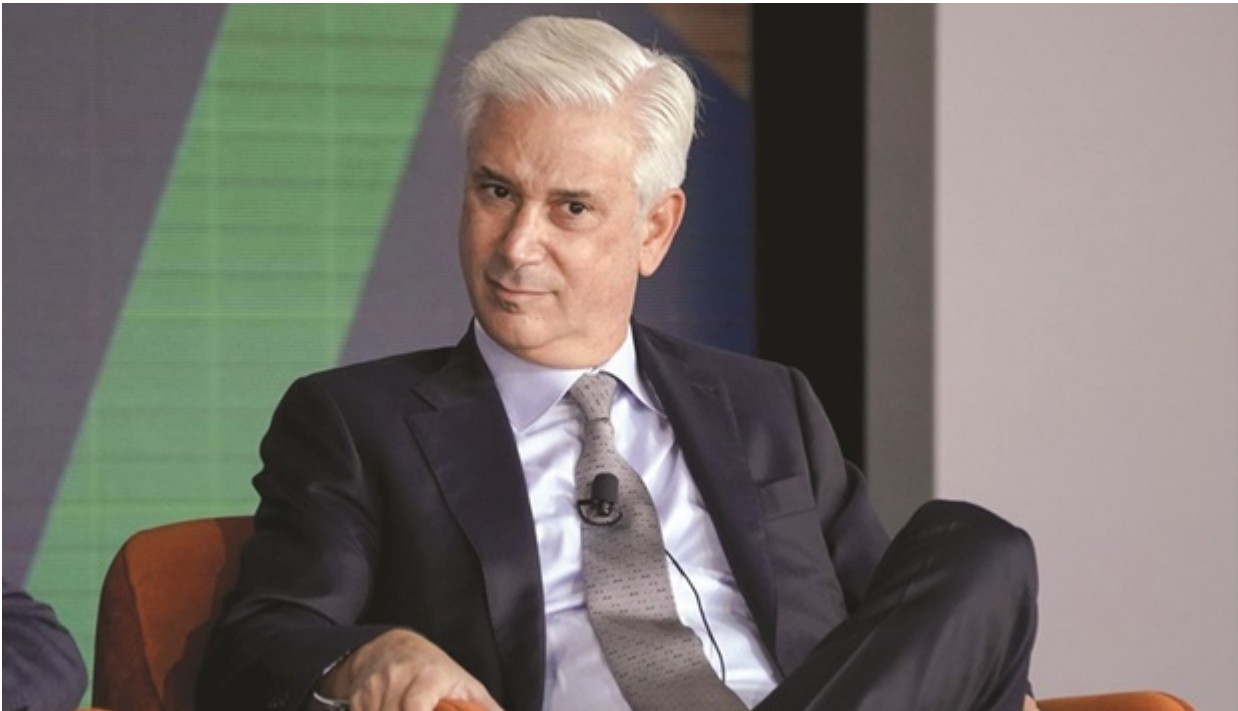


Wells Fargo's \$28bn oil lenders ready for boom



One year after Wells Fargo & Co became one of the last big US banks to make a net-zero promise, essentially marking its enormous oil and gas loan business for extinction, the bankers who dole out billions of dollars to fossil fuel aren't panicking.

The specialists in oil and gas have worked through a streak of money-burning years capped by a brutal pandemic. Now the hydrocarbon business is roaring back, and Wells Fargo's lenders sit right at the top. No one in the world put together more fossil fuel loans last year as book runner, according to data Bloomberg compiled: The bank's 2021 tally in the sector topped \$28bn; it's racked up more than \$188bn in oil and gas loans since late 2015, when the landmark Paris Agreement was adopted. That sum is more than the market capitalisation of BP, Marathon Petroleum, and Valero Energy – combined.

There are good reasons for the leaders in fossil finance to be anxious. Start with the bank's net-zero goal: Wells has joined more than 100 financial institutions with midcentury deadlines for axing greenhouse gas. Few bankers like to be in a line of

work practically marked for elimination. Even if you happen to distrust corporate pledges, the explosion of environmental, social, and governance considerations into a multi-trillion dollar industry puts pressure on those in the business of funding oil, gas, and coal.

But Wells bankers are playing the long game. "There's this idea or dynamic that it's a light switch," says Scott Warrender, who runs the energy and power team. The green revolution? "Our view – and in reality – it will play out over a much longer time frame."

Wells executives won't stop making hydrocarbon loans when the rest of us are consuming so much of it, according to interviews with 10 current and former people there. Few veterans of this business are quite sure where it goes from here. Their attitude toward the crisis of climate change veers between pragmatism and, in the case of one former executive, disdain.

It all adds up to a high-stakes moment for the energy industry, the warming world, and Wall Street, especially for a bank that chief executive officer Charlie Scharf is trying to turn around after years of scandals. Since access to capital is so important to the fossil fuel industry, which ploughs through money, the moral and financial calculations of bankers like those at Wells will play a key role in the future of the climate.

Until the economy and society both evolve, Warrender says, "our view is we need to bank the broad energy sector in all of its forms." Over decades as an energy banker, he's watched the hydrocarbon industry dive into busts and then climb back into big-money booms. He's survived the tumult and learned to stick it out through the endgame, he told a journalist over a decade ago, back when he likened his job as an energy banker to his pastime of amateur boxing. Today, he says, his hobby has switched to cycling, but his focus on energy is unchanged.

"That's going to be what's interesting," says Derek Detring, who had a stint eight years ago as a Wells energy banker before he started a firm advising the energy industry. "Now

that we're making money again, will investors stay away?" As the long-suffering industry returns to being lucrative, he says, "it will be harder for them to leave."

Indeed, oil prices soared after the invasion of Ukraine and moves by the US and UK to ban Russian oil. Energy executives and their bankers are used to volatility. Wells Fargo's fossil fuel lending has stayed at the top of the industry even as annual totals bounced around – from \$23bn in 2016, up to \$48.3bn in 2018, and then back down to \$28.7bn last year.

Historically, bankers haven't been under much pressure from shareholders to move faster on climate. But that could change. Last year, ahead of the United Nations climate conference, Wells joined the Glasgow Financial Alliance for Net Zero, a group of banks and fund managers representing \$130tn in assets. (Michael Bloomberg, the owner and founder of Bloomberg LP, is co-chair of the alliance.) The big banks, in addition to pledging to zero out emissions, have agreed to eventually begin accounting for the carbon in their vast portfolios. Coming up with measurements for "financed emissions" will be hotly contested, and activists will be watching. In December the investor group Interfaith Center on Corporate Responsibility asked Wells and other banks to adopt a policy by the end of 2022 to ensure that lending and underwriting don't contribute to new fossil fuel development.

For now, though, a Wall Street giant can go green and underwrite the clean-energy future while also doing deals on gas pipelines and oil fields. Wells was just ahead of JPMorgan Chase & Co last year as the book runner on syndicated loans, which means being the bank in charge when several are involved. Looking at loans gives a good sense of how fossil fuel companies finance themselves, but they also work with Wall Street to issue bonds. Wells wasn't the biggest in that space last year – the \$7.7bn it managed was about half of JPMorgan's \$15.8bn.

"We've been a leading financial partner to traditional energy companies, such as oil and gas producers and electric utilities, as well as the emerging renewables business, for

many years,” said a Wells spokesperson. “We will continue to support our clients in this industry as they provide the fuel that powers society today, and as they respond to the evolving market.”

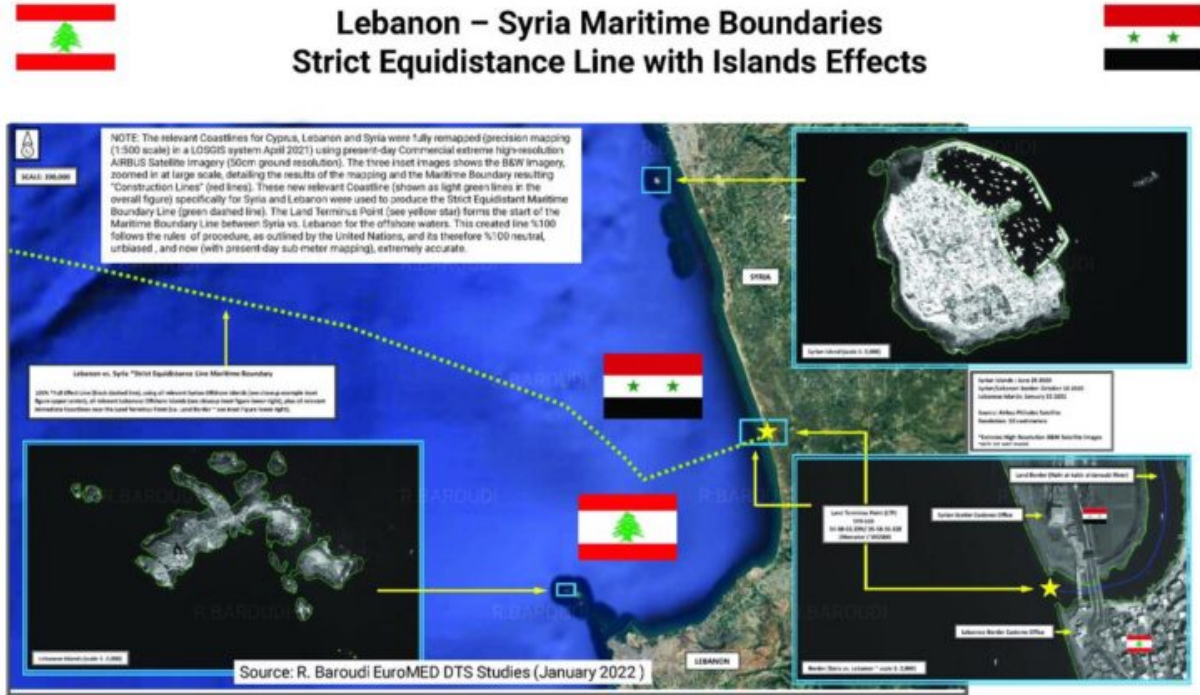
None of the bank’s recent oil and gas lending deals have been bigger than the \$5bn revolving loan it led in 2018 for Energy Transfer LP, whose Dakota Access Pipeline is at the heart of the battle between the oil industry and the Standing Rock Sioux Tribe. Billionaire Kelcy Warren, the chairman of the Dallas-based pipeline operator, has a relationship with Wells that stretches back decades. Not long before the loan, advisory group Institutional Shareholder Services Inc recommended that Wells investors support a resolution requiring policies to help protect Indigenous groups. Protesters made their way in 2017 to the California home of Tim Sloan, then the boss of the bank, and set up an inflatable pipeline.

That didn’t scare Wells out of the business. Its most significant syndicated fossil fuel loan last year was a \$3bn deal with Enterprise Products Partners LP. The Houston pipeline owner agreed in January to buy Navitas Midstream Partners and its 1,750 miles of pipeline in the Permian Basin for \$3.25bn in cash.

The story of energy lending isn’t just about the future of climate – it’s also about consolidation turning dozens of banks into just a few. Wells ended up a giant in fossil loans after a string of acquisitions.

ترسيم الحدود البحرية شمالاً ...

بارودي: لاجتماع ثلاثي للتوصل إلى نقطة تقاطع



يُجمع قصر بعدا اليوم رئيس الجمهورية العماد ميشال عون ورئيسي مجلس النواب نبيه بري والوزراء نجيب ميقاتي، لبحث موقف لبنان الرسمي من عرض الوسيط الأميركي أموس هوكشتاين لترسيم الحدود البحرية.

في انتظار معلومات قد ترشح عن الاجتماع، يُجمع الخبراء على أن موضوع ترسيم الحدود البحرية للبنان شمالاً وجنوباً، يجب أن يكون ضمن سلة واحدة، في حين أن لبنان لم يرسم حدوده لا مع سوريا ولا مع قبرص ولا مع إسرائيل علماً أن المفاوضات الأصب مع الأخيرة بفعل العداء بين البلدين.

وفيما الساحة الإقليمية عموماً والداخلية خصوصاً تترقب مآل المفاوضات غير المباشرة مع إسرائيل على وقع الدرس الرسمي اللبناني لاقتراح الوسيط الأميركي أموس هوكشتاين، تتوجّه الأنظار إلى الحدود البحرية الشمالية للبنان للسؤال عن مصير المفاوضات مع...سوريا لترسيم تلك الحدود

الخبير الدولي في شؤون الطاقة رودي بارودي يرى رداً على سؤال

لـ"المركزية"، أن "ملف الحدود البحرية الشمالية بين لبنان وسوريا، يحتاج إلى حل في إطار من المفاوضات الودية"، كاشفاً أن "في الوقت الحاضر لا يزال الملف مجمّداً، ولم تتم معالجة الحدود البحرية حتى الآن".

ويُلفت إلى أن "متابعة الموضوع تتطلب أيضاً عقد اجتماع ثلاثي الأطراف يضمّ لبنان وسوريا وقبرص من أجل حل مسألة الحدود البحرية". والتوصل بالتالي إلى نقطة تقاطع ثلاثية.

ويذكر بارودي بأن "لبنان سبق أن أعلن من جانب واحد عن خط الحدود البحري الخاص به، ونشر إحداثياته الجغرافية بالإضافة إلى الوثائق كافة مع "وحدة شؤون المحيطات" ووفق "معاهدة الأمم المتحدة لقانون البحار" (وهي اتفاقية دولية توفر إطاراً قانونياً متكاملًا لآلية الانتفاع من مياه البحار والمحيطات في العالم، وهي تضمن الحفاظ على الموارد البيئية والبحرية وكذلك الانتفاع العادل لتلك الموارد).

ويُضيف: استخدم هذا الخط كخط الأساس الطبيعي الافتراضي لسوريا، وخط الأساس الطبيعي الافتراضي مع لبنان. ومع ذلك، لا يتطابق هذا الخط مع ذلك المتساوي الأبعاد الموجود في الخرائط المنشورة أدناه. وربما استخدم لبنان خرائط أساسية قديمة للتوصل إلى خطوطه المقترحة.

وفي المقلب الآخر، تطرّق بارودي إلى البلوكات الموجودة بين لبنان وسوريا، ولبنان وقبرص، ويقول: من المهم أن نعرف وفقاً للدراسة التي أجريتها مؤخراً عن "قانون البحار"، أن بلوكات البلدان الثلاثة تتداخل ببعضها البعض. البلوك السوري يتداخل مع البلوك اللبناني بـ15383 متراً، بينما البلوك اللبناني فيمتد على البلوك السوري بـ1707 أمتار تقريباً. بينما البلوك اللبناني يتداخل مع حدود قبرص بـ5 أمتار تقريباً، فيما البلوك القبرصي يمتد إلى البلوك اللبناني بـ233 متراً تقريباً.

في ظل هذه الصورة، هل يحرك لبنان ملف الترسيم شمالاً بالتوازي مع الترسيم جنوباً؟ أم سيكون مصير الأول كمصير الثاني وهو التخبط وإضاعة الوقت؟!

Column: Hedge funds slash oil positions amid extreme volatility



By John Kemp

LONDON, March 14 (Reuters) – Investors cut bullish bets on oil last week as prices surged to multi-year highs, the economic outlook deteriorated, and extreme volatility made derivatives positions more expensive to maintain.

Hedge funds and other money managers sold the equivalent of 142 million barrels in the six most important petroleum-related futures and options contracts in the week to March 8.

Last week's sales were the 11th largest out of 469 weeks since

March 2013, records published by ICE Futures Europe and the U.S. Commodity Futures Trading Commission showed.

Portfolio managers sold Brent (-97 million barrels), European gas oil (-23 million), U.S. gasoline (-13 million) and U.S. diesel (-11 million) and were buyers only of NYMEX and ICE WTI (+2 million).

The selling was dominated by closure of existing bullish long positions (-114 million barrels) rather than the initiation of new bearish short ones (+28 million), consistent with a risk-reducing strategy.

Funds ended up with a net position in the six contracts of just 588 million barrels (45th percentile for all weeks since 2013) down from a peak of 761 million barrels (70th percentile) on Jan. 18.

Bullish long positions outnumbered bearish short ones by a ratio of 4.76:1 (61st percentile) down from 6.24 (80th percentile) in mid-January (Link).

In recent weeks, the record backwardation in futures prices, accelerating rise in spot prices, and increasing day-to-day volatility have been signs of a market under extreme stress and likely to reverse course.

Soaring oil prices have been part of a broader increase in the price of raw materials, manufactured items and freight charges which has raised the probability of a recession within the next 12 months.

Reflecting the deteriorating economic outlook and volatility costs, distillate positions were cut to 85 million barrels (67th percentile) last week down from a recent peak of 144 million barrels (85th percentile) five weeks earlier.

Rising volatility is also a symptom of a market becoming less liquid, with both bullish and bearish investors less willing

to take on new risk exposures and instead reducing positions until trading becomes calmer.

Heightened volatility has fed through into more demands for margin from brokers and clearing houses and makes futures and options positions increasingly expensive to maintain, encouraging fund managers to trim positions.

Extreme volatility and rapidly diminishing liquidity is reminiscent of trading conditions in the second quarter of 2008 as oil prices climbed towards a record high in the first half of July before plunging.

Oil prices are caught between rising supply risks as a result of Russia's invasion of Ukraine and the consequent sanctions on the country's output, and growing demand risks stemming from inflation and a possible recession.

In this increasingly unstable and chaotic situation, many hedge fund managers have decided it is prudent to realise profits from previous long positions and reduce risk exposure until the balance of risks becomes clearer.

Related columns:

- Global diesel shortage raises risk of oil price spike (Reuters, March 11)
- Western economies on brink of recession as Russia sanctions escalate (Reuters, March 8)
- Hedge funds anticipate oil price spike, possible recession (Reuters, March 7)
- Global recession risks rise after Russia invades Ukraine (Reuters, March 4)

John Kemp is a Reuters market analyst. The views expressed are his own

Editing by Barbara Lewis

Faced with energy turmoil, China turns to its old reliable: Coal



Bloomberg

Anyone who's ever tried to make a lifestyle change knows that it's easy to start a new habit when times are good. It's sticking with it when times are tough that's the hard part.

That's what's made the past few months in China, capped off by this month's National People's Congress in Beijing, so difficult for people who want to see the nation succeed in helping stave off the worst impacts of climate change.

Gone are the heady days of late 2020, when think tanks, newspapers and state-run enterprises issued a flurry of optimistic outlooks and officials talked about completing the largest energy transition in mankind's history by zeroing out emissions in the world's biggest polluter by 2060. Now, with

fears of energy shortages growing around the world and concerns that rising coronavirus cases could hinder economic growth at home, the country's leaders are doubling down on fossil fuels.

Faced with energy turmoil, China is returning to its old habit of coal, no matter what damage it does to climate momentum.

"To a country where coal has been dominant for so long, one of the biggest challenges to get to net-zero is a mindset shift," said Qin Yan, a carbon analyst at Refinitiv. "Giving the power back to coal now only makes the shift, which had only just begun to slowly take off, harder to complete."

The shift has been months in the making. Ever since a shortage of coal sparked widespread power curtailments in September and October, leaders have drummed home the message that the dirtiest fossil fuel is also the most important to ensuring continued growth. China has approved mining expansions that's pushed output to record levels and started construction on new generators powered by the fuel, even as such efforts are shunned in most other parts of the world.

Recent comments from top officials have made clear this isn't a temporary shift. In a high-level climate meeting this month, Han Zheng, China's vice-premier, called coal the country's "last barrier" to energy security. In the same week, President Xi Jinping told a group of lawmakers from China's coal hub of Inner Mongolia that "we can't toss away what's feeding us now while what will feed us next is not yet in our pocket."

The National Development and Reform Commission, the nation's top economic planner, told officials from major mining regions at a meeting late last week that it wants to boost domestic production capacity by about 300mn tonnes, according to people familiar with the matter, Bloomberg reported on Monday. It also plans to build a 620mn-tonne stockpile of the fuel.

"The risks China faces now are at a high level unseen for years, and the uncertainties they bring to China's climate work are still growing," said Li Shuo, a climate analyst at Greenpeace East Asia, "In the short term, it's obvious a preference for coal is swinging back."

That doesn't mean the country is turning its back on renewables, a sector dominated by Chinese manufacturers. Officials confirmed this month that a massive desert wind and solar power program will grow to at least 450 gigawatts in size, larger than most countries' total power fleets. And China's main solar industry group has already projected a record amount of new panels this year.

But pushing both coal and renewables to grow at the same time carries added risks. Investments in new coal facilities could take decades to be paid off, and a growing renewable sector could make them obsolete before that's done. The government needs a long-term plan to write those coal projects off when renewables are ready to take over, which would involve another round of struggling among different interest groups.

And in the near-term, Xi's plans to secure a third term at the 20th Party Congress this November mean stability and economic growth will be prioritised at any cost, including the climate. The government set a gross domestic product growth target of 5.5% for this year, higher than most estimates. That means a likely return to Beijing's old doctrine of massive infrastructure spending, which means more energy required to produce steel and concrete and move goods and materials around the country.

"Looking forward at China's climate work in 2022, it would mark a 'success' if there isn't a big regression," said Li Shuo.

UN climate report reignites global fight for compensation



With this week's UN climate science report laying bare the staggering economic costs and losses already faced from climate change, an inevitable question arises: who should pay? Within UN climate negotiations, "loss and damage" refers to the costs countries are incurring from climate-related impacts and disasters – costs that disproportionately hit the world's poor and vulnerable who did least to cause global warming. Drawing on more than 34,000 references from the latest scientific papers, the report released on Monday by the UN Intergovernmental Panel on Climate Change (IPCC) confirmed that economic sectors from agriculture and fishing to tourism were already being damaged.

Extreme heat has fuelled crop losses. Rising seas have turbo-charged cyclones that have razed homes and infrastructure, slashing economic growth.

And as the bills mount up, poorer countries are left with even less to spend on health, education and infrastructure – compounding suffering.

"It's an unending situation," said Anjal Prakash, a lead IPCC author and research director at the Indian School of Business. The report is likely to intensify a years-long political fight over funding to pay for climate-linked losses, ahead of the next UN climate summit, COP27, in Egypt in November.

Vulnerable countries for years have sought funding to help them shoulder these costs. So far, it hasn't arrived, and rich nations have resisted steps that could legally assign liability or lead to compensation.

The mention of "loss and damage" in the 2015 Paris Agreement came with the caveat that it "does not involve or provide a basis for any liability or compensation".

Last November at the COP26 climate summit in Glasgow, poor countries called for a special "loss and damage" fund to be established, but the United States and other rich nations resisted. The delegates agreed to set up a UN body to help countries address loss and damage, and to continue discussions towards making "arrangements" for funding.

But there is no clarity on where the money would come from.

"We can't just create more talk shops when people are dying," said Harjeet Singh, senior adviser at Climate Action Network. He said COP27 needed to establish the funding facility that developing countries, including China, had called for at COP26.

Singh and other campaigners said the IPCC report – which has been approved by nearly 200 governments – could intensify pressure on the world's most powerful nations.

"It will help us to say that science is clear, the impacts are clearer now. So you are accountable for this, and you have to pay for this," said Nushrat Chowdhury, a policy advisor at NGO Christian Aid.

The report's discussion of climate losses is bolstered by recent improvements in "attribution science", which allows scientists to confirm when climate change caused or worsened a specific extreme weather event.

Still, putting a number on the resulting losses remains contentious. For example, can climate-linked losses from a weather event be separated from losses caused by poor disaster planning? Can costs be counted for losses outside our economic systems, such as when nature is degraded or a community burial site is destroyed?

"We are still debating that in the scientific community," said

another IPCC lead author Emily Boyd, a professor at Sweden's Lund University.

As climate disaster costs mount and UN negotiations remain stuck, some are considering other options.

"Liability and compensation have other avenues to be taken forward, which are courts," said Saleemul Huq, an adviser to the Climate Vulnerable Forum group of 55 countries.

Sophie Marjanac, lawyer at environmental law firm ClientEarth, said the IPCC report "will generally support litigation" to address climate change.

The legal avenue faces other obstacles, however.

Last year a federal appeals court rejected New York City's attempt to use state law to hold five oil companies liable to help compensate harm caused by global warming. The court said the regulation of greenhouse gas emissions should instead be addressed under federal law and international treaties.

"Challenges in climate change litigation are related to the law, not to do with the science," Marjanac said. "The science has been clear, very clear for years."

Global airlines on the flight path to carbon neutral aviation



Air transport's commitment to tackling its environmental challenges has not diminished despite the Covid-19 crisis that has decimated the global aviation industry. On the contrary, many airlines have pledged further action by targeting net-zero emissions; by purchasing sustainable aviation fuel (SAF); retiring aged aircraft, such as the iconic Boeing 747; and investing in the latest generation of fuel-efficient planes, including the Boeing 737 MAX and Airbus A350.

The development and deployment of sustainable aviation fuel (SAF) is the biggest area of opportunity for long-term reductions in aviation emissions, according to IATA, the global body of airlines.

SAF has the capability to reduce emissions 80% on a "like-for-like" basis with Jet A-1 fuel.

Elevating the production capacity for SAF is therefore a priority for airlines. Current levels are too low, at around 0.02% of global demand, to significantly lessen emissions or to generate the economies of scale necessary to reduce costs to competitive levels. But production is beginning to increase dramatically.

In 2021, IATA estimates the production and use of between 100mn and 120mn litres of SAF – an increase of more than 50% on 2020.

SAF facilities commissioned some three to four years ago are now coming online, IATA noted. An example is the Fulcrum Sierra Biofuel plant in Reno, Nevada, in the United States, which converts solid municipal waste into SAF.

Numerous additional SAF production facilities will come online over the next four years, such that by 2025 approximately 5bn litres of SAF could be available. That, IATA says, will meet around 2% of global demand.

By 2030, projections are for SAF availability to increase to cover at least 5% of demand globally. Meeting and exceeding projections for SAF cannot be the responsibility of SAF producers and the aviation industry alone.

Governments need to set in place supportive policy frameworks, industry experts say.

The global air transport industry recently took a momentous decision to achieve net-zero carbon emissions by 2050 and ensure that flying is sustainable.

To achieve that, cost-competitive sustainable aviation fuels (SAF) should fuel the majority of aviation's global emissions mitigation in 2050.

The industry has set out the pathway to meet its 2050 goal using a mixture of new technology, efficient operations, and improved infrastructure.

The target of reducing net CO₂ by half is feasible through the aggressive deployment of SAF.

Other proposed options include the accelerated development of small, zero-emissions aircraft for short-haul operations from 2035 and the use of offsets in the interim.

These and other measures could also make it possible for the industry to meet an even more ambitious goal of net-zero carbon emissions by 2050.

It is estimated that (under the industry's trend setting initiative CORSIA or Carbon Offsetting and Reduction Scheme for International Aviation – a global carbon offsetting scheme) aviation will have to offset 2.6bn tonnes of CO₂ between 2021 and 2035.

Obviously, the aviation industry has pinned its hopes on

sustainable aviation fuels, which it believes will help reduce airlines' global emissions and industrial carbon footprint.

It is proven that SAF can cut CO2 lifecycle emissions up to 80% compared with conventional jet fuel. It uses sustainable fuel sources, which do not compete with food or water, or damage biodiversity.

Rather than being refined from petroleum, SAF is produced from sustainable resources such as waste oils from a biological origin, agri-residues, or non-fossil carbon dioxide (CO2).

Sustainable aviation fuels are currently certified by regulators for up to 50% use in commercial flights.

SAF has been around since 2008. And more than 300,000 flights have taken to the skies using SAF since 2016, according to the International Air Transport Association. More than 45 airlines now have experience with SAF.

These flights have used it blended with regular aviation – without the need for any modification of engines or aircraft – and production continues to grow.

The amount of SAF used by commercial aircraft rose 65% between 2019 and 2020, despite the devastating financial impact of Covid-19 on airlines.

IATA Director General Willie Walsh says governments must be active partners in achieving net zero by 2050. As with all other successful energy transitions, government policies have set the course and blazed a trail towards success.

“The costs and investment risks are too high otherwise. The focus must be on reducing carbon,” Walsh insists.

‘Liveable future’ on Earth at

risk, UN climate report warns



A landmark UN report warned on Monday that time had nearly run out to ensure a “liveable future” for all, detailing a horrifying “atlas of human suffering” and warning that far worse was to come.

Species extinction, ecosystem collapse, insect-borne disease, deadly heatwaves and megastorms, water shortages, reduced crop yields – all are measurably worse due to rising temperatures, the Intergovernmental Panel on Climate Change (IPCC) said.

In the last year alone, the world has seen a cascade of unprecedented floods, heatwaves and wildfires across four continents.

Such events will accelerate in coming decades even if the fossil fuel pollution driving climate change is rapidly brought to heel, the 195-nation IPCC warned.

As nations struggle to bend the curve of carbon dioxide emissions downward, they must also prepare for a climate onslaught that in some cases can no longer be avoided, the

report made clear.

For UN chief Antonio Guterres, it stands as a “damning indictment” of failed leadership that he described as nothing short of “criminal”.

“The world’s biggest polluters are guilty of arson of our only home,” he said.

Even Russia’s invasion of Ukraine cannot distract from the truths laid bare in the 3,600-page report and its summary for policymakers, said US Secretary of State Antony Blinken.

“The international community must urgently continue to pursue ambitious climate action, even as we face other pressing global challenges,” he said in a written statement.

Svitlana Krakovska, who headed Ukraine’s delegation, spoke passionately at the conference’s final virtual plenary about the link between conflict and global warming.

‘Root’ of war and warming

“Human-induced climate change and the war on Ukraine have the same roots – fossil fuels – and our dependence on them,” she said.

Among the report’s key takeaways was the intertwined fates of human and natural systems.

It stressed that climate change cannot be tamed unless degraded forests and oceans that stock carbon are restored and protected; and the ecosystems on which life forms depend for clean water, air and soil will not survive intact in a world of runaway warming.

The report made clear that a viable future rests on a knife’s edge.

Some dire impacts are already irreversible, such as the likely

demise of nearly all shallow water corals.

Other points-of-no-return lie just beyond the Paris Agreement's aspirational target of capping global warming at 1.5 degrees Celsius above preindustrial levels, the report warned.

The 2015 treaty enjoins nations to hold the increase in temperatures to "well below" 2°C, but recent science has left no doubt that a 1.5°C threshold is far safer.

Even in optimistic scenarios of rapid reductions in carbon pollution, projections of climate impacts are sobering.

Up to 14 per cent of land species face a "very high" risk of extinction with only 1.5°C of warming, the IPCC said, bolstering calls for conservation of 30 to 50pc of the world's land and ocean territory.

The threat grows with every fraction of a degree.

Adaptation

By 2050 there will be more than a billion people in coastal areas highly vulnerable to storm surges amplified by rising seas by 2050. Per usual, the poorest will often be the hardest hit.

An additional 410 million people will be exposed to water scarcity from severe drought at 2°C of warming, and up to 80m will be at risk of hunger by mid-century.

By 2100, around \$10 trillion of assets will be in flood-prone coastal areas in a moderate greenhouse gas emissions scenario, according to the report.

The IPCC assessment – the sixth since 1990 – highlights the need to cope with unavoidable climate impacts on almost every page.

Overall, the IPCC warns, global warming is outpacing our preparations for a climate-addled world.

“For people in Africa living on the front line of climate change, it is adapt or die,” said Peter Verkooijen, CEO of the Rotterdam-based Global Centre on Adaptation.

The report also spotlights irreversible and potentially catastrophic changes in the climate system known as tipping points, triggered at different thresholds of global heating.

These include the melting of ice sheets atop Greenland and the West Antarctic that could lift oceans 13 metres; the morphing of the Amazon basin from tropical forest to savannah; and the disruption of ocean currents that distribute heat across the globe.

“The cumulative scientific evidence is unequivocal: Climate change is a threat to human wellbeing and planetary health,” the report concluded.

Further delays in cutting carbon pollution and preparing for impacts already in the pipeline “will miss a brief and rapidly closing window of opportunity to secure a liveable and sustainable future for all”.

Total upstream, midstream investments in natural gas to reach \$8.7tn by 2050: GECF



The Gas Exporting Countries Forum (GECF) has projected that the total upstream and midstream investments in natural gas will reach a hefty \$8.7tn by 2050.

A lack of investment will lead to higher gas prices, which, coupled with higher carbon prices, may result in inflationary pressures so high that they may trigger people's resistance to energy transition policies in developed countries, GECF noted in the 'GECF Global Gas Outlook 2050'.

The ripple effect of these undercurrents will be even more dramatic in developing countries, it said and noted investment in natural gas is critical for the stability of global energy systems.

GECF yesterday unveiled its annual 'GECF Global Gas Outlook 2050', which is a comprehensive report on the status of natural gas up to 2050.

In the sixth edition, the outlook finds that natural gas can become the fuel of choice in satisfying the growing world energy needs, addressing climate change and improving air quality. It predicts the share of natural gas in the energy mix will increase from 23% today to 27% by 2050.

In his overview of new-edition outlook, Mohamed Hamel, secretary-general, GECF, highlighted the continued prominence of natural gas in various energy outlooks and pathways.

Hamel said, "The GECF Global Gas Outlook 2050 underscores that investment in natural gas is critical for the stability of global energy systems. It projects that by 2050, total

upstream and midstream investments will reach a hefty \$8.7tn.” In his foreword, Hamel said, “Recent energy markets developments have underlined the critical role of natural gas in ensuring a continuous and affordable supply to end-consumers, in particular when the wind is not blowing and the sun not shining. They have also epitomised the globalisation and increased financialisation of natural gas markets.

“Additionally, they have emphasised the positive role that natural gas plays in many important sectors and for the daily life of people. This even includes food security, as natural gas is a key input in the production of fertilisers.

“Environmental policies are a key driver of the projections contained in the outlook. In this context, whilst upholding that natural gas is the cleanest of hydrocarbon fuels, the outlook explores the state of technologies that will make it even cleaner.

“Carbon capture, utilisation, and storage (CCUS) is a promising pathway, as it involves proven technologies and attracts increased interest. The number of new CCUS projects launched in 2021 has sharply increased. Methane emissions are expected to be reduced, especially considering that in most cases, this is a commercially-sound undertaking.

“Blue hydrogen derived from natural gas is the least costly option to decarbonise high-temperature process industries, such as steel and cement industries. Direct air capture, though still very expensive, is also attracting more attention and research funds.”

The GECF Global Gas Outlook 2050 is the flagship publication of the association of 19 countries, who together represent 71% of the world’s proven gas reserves, 43% of its marketed production, 52% of pipeline, and 58% of LNG exports in the world.

The outlook is based on a proprietary GECF Global Gas Model.

The Economic Consequences of the Ukraine War



Feb 25, 2022 JASON FURMAN

Russia's invasion of Ukraine has been rapid and dramatic, but the global economic consequences will be much slower to materialize and less spectacular. Yet, other than Ukraine, Russia will likely be the biggest long-term economic loser from the conflict.

CAMBRIDGE – Russia's invasion of Ukraine has been rapid and dramatic, but the economic consequences will be much slower to materialize and less spectacular. The war itself is enormously tragic, first and foremost for the Ukrainian people, but also for the Russian people and the global order more generally. When something like this happens, we expect it to be like a morality play in which all the bad consequences play out equally dramatically in every dimension, including the economy. But the economy does not work that way.

True, financial markets reacted swiftly to news of Russia's invasion. The MSCI All Country World Index, a leading global equity gauge, fell to its lowest level in almost a year. The

price of oil rose above \$100 a barrel, while European natural gas prices initially surged by almost 70%.

These energy-price increases will negatively affect the global economy. Europe is especially vulnerable, because it did little in recent years to reduce its dependence on Russian gas, and in some cases – notably, Germany, which abandoned nuclear power – even exacerbated it.

Oil-importing countries will experience a headwind from higher prices. The United States is more hedged: Because its oil production is equal to its oil consumption, more expensive oil is roughly neutral for GDP. But higher oil prices will hurt US consumers while helping a more limited segment of businesses and workers tied to the oil and gas industry. The price surge will also add to inflation, which is already at its highest levels in a generation in the US, Europe, and other advanced economies.

But some perspective on these immediate consequences is in order. At \$100 a barrel, oil is about one-quarter below its inflation-adjusted price during 2011 to 2014. Moreover, prices for oil futures are lower than spot prices, suggesting that the market expects this increase to be temporary. Central banks may therefore largely look through events in Ukraine, neither holding off on tightening nor speeding it up in response to higher headline inflation. And global stock markets are still up over the last year.

Similarly, although the Russian stock market has fallen significantly since the start of the invasion, Western sanctions are unlikely to have immediate dramatic effects. Sanctions rarely do; they are simply not the economic equivalent of the bombs that Russia is currently dropping on Ukraine.

Moreover, Russia is better prepared than most countries to weather sanctions. The country has been running an enormous

current-account surplus and has accumulated record foreign-exchange reserves of \$630 billion – sufficient to cover nearly two years of imports. And while Russia is dependent on revenue from Europe, Europeans are dependent on Russia's oil and gas – which may be even harder to replace in the short run.

But, in the longer term, Russia will likely be the biggest economic loser from the conflict (after Ukraine, whose losses will go well beyond what can be measured in the national accounts). Russia's economy, and the well-being of its population, have been stagnant since the Kremlin's 2014 annexation of Crimea. The fallout from its current, large-scale invasion will almost certainly be more severe over time. Sanctions will increasingly take a toll, and Russia's growing isolation, as well as heightened investor uncertainty, will weaken trade and other economic links. In addition, Europe can be expected to reduce its fossil-fuel dependence on Russia.

The longer-term economic consequences for the rest of the world will be far less severe than they are for Russia, but they will still be a persistent challenge for policymakers. There is a risk, albeit a relatively unlikely one, that higher short-run inflation will become embedded in increasingly unanchored inflation expectations, and thus persist. If that happens, central banks' already difficult job will become even more complicated.

In addition, defense budgets are likely to rise in Europe, the US, and some other countries to reflect the increasingly dangerous global situation. This will not reduce GDP growth, but it will reduce people's well-being, because resources dedicated to defense are resources that cannot go toward consumption or investment in education, health care, or infrastructure.

The medium- and long-term consequences for the global economy of Russia's invasion of Ukraine will depend on choices. By

invading, Russia has already made one terrible choice. The US, the European Union, and other governments have made initial choices on sanctions, but it remains to be seen how Russia will react to them or whether further penalties will be imposed. To the extent that sanctions and counter-responses escalate, the costs will be larger – first and foremost for Russia, but also to some degree for the rest of the global economy.

Global economic relations are positive-sum, and Russia's growing isolation will remove a small positive. More broadly, uncertainty is never good for the economy.

But, as the world continues to respond to the Russian invasion, concerns about GDP seem minor by comparison. Far more important is a world where people and countries feel secure. And that is something worth paying for – even more than the world's leaders have paid so far.

U.S. oil drilling rises in response to higher prices



By John Kemp

LONDON, Feb 25 (Reuters) – Prominent business leaders in the U.S. shale industry have been proselytising about their newfound commitment to restricting output growth to protect prices and profit margins.

But the rate of new drilling and production is climbing in response to rising prices – albeit more slowly than during the frenzied growth of the first (2009–2014) and second (2016–2019) shale booms.

Nearly 80 weeks after hitting a cyclical low, the number of rigs drilling for oil has risen by 348 (an average of 4.4 per week), according to data from oilfield services company Baker Hughes.

The rise compares with increases of 433 (5.5 per week) and 584 (7.4 per week) at the same point after the last two cyclical lows in 2016 and 2009 respectively.

The number of rigs is rising at roughly similar rates in the

Permian Basin (2.4 per week) and the other oil-rich shale plays (2.0 per week).

As a result, onshore production from the Lower 48 states rose in six of the seven months between May 2021 and November 2021, the most recent month for which production statistics are available.

Onshore production was rising at an annual rate of roughly 630,000 barrels per day (bpd) at the end of 2021, according to the U.S. Energy Information Administration.

The agency predicts a similar increase of 630,000 bpd by the end of 2022 and a slightly slower one of 470,000 bpd by the end of 2023 (“Short-term energy outlook”, EIA, Feb. 8).

Output is increasing much more slowly, only a quarter to a third as fast, as at height of the last boom in 2018, when onshore production was increasing by as much as 1.8 million bpd over twelve months.

In that sense, shale industry leaders are being true to their word, increasing the number of new wells and production more slowly than before to protect prices and profit margins and return capital to shareholders.

But the industry’s commitment to limiting investment is being tested as prices continue rising to levels that are well above the long-term average after adjusting for inflation.

Faster production increases look likely as a result of the continued escalation in oil prices since the start of the year.

DELAYED RESPONSE

Shale drilling has become much more efficient since horizontal drilling and hydraulic fracturing techniques began to be widely applied to oil-rich plays at the start of the last decade.

In the short run, however, drilling exhibits diminishing marginal returns during an upswing; additional rigs add smaller increments to output as they are deployed to less promising sites with less experienced crews using older equipment.

Current rig counts cannot usefully be compared with those five let alone ten years ago, but short-term changes in the rig count can provide a useful directional indicator for output changes over the next 12 months.

Changes in oil futures prices generally filter through into changes in drilling activity with a lag of just under 20 weeks.

The explanation is that it takes four-to-five months for producers to see if price changes will be sustained before deciding to alter the drilling programme, contract with drilling firms, wait for rigs to arrive on site, set up and begin boring.

Current drilling rates therefore reflect prices in September–October 2021, when front-month futures were trading around \$70–80 per barrel.

On average, it will take another six months for wells being drilled at present to be fractured, completed, hooked up to gathering systems and enter commercial production, which should keep output rising through at least August.

Since September–October, however, prices have risen by another \$10–15 per barrel which will ensure the number of rigs keeps rising throughout the second quarter, and production climbs faster through the end of the year.

The rapid escalation in spot prices and severe backwardation in futures is signalling the urgent need for more crude to meet strong consumption growth as the economy rebounds after the pandemic-driven recession.

U.S. oil producers are starting to respond by increasing their drilling programmes in the core shale plays of Texas and more marginal ones elsewhere, which should improve oil availability later this year and especially in 2023.