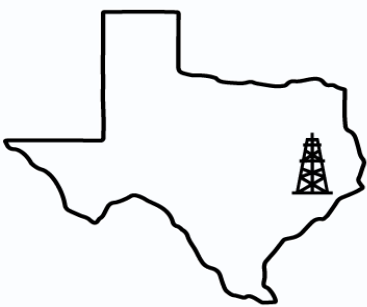


MAY 2023



SIPES HOUSTON

ENERGY ENTREPRENEURS

Mark McCuen

Warren Buffett

Exploration in India?

Rivian Woes

CA Energy Reality

EV Sales

OPEC+ Oil Bulls

Shale Investment Surges



SIPES HOUSTON CHAPTER

**3242 Summerland Drive
Manvel, TX 77578**

www.sipeshouston.org

SipesHoustonChapter@Gmail.com

Chapter Officers 2021

Chapter Chair

Paul Habermas

Past Chair

[Matt Boyce](#)

Matt.Boyce@EpochConsulting
LLC.com

Secretary

[Scott Leaseburge](#)

(832) 217-5649

ScottLeaseburge@gmail.com

Treasurer

Tanner Bowersox

Tan-

ner@BowersoxExploration.co
m

Website Chair

Sasha Gumprecht

Sasha@EpochConsultingllc.co
m

Technical Program Chair

Jeff Allen

Continuing Education Chair

[Richard Willingham](#)

RWillingham@att.net

Public Relations Chair

[Jeff Lund](#)

713-253-7481

[Jeff.Lund@corridoroilandgas.c
om](#)

Membership Chair

Mike Jones

Newsletter Chair

[Jeff Allen](#)

[Jeff@AllenEnergyLLC.com](#)

Deal Buyers List Chair

[Ryan Price](#)

RPrice@Poco-LLC.com

Sponsor Coordinator

Jeff Allen

National Directors

Steve Smith

(832) 236-1788

SmSmithGeo10@yahoo.com

Office Manager

[Meghan Jones](#)

SipesHoustonChap-
ter@gmail.com

In This Issue

Letter From The Editor

Jeff Allen

1

Mark McCuen

2

Sabata Energy Consultants

3

EV Sales

4

Nuclear

5

Drill, Baby, Drill!

7

Deal Buyer Event

8-9

Berkshire Comments on Decline Curves

10

Rivian

11

CA Energy Facts

12

CA Energy Facts, contd.

13

O&G Spending Increases

14

OPEC Oil Demand

15

Buy A Hat!

16

Tweets!

17

Who Imports Russian Oil?

18

Exploration in India?

19

\$1MM Math Problem for Wind

22

SIPES Deal Buyer List

23

On the cover:

Fuego Volcano Erupts in Guatemala

LETTER FROM THE EDITOR

A big thank you to Scott Leaseburge, a SIPES Houston Board Member, who organized and executed the annual Chili Cook-off. Another fun event which has turned into a family friendly party. Next year, make sure to bring your kids. This event was sponsored by [SABATA Energy Consultants](#). Because of their support, the event was able to bring in hundreds of dollars to our education outreach program called [Maps In Schools](#).

The rig count, per Baker Hughes, saw the largest single week drop since mid-2020. Private Equity backed horizontal companies are experiencing a lot more smash-co's which is a result of increased debt and lower than expected cash-flow. Not a good sign for them. If these PE companies can't make money at a steady \$70/BO, they never will.

Mark McCuen will be speaking about a field discovery on May 18th. I highly encourage all younger professionals to attend because it will be educational.

Despite lower and volatile gas prices, the future is bright for natural gas. Why? Because, LNG is continuing to grow, eventually the ESG zealots will have to turn to Nat Gas as their champion. The more money and global discussion supports ESG, the brighter our future is as oil and gas professionals.

Stay lean, stay hungry,
Jeff Allen



MAY 18TH LUNCHEON



SIPES HOUSTON
ENERGY ENTREPRENEURS

The Discovery of Bright Falcon Field

Synopsis:

Bright Falcon Field was an early discovery (1985) in the Expanded Yegua Trend of central Jackson County, TX. Initially drilled using 2D seismic, the acquisition of a 3D survey was instrumental in the development of the field. More importantly, the use of engineering data required "outside the box" thinking about AVO and predicted the eventual total produced reserves.

Bio:

Mark is a consulting geophysicist with experience in multiple trends in the Gulf Coast and elsewhere.

Date & Location:

Thursday, May 18th
Petroleum Club

Time:

Wine Served 11:00am
Lunch Served 11:30am

Purchase Ticket:**Speaker:**

Mark McCuen

[REGISTER HERE](#)

REMINDER

MEMBERS MUST
SIGN INTO THE SITE
FOR MEMBER PRICING

CONTACT [SASHA](#) IF
YOU DO NOT HAVE A
LOGIN

REMINDER

MEMBERS MUST
SIGN INTO THE SITE
FOR MEMBER PRICING

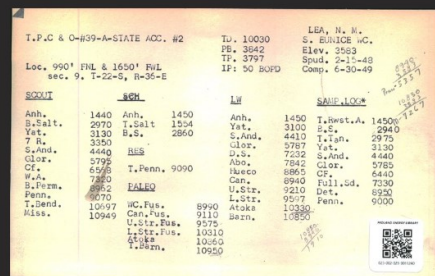
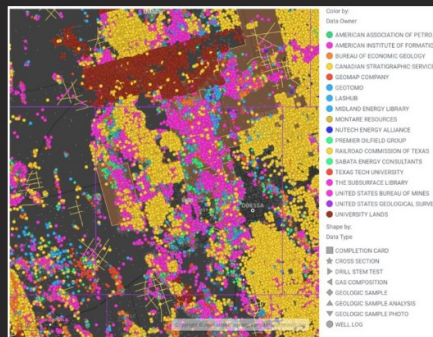
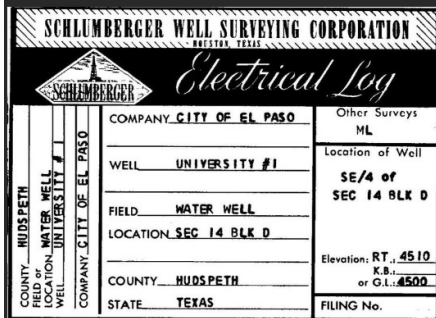
CONTACT [SASHA](#) IF
YOU DO NOT HAVE A
LOGIN

Data Services

Data Sales

Need geoscience data for your next prospect? We've got you covered with 1+ million well logs across the Permian, Rockies, Midcontinent, and Gulf Coast. We've also got helium gas compositions, P&P analyses, DST reports, and more.

Don't see what you need? Shoot us an email at info@sabata.us, and we'll get you fixed up. No project is too small or big.



Consulting Services

Geologic & Engineering Consulting

We've got an experienced team of geoscientists and engineers ready to help on your projects.

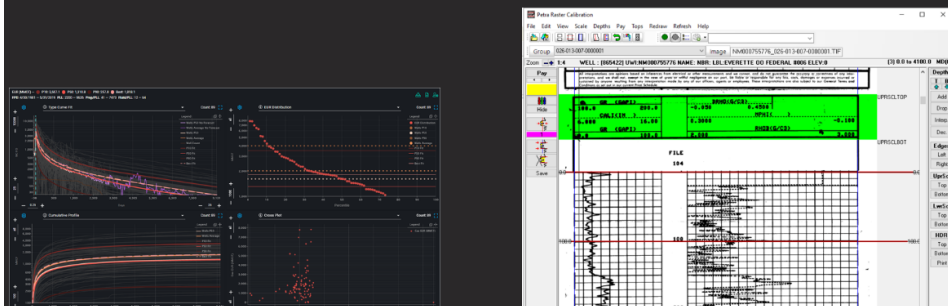
Our specialties include:

- Geologic mapping
- Decline curve analysis
- Well interference testing
- Frac hit analysis
- Rate & pressure transient analysis
- Reservoir simulation

Geotech Services

Have a storage unit full of well logs? Let us get it into a usable format! Want to catalog your data? Done. Scan it? Done. Straighten, depth calibrate, or digitize your rasters? We can do that, too. Better yet — we can store your paper data in our warehouse so it's ready to pull when you need it.

Be sure to check out our proprietary way to catalog well logs and index cards — we can tag & bag data 5x faster and 20% cheaper than our competitors thanks to our strategic partnership with Geolumina!

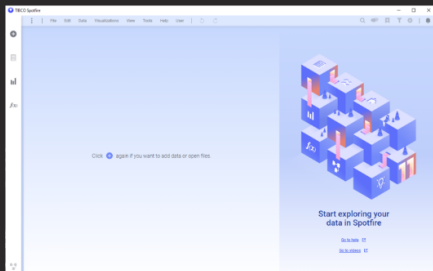


Dashboards & Software Training

Like our Spotfire dashboards? Let us put our skills to work on your internal data! We regularly build dashboards for clients as well as provide training for TIBCO Spotfire and Python.

Check out our upcoming courses via [Petroleum Technology Transfer Council \(Midcontinent\)](#) and [Midland College's Petroleum Professional Development Center](#).

Want training for your entire team? Shoot us an email at info@sabata.us to get on our schedule either in-person or virtual!



SABATA
— ENERGY —
CONSULTANTS

EV Lackluster Sales

EV makers Fisker Inc ([FSR.N](#)), Nikola Corp ([NKLA.O](#)) and Lucid Group ([LCID.O](#)) disappointed investors with dull quarterly results and production target cuts, sending their shares lower on Tuesday and deepening worries about weak demand and an ongoing price war.

EV market leader Tesla Inc's ([TSLA.O](#)) move to slash prices and increase volume, as well as lower-priced electric models launched by traditional automakers have hurt startups including Lucid.

Shares of SUV maker Fisker and truck maker Nikola Corp ([NKLA.O](#)), which reported early on Tuesday, fell 7% and 13%, respectively. Shares of Lucid, which makes luxury sedans, dropped 6% on Tuesday after its results late on Monday.

[Rivian Automotive Inc](#) ([RIVN.O](#)), however, beat Wall Street estimates for quarterly revenue on Tuesday as it sold more higher-priced electric vehicles and stood by its annual production forecast of 50,000 cars. Its shares rose 3% in after-hours trading.

Still, the downbeat updates from the other firms underscore the challenges facing cash-strapped EV firms, whose plans to disrupt the auto industry are unraveling in the face of rising interest rates and competition.

"Prototypes are easy, production is hard and achieving positive cash flow is excruciating," Elon Musk, who took Tesla from "production hell" to the most valuable automaker, said on Twitter. Musk was responding to a tweet from Whole Mars Catalog, an EV blog, that calculated that Lucid lost \$554,429.59 per car delivered in the first quarter.

The maker of Air luxury sedans made 2,314 vehicles in the period, burning through \$835.7 million in cash. It now has \$900 million in cash and cash equivalents and plans to produce more than 10,000 vehicles in 2023, compared with an earlier forecast of 10,000 to 14,000 units.

"Competition from a plethora of new electric crossover/SUV models coming to market should weigh on its top line," CFRA analyst Garrett Nelson said, adding that he expected losses to balloon as Fisker ramps up production.

Fisker lowered its annual production target to between 32,000 and 36,000 vehicles from its earlier target of 42,400 cars, blaming supply-chain issues and an "updated timing" for roadworthiness certification.

The company, which started production of its Ocean SUV just in November and has \$652.5 million in cash, also posted a larger-than-expected loss.

For Nikola, cash burn came in at \$240 million as it produced 63 vehicles.

"This level of cash burn is not sustainable for our business, and we are looking at every option for reductions in spending," Nikola finance chief Anastasiya Pasterick said.

In a separate release, Nikola said it was selling its stake in a joint venture with Iveco Group ([IVG.MI](#)) to the Italian truck maker for \$35 million after Iveco said it would acquire full ownership of the JV.

Nuclear Energy's Moment Has Come

For all the recent talk about clean energy and a shift away from coal, there's a major problem in our goal to transition to a net zero-carbon economy. Despite all the growth and advances in renewable energy, globally we consume more [fossil fuels than ever](#), and our rate of CO2 production is in fact increasing, not heading to zero.

As J. Robert Oppenheimer's grandson, I believe that my grandfather would support the expansion of nuclear energy as an environmentally friendly solution to address both the world's energy problems and, perhaps counterintuitively, as a catalyst for peace and unity.

Most known as the physicist in charge of the Manhattan Project's Los Alamos Laboratory during WWII, JRO (as we refer to him in the family) and many other prominent scientists noted that humanity reached a new milestone following the detonation of the first atomic bomb. In witnessing a technology sufficiently powerful to destroy humanity, they also recognized its potential for collective good — that it required a new level of unity to address common threats. JRO and others recommended that the only safe path forward was [global scientific cooperation](#), especially in an effort to avoid international arms races. That level of cooperation is necessary to face today's threats from exponential technological growth.

Indeed, nuclear energy has the ability to be scaled at an industrial level, globally: Uranium 235 has [millions more times energy](#) than coal or oil.

It's also important to underscore that nuclear energy became unpopular in part due to its association with nuclear weapons and fears about its safety. But the actual safety record shows it is [one of the safest sources of energy, and it is becoming more popular to be an environmentalist and pro-nuclear](#). We must get over our cognitive and political bias: Nuclear energy is necessary and safe, and not the same as nuclear weapons.

In a new documentary released last week and available on VOD starting June 6 from director Oliver Stone, "[Nuclear Now](#)," we see a comprehensive and compelling history of the rise of the anti-nuclear movement, and a thoughtful argument for the utility in nuclear energy to address today's severe energy crises. "Nuclear Now" also shows us that energy expansion is becoming a unifying issue, domestically and abroad. Today, we must expand the development of nuclear energy to meet our [carbon-free energy transition](#), because nuclear energy is indeed environmentally friendly, and necessary.

As my family observes my grandfather's birthday, it's time to call for a "Manhattan Project" for carbon-free energy production. For as much doom and gloom the climate change narrative brings, we can also focus on what can be done to plan for a more sustainable future. Chief among them is an industrial-scale production of carbon-free nuclear energy. We've done it for defense, we can do it for energy.

Internationally there is great hope for nuclear energy development increasing cooperation that my grandfather, Neils Bohr, [Einstein](#), and other scientists [said](#) was our path to a safe future. They recognized that there was only one way humans could survive when we possessed technology as powerful as atomic bombs: and that is to cooperate on a shared, safer, cleaner future.

[Time Magazine](#) ♦

SIPES HOUSTON



We have a packed room at our luncheons.
The 3rd Thursday of every month.



“Drill Baby, Drill” - Trump



At a Townhall gathering hosted by CNN, Trump replied “Drill baby, Drill!” when asked how he would decrease inflation and prices of goods.

Geoscience Interpretation Made Easy



GEOPHYSICS by seisware

Seismic Interpretation Solution



GEOLOGY by seisware

Geologic Interpretation Solution

Exclusive
discounts for
SIPES members!

Get your quote
info@seisware.com



- User-Friendly
- Cost-effective
- Top-notch support
- Integrated solutions

seisware.com/SIPES

2023 Deal Buyer Event in Review



Only real buyers invited resulted in millions of dollars invested directly into conventional prospects. Free food, drinks, cigars, and a raffle of a shotgun and high dollar liquor makes this the most profitable and fun event in our industry.

2023 Deal Buyer Event in Review, continued



Berkshire on Oxy and Decline Curves



Warren Buffett has some words about decline rate in their Permian wells. You should click on the image above to listen.



Rivian is a Dream. That's it.



A Rivian buyer got his dream car after a 3-year wait. Days later, the car was dead and he faced a \$2,100 bill



12,913 likes

insidertech When Chase Merrill drove his new Rivian R1S three years after he put the deposit down, it was instantly his favorite car he had ever driven.

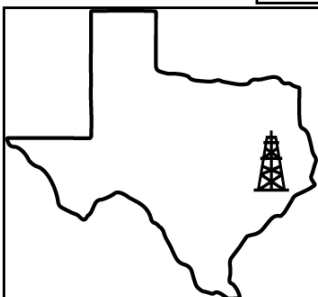
Merrill's honeymoon phase didn't last long. Two days after it arrived, the electric SUV was bricked in the snow.

The final straw for Merrill happened, he said, when the car was returned to him and a critical error message showed on his dash and saying the Rivian needed to go back to the service center.

Read more about Merrill's experience with his R1S and Rivian customer service at the link in our bio.

Story by Nora Naughton.

(Credit: Chase Merrill)



SIPES HOUSTON

ENERGY ENTREPRENEURS

WHY ENERGY INDEPENDENCE MATTERS

LESS ACCOUNTABILITY

Oil exporting countries do not adhere to California's safety, labor, human rights, and environmental standards

ENVIRONMENT HEALTH INDEX



Yale University

GLOBAL FREEDOM SCORES



Freedom House

HIGHER COSTS

Imported foreign oil costs

Californians over

\$25 BILLION

a year and is less reliable and less sustainable



Capitol Matrix Consulting

NEGATIVE ENVIRONMENTAL IMPACT

THE LARGEST OIL TANKERS BURN NEARLY **4 TONS** OF FUEL EVERY DAY THEY ARE ANCHORED

International Council on Clean Transportation

EACH SHIP EMITS **11+ TONS** OF CARBON DIOXIDE PER DAY

International Council on Clean Transportation



A FOREIGN OIL TANKER TRAVELS AN ESTIMATED **8,865 MILES** AND AVERAGES **0.004 MILES PER GALLON** TO CALIFORNIA'S PORTS

Energy & Infrastructure of PTS Advance

OIL TANKERS ACCOUNT FOR **13%** OF WORLD MARINE CO2 EMISSIONS

International Council on Clean Transportation



WHERE CALIFORNIA GETS ITS ENERGY

California is the world's 5th-largest economy and gets most of its energy from fossil fuels



U.S. Energy Information Administration

79%
Fossil Fuel

15%
Renewables

3%
Other

3%
Nuclear



California Oil Production

370,000
BBL/day

California Oil Usage

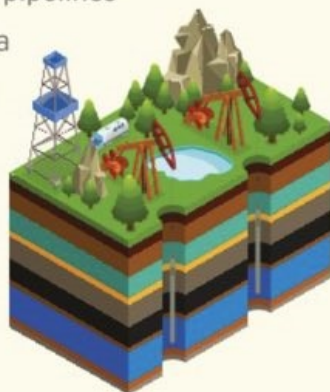
1,430,000
BBL/day

California Energy Commission

California uses almost **3.5x** more oil than it produces.

CALIFORNIA, THE "ENERGY ISLAND"

There are currently no pipelines to bring oil to California from any other part of the United States. California must rely on imported oil to make up the difference

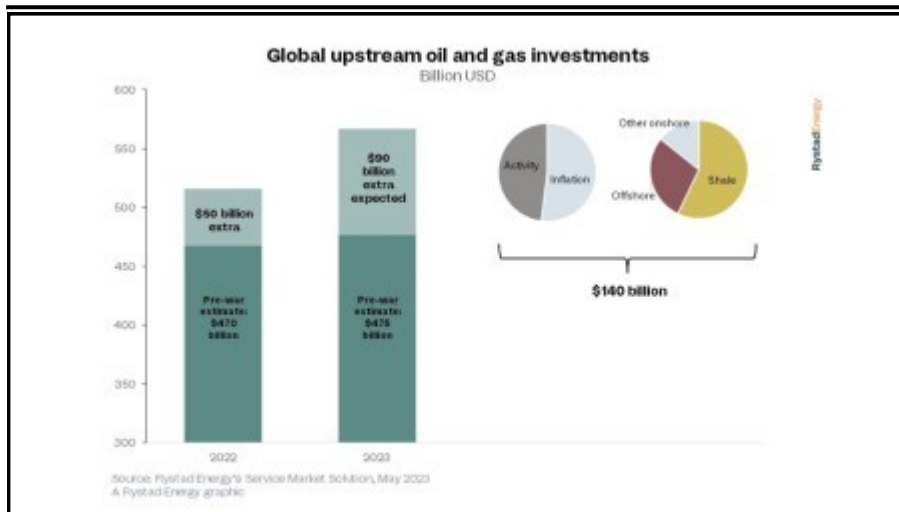


CALIFORNIA'S TOP 5 FOREIGN OIL SOURCES (2022)



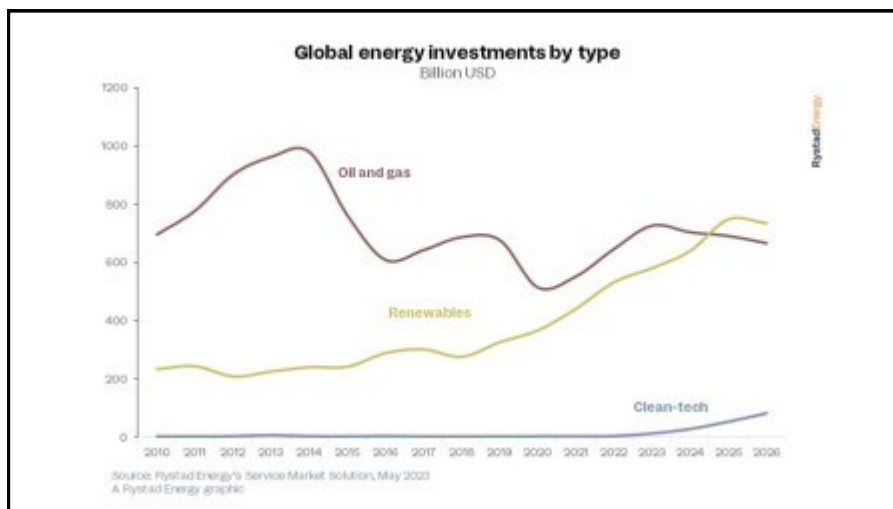
California Energy Commission

OG Spending Surges



Global energy reliability concerns are triggering a surge in oil and gas investments – but this uptick is only temporary, and service companies should capitalize now before the focus returns to the energy transition. After Russia invaded Ukraine, expected investments in fossil fuels in 2022 and 2023 surged by \$140 billion, Rystad Energy research shows. Before the war, the two-year total was projected at \$945 billion, but as the war sparked shortages and sky-high prices, expected spending has jumped to almost \$1.1 trillion.

Of the \$140 billion growth, shale production attracted most of the limelight with an additional \$80 billion increase, as activity climbed 30% and pricing for oilfield services jumped nearly 50%. Offshore production accounted for \$40 billion in growth, while other onshore activities expanded by an additional \$20 billion.



“Service companies should make the most of this upturn now, while keeping one eye firmly on the future. The energy transition is not slowing down; huge waves of investments in renewables and clean tech are on the horizon. So, to ensure their long-term success, service companies should adapt their offerings now to capitalize fully on the inevitable green revolution,” says Audun Martinsen, head of supply chain research at Rystad Energy. The US Inflation Reduction Act and the recently announced Critical Raw Mineral and Technology Acts in the

European Union will strengthen the significant investment cycle brewing in the renewable and clean-tech sectors. Solar, wind, carbon capture, hydrogen, and batteries are all markets that will benefit from supportive policies to accelerate low-carbon deployment and build up local supply chains.

“Gaining control of the supply chain is crucial for countries and regions to become less dependent on global value chains. Even though the sun shines and the wind blows in every country, the energy must still be harnessed and stored locally. This can only be done with a reliable, often local, supply chain,” says Martinsen.

[Rystad Energy](#) ♦

OPEC+ Bullish Oil Demand

OPEC's global oil demand forecast for 2023 was held steady for a third month on Thursday, with the producer group citing the potential Chinese growth to be offset by downside economic risks elsewhere such as the U.S. debt ceiling.

World oil demand in 2023 will rise by 2.33 million barrels per day (bpd), or 2.3%, the Organization of the Petroleum Exporting Countries (OPEC) said in a monthly report. This was virtually unchanged from 2.32 million bpd forecast last month.

"Minor upward adjustments were made due to the better than expected performance in China's economy, while other regions are expected to see slight declines due to economic challenges that are likely to weigh on oil demand," OPEC said in the report. A new round of oil output cuts announced on April 2 by some members of OPEC+, which comprises OPEC, Russia and other allies, has failed to boost oil prices that have been hit by further interest rate hikes and concern over the U.S. debt ceiling.

This is the last monthly OPEC report before OPEC+ holds its next policy meeting on June 4.

Chinese oil demand is now expected to rise by 800,000 bpd, OPEC said, up from the 760,000 bpd forecast last month, adding to a recovery after strict COVID-19 containment measures were scrapped.

The global growth figure, however, was unchanged for a third straight month and OPEC left its 2023 economic growth forecast at 2.6%, citing potential downside risks such as inflation and increasing debt payments from higher interest rates. "In addition, the U.S. debt ceiling issue has so far not been resolved, a matter that could have economic consequences," OPEC said in its economic commentary.

Oil fell on Thursday, with Brent crude trading below \$76 a barrel.

The report also showed OPEC's oil production fell in April, reflecting the impact of earlier output cuts pledged by OPEC+ to support the market as well as some unplanned outages.

For November last year, with prices weakening, OPEC+ agreed to a 2 million bpd reduction in its output target - the largest since the early days of the COVID-19 pandemic in 2020. The April 2 voluntary cuts add to this total. OPEC said its April output fell by 191,000 bpd to 28.60 million bpd, with declines in Iraq and Nigeria. Iraq's northern exports were halted while some of Nigeria's exports were disrupted by a labour dispute. The report kept its forecast that non-OPEC supply would rise by 1.4 million bpd in 2023 and flagged factors that could limit or curb supplies, such as investment levels and the war in Ukraine.

While overall investment levels in non-OPEC supply in 2023 are expected to be just above pre-pandemic levels, they are still short of a \$747 billion high reached in 2014 as oil companies focus on capital discipline, OPEC said.

[Reuters.com](https://www.reuters.com) ♦

ARE YOU AN OIL MAN OR WOMAN?



First oil and gas deal memorabilia looks great!
Can't wait to wear this on the golf course and
generate some BD from the old guys out there



Show us where you wear it! :)

SOLD OUT TWICE

WANT THIS HAT?

I am an Oil **Man** or I am an Oil
Woman

\$50.00

[CLICK TO BUY](#)



TWEETS!



A Crude Awakening ✓ @allengilmer · 5h ...

The world's most powerful governments can't solve homelessness, but they can lower temperatures if you pay more taxes and let them destroy industries and personal freedom.



2



10



37



1,251



Dr. Eli David ✓ @DrEliDavid · 18h ...

The best clip you'll see on climate change:

"I am a scientist, and I am the founder of Weather Channel. Science is not about votes, it is about facts. And the facts are clear: climate change is not happening, and there is no man-made global warming."



323K views · From Daniel Ginat



383



7,503



16.8K



698K



Patrick De Haan 🇺🇸 🇮🇱 @GasBuddy... · 2d ...

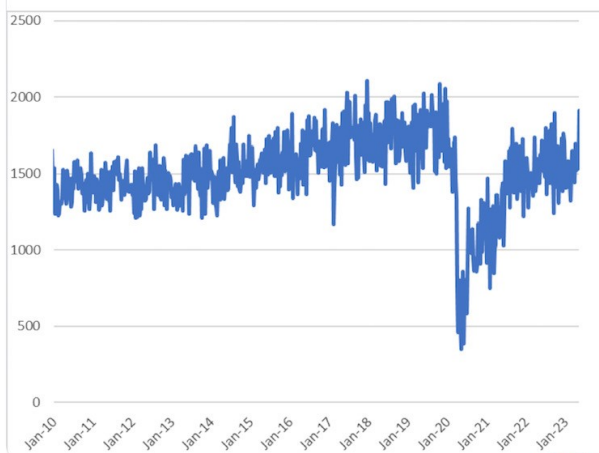
A sign of how far we've come, Air New Zealand just placed its last triple-7 back into service today. Many airlines have their full fleets deployed again, less planes they permanently scrapped (and probably would really love back!)



Giovanni Staunovo 🇺🇸 ✓ @stau... · 2d

US jet fuel implied demand (product supplied) in kbpd

- at highest level since December 2019
- EIA #oott



3



5



32



11.5K



WHO IMPORTS RUSSIAN OIL?

Western nations have taken major steps to cut energy ties with Russia by cracking down on imports of seaborne crude oil and refined petroleum products while imposing a US\$60 price cap on sales to non-Western countries in a bid to crimp the Kremlin's ability to finance its war in Ukraine.

At the same time, nations that sanctioned Russian oil have dramatically increased imports of refined oil products from countries that have become the largest importers of Russian crude since Moscow invaded Ukraine last February, according to a recently released [report](#) by the Finland-based Center for Research on Energy and Clean Air (CREA).

The organization tags five non-sanctioning countries – China, India, Turkey, United Arab Emirates (UAE) and Singapore – as “launderers” of Russian oil, which is blended with non-Russian origin crude and re-exported globally, including to the very nations enforcing the price cap and embargo in what CREA describes as a “major loophole” in the sanctions regime.

Isaac Levi, an energy analyst at CREA and the report's co-author, told Asia Times that the EU's oil ban and price cap, imposed in December and February respectively, have cost Moscow an estimated 160 million euros (US\$175.3 million) per day, but were cautiously designed to allow Russian oil flows onto global markets to keep prices down and avoid supply disruptions.

Russian Seaborne Oil Exports



Source: Bloomberg

“Now that the bans are in place, Russia's revenues are starting to rebound,” he said, describing the loophole as a “legal way” for sanction-imposing countries to buy oil products previously bought directly from Russia, which are now being sold by third countries at a premium. “This process provides higher demand for Russian oil, creating higher export volumes and prices.”

In November, the International Energy Agency (IEA) projected that Russian oil output would fall by 1.4 million barrels per day (bpd) in 2023 following the EU's ban on seaborne exports of Russian crude. But with more than 90% of Russian crude now finding buyers in Asia,

exports averaged 3.76 million bpd in April, 22% above the average pre-war level of 3.1 million bpd, [according to S&P Global](#).

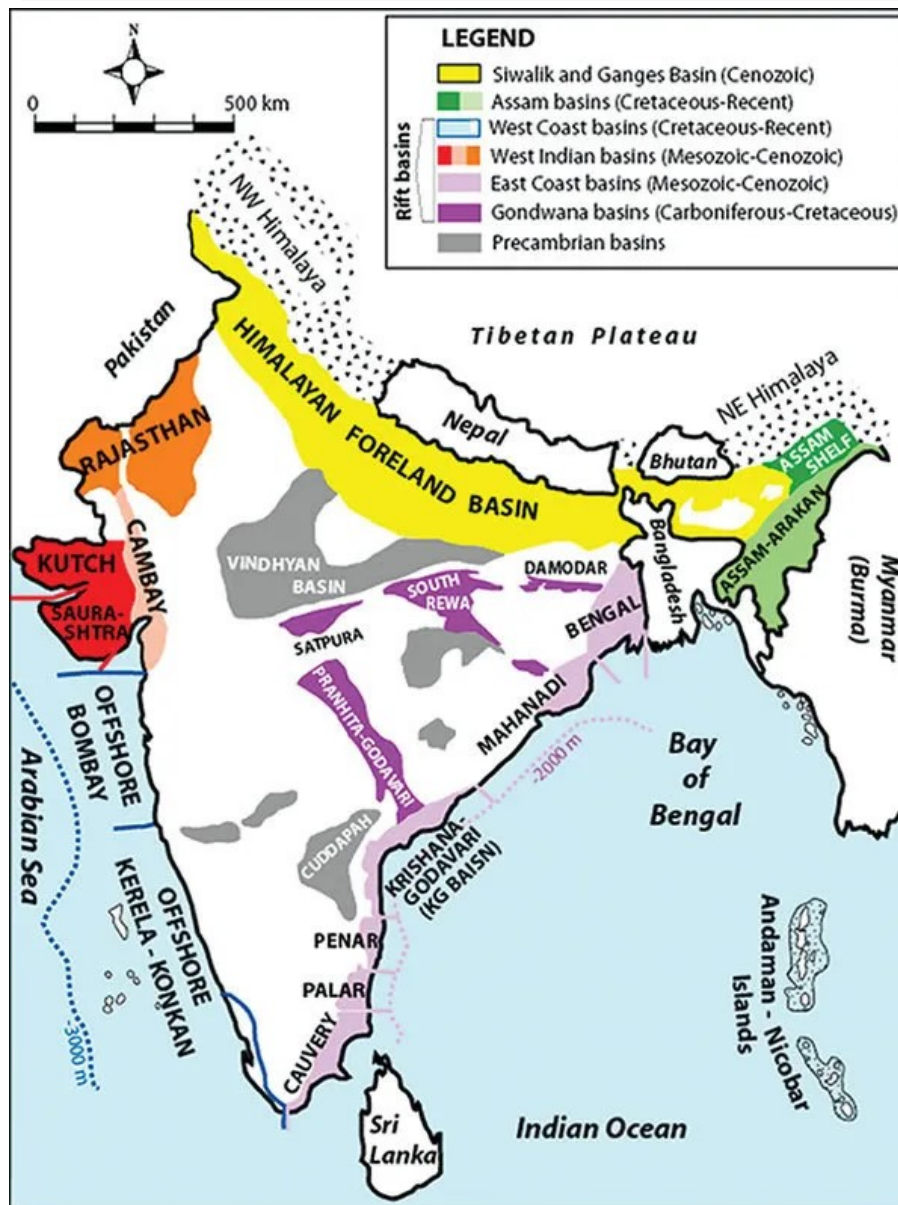
To read the full report, [CLICK THIS LINK](#) ♦

INDIA



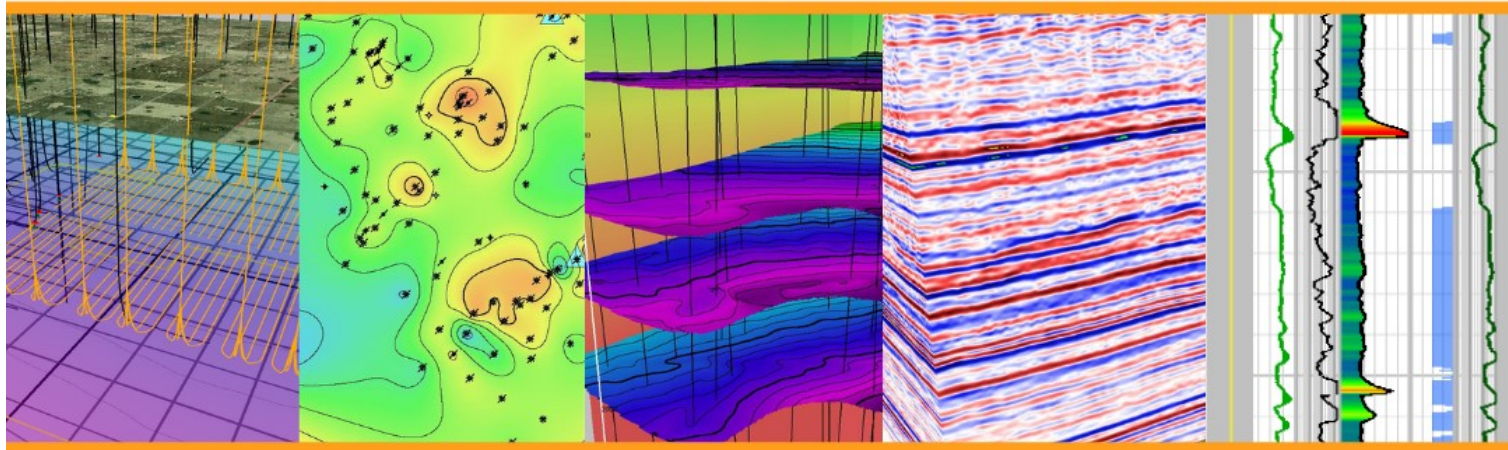
Anas Alhajji ✓
@anasalhajji

India needs to play the Chinese game before it is too late. India's politicians need to stop being cheap and build large strategic oil & gas reserves that are larger than what the US has right now. it will take 5-10 years to do so, but they need it if they want to avoid an unprecedented energy crisis. Renewable energy is good. Electric vehicles are good. But they will NOT save the day!



Seisware, a SIPES Sponsor

Interpretation Solutions



Exclusive pricing for SIPES members



seisware.com/sipes

One of the sponsors for the 2022 Deal Buyer Event.
This company supports independents!
Click on the image to learn more

THE LAWYER RECOMMENDED BY MOST SIPES MEMBERS



WHERE LEGAL INTELLECT
MEETS BUSINESS INSIGHT



R. Reese & Associates offers a unique service plan to clients - a full legal department of industry specialists, available on a customizable, as-needed basis at a fraction of the cost of in-house counsel.

RACHEL REESE IS THE CHOSEN LEGAL COUNSEL FOR A NUMBER OF SIPES MEMBERS. SHE SPONSORED THE DEAL BUYER EVENT BECAUSE SHE UNDERSTANDS OUR VISION AND NEEDS AS INDEPENDENTS.

**Jeff Allen, SIPES
Member and Past Chair**

**rreeselaw.com
info@rreeselaw.com
832-831-2289**

\$1MM MATH PROBLEM FOR WIND ENERGY

You can win a million dollars for finding a solution to reliably predict how air currents, breeze, and turbulence interact in a mathematical model of fluid dynamics. The \$1 million Millennium Prize is offered for solving equations like the Navier–Stokes Equation, first formulated in the 19th century, but never solved. The prize is so substantial not only because a thorough understanding of the remarkable complexities of fluid dynamics has remained far out of reach for mathematicians, but also because of the major implications that such a model would have on atmospherically-reliant technologies such as wind power.

In its simplest form, wind power works like this: the wind blows, a turbine spins, a generator is rotated, and energy is thereby produced. But the reality is much more complicated. Turbulence messes up all of those straightforward understandings of wind + turbine = energy. Not only can it decrease the amount of power produced on any given day, but the wind that blows through a group of turbines [can even strip away energy](#) from the wind farm, all depending on the unpredictable element of turbulence.

Currently (no pun intended), our relatively rudimentary understanding of fluid dynamics poses a major challenge to the efficacy and efficiency of wind power production. The better we can understand and account for the intricacies of wind and weather, the better we can design wind turbines and wind farms. When a [recent study](#) published in the scientific journal *Physics* applied more complicated atmospheric conditions (such as reduced wind at high altitudes) to their model than the more simplistic ones that are typically used, researchers found that the power output of some turbines dropped by as much as 30%.

The more complicated, and therefore more realistic atmospheric wind model used in the *Physics* experiment “adds vertical pressure gradients that disturb the simplified wind band at prop height and decrease wind at higher altitudes,” wrote Big Think, translating the article into layman’s terms. “The simulations show that this drives down the velocity of the incoming wind jet and creates turbulence that slows the horizontal flow driving the blades. However, the turbulence doesn’t bring down enough air flow from above the propellers to compensate for the loss in horizontal speed it causes.” With the inclusion of these factors that more accurately reflect real-world atmospheric conditions, projected output dropped by up to 30%.

Improving the efficiency of wind farms could be a key step toward meeting global climate goals. The globally recognized Net Zero Emissions by 2050 Scenario includes the benchmark of approximately 7900TWh of wind electricity generation worldwide in 2030. To get on track with this Scenario, [according to the International Energy Agency](#), the world would have to increase average annual wind power capacity additions to almost 250GW, a more than two-fold increase of the previous record for annual addition.

While adding more wind turbines is the focus of such a scenario, improving the efficiency of wind power through a better understanding of fluid dynamics could be a game changer for the industry. It’s becoming increasingly clear that the need for rapid, massive-scale addition of renewable energy is at loggerheads with other global development needs, such as increasing demand on land for agriculture. In fact, land use competition and disagreements have [already been a major roadblock](#) for clean energy development in the United States. A [recent analysis](#) from global management consulting firm McKinsey & Company reported that “utility-scale solar and wind farms require at least ten times as much space per unit of power as coal- or natural gas-fired power plants, including the land used to produce and transport the fossil fuels,” and that “wind turbines are often placed half a mile apart,” giving wind farms a massive footprint. Increasing the efficacy of the turbines through better atmospheric modeling could therefore be a win-win for energy production and efficient land use.

[By Haley Zaremba for Oilprice.com](#) ♦

SIPES HOUSTON DEAL BUYER LIST

1	A	B	C	D	E	
2	HOUSTON SIPES	DEAL BUYERS 2016				
3	COMPANY	ADDRESS	CITY STATE ZIP	CONTACT(S)	EMAIL	TELEPHONE
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						

The SIPES Houston Chapter has the coveted DEAL BUYER LIST

This annually updated list consists of over 300 real working interest buyers in all regions and basins. If you are trying to sell a deal, you need this list.

Only Sipes Members can see this list. Are you a member?

[APPLY NOW](#)



LUNCHEON MENU

SIPES BOOK RECOMMENDATION



Cup Tomato Basil Soup

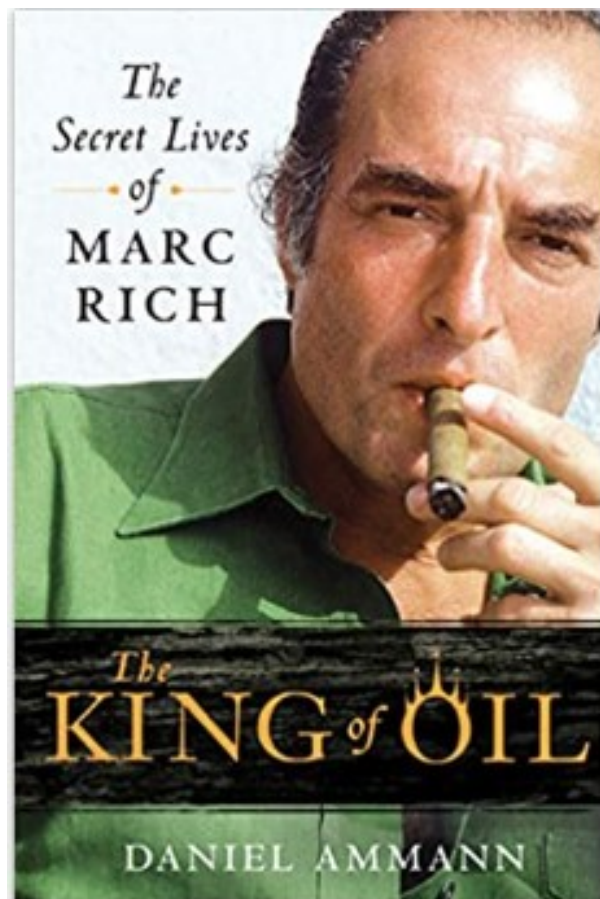


Sauteed Gulf Red Fish



Blueberry Lemon Tart

Food Allergies?
[CONTACT US](#)



Billionaire oil trader Marc Rich for the first time talks at length about his private life (including his expensive divorce from wife Denise); his invention of the spot oil market, which made his fortune and changed the world economy; his lucrative and unpublicized dealings with Ayatollah Khomeini's Iran, Fidel Castro's Cuba, war-ravaged Angola, and apartheid South Africa; his quiet cooperation with the Israeli and U.S. governments (even after he was indicted for tax fraud by Rudy Giuliani) and near-comical attempts by U.S. officials to kidnap him illegally.

This sure-to-make-headlines book is the first no-holds-barred biography of Rich, who was famously pardoned by Bill Clinton, and resurfaced in the news during the confirmation hearings of Attorney General Eric Holder. *The King of Oil* sheds stunning new light on one of the most controversial international businessmen of all time. ♦

Shut down
nuclear energy



Try to
generate all
energy with wind



Open coal
plants to
meet energy needs



"Germans must
use 25% less energy"



imaflip.com

