakhshouri said.

“It’s important to note that zero oil sales in May doesn’t mean that there will not be oil deliveries to China or India in the month,” she said.

“In total, Iran could export between 200,000 to 550,000 of oil. of which not all is sold oil.”

Analysts at Energy Aspects expect a drop in Iranian shipments to around 600,000 bpd from May onwards.

Iranian exports have become more opaque since U.S. sanctions returned in November. Tehran no longer reports its production figures to the Organization of the Petroleum Exporting Countries and there is no definitive information on exports.

Some of Iran’s oil exports are already under the radar, making it harder to assess the actual volume.

The OPEC member exported between 1.02 million bpd and 1.30 million bpd of crude and condensate in April, Refinitiv Eikon and Kpler, a company that tracks oil flows, estimate.

OPEC HEADACHE

The dearth of information is a headache for other OPEC members and allies, which meet to set oil supply policy in June. OPEC canceled an April meeting, partly due to this uncertainty.

Saudi Aramco, expected to be the main source of any extra oil to replace Iranian volumes, has been asking around in the market for estimates of Iranian exports, industry sources said.

Iranian oil officials have welcomed this opacity. Tehran insists it will keep selling oil and is examining new ways of doing so, Iranian oil minister, Bijan Zanganeh, was quoted as

saying on Wednesday.

Kayrros, a company that tracks oil flows, put Iranian crude exports in March at 1.40 million to 1.65 million bpd.

“The uncertainty band around the decline reflects residual uncertainty about the exact number of Iranian tankers that have been operating under the radar,” Kayrros said in a report.

The oil industry has for some years used tanker-tracking to work out actual supplies in the absence of timely official information. While easier than in the past due to satellite information, tanker tracking is still both art and science.

Tankers loading Iranian crude sometimes switch off their AIS signal, an automatic tracking system used on ships, only to switch it back on at a later stage of their journey, according to oil industry source, making it harder to see actual volumes.

Still, there is general agreement that crude shipments have dropped from at least 2.5 million bpd in April 2018, the month before President Donald Trump withdrew the United States from the nuclear deal with Iran.

Oil bulls back off as US drilling surge puts strain on rally



Oil investors are losing faith in the crude rally, more moved by the US drilling boom than geopolitical tensions, according to Bloomberg. Money managers slashed optimistic wagers on US oil prices for the first time since February, while boosting wagers on a decline by 14%, data released on Friday show. That pushed overall sentiment to its least bullish in three weeks – just in time for the crude market to falter. After surging to start the year, West Texas Intermediate futures recorded their second straight weekly decline on Friday. Rising US crude production and stockpiles have outweighed concerns that tensions arising in Iran, Venezuela and Libya would limit global supplies.

“The market has priced in an awful lot of bullish news and if you’re going to go higher, you’re going to need some of these tail risks to turn into actual risks,” said Bill O’Grady, chief market strategist at Confluence Investment Management in St Louis. US Production hit a record 12.3mn barrels a day last week, while stockpiles reached their highest levels in more than a year as maintenance and unplanned outages slowed work at refineries.

The net-long WTI position – the difference between bets on higher prices and wagers on a drop – dropped 4.2% to 301,343

futures and options contracts in the week ended April 30, the US Commodity Futures Trading Commission said. That was the first decline in 10 weeks. Long positions fell 2.8%. By contrast, the net-long position on Brent crude continued its climb, jumping to the highest level since October. Saudi Arabia began the week by saying Opec and its allies could extend production cuts that have been propping up the global benchmark price in 2019.

Russia misses Opec+ oil cuts target in April



Russia pumped more crude last month than agreed under the Opec+ deal, lagging behind Energy Minister Alexander Novak's pledge to comply with the pact. Russia produced 45.97mn tonnes of crude in April, according to preliminary data from the Energy Ministry's CDU-TEK unit. This equals 11.233mn bpd, or 185,000 barrels lower than the October daily baseline,

according to Bloomberg calculations. Novak said that April would be the first month Russia would fully comply with its pledged production cut of 228,000 barrels a day, as part of the agreement with the Organization of Petroleum Exporting Countries and its allies. Despite missing the reduction target Russia has been accelerating the pace of cuts.

In March, the country's average daily output was 11.303mn barrels. Russia's average daily oil-output cut in April was 197,000 barrels a day, according to the government. The reduction, excluding projects operating under its production-sharing agreements, or PSAs, reached 213,000 barrels a day, the government said. By end-April the production cut had increased to 223,000 barrels a day from the October baseline, the Energy Ministry said in a separate statement citing Novak. Excluding output from PSAs, the end-April cut was 229,000 barrels a day, the government said. The Energy Ministry first mentioned PSAs when assessing the nation's production cuts in March, without clarifying why the output target should be adjusted in this way.

Over the past few months, the Energy Ministry has published its own figures for average daily production cuts, which differ from Bloomberg calculations. This may be explained by a divergence in methodology, due to the government using a different conversion ratio from tonnes to barrels for each individual field. Bloomberg calculations are based on a ratio of 7.33 barrels per tonne. Russia's crude production data comes on the day that US waivers for buyers of Iranian oil expire. Saudi Arabia pledged to adjust its production to make sure that customers remain adequately supplied. Yet the kingdom said it will co-ordinate with its allies in the producer group and will not exceed its quota under the Opec+ deal. President Vladimir Putin said last week that Russia has "the colossal potential" to increase its oil output if needed in response to global demand. Yet he reiterated the country will keep output within pledges made to its partners in Opec+.

Australia iron ore exports rebound in April, but not enough



By Clyde Russell

LAUNCESTON, Australia, May 1 (Reuters) – Australia’s iron ore exports rebounded in April after being hit by a cyclone the prior month, but the surge in shipments wasn’t enough to offset declining volumes from Brazil in the wake of January’s tailings dam disaster.

Australian exports were about 69.1 million tonnes in April, according to preliminary figures compiled by Refinitiv, based on vessel-tracking and port data.

This was up 20 percent from 57.5 million tonnes in March, when shipments were disrupted by Tropical Cyclone Veronica, which closed ports and impeded mining operations in Western

Australia state.

Brazil's exports volumes have been slipping since top miner Vale was forced to close several mines in the wake of the collapse of a tailings dam at its Brumadinho mine in late January, which left more than 300 people dead or missing.

Brazilian shipments of the steel-making ingredient fell sharply to 24.9 million tonnes in February from 30.1 million tonnes in January, the last month unaffected by the dam burst.

Exports slipped again to 23.5 million tonnes in March, and fell another 20 percent to just 18.7 million tonnes in April, the lowest monthly total since Refinitiv starting compiling data in January 2015.

In the first four months of 2019, Brazilian exports were 97.2 million tonnes, down from 111.9 million in the same period in 2018.

For Australia, exports in the first four months were 259 million tonnes, down from 280 million for the same period a year earlier, hurt mainly by a 13.3 million tonne drop in March.

Taken together, the total drop from the world's top two shippers of iron ore in the first four months of 2019 is 35.7 million tonnes, a significant hit to global supply.

PRICE BOOM JUSTIFIED

It's therefore little wonder that spot iron ore prices have surged, and remained at elevated levels in recent weeks.

Ore with 62 percent iron content delivered to China MT-I0-QIN62=ARG, as assessed by Argus Media, was at \$94.85 a tonne on Tuesday, the last day of April.

The price has now posted gains for five straight months, but the big kick up came in late January/early February, after the

Brazil dam disaster, when prices jumped 20 percent between Jan. 25, the day of the burst, and Feb. 11, when they closed at \$90.75 a tonne.

The Singapore Exchange futures curve has also shifted into a steeper backwardation since the Brazil dam collapse, with higher prices for prompt contracts indicating a tighter spot market.

As of the close on April 30, the front-month contract was trading at a 5 percent premium to the third month, up from a 3 percent premium the day of the Brazil incident. Like many major commodities, iron ore usually trades in backwardation.

The data on export volumes from Australia and Brazil, coupled with the price action, speaks to a sudden tightening of the market for seaborne iron ore.

What it doesn't show is how likely this is to continue.

The rebound in Australian exports in April likely shows that the cyclone disruption is over, and shipments will at least return to the recent monthly average, if not improve slightly, if the major companies are able to run their operations harder to make up for some lost ground.

The bigger question mark is Brazil, where it seems less likely that it can recover the tonnes lost so far.

Vale said on March 28 it expects to sell 75 million tonnes less iron ore and pellets this year, down 20 percent from 2018.

Given there isn't much spare capacity in Australia, or in number three exporter South Africa, it's difficult to see where these lost tonnes can be made up, other than at the margins by smaller exporters such as India and Iran, and by the use of port inventories in China.

But there are also some question marks over the strength of

demand, particularly in China, which buys about two-thirds of seaborne iron ore and produces about half of the world's steel.

China's manufacturing Purchasing Managers' Index (PMI) fell to 50.1 in April from March's reading of 50.5, confounding market expectations that it would hold at the prior level.

While still just above the 50-level that separates growth from contraction, the PMI doesn't provide confidence to hopes that China's economy is starting to respond to Beijing's recent stimulus moves.

It still may be the case that the economy will pick up from now on, but there is also a risk that steel demand forecasts may be too optimistic, and that iron ore demand may also moderate.

**US Steel set to invest \$1bn
after pollution control
lawsuit**



US Steel Corp's plan to invest more than \$1bn at two of its Pennsylvania plants helps alleviate two key complaints against the once-dominant company: it had under-invested until recently in its facilities and done too little to mitigate its emissions. A new "sustainable" casting and rolling facility will be built at the Edgar Thomson Plant and a co-generation facility at the Clair-ton Plant, the Pittsburgh-based company said on Thursday in a statement. The first investment will improve the "quality and attributes of its downstream products," while the second facility will be "equipped with state-of-the-art emissions control systems." The announcement was met with mixed reviews from analysts. The investment will result in "significantly" greater negative free cash flow than forecast from 2020-2021, Credit Suisse analysts including Curt Woodworth said in a note. The announcement "is proof positive that US Steel's competitive position has weakened over time" and therefore requires substantial reinvestment, the analysts said, noting that the Edgar Thomson plant was built in 1872. US Steel fell 5.8% to \$14.39 in regular trading on Thursday in New York, bringing its decline this year to 21%. On Monday, PennEnvironment Inc and the Clean Air Council filed a lawsuit alleging the steel company violated its Clean Air Act permit by not resuming use

of pollution controls for sulphur dioxide and hydrogen sulphide following a December 24 fire at Clairton. The company said the same day it was reviewing the complaint. The announcement on Thursday “comes in the wake of the Clairton Coke disaster and offers a positive long-term solution to its SO2 emissions variability,” Keybank Capital analyst Philip Gibbs said in a note. “The co-generation investment is expected to improve environmental efficiency, reduce energy consumption costs, and reduce its carbon footprint.” US Steel is one of the American companies that saw significant profit gains after the tariffs on steel and aluminium imports were imposed last year, though the levies have shown mixed results for the industry as a whole. President Donald Trump took the company’s announcement on Thursday as a vindication for his tariff policies, congratulating US Steel for its investment in “America’s most INNOVATIVE steel mill.”

Tesla to get up to \$2.7 bn from upsized offering



Reuters

Tesla Inc on Friday was set to raise up to \$2.7 billion in a record-setting capital raising for the electric carmaker, as investors scooped up a mix of new stock and convertible notes that will recharge the company's cash-depleted balance sheet. The company said in a filing that it had raised its offer to 3.1 million shares, rising to 3.5 million including a tranche for underwriting banks, from an initially planned 2.7 million, priced at \$243 per share.

The filing also showed it would place convertible debt worth \$1.6 billion, up from an initial planned \$1.35 billion.

That all pointed to buoyant interest in the offering and shares in the company rose 1.5 percent in trading before the bell.

The company did, however, set the coupon for the debt offering at 2.0 percent – the top of its indicated range – showing it had to concede ground to investors.

The conversion premium of 27.5 percent over the reference price for Tesla shares, at which the bonds can be converted to stock in future, was at the low end of an initial range of

between 27.5 percent and 32.5 percent.

Tesla's launch of a capital raise was greeted with relief by Wall Street on Thursday after a tumultuous year which has seen analysts and investors cast doubt on its ability to produce, sell and deliver enough cars to make a sustainable profit.

The company faces expensive challenges, including launching production in China, overhauling its U.S. retail and service operations and developing new models, including the high-volume Model Y SUV and a Semi commercial truck.

Many analysts had calculated that without new cash Tesla – which burned through \$1.5 billion in the first quarter and has seen demand for its cars soften – would not be able to carry out its plans.

The company said that after all costs had been deducted it could now get up to \$2.7 billion in new capital from the offer. That compared to the \$2.2 billion in cash reserves the company held at the end of March.

Billionaire Musk, whose fortune centers around a 20 percent stake in the \$42-billion company, has also doubled his initial commitment for buying shares and will now buy stock worth up to \$25 million, the company said.

Including the option for underwriters to buy 15 percent in each offering, Tesla will sell about \$860 million in new shares and \$1.84 billion in debt.

Tesla had said on Thursday it would raise up to \$2.3 billion in new capital through shares and debt. That included an offering of 2.7 billion shares worth around \$650 million and \$1.35 billion in debt, before issues to underwriters.

Asia in charge of electric

car battery production



Global production of batteries for electric cars is concentrated in Asia, with Chinese, Japanese and South Korean firms dominating the sector and building factories in Europe to conserve their supremacy.

However Europe is looking to strike back, with France and Germany saying on Thursday they would form an alliance to develop next-generation batteries in a bid to counteract Asia's dominance.

– Asia champions –

Lithium-ion batteries are a – if not the – crucial component of electric vehicles, but few companies have ventured into actually making them given the huge cost of setting up manufacturing facilities and the still limited demand.

Car manufacturers have preferred to have a choice of several specialised suppliers, especially as battery technology is rapidly evolving.

China, where half of electric cars are currently being sold, requires car manufacturers to use locally-built batteries and

is calling the shots in the industry with two-thirds of the world's production capacity of lithium-ion cells for batteries.

Only Asian firms appear in the top 10 of the industry: China's Contemporary Amperex Technology (CATL) accounted for 23 percent of global production last year, edging out Japan's Panasonic at 22 percent.

China's BYD followed at 13 percent and is the only car manufacturer to have prospered in making batteries.

South Korea's LG Chem came in at 10 percent while Samsung SDI had 5.5 percent, according to the US-based Center for Automotive Research (CAR).

Europe accounts for only one percent of global production.

The United States also remains marginal on a global scale despite the Gigafactory that Tesla developed with Panasonic.

– China controls raw materials –

Another key factor in China's supremacy: control over the raw materials needed to manufacture the batteries: lithium and cobalt.

According to Bloomberg, the Chinese firms Ganfeng and Tianqi control 17 and 12 percent respectively of the world production of lithium thanks to their investments in mines in Australia and South America.

Tianqi bought a 24 percent stake in Chilean miner SQM for \$4.1 billion in December. Together with the US firm Albemarle it also controls the huge Greenbushes mine in Australia.

Meanwhile, Chinese firms control at least half of the cobalt extracted in the Democratic Republic of Congo, where 70 percent of global output comes from, according to estimates cited by Bloomberg.

China Molybdenum bought a major site from the US firm Freeport-McMoran for \$2.65 billion in 2016.

China also has 80 percent of the world's capacity to produce refined cobalt using chemical processes.

Concerned over their access to supplies, several carmakers have concluded long-term deals with Chinese firms: Volkswagen announced at the beginning of April a 10-year deal with Ganfeng for lithium that it can provide to battery manufacturers of its choice.

– Asian assault on Europe –

According to the BCG consultancy, the global auto battery market could reach 45 billion euros in value in 2027, with Europe accounting for 20 to 30 percent, but Asian firms are expected to benefit most.

CATL is investing some 240 million euros to build a factory in the central German city of Erfurt that will supply BMW from 2022. The luxury carmaker has concluded a contract worth four billion euros with CATL, including 1.5 billion from the Erfurt site.

LG Chem has been manufacturing batteries for Daimler, Volvo, Audi and Renault from a site in Poland since last year.

Samsung SDI has a factory in Hungary, where fellow South Korean firm SK Innovation is investing \$1.5 billion into two factories that could end up serving Volkswagen.

– Swedish and Dutch pioneers –

One of the rare European specialists in batteries is Swedish firm Northvolt. It is currently building what will be Europe's largest facility in Sweden together with Germany's Siemens.

Expected to cost at least 1.6 billion euros, the facility is to begin turning out batteries in 2020 and when it reaches

capacity in 2023, it should be double the volume of CATL's German factory.

Founded by two former Tesla employees, Northvolt joined forces with Volkswagen in March to create a "European Battery Union" to promote research. Northvolt also collaborates with BMW.

Meanwhile the Dutch firm Lithium Werks, which has already built a massive factory in China, has been in talks to build a billion-euro facility in Poland.