

Energy Tidbits

June 13, 2021

Produced by: Dan Tsubouchi

Oil Demand Surge Happening, Both IEA and OPEC Forecast Q3/21 Demand +3.1 mmb/d QoQ And More in Q4/21

Welcome to new Energy Tidbits memo readers. We are continuing to add new readers to our Energy Tidbits memo, energy blogs and tweets. The focus and concept for the memo was set in 1999 with input from PMs, who were looking for research (both positive and negative items) that helped them shape their investment thesis to the energy space, and not just focusing on daily trading. Our priority was and still is to not just report on events, but also try to interpret and point out implications therefrom. The best example is our review of investor days, conferences and earnings calls focusing on sector developments that are relevant to the sector and not just a specific company results. Our target is to write on 48 to 50 weekends per year and to post by noon mountain time on Sunday.

This week's memo highlights:

1. Big oil theme is the demand surge is now happening, both the new IEA OMR and OPEC MOMR forecast Q3/21 demand +3.1 mmb/d QoQ. ([Click Here](#)) ([Click Here](#))
2. Does Tourmaline believe a FID is likely on LNG Canada Phase 2 and should they be the sole supplier/aggregator for any required LNG Canada partner gas supply? ([Click Here](#))
3. IEEFA raises questions on Exxon's Permian potential. ([Click Here](#))
4. Shell says it will move to comply with Dutch court emissions reductions ruling. ([Click Here](#))
5. We believe global policymakers are now locked in for more aggressive emissions targets thru COP-26 as companies waited too long to raise reality check doubts. ([Click Here](#))
6. Please follow us on Twitter at [LINK](#) for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.
7. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [LINK](#).

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Natural Gas – Natural gas injection of 98 bcf, storage now -383 bcf YoY deficit

The EIA reported a 98 bcf injection (vs 99 bcf injection expectations) for the June 4 week, which was slightly above the 5-yr average injection of 92 bcf, and slightly above last year’s injection of 93 bcf. Storage is 2.411 tcf as of June 4, decreasing the YoY deficit to 383 bcf from 386 bcf last week and storage is now 55 bcf below the 5 year average vs 61 bcf below last week. The significant YoY deficit along with the forecasted hot summer will help support natural gas prices during the injection season. Below is the EIA’s storage table from its Weekly Natural Gas Storage Report. [\[LINK\]](#)

YoY storage at -383 bcf YoY deficit

Figure 1: US Natural Gas Storage

Region	Stocks billion cubic feet (Bcf)				Historical Comparisons			
	06/04/21	05/28/21	net change	implied flow	Year ago (06/04/20)		5-year average (2016-20)	
					Bcf	% change	Bcf	% change
East	445	413	32	32	559	-20.4	476	-6.5
Midwest	547	522	25	25	658	-16.9	554	-1.3
Mountain	160	151	9	9	147	8.8	147	8.8
Pacific	276	268	8	8	280	-1.4	263	4.9
South Central	983	959	24	24	1,150	-14.5	1,027	-4.3
Salt	302	300	2	2	356	-15.2	315	-4.1
Nonsalt	681	659	22	22	794	-14.2	712	-4.4
Total	2,411	2,313	98	98	2,794	-13.7	2,466	-2.2

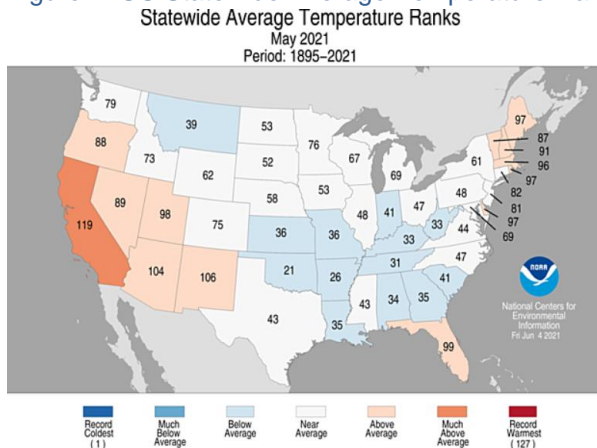
Source: EIA

Natural Gas – May was average temp, mostly weather to leave the windows open

From a weather perspective, May was another so so month for natural gas demand. May was basically as average as you can get for temperatures as the 63rd warmest May on a nationwide basis in the last 127 years. The issue is that, other than Florida, is was mostly cool in the southern state, the Middle Atlantic and Midwest where we would have hoped for a hot May for natural gas demand. So it seemed like mostly good weather to leave the windows open and not pull hard on air conditioning. US gas storage increased from -235 bcf at the end of March to -345 bcf at the end of April. Below is the NOAA’s statewide average temperature map for May 2021. [\[LINK\]](#)

Average temps for May

Figure 2: US Statewide Average Temperature Ranks May 2021



Source: NOAA

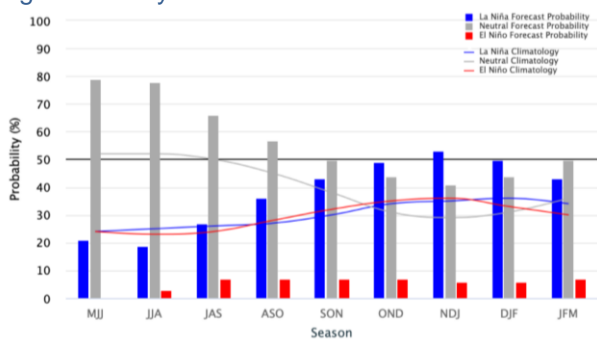
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Natural Gas – 92% probability for La Nina/Neutral in key hurricane ASO season

The CPC/IRI released its updated monthly El Nino/La Nina outlook, which is issued on the 2nd Thurs of every month [LINK]. The focus now for oil and gas is for the peak Atlantic hurricane season in Aug/Sept/Oct and the call is still for a Neutral/La Nina ASO with very little chance for El Nino conditions. The trends have shifted more to neutral conditions, but still a Normal/La Nina for the key Aug/Sept/Oct. The consensus forecast for ASO is 57% Neutral (was 50%), 36% Nina (was 42%) and only 7% El Nino (was 8%) conditions. Again, weather is never 100% the same, but El Nino summers are normally associated with low Atlantic hurricane seasons, whereas neutral/La Nina conditions are more likely normal hurricane seasons.

Expecting a La Nina/El Nino summer

Figure 3: Early-June NOAA El Nino/La Nina Outlook



Source: CPC/IRI

Natural Gas – EIA forecasts US gas production to return to growth in 2022

The EIA released its monthly Short Term Energy Outlook May 2021 [LINK] on Tues. (i) The forecast revised up 2021 and 2022 US natural gas production, however the EIA forecast continues to show US natural gas not returning anywhere near the Q4/19 peak of 96.58 bcf/d, with Q4/22 US natural gas of 94.81 bcf/d (down 1.77 bcf/d from peak). (ii) For 2021, the EIA made upward revisions to all quarters. 2021 US natural gas production is forecast to average 92.18 bcf/d (up from 91.06 bcf/d previously). (iii) The EIA did not provide basin specific explanations of projections but did write “Following a significant weather-related decline in U.S. natural gas production in February, U.S. dry natural gas production rose by 6.0 Bcf/d in March to 92.3 Bcf/d. We expect dry natural gas production will average 92.9 Bcf/d in 2H21 and then rise to 93.9 Bcf/d in 2022.” The EIA is also likely making some shifts in their model as slightly lower oil would bring slightly lower associated gas. Plus June STEO has lower 2022 HH prices. Yet natural gas is going higher. Our Supplemental Documents package includes excerpts from the EIA STEO.

EIA sees US gas production +2.06 bcf/d YoY in 2022

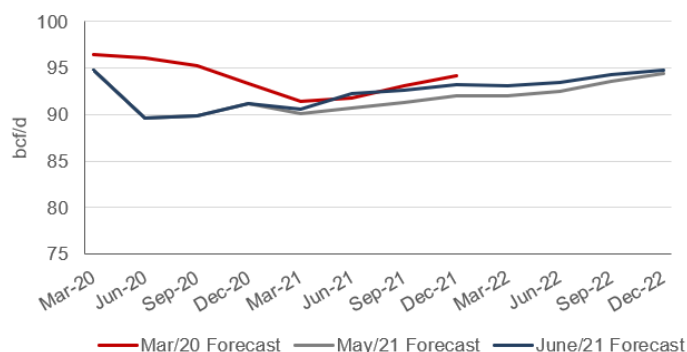
Figure 4: EIA STEO US Natural Gas Supply Forecasts By Forecast Month

bcf/d	Q1/19	Q2/19	Q3/19	Q4/19	2019	Q1/20	Q2/20	Q3/20	Q4/20	2020	Q1/21	Q2/21	Q3/21	Q4/21	2021	Q1/22	Q2/22	Q3/22	Q4/22	2022
June 2021	90.01	91.57	94.01	96.58	93.06	94.79	89.68	89.83	91.15	91.35	90.53	92.26	92.63	93.26	92.18	93.13	93.48	94.31	94.81	93.93
May 2021	90.01	91.57	94.01	96.58	93.04	94.79	89.68	89.83	91.15	91.35	90.09	90.75	91.34	92.03	91.06	91.97	92.54	93.60	94.36	93.12
Apr 2021	90.01	91.57	94.00	96.58	93.04	94.79	89.68	89.83	91.18	91.36	90.82	90.90	91.59	92.31	91.41	92.23	92.75	93.76	94.39	93.29
Mar 2021	90.01	91.57	94.00	96.58	93.04	94.79	89.68	89.82	91.08	91.34	90.50	91.04	91.71	92.13	91.35	91.87	92.25	93.28	93.90	92.83
Feb 2021	90.01	91.57	94.00	96.58	93.04	94.79	89.68	89.82	90.89	91.29	90.88	90.17	90.40	90.54	90.50	89.95	90.18	91.41	92.26	90.96
Jan 2021	90.01	91.57	94.00	96.58	93.04	94.79	89.67	89.87	88.73	90.76	87.48	87.54	88.54	89.11	88.17	88.54	88.86	90.17	91.02	89.66
Dec 2020	90.01	91.57	94.00	96.58	93.04	94.79	89.67	89.72	89.36	90.88	87.65	87.25	88.13	88.61	87.91					
Nov 2020	90.01	91.57	94.00	96.58	93.06	94.85	89.73	90.14	89.29	90.99	87.50	87.10	88.16	88.86	87.91					
Oct 2020	90.01	91.57	94.00	96.58	93.06	94.48	89.44	89.81	88.86	90.64	86.56	86.02	87.04	87.58	86.81					
Sept 2020	89.32	90.50	92.98	95.97	92.21	94.48	89.50	88.44	87.14	89.88	85.67	85.87	87.07	87.73	86.59					
Aug 2020	89.32	90.50	92.98	95.97	92.21	94.48	89.20	86.27	84.73	88.65	83.21	82.93	84.35	85.55	84.02					
July 2020	89.32	90.50	92.89	95.97	92.21	94.50	89.91	87.27	85.37	89.24	83.48	83.25	84.53	85.63	84.23					
June 2020	89.32	90.50	92.98	95.97	92.21	94.47	90.60	87.95	85.66	89.65	83.96	84.44	85.75	87.34	85.39					

Source: EIA, SAF

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Figure 5: EIA STEO US Natural Gas Supply Forecasts By Forecast Month



Source: EIA, SAF

Natural Gas – US LNG exports still near all-time highs

Although US LNG exports are down from the all-time record of 10.25 bcf/d in March, May exports of 9.97 bcf/d are still an all time high for the month of May. The EIA expects this trend of high levels of US LNG exports to continue due to the strong global demand. The EIA wrote *“Because LNG stocks in Asia have been lower than usual this year as a result of significant draws during the extremely cold winter, demand in Asia for LNG imports has been much greater than usual. In Europe, the coldest April in nearly a century and low inventories also supported higher global demand and higher prices for LNG. Because of this strong global demand for LNG, we forecast that U.S. LNG exports will continue to be high and average more than 9.0 Bcf/d during the remainder of 2021.”*

**US LNG exports
near all-time highs**

Natural Gas – Another good RBN blog on potential new US/Can LNG projects

Our May 30, 2021 Energy Tidbits, highlighted RBN’s May 27 blog [\[LINK\]](#) which provided a good overview of the remaining LNG projects that hadn’t been abandoned and ranked them by likelihood of reaching FID. RBN had the overall view that *“the pandemic may have forced a culling of the proposed projects, but those near the top now have a clearer path ahead. In fact, several projects could realistically achieve FID in the next few years.”* On June 3, RBN posted a Part 2 [\[LINK\]](#) to its May 27 blog. Its another blog that we recommend be added to reference libraries. RBN reviewed the landscape of potential US and Canada LNG projects, greenfield and brownfield, and grouped them into tiers of probable, tier 1, and tier 2. And that means the rest are in others or not on their list of probable to go FID. Below we pasted their table of the LNG projects by tier. Our only disagreement with the list is that LNG Canada Phase 2 does not make their list of probable, tier 1 or tier 2. Later in the memo, we note our rationale for the LNG Canada view in our April 28, 2021 7-pg blog *“Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?”* [\[LINK\]](#). We are much more bullish on LNG Canada Phase 2. Our Supplemental Documents package includes the RBN blog post.

**RBN ranks
potential
US/Can LNG
projects**

Figure 6: Pre-FID LNG Projects

Select North American Pre-FID LNG Export Projects								
Project	Developer	Region	Location	Trains	Capacity MMTpa	Capacity Bcf/d	SPAs MMTpa	Status
Woodfibre	Pacific Oil and Gas	British Columbia	Squamish, BC	1	2.1	0.3	1.5	Probable
Cameron T4-5	Sempra et al	Sabine River	Hackberry, LA	2	10.0	1.3	10 (credible, non-binding)	Probable
Corpus Christi Ph 3	Cheniere	Texas Gulf Coast	Corpus Christi, TX	7	9.5	1.3	1.7	Tier 1
Port Arthur Ph 1	Sempra	Sabine River	Port Arthur, TX	2	11.0	1.4	7.0	Tier 1
Freeport Train 4	Freeport LNG	Texas Gulf Coast	Freeport, TX	1	5.1	0.7	2.2	Tier 1
Driftwood Ph1	Tellurian	Sabine River	Calcasieu Parish, LA	12	16.6	2.2	8.5	Tier 1
Plaquemines Ph1	Venture Global	Louisiana Gulf Coast	Plaquemines, LA	36	10.0	2.8	3.5	Tier 2
Rio Grande	NextDecade	TX/Mexico Border	Brownsville, TX	5	22.5	3.0	2.0	Tier 2

Source: RBN

Natural Gas – Does TOU also believe a FID on brownfield LNG Canada Phase 2 is likely

On Friday, Tourmaline announced a \$1.1b acquisition of private Black Swan Energy [\[LINK\]](#). TOU said “The acquisition represents a further important component of the Company’s ongoing North Montney consolidation strategy. Tourmaline envisions the North Montney as the key sub-basin for supplying Canadian LNG, as the Company expects the North Montney to be the primary growth driver in the entire Western Canadian Sedimentary Basin for the next decade.” We didn’t think too much about the LNG mention in the press release but, when we reviewed the new slide deck yesterday, we immediately tweeted [\[LINK\]](#) “Does \$TOU also believe #LNGCanada brownfield Phase 2 is likely to FID? New slide, an incremental ~4 bcf/d LNG Canada is envisaged. Hmmm! Phase 1 FID is 2 trains for 1.84 bcf/d. Brownfield Phase 2 would add 2 more trains ie. total 3.68 bcf/d. #LNG see below SAF Apr 28 blog”. So there is nothing in the press release that suggests anything about LNG Canada Phase 2 FID. However, we found it interesting to see the below new slide. Tourmaline writes “an incremental 5 bcf/d of growth (LNG Canada ~4 bcf/d) is envisaged with considerable upside should additional LNG project(s) be sanctioned on the West Coast.” The reason it caught our interest is that, so far, the only FID is for LNG Canada Phase 1, which consists of two LNG trains with each train being 7 million tons per annum. This is 0.92 bcf/d per train, or a total of 1.84 bcf/d for LNG Canada Phase 1. LNG Canada Phase 2 provides for the potential of two additional trains ie. the total of LNG Canada Phase 1 and Phase 2 is 3.68 bcf/d or ~4 bcf/d as per the Tourmaline slide. Its why we wondered if TOU also believes a FID on LNG Canada Phase 2 is likely. Below is the key slide from the new slide deck.

Trinidad to return to pre-covid production by end of 2022

Figure 7: Tourmaline The North Montney

TOURMALINE OIL CORP. **The North Montney: N. American Gas Growth Engine** June 2021

- The North Montney complex will be N. America’s largest gas growth sub-basin over the next decade.
- An incremental 5 bcf/d of growth (LNG Canada – 4 bcf/d) is envisaged, with considerable upside should additional LNG project(s) be sanctioned on the West Coast.
- Tourmaline has been systematically consolidating play components and now controls three major developments; the original Tourmaline Gundy complex, the Black Swan Aitken Ck producing complex, and the planned greater Conroy project.
- Tourmaline will now be the largest current North Montney producer at 160,000 boepd with the most extensive future drilling and project inventory.
- Liquids are also a major target with an incremental 500,000 bbls/day of anticipated production growth by industry in the low case LNG scenario.
- Tourmaline currently developing the regional natural gas and liquids infrastructure plan and already owns several key components. The Company will pursue opportunities to maximize return on all hydrocarbon streams.
- Electrification, CCS, hydrogen are all likely components of the future infrastructure buildout.

Source: Tourmaline June 11, 2021 presentation

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Could TOU be the sole supplier/aggregator for non partner LNG Canada supply

One of our Twitter followers replied to our tweet saying “*Miss Taken @CouldBeMistaken. Starting to sound like a setup for another deal with RDS*”. Earlier this morning, we replied “*thx. i agree but don't think M&A. Dutch ruling makes RDS buying big upstream impossible absent a more than offsetting sale of other E&P. rather imaging how huge it would be if \$TOU had supply/aggregator deal for all non partner gas share incl some minimum %?*” Oil patch followers remember that Shell's big Cdn E&P acquisition was its July 2008 \$5.9b acquisition of Duvernay Oil, then run by Tourmaline Oil CEO Mike Rose. At that time, many also noted Mike started his oil patch career with Shell in Canada. Later in memo, we note the Shell CEO LinkedIn post of their conceding to proceed with the Dutch ruling. Note they still expect to appeal. We believe that ruling makes it impossible for Shell to do a big acquisition like Tourmaline unless they had a much bigger disposition on the other side. The Dutch emissions reductions obligations really don't allow the luxury for Shell to take on big emissions. We can't imagine how the Dutch courts would feel if, in the face of the ruling, Shell did a big acquisition to add big emissions and put themselves even more behind the Dutch emissions reduction requirements. However, we see the potential for a win/win deal that would help Shell provide more visibility to meet Dutch emissions reduction requirements. What we tried to portray in the limited tweet characters is that we could see the potential for Shell and the other LNG Canada partners to see the logic of trying to do a transaction for Tourmaline to be the sole supplier and/or aggregator for all natural gas supply to LNG Canada that isn't filled by the LNG Canada partners. Perhaps with some sort of minimum right to supply gas, maybe something like minimum of 0.5 bcf/d per Phase. We don't believe it has been stated before, but we have always expected Shell might have planned to step in and supply any shortfall in supply from the LNG Canada partners. They would have looked at this as an opportunity to make added returns to their interest in LNG Canada ie. kind of like trading/marketing revenue add on. But what if that right was passed on Tourmaline. It wouldn't necessarily reduce the total project emissions, but would reduce Shell's and the other LNG Canada partners direct emissions by not having to drill more wells and add emissions. Even if it wasn't a net win on emissions, it would mean Shell and the other partners wouldn't have to spend as much capital to drill wells and could reallocate this capital to other items ie. carbon offsets, renewables, etc. it would be a big win-win.

We see a new LNG supply gap with delay of 5 bcf/d of Mozambique LNG

On April 28, 2021, we posted a 7-pg blog “*Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?*” [\[LINK\]](#) We thought, and still think, there has been a major change to the outlook for LNG supply in the 2020s and one that is still being overlooked – there is a big new LNG supply gap starting around 2025 that is hitting faster and bigger than anyone expects. We saw Total's April 27, 2021 announcement of force majeure at its Mozambique Phase 1 LNG of 1.7 bcf/d was much more significant that viewed. We just didn't see market focused on the fact that this situation backs up an additional 3.3 bcf/d of LNG supply that is also being counted on in all LNG supply forecasts. Total's Phase 2 of 1.3 bcf/d was to follow, and Exxon's Rozuma Phase 1 of 2.0 bcf/d was originally expected to go FID in 2019 but is now not expected to have a FID decision until 2022. Mozambique is considered a premium LNG supply region for Asia and is in LNG supply forecasts. Total's original in service for Phase 1 is 2024. We had been warning that Mozambique has a major LNG market impact and its why we posted the April 28 blog. Our blog reminds that

even if Total makes a restart development decision in 12 months, it will take months just to get back to where they left off including rehiring services so any return to where they were in the construction process is at least more likely 18 months at a minimum. This is going to create a bigger and sooner LNG supply gap and the reality is that the only projects that can step up in any reasonable time frame will be brownfield LNG projects. Its why we also said what about LNG Canada Phase 2. There is much more in the 7-pg blog. Our Supplemental Documents package includes our blog.

Natural Gas – Trinidad targets gas +1.19 bcf/d by year end 2022

Trinidad and Tobago is aiming to restore its natural gas production (currently -18.7%) to pre-covid levels by the of 2022 and, by doing so, return some LNG exports. Argus reported on Wednesday [\[LINK\]](#), that the government is encouraging development over the next 12 months to promote increased production. Production in Q1 2021 was 2.81 bcf/d, which is down 18.7% from pre-covid levels of 3.62 bcf/d in March 2020. Argus reported that Energy Minister “*Young’s projection suggests end-2022 production could approach 4 Bcf/d, replenishing supply to LNG exporter Atlantic and petrochemical plants.*” More than 1 bcf/d of production will come from offshore developments by BP, Shell, BHP and EOG. BHP’s Ruby development will deliver 0.08 bcf/d by Q3 and Shell’s Barracuda and Colibri projects are projected to produce a combined 0.45 bcf/d by 2022. Based on government projections, output by the end of 2022 could be close to 4 bcf/d. Young said “*Beyond 2022 there is a bank of upstream gas projects on land and in the shallow and moderate marine areas that are awaiting sanctioning*”. For example, BP’s Matapal and Cassia compression projects starting in 2022 will contribute 0.6 bcf/d. The government is also in negotiations with Shell about terms for the Manatee field, with estimated recoverable resources of 2.7 Tcf. Our Supplemental Documents package includes the Argus report.

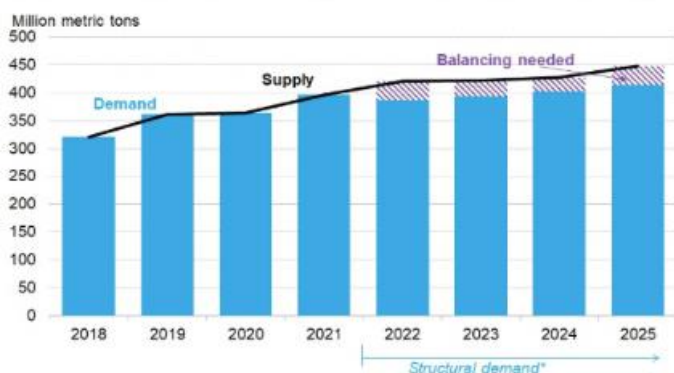
Trinidad to return to pre-covid production by end of 2022

Natural Gas – BloombergNEF sees LNG oversupply thru 2025

On Monday, BloombergNEF posted a brief “*LNG Market Oversupply to Stick Around Until 2025*”, which was a short synopsis of their LNG supply and demand outlook thru 2025. This is only a very small snippet from their full research report that we cannot access. BloombergNEF “*BloombergNEF forecasts global liquefied natural gas supply to rise 23% from 2020 to 2025, much higher than the 14% growth expected in structural LNG demand over the same period. This will result in between 26 to 34 million metric tons a year of balancing needed over the five-year period.*” This is a surplus of 3.4 to 4.5 bcf/d.

LNG oversupply thru 2025

Figure 8: Global LNG Supply and Demand



Source: BloombergNEF

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Bloomberg does a ground floor up LNG project forecast

We are huge fans of the Bloomberg analysts/reporters and really appreciate that they will normally answer questions on their reports. A great example this week is a shout out to Michael Yip (Analyst Global LNG Supply BloombergNEF based in Singapore). We asked Michael if the above LNG supply forecast represents LNG supply capacity or do they adjust for downtime such as maintenance. The quick answer is yes they do adjust for downtime such as maintenance and also quickly reflect any unplanned outages. Here is some of Michael replied *“Our LNG supply forecast is a bottom up forecast of each of the plants output for the given period and represents how much volume we expect these plants to produce (in million metric tons). Maintenance events have been factored in into our supply forecast based on the nature (duration and scope) of each maintenance event at each plant.”* *“Indeed, unplanned outages are near impossible to predict. We do, however, update our forecasts on a monthly basis in our monthly reports (latest June report here) to account for any unplanned maintenances and outages, taking into account how long we see the event lasting for and the volume it would take away from the market.”*

Natural Gas – Woodside’s Pluto LNG to cut 30% emissions by 2030, net zero by 2050

We recognize the energy transition is happening, but we just want to make sure people are well aware it will mean that the cost of energy is going up especially in LNG. Adding extra items on existing LNG plants or to existing LNG plants designs adds costs. There was a good example with Woodside’s Pluto LNG expansion in the news again this week. Last week’s (June 13, 2021) Energy Tidbits noted it coming under fire by the Conservation Council of Western Australia (CCWA) and the Australian Institute, whose joint research stated the project would release annual carbon pollution equal to over 15 new coal fire power stations [\[LINK\]](#). This week, the Western Australia government announced [\[LINK\]](#) *“Strong emissions reduction targets approved for next stage of Pluto LNG”*. It may not make the above groups happy that the Western Australia government has approved the Pluto LNG expansion, but at least they approved tougher emissions requirements. We should note the one out of the gate criticism from the environmental groups was that the new Western Australia emissions requirements did not cover the Scarborough offshore natural gas reserves that will be feeding the brownfield Plant 2. It is important to note that the Western Australia Government approval for Pluto LNG expansion requires strong emissions reductions for the expansion LNG Train 2 and the existing LNG Train 1. Western Australia indicated the *“interim and long-term targets to achieve a 30 per cent emissions reduction from approved levels by 2030 and net-zero by 2050 across the entire project”*. Note the significance that it includes the *“entire project”*, which means it includes the existing Pluto Train 1 as well as the brownfield expansion Train 2. From some of the pre-approval comments, it looks like Woodside will be planning to a wide range of actions to get there from operational efficiency, adding renewable solar energy for power, to planting 7.5 million native trees in 2020/2021, to buying carbon offsets, hydrogen, and we assume looking at CCS. Woodside said they are still looking to make a FID in H2/21. We did not see any indication from Woodside of the cost impact for these additional requirements. Our Supplemental Documents package includes the Western Australia release.

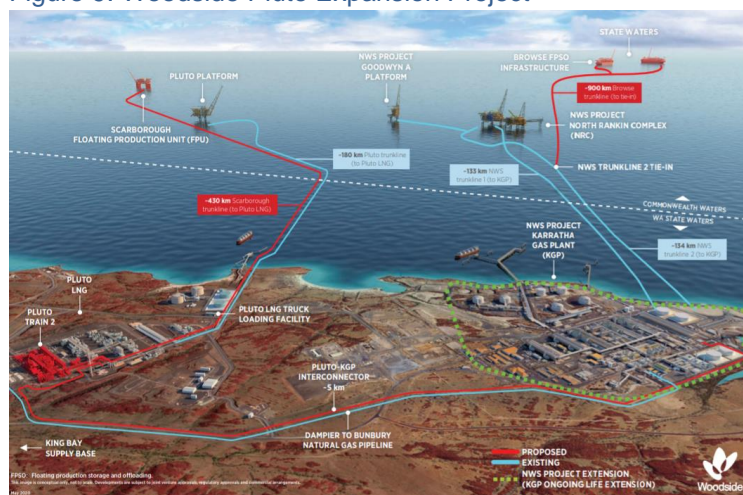
New emissions requirements at Pluto LNG

Pluto expansion is for a brownfield Train 2 and offshore Scarborough gas

Woodside’s Pluto expansion calls for a brownfield LNG Train 2 with a FID in H2/21. Train 2 is to have a capacity of 5mm tpa or 0.65 bcf/d. Woodside’s release [\[LINK\]](#) did not specify any date for first LNG, but did link to their website, which, as of yesterday, said *“2026 target first LNG cargo”*. Woodside’s website [\[LINK\]](#) says *“Woodside is*

proposing a brownfield expansion of Pluto LNG through the construction of a second gas processing train. Pluto Train 2 would process gas from the Scarborough gas resource and have a capacity of about 5 million tonnes per annum (Mtpa) (100% project). Expanding Pluto LNG provides potential to accelerate future developments of other offshore Pluto gas reserves, as well as third-party resources. The appointed engineering, procurement and construction contractor for Pluto Train 2, Bechtel Australia, executed front-end engineering design (FEED) activities in 2019. Expansion activities would also include modifications required to Pluto Train 1 for processing approximately 1.5 Mtpa of Scarborough gas and installation of domestic gas infrastructure to increase capacity to approximately 225 Terajoules per day. Our Supplemental Documents package includes the Woodside release this week.

Figure 9: Woodside Pluto Expansion Project



Source: Woodside Energy

Natural Gas – Woodside reminds steel, labor cost pressures impact all oil & gas

It is important to remember that the cost pressures affecting all industries in the world are also impacting oil, natural gas and LNG projects. This was a reminder of this from Woodside this week. These cost increases are on top of the added costs from Western Australia's added emissions requirements. Reuters reported "Acting CEO Meg O'Neill, who took the reins in April, said the company is facing skyrocketing steel prices for a project where raw steel costs amount to 10% or 15% of total costs, and acknowledged that there is tight competition for workers amid a mining boom in Western Australia. At the same time, she said Woodside had been able to work out some cost savings in the project design with its contractors after putting it on hold last year, when oil and gas prices crashed amid the COVID-19 pandemic. "It's probably too early to say, but there's some cost pressures on the ledger, there's some cost savings on the ledger and as soon as we have those updated bids from our contractors, we'll be communicating with our shareholders," O'Neill said at Credit Suisse's 8th Australian energy conference." Our Supplemental Documents package includes the Reuters report. [\[LINK\]](#)

Steel, labor cost pressures

Natural Gas – Total Papua LNG project first LNG now expected 2027

We have been highlighting a theme of a major change to the outlook for LNG supply through the 2020s - there is a big new LNG supply gap starting around 2025 that is hitting faster and bigger than anyone expects. The key driving force is the delay in new LNG supply projects

Another LNG supply delay

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that were expected to deliver LNG in 2025. We highlighted this theme in our Apr 28, 2021 blog *“Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2”* [\[LINK\]](#), regarding the delay of the Total Mozambique LNG project. Total had stopped development on the Mozambique project and declared force majeure on Mon April 26 due to violence in the country. Now another Total LNG project has been pushed back from its original timeline. Oil Search disclosed on Tuesday that the Total operated Papua LNG project would be delayed. We tweeted [\[LINK\]](#) *“Timing update Papua #LNG project. \$OSH June 8 update “2022 FEED, 2023 FID targeting 2027 first gas”. \$TOT May 5 update didn't forecast 1st gas date. Papua is 2 trains w/ total capacity 0.74 bcf/d.”* We followed the tweet saying [\[LINK\]](#) *“Bigger #LNG supply gap being created >2025. Papua #LNG originally expected FID in 2020 so 1st LNG is 2 years delayed. Common theme - new LNG supply is being delayed ie. [Total] Mozambique. Don't forget need capacity>demand due to normal maintenance, etc. Positive for LNG.”* Our Supplemental Documents includes the Oil Search slide deck.

Natural Gas – India’s natural gas consumption is back to normal

The covid situation in India is improving and India’s natural gas consumption is starting rebound from declines experienced due to widespread lockdowns. The India Economic Times reported on Wednesday [\[LINK\]](#) that as a result of dropping coronavirus infections, states are easing restrictions, which is helping demand for natural gas to rebound to its normal level. Chair Manoj Jain of GAIN, the country’s largest gas pipeline operator, said *“In the Indian market there was some slowdown, but the situation is not as bad as last year”*. Gas consumption fell by about 10-15% in April and May compared to a 50% reduction last year. The key comment from the reporting was *“Gas consumption has returned to its normal level in the last week, Jain said”*. Although not as bad as last years decline, it did cause a significant disturbance in LNG imports. For example, Petronet LNG was operating India’s LNG import plant at ~80% capacity in April and May, and has now increased utilization by 7% to 87%. During April and May, GAIL diverted two cargos and Petronet deferred one until June. The key though is that India learned from the first wave and has been able to see its natural gas consumption return to normal despite, as of Wed, only 14% of the population has received at least one dose of a vaccine. Our Supplemental Documents package includes the Economic Times report.

India’s natural gas consumption back to normal

Natural Gas – India targets gas production +~2 bcf/d in 2023/24

India’s natural gas production has been a key item to watch for the last several years as they have struggled to grow it to any significant degree despite the increasing domestic natural gas consumption. This means that incremental demand growth has been met and, at least for now, will need to be met through increasing LNG exports. Adding to this positive for global LNG markets in the 2020s is India’s plan to raise the proportion of natural gas in its energy mix from the current 6% to 15% by 2030. This goal along with the struggling production has made India a relatively significant LNG demand growth catalyst for the 2020s. However, India’s Ministry of Petroleum & Natural gas tweeted on Friday [\[LINK\]](#) that Energy Minister Pradhan reviewed the long term for India targeting natural gas production of 4.8 bcf/d in 2023-24, which would be back to its prior peak in 2010. This would be up ~1.8 bcf/d from 3.0 bcf/d in the pre-covid 2019-20 and +2.0 bcf/d from 2.8 bcf/d in 2020-2021. This will be a big change in India natural gas production. As a reminder, India natural gas production has declined from its peak of 4.6 bcf/d in 2010. We checked the Ministry website and could not find the source document for tweet. Our Supplemental Documents package includes the tweet.

India targets gas production +~2 bcf/d

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Natural Gas – Black Sea gas reserves to add up to 1.9 bcf/d to Turkey’s production

The discovery of a ~4,700 bcf of natural gas at Turkey’s Amasra-1 offshore well last Friday was big news for the country, which currently imports 4.7 bcf/d. On Monday, The Daily Sabah reported [LINK](#) that Turkey sees the gas reserves adding between 530-700 bcf to annual production in the country, which equates to about 1.9 bcf/d production. State energy company Turkish Petroleum Corporation (TPAO) also discovered a 14,300 bcf reserve last year, which together with the recent discovery at Amasra could satisfy the nation’s residential power demand for at least 25 years. The potential production add of 1.9 bcf/d is huge vs. imports of 4.7 bcf/d, reducing Turkey’s import dependency. Natural Resources Minister Fatih Donmez said *“We are far from meeting all our needs, but we will significantly reduce our imports ... Every barrel of oil or natural gas we find will reduce this dependence.”* The gas is expected to be delivered to the grid by Q1 of 2023.

Black Sea gas reserves to deliver 1.9 bcf to the Turkish grid by 2023

Natural Gas – Nord Stream 2 completion a “*fait accompli*” according to Blinken

It’s clear from recent interviews that the Biden administration has given up on trying to stop Nord Stream 2 from going through, but their involvement in the matter is far from over. Bloomberg reported that Blinken told the House Foreign Affairs Committee on Monday *“The physical completion of the pipeline was, I think, a fait accompli,”* citing that about 90% of the pipeline was completed during the Trump administration. Blinken goes on to reiterate Biden’s earlier comments that sanctions would have a detrimental effect on US-Germany relations, but he notes that the Biden administration *“[has] an opportunity to make something positive out of a bad hand that [they] inherited when [they] came into office”*. He elaborated, saying that Germany now has to *“come to the table”* in cooperation with the Biden administration to prevent Putin from using the pipeline to threaten energy security in Europe, in particular Ukraine. Not everyone agrees with Blinken’s assessment. Over 60 House Republicans sent a letter to Biden against him allowing the pipeline to go through. Representative McCaul of Texas tweeted [LINK](#) *“1/2 LR @RepMcCaul “It’s unacceptable that our strategic partner #Ukraine found out about the shameful decision to waive critical #NordStream2 sanctions through the press & not the Biden Admin directly. @POTUS must use the mandatory authorities Congress provided to stop the pipeline. 2/2...If #NordStream2 is operationalized, it will render Ukraine more vulnerable to Russian aggression”*.

Nord Stream 2 completion will not be sanctioned

Natural Gas – Merkel meets Biden says “on the right track” re Nord Stream 2

As noted above, we expect Nord Stream 2 completed without any significant blocking attempts from the US. And in addition to the above item, Bloomberg noted on Friday what we believe is the biggest signal that the US will formally sign off on Nord Stream 2. On Friday, the White House announced [LINK](#) *“President Biden looks forward to welcoming Chancellor Angela Merkel of Germany to the White House on July 15, 2021.”* We tweeted [LINK](#) *“Some final/formal US concession coming soon that won’t stand in way of 5.3 bcf/d #NordStream2. Can’t see any way #Merkel would commit to visit #Biden on July 15 without this concession. Negative to 2022 Europe #NatGas prices and US #LNG exports to NW EU”*. The pipeline wasn’t specifically noted in the White House release [LINK](#), however we believe it is highly unlikely, if not impossible, that Merkel would have committed to come to the White House with a satisfactory resolve to her of the US position on Nord Stream 2. Then yesterday, there German news reported on Merkel’s comment post here on the sideline meeting with Biden. Yesterday, Die Zeit (Hamburg based) reported [LINK](#) *“Chancellor Angela Merkel expressed her confidence in the Nord Stream 2 gas pipeline after her first personal interview with US President Joe Biden . We are “on the right track,” she said on the sidelines of the G7 summit in Carbis Bay, England. She agreed with Biden that it was “existential and indispensable” for Ukraine to continue to participate in the gas transit from Russia to Europe. The Chancellor spoke of “good, constructive discussions” that are being*

Biden / Merkel July meeting signals end to NS2 conflict

held with the USA on this matter. The atmosphere during the consultations with Biden is very cooperative and characterized by mutual interest: "The discussions are very good, constructive and also very lively in the sense that we are mutually responsive."

Natural Gas – BloombergNEF “Europe is expected to remain the key balancer” for LNG

There was one other comment from the BloombergNEF’s Monday, BloombergNEF brief “LNG Market Oversupply to Stick Around Until 2025”, which was that “Europe is expected to remain the key balancer” because BloombergNEF sees the need for 3.4 to 4.5 bcf/d of balancing needed over the five-year period. The following item notes how, in September 2017, we came to view Europe gas storage as the key indicator to the strength or weakness of global LNG markets.

Europe the key balancer for LNG

Natural Gas – Reminder why Europe gas storage is the key indicator for LNG markets

BloombergNEF’s highlighting Europe gas storage is consistent with our long held view that Europe gas storage continues to play out as the key indicator for global LNG markets. Long term readers know we have used it as our primary global LNG market indicator since Sept 2017 as we believe Europe gas storage utilization is the best indicator for the strength and near term direction for LNG markets. We first highlighted this key concept almost 4 years ago. On Sept 20, 2017, we posted two related blogs. The first blog was “Shell: “Every LNG Cargo That Could Technically Be Produced In This World Has Been Produced And Has Found A Well Paying Customer”, and the second linked blog was “China’s Plan To Increase Natural Gas To 10% Of Its Energy Mix Is A Global Game Changer Including For BC LNG”. The concept of the blogs was that the market was understating the fall LNG 2017 market strength, China being serious about increasing natural gas, and the surprising market strength would lead to a BC LNG FID in 2018 ie. LNG Canada. The reason for our believing LNG markets in summer 2017 was due to Shell’s LNG head, Martin Wetselaar) explaining the concept of Europe gas storage. As soon as we heard it, we knew it made sense. And when you look at the Europe gas storage utilization for this winter, it fits to the thesis Wetselaar first outlined in Aug 2017. Long term readers of Energy Tidbits know we think the best insights from companies comes from Q&A, not the slide decks, and that was particularly so in this case. Here is what we wrote in Sept 20, 2017 blog “The key data support to Wetselaar is that NW Europe storage is not seeing surplus LNG cargos looking for a home. In the Q&A, Wetselaar said the data support for his comment that the market is absorbing all of the new LNG supply is to look at NW Europe storage. Wetselaar did not use the description dumping ground, but it is the right term. Webster’s defines “dumping ground” as “a place to which unwanted people or things are sent”. He noted that if LNG was in oversupply, there would be surplus LNG cargos looking for a home and these surplus LNG cargos would find their way to NW Europe storage. Shell is not seeing any YoY increase in NW Europe storage. Hence, he is firm in his view that demand was absorbing all the new LNG supply in 2017. We pasted the NW Europe storage data into the below graph and it shows exactly what Wetselaar said – the monthly YoY changes in storage do not show increases in the net storage withdraw/injections, which implies that there isn’t any dumping of surplus LNG cargos in NW Europe storage. We have not been following NW Europe natural gas storage, but now have it on our regular data check list because of Wetselaar’s comments.” Our Supplemental Documents package includes our Sept 20, 2017 Shell blog.

Europe gas storage is key LNG indicator

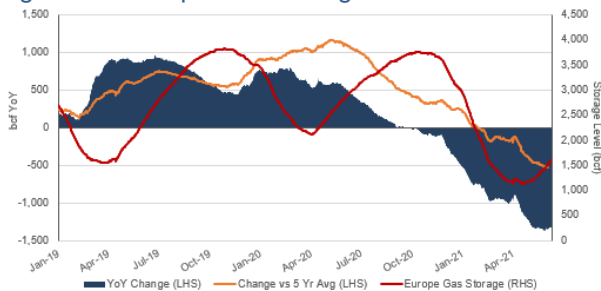
Natural Gas – Europe storage 41.01% full vs 5 year average of 55.13%

We continue to see the set up for strong summer LNG price, which should support strong US LNG exports to Europe. It was a colder spring, which delayed the refill push in Europe and this is setting up support for summer prices. Additionally, the continued significant YoY deficit in Europe gas storage indicates that there will be strong demand for European LNG imports

Europe gas storage 41.01% full

during the refill push especially since Russia, at least so far in Q2, looks like it only plans to ship contract volumes via Ukraine to Europe ie. not sending above contract levels. This is a big positive indicator for US LNG exports this summer. Europe gas storage started the winter (Nov 1) at basically full levels at 94.66% and had dropped by 65.77% to be 28.89% at Apr 1. This 65.77% decline since Nov 1 compares to the 5 yr average that would be down 53.99% in the same period or to last winter that was only down 43.29% in the same period. So massive draw vs last year and the last 5 years. Storage at Apr 1 of 28.90% had looked to be the bottom for withdrawal season as the storage level subsequently increased 2.06% to 30.96% on April 6. However, cold weather continuing into the second half of April had further delayed the refill push as flows switch from injections between April 1-6, to draws once again. This had resulted in the longest withdrawal season in history, supporting Europe LNG cargo prices. We are now seeing storage starting to build, with storage as of June 3 being up 9.64% since April 19, which looks to be the bottom. Storage as of June 10 is 41.01%, 34.15% less than last year of 75.16% and 14.12% below the 5 yr average of 55.13%. Europe storage levels this summer will be the key item to watch for indications on LNG markets going into the winter. Below is our graph of YoY change in net LNG flows to NW Europe.

Figure 10: Europe Gas Storage Level



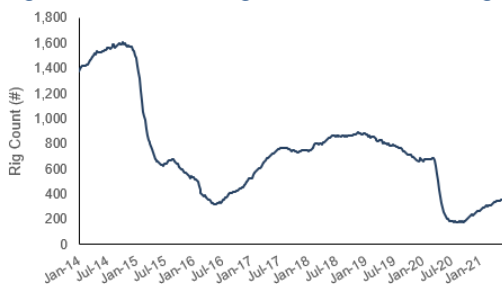
Source: Bloomberg

Oil – US oil +6 WoW at 365 oil rigs

Baker Hughes reported its weekly rig data on Friday. WTI has broken \$70 and we are starting to see some ramp up, in particular the Permian which was +4 this week. US oil rigs were up 6 this week at 365 oil rigs as of June 11. The Permian was up 4 this week at 236 rigs. Increases came from Permian (+4) and Others (+2). There were no decreases this week. Oil rigs have been on a strong recovery path and are +193 off the bottom of 172 in the Aug 14 week. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by 318 to 365 oil rigs (-46.55%). Below is our graph of Baker Hughes US oil rigs.

**US oil rigs +6
WoW**

Figure 11: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

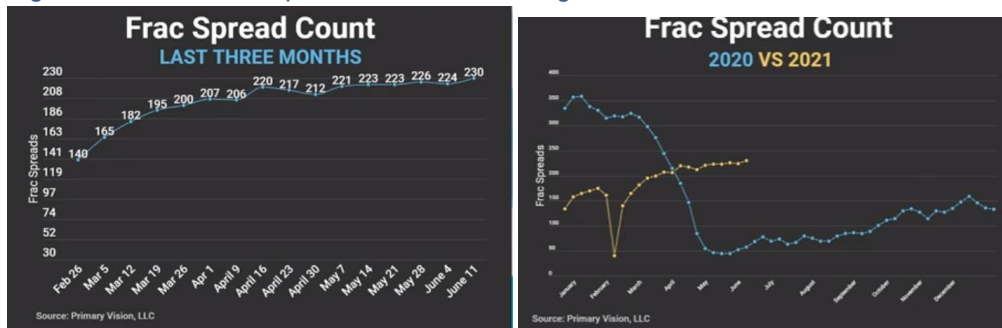
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Oil – Frac spreads +6 to 230 for week ending June 11

Every week, Mark Rossano (C6 Capital Holdings) posts a YouTube recap of frac spreads for the week on the Primary Vision Network ac spreads as of June 11 from Mark Rossano from C6 Capital Holdings on Primary Vision Network [\[LINK\]](#). US frac spreads were +4 to 230 for the week ended June 11. This is in line with his expectations to exit June around 235 spreads. Starting to get a more activity on the natural gas side, more in the south ie. Haynesville. No surprise given the strong US LNG exports, heat wave, and \$3.30 gas. He cautions that still need equipment, still need labor so doesn't expect to see a big surge in spreads as you move into July. Permian remains the biggest driver as target the oil side with liquids. He still expects to see the seasonal increase leaving Q3 and into Q4, but not as much as normal. Haven't seen the Bakken turn up yet, but think that is where we can get that step up to the next level. Below are his two key frac spread graphs.

Frac spreads +6 to 230

Figure 12 Active Frac Spreads for Week Ending June 11, 2021



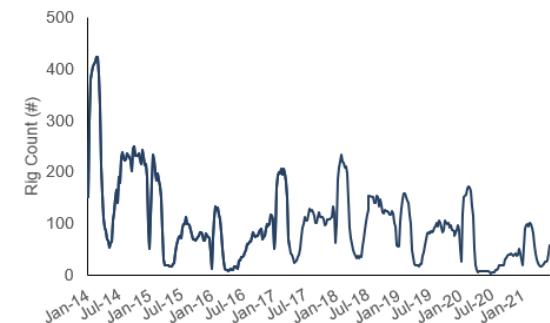
Source: Primary Vision

Oil – Total Cdn rigs +16 to 93 total rigs and up 72 YoY

We are continuing to see Cdn rigs ramp up post spring break. Baker Hughes reported total Cdn rigs were up +16 this week to 93 total rigs. We expect Cdn rigs to continue to ramp up faster this month. Cdn oil rigs were up 16 to 59 rigs. Cdn gas rigs were flat this week at 34 gas rigs. Total rigs are now +80 since the June 26 all-time low. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 7 and Cdn gas rigs were 14 for a total Cdn rigs of 21, meaning total Cdn rigs are +72 YoY and total rigs are down 14 vs 2019. A year ago was in the big hit term from the oil price crash post Covid. Below is our graph of Baker Hughes Cdn oil rigs.

Cdn rigs +16 this week

Figure 13: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

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US oil production -0.2 mmb/d WoW

Oil – US weekly oil production +0.2 mmb/d to 11.0 mmb/d

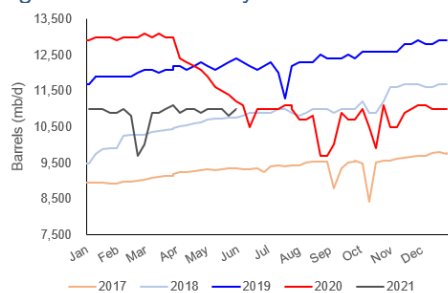
US oil production was up 0.20 to 11.0 mmb/d for the June 4 week. Lower 48 +0.20 at 10.6 mmb/d. This puts US oil production down 0.1 mmb/d YoY, and is down 2.1 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. The June STEO slightly raised its US crude expectations thru 2021, however it is still not returning anywhere near the Q4/19 peak of 12.78 mmb/d, with Q4/21 US crude of 11.38 mmb/d (down 1.40 mmb/d from peak). In the US oil production commentary, the EIA wrote “U.S. crude oil production averaged 11.2 million b/d in March 2021, an increase of 1.4 million b/d from February. The March rise indicates that the production outages caused by the February winter freeze were temporary and that production came back online quickly. Because prices of West Texas Intermediate crude oil remain above \$60/b during 2021 in the current forecast, we expect that producers will drill and complete enough wells to raise 2022 production from 2021 levels. We estimate that 2022 production will average 11.8 million b/d, up from a forecast average of 11.1 million b/d in 2021.” Additionally, on US rig counts, the EIA wrote “However, our crude oil production forecast is lower than in recent STEOs because of relatively fewer rig deployments at existing price levels, particularly in the Permian”. The EIA DPR has the expectation of slight MoM increases in May and June. The EIA forecasts June at 7.733 mmb/d which is +26,000 b/d MoM. The EIA Form 914 actuals for March came in 209,000 b/d higher than the EIA weekly estimates for March, which was likely due to the estimates being too low and not capturing the rapid return to production.

Figure 14: EIA’s Estimated Weekly US Oil Production

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2019-Jan	01/04	11,700	01/11	11,900	01/18	11,900	01/25	11,900		
2019-Feb	02/01	11,900	02/08	11,900	02/15	12,000	02/22	12,100		
2019-Mar	03/01	12,100	03/08	12,000	03/15	12,100	03/22	12,100	03/29	12,200
2019-Apr	04/05	12,200	04/12	12,100	04/19	12,200	04/26	12,300		
2019-May	05/03	12,200	05/10	12,100	05/17	12,200	05/24	12,300	05/31	12,400
2019-Jun	06/07	12,300	06/14	12,200	06/21	12,100	06/28	12,200		
2019-Jul	07/05	12,300	07/12	12,000	07/19	11,300	07/26	12,200		
2019-Aug	08/02	12,300	08/09	12,300	08/16	12,300	08/23	12,500	08/30	12,400
2019-Sep	09/06	12,400	09/13	12,400	09/20	12,500	09/27	12,400		
2019-Oct	10/04	12,600	10/11	12,600	10/18	12,600	10/25	12,600		
2019-Nov	11/01	12,600	11/08	12,800	11/15	12,800	11/22	12,900	11/29	12,900
2019-Dec	12/06	12,800	12/13	12,800	12/20	12,900	12/27	12,900		
2020-Jan	01/03	12,900	01/10	13,000	01/17	13,000	01/24	13,000	01/31	12,900
2020-Feb	02/07	13,000	02/14	13,000	02/21	13,000	02/28	13,100		
2020-Mar	03/06	13,000	03/13	13,100	03/20	13,000	03/27	13,000		
2020-Apr	04/03	12,400	04/10	12,300	04/17	12,200	04/24	12,100		
2020-May	05/01	11,900	05/08	11,600	05/15	11,500	05/22	11,400	05/29	11,200
2020-Jun	06/05	11,100	06/12	10,500	06/19	11,000	06/26	11,000		
2020-Jul	07/03	11,000	07/10	11,000	07/17	11,100	07/24	11,100	07/31	11,000
2020-Aug	08/07	10,700	08/14	10,700	08/21	10,800	08/28	9,700		
2020-Sep	09/04	10,000	09/11	10,900	09/18	10,700	09/25	10,700		
2020-Oct	10/02	11,000	10/09	10,500	10/16	9,900	10/23	11,100	10/30	10,500
2020-Nov	11/06	10,500	11/13	10,900	11/20	11,000	11/27	11,100		
2020-Dec	12/04	11,100	12/11	11,000	12/18	11,000	12/25	11,000		
2021-Jan	01/01	11,000	01/08	11,000	01/15	11,000	01/22	10,900	01/29	10,900
2021-Feb	02/05	11,000	02/12	10,800	02/19	9,700	02/26	10,000		
2021-Mar	03/05	10,900	03/12	10,900	03/19	11,000	03/26	11,100		
2021-Apr	04/02	10,900	04/09	11,000	04/16	11,000	04/23	10,900	04/30	10,900
2021-May	05/07	11,000	05/14	11,000	05/21	11,000	05/28	10,800		
2021-Jun	06/04	11,000								

Source: EIA

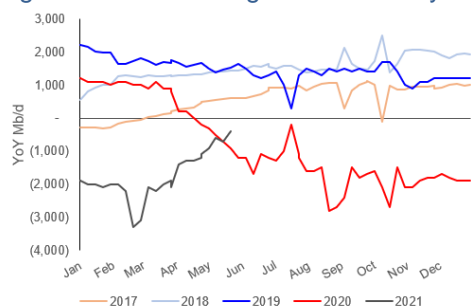
Figure 15: US Weekly Oil Production



Source: EIA, SAF

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Figure 16: YoY Change in US Weekly Oil Production



Source: EIA, SAF

Oil – EIA STEO expecting sustained production growth to Q4/22

The EIA STEO had slight revisions to US oil production for 2021 and 2022 with assumed prices increasing vs last month. (i) The EIA forecast slightly raised its US crude expectations thru 2021, however it is still not returning anywhere near the Q4/19 peak of 12.78 mmb/d, with Q4/21 US crude of 11.38 mmb/d (down 1.40 mmb/d from peak). Q4/21 of 11.38 mmb/d is +0.48 mmb/d YoY vs Q4/20. Full year 2020 US oil production is at 11.31 mmb/d and is down 0.94 mmb/d YoY from 12.25 mmb/d in 2019. (ii) Full year 2021 is increased by 0.06 mmb/d vs May STEO to 11.08 mmb/d, which is down 0.23 mmb/d YoY from 2020. (iii) The EIA forecasts a shift back to YoY growth in 2022 with production averaging 11.79 mmb/d, +0.71 mmb/d YoY (was 11.84 mmb/d previously), with Q4/22 production of 12.05 mmb/d, ie still down 0.73 mmb/d from Q4/19. (iv) In the US oil production commentary, the EIA wrote “U.S. crude oil production averaged 11.2 million b/d in March 2021, an increase of 1.4 million b/d from February. The March rise indicates that the production outages caused by the February winter freeze were temporary and that production came back online quickly. Because prices of West Texas Intermediate crude oil remain above \$60/b during 2021 in the current forecast, we expect that producers will drill and complete enough wells to raise 2022 production from 2021 levels. We estimate that 2022 production will average 11.8 million b/d, up from a forecast average of 11.1 million b/d in 2021.” Additionally, on US rig counts, the EIA wrote “However, our crude oil production forecast is lower than in recent STEOs because of relatively fewer rig deployments at existing price levels, particularly in the Permian”.

EIA forecasts US oil exit in 2022 at 12.05 mmb/d

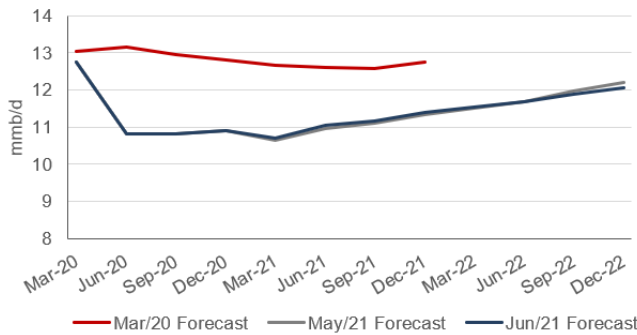
Figure 17: Estimated US Crude Oil Production By Forecast Month

(million b/d)	Q1/19	Q2/19	Q3/19	Q4/19	2019	Q1/20	Q2/20	Q3/20	Q4/20	2020	Q1/21	Q2/21	Q3/21	Q4/21	2021	Q1/22	Q2/22	Q3/22	Q4/22	2022
June 2021	11.83	12.13	12.25	12.78	12.25	12.75	10.81	10.81	10.9	11.31	10.7	11.04	11.17	11.38	11.08	11.55	11.67	11.88	12.05	11.79
May 2021	11.83	12.13	12.24	12.78	12.25	12.75	10.81	10.81	10.90	11.31	10.65	10.97	11.12	11.34	11.02	11.51	11.68	11.96	12.21	11.84
Apr 2021	11.83	12.13	12.24	12.78	12.25	12.75	10.81	10.81	10.90	11.31	10.75	10.93	11.13	11.35	11.04	11.54	11.74	11.99	12.18	11.86
Mar 2021	11.83	12.13	12.24	12.78	12.25	12.75	10.81	10.81	10.87	11.31	10.79	11.06	11.27	11.46	11.15	11.67	11.84	12.16	12.41	12.02
Feb 2021	11.83	12.13	12.24	12.78	12.25	12.75	10.81	10.81	10.89	11.31	10.98	10.91	11.00	11.18	11.02	11.30	11.38	11.61	11.83	11.53
Jan 2021	11.83	12.13	12.24	12.78	12.25	12.75	10.81	10.81	10.81	11.29	11.06	11.03	11.07	11.25	11.10	11.32	11.37	11.52	11.74	11.49
Dec 2020	11.83	12.13	12.24	12.78	12.25	12.75	10.81	10.80	10.99	11.34	11.02	11.00	11.09	11.29	11.10					
Nov 2020	11.83	12.13	12.24	12.78	12.25	12.75	10.81	10.93	11.07	11.39	11.06	10.97	11.08	11.28	11.10					
Oct 2020	11.83	12.13	12.24	12.78	12.25	12.75	10.82	11.02	11.22	11.45	11.07	11.00	11.05	11.22	11.09					
Sept 2020	11.83	12.13	12.24	12.78	12.25	12.75	10.81	10.91	11.08	11.38	10.96	10.97	11.08	11.32	11.08					
Aug 2020	11.83	12.13	12.24	12.78	12.25	12.75	10.57	10.79	10.96	11.26	11.00	10.99	11.16	11.40	11.14					
July 2020	11.81	12.1	12.23	12.78	12.23	12.74	11.41	11.29	11.10	11.63	11.02	10.93	10.97	11.13	11.01					
June 2020	11.81	12.10	12.23	12.78	12.23	12.74	11.65	11.13	10.74	11.56	10.71	10.83	10.80	11.02	10.84					

Source: EIA, SAF

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Figure 18: Estimated US Crude Oil Production By Forecast Month



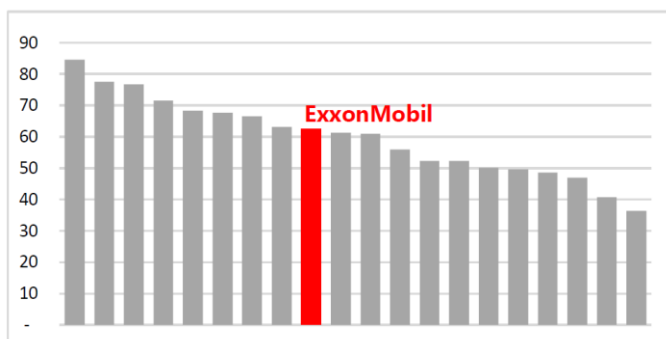
Source: EIA, SAF

Oil – IEEFA raises questions on Exxon’s Permian potential

It’s been a bad last month for Exxon including on Wednesday, when the IEEFA (Institute for Energy Economics and Financial Analysis) released its report “*ExxonMobil: Permian Leader or Just Another Fracker? Analysis of Permian Oil Production Raises Troubling Questions About ExxonMobil’s Investor Disclosures*”. [LINK](#) Note the IEEFA report uses IHS Markit well data. It’s a well written report that clearly lays out the IHS well data vs the Exxon Permian disclosure. IEEFA works thru items like “*Normalizing Horizontal Wells for Lateral Length*”. Its not as if Exxon’s Permian wells are bad, rather IEEFA lays out the well performance data to indicate they aren’t the leading Permian as Exxon suggests. IEEFA writes “*Although ExxonMobil has claimed that it occupies a leadership position in the Delaware Basin, the company’s actual production per well has slipped since 2018, both absolutely and in comparison with peers. • In the Midland Basin, ExxonMobil’s largest Permian holding, the company’s performance is middling, ranking eighth among a peer group of 20, as measured by per-well production.*” The title says it all, but note the impactful closing paragraph to the report “*ExxonMobil’s confidence in robust financial results from its Permian operations might be justified if the company’s Delaware and Midland assets consistently outperformed its peers in well productivity. Since a close analysis raises questions about ExxonMobil’s claims of industry-leading oil well performance in the Permian, investors have reason to question whether ExxonMobil can produce the financial returns it has promised from its Permian operations*”. Our Supplemental Documents package includes excerpts from the IEEFA report.

IEEFA raises questions on Exxon’s Permian

Figure 19: 1st Yr Oil Production, Barrels per 1,000 Lateral Feet, 2019 Wells, Delaware Basin



Source: IEEFA

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Any pull back in Exxon's Permian growth impacts total Permian Basin growth

One of our three tweets on the IEEFA report was [\[LINK\]](#) "3/3. Positive for #Oil if there is any lesser growth potential for Exxon in #Permian. #Exxon has been messaging its big #Permian growth potential. With its 2020 capex cuts, it lowered its mid term growth target from 1 mmboe/d to 0.7 mmboe/d by 2025. #OOTT". What caught our eye was one of the IEEFA statements "This analysis raises warning flags for ExxonMobil's Permian ambitions." There is a bigger picture oil impact from the questions in the IEEFA report and this statement. Exxon is believed to be the big leader in the Permian for the future growth of the basin. It's plan was to get to 1 mmboe/d by 2024, but they pulled that back to 0.7 mmboe/d by 2025 with last fall's capex cuts. The IEEFA report raises warning flags for Exxon's Permian ambitions. The point is that a pull back in Exxon's ambitions for the Permian is a pull back in the Permian in total and a positive for oil prices.

Exxon's Permian was in the spotlight in Jan with the WSJ whistleblower report

Our Jan 17, 2021 Energy Tidbits highlighted the spotlight put on Exxon's Permian assets by the WSJ Jan 15, 2021 report "Exxon Draws SEC Probe Over Permian Basin Asset Valuation" [\[LINK\]](#) that an SEC whistleblower We were a little surprised that the report didn't seem to have a big follow through from markets. The WSJ wrote "a whistleblower complaint last fall alleging that the energy giant overvalued one of its most important oil and gas properties, according to people familiar with the matter. Several people involved in valuing a key asset in the Permian Basin, currently the highest-producing U.S. oil field, complained during an internal assessment in 2019 that employees were being forced to use unrealistic assumptions about how quickly the company could drill wells there to arrive at a higher value, according to a copy of the complaint, which was reviewed by The Wall Street Journal." Perhaps it was because Exxon quickly issued a quick denial [\[LINK\]](#). Exxon quickly refuted the story "The claims made by an alleged whistleblower, and reported by The Wall Street Journal, are demonstrably false. Actual and provable performance exceeded drilling plans for the Permian, and such performance has been accurately represented to the investment community. The Wall Street Journal has been aware of these facts since September. The company stands by its statements to investors, and, if the company were to be asked about this matter by authorities, it would provide information that shows the accuracy of its valuation of the company's Permian assets, and that actual drilling performance exceeded the plans." (iii) Its worth reading the full Exxon statement as two items came to mind. They note that drilling curves are routinely revised. No one will disagree that is the normal course of a resource play so we will have to wait to see what routine revisions have been made. Perhaps more interesting was what wasn't in the Exxon denial. The WSJ story highlighted a specific whistleblower concern that drilling times weren't as quick as built into the Exxon valuations. It would have been better if the Exxon statement addressed this specific allegation on drilling time and not just talk about a more overall actual drilling performance. Although there was likely more to the whistleblower complaint and they probably didn't want to get into an item by item debate. One item that was left unsaid is what other Permian allegations are in the whistleblower statement besides the allegation on time to drill wells. It makes sense that there has to be more as the WSJ notes that the lower estimate reflected "in part" from the drilling times. The WSJ report says "According to the whistleblower complaint, the lower estimate reflected, in part, that it took longer than expected to drill wells in 2018." Our Supplemental Documents package includes the WSJ Jan15 report and Exxon release.

Oil – EIA’s database on US liquids pipeline projects

This week, the EIA updated its US liquids pipeline project excel sheet as of June 6, 2021. As we highlighted when the first version was released on May 30, 2019, this is an excellent reference guide as it lists all pipeline projects, and a great starting point for any information on liquids pipeline projects. We recommend adding to reference libraries. The EIA updated its excel sheet for recent pipeline project announcements, including the 800,000 b/d Tallgrass Energy Seahorse pipeline starting in PADD 2 and ending there, and the P66/Trafigura BWTX pipeline starting in PADD 3 and ending offshore. The “Pipeline Projects” excel download is found at [LINK](#)

EIA’s updated pipeline projects database

Oil – TC officially terminates Keystone XL

After over a decade of delays and the revocation of its Presidential Permit, the Keystone XL pipeline has officially been cancelled by TC Energy. TC released a statement on Thursday [LINK](#) confirming that the project has been terminated. The only question is why did it take the last few months to officially cancel. The pipeline was planned to be 1,897 km and was first announced in 2005. It would have carried 830,00 b/d from Hardisty, AB to Nebraska [LINK](#). In TC release, CEO Francois Poirier said *“Through the process, we developed meaningful Indigenous equity opportunities and a first-of-its-kind, industry leading plan to operate the pipeline with net-zero emissions throughout its lifecycle. We will continue to identify opportunities to apply this level of ingenuity across our business going forward, including our current evaluation of the potential to power existing U.S. assets with renewable energy”*. Going forward, TC has \$20 bn of secured projects and \$7 bn of projects under development. Our Supplemental Documents package includes the TC release.

TC Energy terminates Keystone XL

Oil patch wishes Trudeau at least tried to fight like Merkel did on Nord Stream 2

Its probably too bad for Trudeau that Merkel’s apparent success in dealing with Biden on Nord Stream 2 just happens to be at the same time that TC Energy officially pulls the plug on Keystone XL. Both of these projects share one key common denominator – Biden has said from day 1 that he strongly opposes both pipelines. Unfortunately for the Cdn oil patch, that is where the similarities end. The major difference in these projects is that Merkel kept fighting and didn’t give up. She knew Biden was opposed but kept fighting. Unfortunately, that didn’t happen with Trudeau. And Trudeau himself does not hide the fact that he didn’t fight for Keystone XL. Rather Trudeau stated clearly his approach is not to fight for items that benefit Canada but that Biden doesn’t want to give on. Rather Trudeau said clearly his approach is focus on items that Canada and the US see a common benefit. Our March 7, 2021 Energy Tidbits noted Trudeau’s Feb 28 NBC Meet the Press interview. NBC posted a transcript of the interview [LINK](#) including *“Does this mean you’re done asking for -- are you going to stop advocating for it here? Do you feel as if the Keystone Pipeline is now dead? PRIME MINISTER JUSTIN TRUDEAU: I think it’s fairly clear that the U.S. administration has made its decision on that, and we’re much more interested in ensuring that we’re moving forward in ways that are good for both of our countries. I think there’s so much we can do together that I don’t spend too much time worrying about the tension points. It’ll always come up in our relationship, but we’ll work through them, particularly given the alignment on so many things that we’re able to bring with this new administration.”*

Oil – Hopefully the start of removing oil sands facilities from Covid outbreaks list

The Fort McMurray area may still be one of the hotspots for Covid in Alberta, but similar to all of Alberta case numbers are going down at a very fast rate. The last Wood Buffalo Covid update is as of June 9. [LINK](#). Covid cases continue to drop in the Fort McMurray area and

CNRL Jackfish removed from Covid outbreaks

we may be seeing the start of the removal of oil sands facilities from the outbreak list. In the June 9 update, we finally saw the removal of one oil sands facility, the CNRL Jackfish property, from the list of outbreaks. Below, we pasted the oil sands facilities listed in June 9, June 7, and June updates. The Wood Buffalo June 1 Covid update is attached.

Figure 20: Oil Sands Facilities With Covid Outbreaks at June 1, 7, and 9

June 9	June 7	June 1
Outbreaks in RMWB	Outbreaks in RMWB	Outbreaks in RMWB
Industrial:	Industrial:	Industrial:
MEG Energy	MEG Energy	MEG Energy
CNRL Horizon	CNRL Horizon	CNRL Horizon
CNRL Albian	CNRL Albian	CNRL Albian
Kearl Lake	Kearl Lake	CNRL Jackfish
Civeo Lynx Lodge	Civeo Lynx Lodge	Kearl Lake
Civeo McClelland Lake	Civeo McClelland Lake	Civeo Lynx Lodge
Wapasu Creek Lodge	Wapasu Creek Lodge	Civeo McClelland Lake
Civeo Athabasca	Wapasu Creek Lodge	Wapasu Creek Lodge
Cenovus Sunrise Lodge	Civeo Athabasca	Civeo Athabasca
Suncor Base Plant	Cenovus Sunrise Lodge	Cenovus Sunrise Lodge
Suncor Firebag	Suncor Base Plant	Suncor Base Plant
Suncor Fort Hills	Suncor Firebag	Suncor Firebag
Suncor Mackay River	Suncor Mackay River	Suncor Mackay River
Suncor Mildred Lake	Syncrude Mildred Lake	Syncrude Mildred Lake
Syncrude Aurora	Syncrude Aurora	Syncrude Aurora
CNOOC Long Lake	CNOOC Long Lake	Suncor Fort Hills
Oilsands Industrial Lodge - Fort McKay	Oilsands Industrial Lodge - Fort McKay	CNOOC Long Lake
		Oilsands Industrial Lodge - Fort McKay

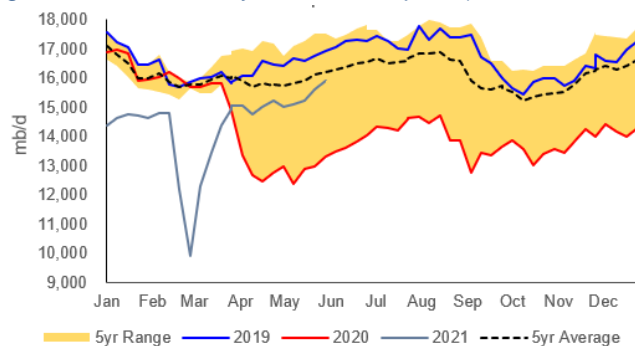
Source: Wood Buffalo

Oil – Refinery inputs +0.328 mmb/d YoY to 15.925 mmb/d

Crude inputs to refineries were up this week and were +0.328 mmb/d to 15.925 mmb/d, and are +2.441 mmb/d YoY. Refinery utilization was up 2.6% this week at 91.3%, which is +18.2% YoY. This is the first time fuel makers have operated above the 91% mark since January 2020. Refineries are ramping up to meet the expected fuel demand for the summer driving season. Total products supplied (ie. demand) decreased this week, with a 1.427 mmb/d decrease to 17.713 mmb/d, and motor gasoline supplied was down being -0.666 mmb/d to 8.480 mmb/d. Gasoline consumption in the US is expected to rise, with the EIA writing in their 2021 Summer Fuels Outlook [\[LINK\]](#) “We forecast that gasoline consumption in 2021 will peak in August at 9.1 million b/d, which is up from 8.5 million b/d in August 2020 but down from the 9.8 million b/d in August 2019. We forecast that 2021 summertime gasoline consumption will average almost 8.8 million b/d, a 1.0 million b/d (13%) increase from 2020 but a 0.7 million b/d (7%) decrease from summer 2019”. Below is our graph of crude inputs to US refineries and our graph of US motor gasoline supplied.

Refinery crude oil input approaching the 5 yr avg

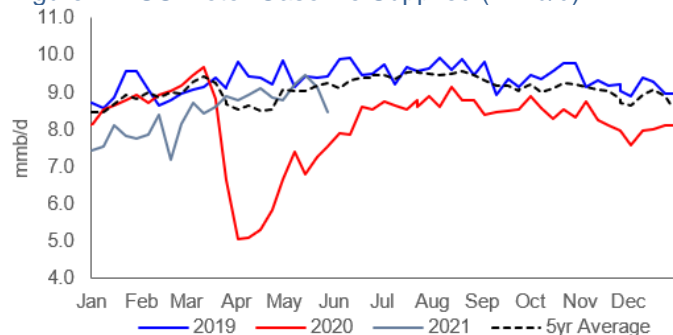
Figure 21: US Refinery Crude Oil Inputs (thousands b/d)



Source: EIA, SAF

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Figure 22: US Motor Gasoline Supplied (mmb/d)



Source: EIA, SAF

Oil – Exxon Beaumont union employee lockout onto its 6th week

Exxon's employee lockout is entering its 6th week. We first noted this item in our May 2, 2021 Energy Tidbits, when Exxon had first started the lockout of its ~550 employees at its 359,000 b/d Beaumont refinery in Texas. This lockout was following April 30 reports that Exxon had rejected the latest United Steelworks offer and had begun hiring replacement workers. Bloomberg reported on Thursday that now 6 weeks later, each side has rejected the other's proposals throughout continued talks. The refinery has been running with temporary workers since May. There hasn't been any indication yet how much crude is being processed at the Beaumont refinery with the replacement workers. For example, the reports were that, during the 4 month lockout at Coop's 130,000 b/d Regina refinery, the refinery was being able to run at ~100,000 b/d with the replacement workers. We want to give another shout out to the Bloomberg reporters, Barbara Powell in the Exxon report case, for getting back to us on our questions. She did know the specific crude volumes being processed with the replacement workers, but we would certainly agree with her that its likely at some lesser than capacity level. Our Supplement Documents package includes the Bloomberg report.

**Beaumont
refinery
lockout
continues**

Oil – US “net” oil imports up 0.620 mmb/d to 3.707 mmb/d

US “NET” imports were up 0.620 mmb/d to 3.707 mmb/d for the June 4 week. US imports were up 1.007 mmb/d to 6.638 mmb/d. US exports were up, being +0.387 mmb/d to 2.931 mmb/d. The WoW increase in US oil imports was driven by a large increase from Canada. Some items to note on the by country data. (i) Canada was up big this week, and was +0.824 mmb/d to 3.971 mmb/d for the May 4 week, which is now ~0.2 mmb/d above the average levels in Jan/Feb of 2020. Note that PADD 2 imports are +0.668 this week and this is the largest importer from Canada to the US. Canadian crude imports to the US are the highest they've been since January. (ii) Saudi Arabia was down 44,000 b/d to 0.144 mmb/d this week. (iii) Colombia was down 48,000 b/d to 0.137 mmb/d this week. (iv) Ecuador was down 104,000 b/d to 122,000 b/d. (v) Iraq was up 10,000 b/d to 173,000 b/d. (v) Venezuela remained at 0 due to US sanctions. (vi) Mexico decreased 279,000 b/d to 0.423 mmb/d.

**US “net” oil
imports
+0.620 mmb/d
WoW**

Figure 23: US Weekly Preliminary Oil Imports By Major Countries

	Apr 09/21	Apr 16/21	Apr 23/21	Apr 30/21	May 07/21	May 14/21	May 21/21	May 28/21	June 04/21	WoW
Canada	3,367	2,901	3,492	3,232	2,924	3,806	3,549	3,147	3,971	824
Saudi Arabia	181	358	480	178	224	424	277	188	144	-44
Venezuela	0	0	0	0	0	0	0	0	0	0
Mexico	739	451	608	467	434	692	661	702	423	-279
Colombia	209	111	294	307	278	325	71	185	137	-48
Iraq	223	34	270	41	235	199	184	163	173	10
Ecuador	295	172	225	318	257	80	229	226	122	-104
Nigeria	129	71	119	95	157	73	29	169	264	95
Kuwait	0	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0
Top 10	5,143	4,098	5,488	4,638	4,509	5,599	5,000	4,780	5,234	454
Others	709	1,307	1,128	813	979	812	1,273	851	1,404	553
Total US	5,852	5,405	6,616	5,451	5,488	6,411	6,273	5,631	6,638	1,007

Source: EIA, SAF

Oil – OPEC MOMR forecasts big QoQ oil demand surge now happening

OPEC released its Monthly Oil Market Report on Thursday. The overall takeaway of the new June MOMR is basically neutral, but one that provides support for the recent strength in oil prices. OPEC made a small +0.1 mmb/d revision to 2021 oil demand but it continues to forecast a big demand surge is now happening with the reopening of many markets. OPEC is forecasting a big ramp up in oil demand with Q2/21 +1.50 mmb/d QoQ, and then a big increase with Q3/21 +3.11 mmb/d QoQ, and then Q4/21 +1.84 mmb/d QoQ. (i) OPEC's June demand forecast vs May forecast in brackets. No change to OPEC 2021 oil demand forecast rather same concept as prior months, revise Q1 lower and increase H2. Minor change to the lookback at 2020, June forecast is decline in 2020 of 9.3 mmb/d YoY, vs May forecast of decline of 9.5 mmb/d YoY. No change to full year 2021 demand growth rate of +6.0 mmb/d YoY, but average is increased to 96.6 mmb/d, which is higher than May of 96.5 due to the 2020 revision. OPEC revised Q1/21 lower (-0.36 mmb/d) and then revised up rest of 2021 with Q2/21 (+0.47 mmb/d), Q3/21 (+0.28 mmb/d) and Q4 (0.08 mmb/d). Note we were expecting India to revised down but instead India 2021 was revised up to 5.00 mmb/d vs May forecast 4.88 mmb/d, but this is due to the 2020 starting point being revised up from 4.40 mmb/d in May to 4.51 mmb/d in June forecast. (ii) OPEC May production per "secondary sources" in total was up 390,000 b/d to 25.463 mmb/d, which is below the Bloomberg survey which showed production of 25.560 mmb/d and a MoM increase. May production was up with Saudi bringing back some of their crude. Saudi +345,000 b/d MoM to 8.466 mmb/d. Consistent with expectations, Iran is sneaking out more oil and was 2.455 mmb/d in May vs 2.413 mmb/d in April. (iii) Non-OPEC supply revised up slightly due to small US increase. For 2021, June revised +0.13 mmb/d to average 63.73 mmb/d, mainly due to faster than expected recovery in US production. US June forecast is 17.66 mmb/d (incl liquids) in 2021, vs May forecast of 17.55 mmb/d. June is up small YoY vs 17.62 mmb/d in 2020. Within the US, one item to note was June forecast lowered Bakken to 1.11 mmb/d in 2021 vs May forecast of 1.17 mmb/d. (iv) On stocks, April OECD stocks were down 6.4 mmb/d MoM to 2,962 mmb/d. This draw puts April stocks 160 mmb lower YoY, 25 mmb below the latest 5-yr average and 34 mmb higher than 2015-2019 average. Note immaterial changes to March which May had at 2,973 mmb. (v) Call on OPEC crude in 2020 was revised up by 0.2 mmb/d to 22.7 mmb/d, down 6.6 mmb/d YoY vs 2019. The call on OPEC for 2021 is unchanged at 27.7 mmb/d and 5.0 mmb/d higher YoY. Our Supplemental Documents package includes excerpts from the OPEC MOMR.

**OPEC Q3/21
demand +3.11
mmb/d QoQ**

Oil – IEA sees big demand surge in 2021, back to pre-pandemic levels late 2022

The IEA released its monthly Oil Market Report for June on Friday. They only release very limited public info and Bloomberg only provided tables and reporting on some items rather than their normal detailed report. (i) The IEA's main messaging point for the June OMR is

**IEA sees Q3/21
demand +3.1
mmb/d QoQ**

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that they are positive and supportive of the recent strength in oil prices. OPEC+ remains in control of the market. IEA is positive on oil demand to return to pre-pandemic levels by the end of 2022 and, most importantly, sees the need for OPEC+ to increase supply to meet demand. (ii) The IEA's first look at 2022 oil demand is almost back to pre-covid. IEA said "Global oil demand is set to return to pre-pandemic levels by the end of 2022, rising 5.4 mb/d in 2021 and a further 3.1 mb/d next year". There was no change to the 2021 full year avg of 96.4 mmb/d from last month, but minor shift by quarter. But the IEA is much like OPEC and sees the big oil demand surge now happening. The IEA forecasts big QoQ demand increases in 2021 with Q2 +1.6 mmb/d. Q3 +3.1 mmb/d. Q4 +1.3 mmb/d. Looking at 2022 looks suspiciously like they kept it just below pre-covid levels. For example, 2022 is +3.1 mmb/d to 99.5 mmb/d vs 99.7 mmb/d in 2019. And Q4/22 is forecast at 100.6 mmb/d vs 100.7 mmb/d in Q4/19. IEA sees all fuels at or above pre-pandemic levels by yr end 2022 except jet fuel due to reduced international travel, but demand held back by teleworking could reduce demand by 300k-530k b/d. (iii) No particular surprise or market concern from the look back at OPEC May production. OPEC May production was up 370,000 mmb/d to 25.43 mmb/d as expected due to Saudi +340,000 b/d as they began phase out of voluntary cuts. (iv) Increase to IEA's non-OPEC supply forecasts, with +1.6 mmb/d YoY in 2022 led by US. IEA writes "World oil supply is expected to grow at a faster rate in 2022, with the US driving gains of 1.6 mb/d from producers outside the OPEC+ alliance". For the US, Bloomberg writes "U.S. light tight oil production will 'continue to creep upwards' reaching 7.6m b/d by year-end and 8.2m b/d by the end of 2022. Higher oil prices have encouraged private operators, who account for about 25% of light tight oil production, to boost drilling, even as listed companies maintain spending discipline". (v) On global refining, IEA wrote "Global refinery throughput in 2021 is expected to recover half of the 7.4 mb/d fall in 2020, lagging behind demand growth for refined products as surplus inventories are drawn down. In 2022, refining activity is forecast to increase by 2.4 mb/d. 3.8 mb/d of new capacity coming on line over 2021-22 will be partially offset by 2.3 mb/d of announced closures or conversions to bio-refineries." (vi) Global stocks are now at 2015-2019 levels. IEA wrote "OECD industry stocks held relatively steady in April, at 2 926 mb, but fell 1.6 mb below the pre-Covid 2015-19 average for the first time in more than a year. May preliminary data for the US, Europe and Japan show that industry stocks rose by a combined 17.2 mb". (vii) Special thanks to the Bloomberg team for their IEA OMR wrap stories. Our Supplemental Documents package includes the IEA release and Bloomberg terminal IEA wrap.

Figure 24: IEA Global Demand Forecast By OMR Report Month

mmb/d	2019	2020	20-19	Q1/21	Q2/21	Q3/21	Q4/21	2021	21-20	Q1/22	Q2/22	Q3/22	Q4/22	2022	22-21
June 21	99.7	91.0	-8.7	93.3	94.9	98.0	99.3	96.4	5.4	98.3	98.6	100.3	100.6	99.5	3.1
May 21	99.7	91.0	-8.7	93.1	94.6	98.3	99.6	96.4	5.4	-	-	-	-	-	-
Apr 21	99.7	91.0	-8.7	93.7	95.1	98.3	99.5	96.7	5.7	-	-	-	-	-	-
Mar 21	99.7	91.0	-8.7	93.9	95.0	97.8	99.2	96.5	5.5	-	-	-	-	-	-
Feb 21	99.6	91.0	-8.6	93.7	94.9	97.9	99.2	96.4	5.4	-	-	-	-	-	-
Jan 21	99.9	91.2	-8.7	94.1	95.2	98.1	99.0	96.6	5.4	-	-	-	-	-	-
Dec 20	99.9	91.2	-8.7	94.7	95.4	98.0	99.2	96.9	5.7	-	-	-	-	-	-
Nov 20	99.9	91.3	-8.6	94.9	95.8	98.4	99.1	97.1	5.8	-	-	-	-	-	-
Oct 20	99.9	91.7	-8.2	95.6	96.1	98.2	98.8	97.2	5.5	-	-	-	-	-	-
Sept 20	99.9	91.7	-8.2	95.6	95.8	98.2	98.9	97.1	5.4	-	-	-	-	-	-
Aug 20	99.9	91.9	-8.0	95.4	95.8	98.6	98.7	97.1	5.2	-	-	-	-	-	-
July 20	99.9	92.1	-7.8	95.5	96.2	99.0	98.9	97.4	5.3	-	-	-	-	-	-
June 20	99.9	91.7	-8.2	95.6	96.6	98.7	98.7	97.4	5.7	-	-	-	-	-	-

Source: IEA, SAF

Oil – JCPOA 6th round started yesterday, no expectation for near term deal

There should be no surprise to see the reports this morning that no JCPOA deal is likely in the next week. We would not have expected to see any breakthrough announcement in the midst of Biden's first international trip and not in the week leading up to the Iran elections.

JCPOA deal is still weeks away

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There are clearly political decisions that have to be made that don't get made in the Vienna meetings and the key question will be what signals we get from the US in the period after Biden returns from Europe late next week. The 6th round started yesterday in Vienna. Earlier this morning, Iran's PressTV reported [LINK](#) "Iran's top nuclear negotiator has predicted that talks in Vienna between Tehran and other signatories to the 2015 nuclear deal on a potential revival of the accord are unlikely to conclude this week." And "Araqchi said, 'Personally, I do not think we can reach a final conclusion this week.'" "My guess is that at least once again the conclusion of the negotiations should be transferred to the capitals. I do not think we will reach a final conclusion in this round of the talks." No deal resulting from the 6th round of talks and a timeline weeks away is what the US guided to on June 3. On June 3, we tweeted [LINK](#) on comments by US State Department spokesman Ned Price that clearly indicate any agreement is still weeks away. Price said the US is expecting at least another two rounds of negotiations will be needed. Price said "We expect there will be a sixth. I think there's just about every expectation there will be subsequent rounds beyond that. The fact is that we have made progress".

Oil – Real time oil supply/demand data been key tool for Saudi to manage oil markets

There was a great reminder this week of how Saudi Energy Minister Abdulaziz and OPEC has been able to manage oil supply to get oil to \$70 and, most importantly, even with OPEC+ supply ready to be added back, the market expecting continued strong oil prices. No surprise, its basically a repeat of an item from our May 9, 2021 Energy Tidbits because it's the same people one month later. One of our early morning must do's is to listen to the Gulf Intelligence New Silk Road "Live" podcast. At the 4:15min mark of the June 7 podcast [LINK](#), Richard Redoglia (Matrix Global Holdings), who was on the May 5 podcast, reiterated the same concept about how real time oil supply and demand data has been the key for OPEC to manage the oil markets. We did not create a transcript of his comments on June 7, but they are the same concept as May 5. Here is what we wrote in our May 9, 2021 memo "Their May 5 podcast [LINK](#) led to our tweet [LINK](#) that the more you think about it, the more you have to give Abdulaziz credit for what he set up – monthly meetings, agree to pay back over produced barrels. Good reminder why OPEC+ can manage oil prices assuming they still want to keep working together in particular on the agreement to pay back over produced barrels. There is now real time data on demand and on supply. Saudi Arabia can see who is cheating from Kpler data. This Kpler data is the big difference from a decade ago, it gives real time data on loadings, destinations, changes in destinations, etc. And this real time supply data is the missing link for Abdulaziz. And monthly meetings, he can rail in someone quickly. They also get real time data on demand from many sources ie. air flights, traffic, etc. And more importantly, they have eliminated the supply side variables they don't control. US oil production is under control and they can see weekly data. Other non-OPEC+ producers like Brazil, Canada, China, etc all can give regular indicators for OPEC. The key is that Abdulaziz has pretty good real time data and his monthly meeting set up and getting cheaters to commit to pay back over produced barrels allows him to effectively manage markets. Its why we tweeted "Kudos @MoEnergy_Saudi #Abdulaziz for set up #OPEC+ monthly meet & pay back overproduced bbl. Real time supply data let them adjust monthly & its working. Thx @gulf_intel @MatrixGlobalNRG CEO reminder on @Kpler tanker is key data. @ericnuttall been hammering Kpler value add #OOTT". Our tweet noted Eric Nuttall because he has been hammering home the big value add he gets from the paid Kpler real time data. Our Supplemental Documents package includes the transcript we made of the Matrix Global CEO comments on the May 5 podcast.

Real time demand
supply data

Oil – More OPM, Saudi Aramco \$6b debt deal

We recognize that others don't or won't say this specifically, but we continue to believe the major financial theme for Saudi Arabia in the 2020s is one that there will be an accelerated push to use Other People's Money throughout their economy. Last week's (June 6, 2021) Energy Tidbits memo noted how Saudi Arabia's Net Foreign Assets (we call this their nest egg to help them thru the Energy Transition) at April 30, 2021 were \$436.3b, down YoY vs \$442.2b at April 30/20, and down \$300.7b from the peak of \$737.0b on Aug 31/14. By no means is Saudi Arabia going broke but we still don't think they want to keep grinding down their nest egg. Its why on June 2, we tweeted [\[LINK\]](#) on the reminder that the decline is not just an increasing use of Other People's Money, its also a reason why Saudi will keep being disciplined to maintain high oil price. This week, there was a high profile example of accessing OPM with the well reported Saudi Aramco bond issue. On Friday, Al Jazeera reported [\[LINK\]](#) *"Saudi Aramco, the world's biggest energy company, is selling \$6 billion of bonds in its first dollar-denominated Islamic bond sale. The state-controlled company is offering sukuk due in three, five and 10 years, and the longest portion will yield 120 basis points above Treasuries, according to a person familiar with the matter. That's down from initial discussions of around 160 basis points. Order books for the sale are in excess of \$60 billion, said people familiar with the transaction, who asked not to be identified as the details are private. The firm is raising cash to help finance its plans to pay out \$75 billion in dividends, a commitment that the oil company made to garner support for its initial public offering. Aramco had to reduce spending, cut jobs and sell non-core assets as the spread of the coronavirus and widespread lockdowns curbed demand for oil last year, the main source of revenue for Saudi Arabia."*

Aramco debt offering

Oil – Iran's NIOC prepared for "speedy resumption" of Iran oil production

Iran is indicating they are ready and raring to go on the oil export side once there is a return to the JCPOA. On Thursday, Shana (the news agency for the Iran oil ministry) reported [\[LINK\]](#) that Iran is ready for a "speedy resumption" of oil production and that precise planning had been underway to restore most oil production within a month if sanctions are lifted. Iran plans to restore oil productions to pre-sanctions levels in one-week, one-month and three-month intervals. Deputy Director of Production at the NIOC, Farrokh Alikhani said *"The average daily production of Iranian oil in the post-JCPOA period was 3.83 million barrels per day and the National Iranian Oil Company plans to return pre-sanctions production levels in the first step if sanctions are lifted. In the next step, increasing production capacity to more than 4 million barrels is targeted"*. The 3.38 mmb/d number is where they think they can get to quickly once JCPOA is signed and a second step over the coming period is to go to >4 mmb/d. He assured Shana that production was ready at anytime, saying *"Our approach has always been to be fully prepared so that whenever maximum oil production is demanded, we can restore production in the shortest possible time. For this purpose, the fields have been studied well by well, and it is natural that some young and energetic wells return to the production level more quickly, while others will need more operations for restoration of production levels"*. Our Supplemental Documents package includes the Shana report.

Iran to produce 3.83 mmb/d soon after sanctions lifted

Oil – Libya experiences outages of >200,000 b/d of production due to pipeline leaks

Post blockade, Libya production increased at pace, however, as warned by the Libya NOC, there have been interruptions due to years of neglected infrastructure without capital. Libya's oil industry encountered more issues due to lack of repairs over the past few weeks. Reuters reported on Wednesday [\[LINK\]](#) that corroded pipelines leaked and forced production cuts at the Waha Oil Co. to drop by about half to 130,000 barrels a day and Akakus Oil down by 50,000 b/d. The combined outages as a result of the leak totalled more than 200,000 b/d or almost 20% of Libya's production. Bloomberg later reported that Libya's oil output is picking

Libya pipeline leakages cause >200,000 b/d production outages

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up again and the pipeline leak has been fixed. Mustafa Sanalla, chairman of the country's National Oil Company said *"The NOC is facing tremendous challenges in the rehabilitation and restoration of oil installations"*. He cited *"the lack of funds needed for the projects"* and the country's fragile security situation as some large obstacles to the country taking advantage of the current strong oil prices. Our Supplemental Documents package includes the Bloomberg report.

Oil – Vortexa floating storage +0.3% WoW, down 50.5% YoY

The peak of crude oil in floating storage was almost one year ago. Bloomberg reported on Vortexa floating oil data that showed a WoW increase of 0.31 mmb or +0.3% WoW to 93.04 mmb on June 4 from 92.73 mmb on May 28. Note there was a significant revision to the May 21 numbers as they were adjusted upwards from 87.9 mmb. Floating storage is down 50.6% since the June 19, 2020 peak of 216.38 mmb. Asia Pacific declined modestly by 2% to 59.91 mmb/d to the lowest since amount February, which coincides with the gradual improvement in the COVID-19 outbreak in India. Our Supplemental Documents package includes the Bloomberg Vortexa report.

Vortexa floating storage

Figure 25: Vortexa Global Floating Storage Level (1 yr)



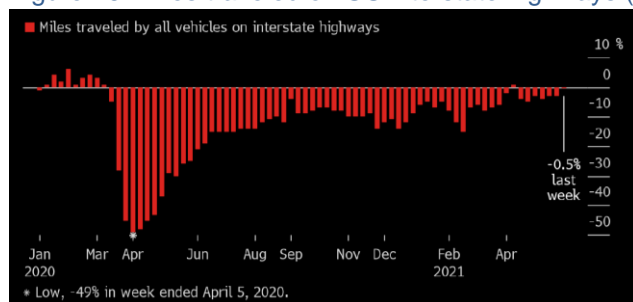
Source: Bloomberg, Vortexa

Oil – Bloomberg Oil Demand Monitor, American and British roads back to normal

We recommend reading the weekly Bloomberg terminal Oil Demand Monitor for a good recap of key oil demand indicators around the world. Their update provides more support that oil demand is moving into the demand surge period. Traffic is pretty much back to pre-pandemic levels in the United States and most of Europe, with congestion levels surpassing typical 2019 levels on Monday in London and Rome. Paris was just 5% below typical levels. In the US, the number of miles travelled on interstate highways in the last week of May was just 0.5% below pre-pandemic levels. Although estimates from the EIA for gasoline demand declined this week, it's important to note that they are not in lockstep with actual US traffic. As we noted earlier, the covid situation in India is improving and with that will demand will improve. With regards to jet fuel demand outlook, there has finally been a large uptick in European flight activity. There has been a 34% uptick in European activity over the past month. Euro air zone is still 54% less active than 2019, but global commercial flights are down only 31%. China and the US are the only places in the world where air travel is approaching normal. China was down less than 1% and the US was down 20% vs 2019 based on the latest seat capacity estimates from OAG Aviation. Below are two graphs that demonstrate the improvement in road traffic in the United States and the UK. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Bloomberg's Oil Demand Monitor

Figure 26: Miles traveled on US interstate highways (% change vs 2019)



Source: Bloomberg

Oil – TSA screens >2 mm passengers on Friday, 1st time since March 2020

As noted earlier, we believe the key oil theme for 2021 is that there is demand surge now happening as we move into the summer. Both the OPEC MOMR and IEA OMR this week forecast Q3/21 demand to be >3 mmb/d higher QoQ. Yesterday morning, we tweeted [\[LINK\]](#) on a key example of this demand surge. We tweeted “*Breaking. #Oil demand surge is now happening. @TSA screened >2 mm passengers for 1st time since March 2020. Still 26% lower vs 2019, but 1.5 mm more than 2020. Reinforces key oil theme supporting >\$70 price - the demand surge is now happening. #OOTT*”. The TSA announced [\[LINK\]](#) it “*surpassed the 2 million threshold for travelers screened in one day on Friday, June 11, when 2,028,961 people were screened at airport security checkpoints. It marked the first time that more than 2 million individuals were screened since March 2020. This milestone represents 74% of travel volume versus the same day in 2019 and 1.5 million more travelers than the same day in 2020.*” The TSA also noted the low Covid number was just 87,534 on April 13, 2020. Our Supplemental Documents package includes the TSA announcement.

US air travel
accelerating

Oil – No surprise, World Bank increases global GDP forecast

The World Bank’s semi-annual Global Economic Prospects report was released on Tuesday [\[LINK\]](#), and there were no real surprises from their forecasts. The headline of the report says it all “*Global Recovery Strong but Uneven as Many Developing Countries Struggle with the Pandemic’s Lasting Effects*”. While the global growth rate is set to reach 5.6% in 2021, the strongest post-recession growth pace since 1940, the growth is concentrated in a few major economies. World Bank expects ~90% of advanced economies to regain their pre-pandemic per capita income by 2022 while its outlook for emerging/developing countries (EMDEs) is entirely different; it expects less than a third of EMDEs to return to pre-pandemic income by 2022. The World Bank’s GDP growth outlook has been adjusted upwards since the last report was released in January, amid uncertainty around vaccination availability resurgences of COVID outbreaks. Back in January, outlook was much more bearish as the vaccination impact was much more uncertain. It was expected that global economic output would only expand 4%. Some key countries have experienced large revisions to their Jan forecasts. No surprise due to its quick roll-out of vaccines, the United States’ growth forecast has been revised up 3.3% from Jan expectations of 3.5% growth to 6.8% growth in 2021. The Euro Area was revised up from 3.6% growth to 4.2% in 2021 and China was revised up 0.6% to 8.5% expected 2021 economic growth. As previously mentioned, EMDEs are faring worse, with several experiencing downward revisions to their growth forecasts. Some of these countries include Thailand, Egypt and Angola, with Low-Income countries (LICs) overall experiencing a -0.5% revision to growth forecasts. Our Supplemental Documents Package includes excerpts from the World Bank report.

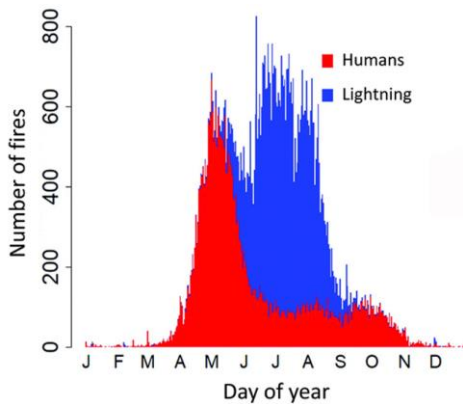
GDP forecast
increased,
developed countries
to recover far faster

Oil & Natural Gas – Moving into peak lightning season which means peak wildfire risk

We are about to move into the peak wildfire season, which tends to be mostly correlated to peak lightning season. Alberta has been fortunate that the last two years have seen significantly lower than normal number of fires. 2020 saw 705 fires, 2019 saw 989 fires vs the 5-yr average of 1,340. But it's been dry this year and the risk is high. And wildfire season is unpredictable. Below are two graphs that remind the big factor for wildfires is lightning. For a good way to track the wildfires, check out the AB [LINK](#) and BC [LINK](#) wildfire maps, which show any active fires as well as the stage of control they are in as well as their suspected cause. Currently in AB there are 14 active fires and 11 are under control. In BC there are 9 active fires, 8 of which are under control. The active fires in both provinces are classified as "Being Held" which means that "given current weather conditions and resources, the wildfire is not anticipated to grow past expected boundaries". Below is the Wildfire Today graph of wildfires in Canada by month [LINK](#) Canada Environment and Natural Resources graph showing average monthly cloud-to-ground lightning in Canada [LINK](#).

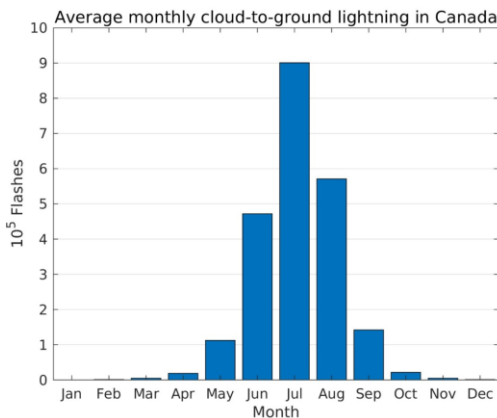
Moving into peak wildfire season

Figure 27: Canada Wildfires Distribution Over Year



Source: Wildfire Today

Figure 28: Average monthly cloud-to-ground lightning in Canada



Source: Canada Environment and Natural Resources

Electricity – PG&E warning on more blackouts moving into peak wildfire season

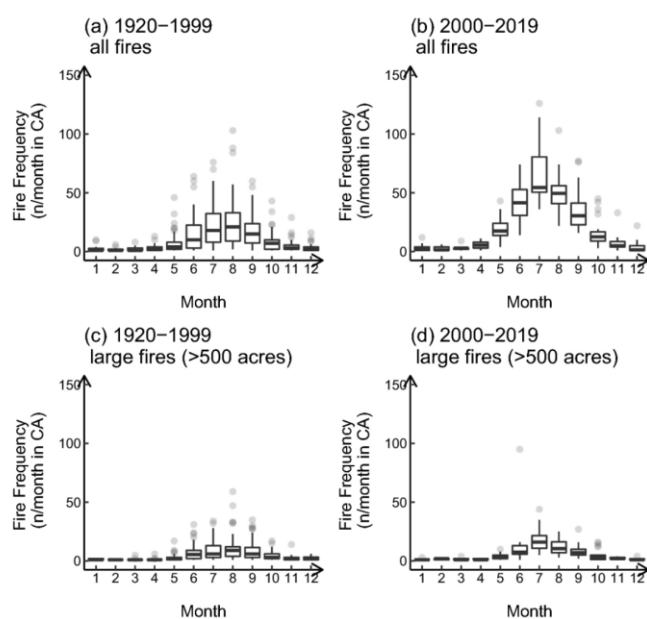
We really hope our friends in California can get by this summer without major power outages. Unfortunately, the set up moving into the peak wildfire season is not good. Drought

PG&E wildfire concerns

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conditions in the west have set up very dry conditions and also mean that there is less hydro electricity generation to step up in case of any renewable outages or poor operating conditions. On Friday, Bloomberg reported that PG&E is expecting more blackouts vs last year due to the high wildfire risk. Bloomberg wrote *“More than three-quarters of the state faces extreme drought conditions, according to the U.S. Drought Monitor, up from less than 3% this time last year”*. Adding to the high risk of wildfires is the fact that PG&E is far behind in cutting away trees from their power lines, presumably due to covid related work restrictions, otherwise there is no excuse for being behind on this in a year where wildfire risk is extremely heightened. Bloomberg wrote *“Sumeet Singh, PG&E’s chief risk officer, said in an interview that the new shut-off criteria, coupled with California’s dry weather conditions, could result in the need for more shut-offs than last year, especially if seasonal winds are as strong as they have been in recent years”*. PG&E has installed additional backup generation at certain substations to help keep some areas online in the anticipated blackouts, however its six shutoffs last year still hit ~653,000 customers. Below are two of the charts from Nature.com Scientific Reports paper *“Spatial and temporal pattern of wildfires in California from 2000 to 2019”* [\[LINK\]](#) that reminds peak wildfire season is now and that wildfires have increased over the past 20 years.

Figure 29: California – All Fires and Large Fires 1920-1999 and 2000-2019



Source: Nature.com

Energy Transition – Shell concedes, to cut 45% global emissions by 2030 v 2019

There was very big news this week, when, on Wed morning, Shell’s CEO van Buerden wrote on LinkedIn that Shell expects to appeal, but has to start to move immediately to implement the recent Dutch ruling against them that Shell has to cut 45% of its global (not just Netherlands) net carbon emissions versus the 2019 levels. And that it means they will be “taking some bold, but measured steps over the coming years”. (i) We have to believe they will try to slow play this if they end up appealing, But they will have to try to do some items earlier than they had planned in their recent April Energy Transition Strategy. Early Wed morning, we had 4 linked tweets on this huge news. (ii) The second tweet [\[LINK\]](#) was “2/4.

Shell CEO
concedes on
Dutch ruling

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its not just the 45% cut, its vs what baseline. Dutch court is vs 2019. See below #Shell's big Apr 15 energy transition strategy was cutting vs "2016 baseline" had benefit of 2017 #OilSands sales. so lose benefit of early emissions reductions moves .." Our April 18, 2021 Energy Tidbits highlighted Shell's Energy Transition Strategy [\[LINK\]](#) highlighting that Shell used 2016 as its baseline for measuring its emissions reduction target. Our view is that dispositions are the only way companies make big near term emissions reductions – they pass on the emissions to others. And that Shell may not say it, but we have to believe a key reason for picking 2016 and not 2017 or 2018 or 2019 as a baseline is that they sold their Cdn oil sands assets in 2017. The court ruling to use 2019 as the baseline means Shell won't have the benefit of the oil sands sales ie. they have a muc longer way to go. (iii) The third tweet [\[LINK\]](#) "3/4. how else can they catch up but sell more #Oil assets? but need upstream cash flow, #Shell CEO says "need this financial strength" to invest in lower-carbon energy, etc. upstream IRR 20-25% vs top wind project 7% ..." This reminds of the dilemma for Shell, they have to sell more oil assets if they want to catch up, yet need the stronger cash flow from oil and gas to fund the transition. This puts them in a tougher spot. (iv) Our fourth tweet [\[LINK\]](#) "4/4. #Shell expects to appeal, but is moving to comply on a huge acceleration on a well thought out plan. His warning "bold steps" seems like an understatement just like saying #EnergyTransition is going to be very bumpy. Still think demise of #Oil #NatGas isn't quick. #OOTT." Shell is considered one of the leaders in the energy transition and just reviewed their detailed energy transition strategy in April. This ruling, if it is followed thru, basically throws that plan mostly out the window. Shell is behind it to start with a 2019 vs 2016 baseline. And never planned to cut 45% of its worldwide net emissions by 2030. This case will provide the playbook for the climate change side and surely everyone expects the climate change side to try similar lawsuits against other oil and any large emitters operating in the Netherlands, and then for similar cases in other European countries. The oil and gas industry better hope that Shell appeals and tries to get a win here. We worry that Shell is only able to get some reduction to the targets. Regardless, Shell's CEO probably had no other option but accept the court ruling but conceding is huge. (v) Earlier in the memo, we noted our tweet this morning on why we thought it was impossible for Shell to buy Tourmaline. We just don't see how they could give themselves any chance of starting to comply with the Dutch ruling if they did a big E&P acquisition unless they had a much bigger offsetting sale. Rather, we thought a supply/aggregator deal could help Shell reduce future emissions. Our Supplemental Documents package includes the Shell CEO LinkedIn post.

Energy Transition – Toyota to focus on 4 of Big 5 areas for reducing emissions

Whether its "every tool in the toolbox" or "everything under the sun", the point we make is that companies, even basic manufacturing like Toyota, will need to do a lot more than use solar or wind power if they are to hit carbon neutrality let alone Net Zero. We believe, at least for now, the Big 5 for reducing emissions are operational improvements, renewables, hydrogen, carbon credits and CCS. The big (normally the biggest) emissions reduction will come from operational efficiencies and improvements. Basically its what companies do as a normal course. This will be a long list of items from very small to big and very simple items like upgrading equipment, sealing doors/windows, upgrading lighting, turning down air conditioning in offices, etc. We have highlighted our surprise that Biden didn't push this area as it was the number 1 theme for the US in Carter push post the Arab Oil Embargo. We suspect its just not as exciting for the climate change side. Then every plan will be using solar and wind for electricity and also seeing if they can also add hydrogen in that power mix. But these items won't/can't do it all that brings up a long list of other items that will see companies do things like plant trees. But the other one that will be part of most, if not all, company plans will be to buy carbon offsets or CO2 credits. This is going to be a massive capital allocation area. But the companies don't want to highlight this because it isn't something they are doing

Big 5 for reducing emissions

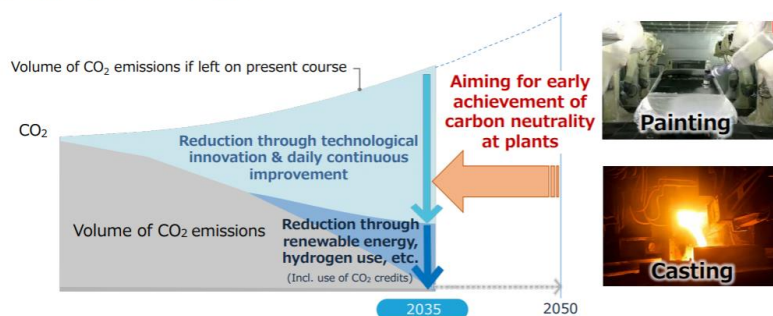
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to their operations. Its something they have to buy. We were reminded of this when we reviewed Toyota’s Friday presentation “*Skilled Manufacturing: Key to the Future*”. Yesterday morning, we tweeted [\[LINK\]](#) “*#Toyota aims for #CarbonNeutral factories by 2035. Reminds all industries to use #RenewableEnergy or #Hydrogen for power everywhere they can. Also big capital allocation to #CO2Credits or #CarbonOffsets, and also to "etc.". Everything will cost more under #EnergyTransition*”. The headline from the Toyota presentation will be that it is hoping to have all its factories be carbon neutral by 2035. Their slide on this was interesting as it reinforced these concepts. Note how the biggest savings come from the “*reduction through technological innovation & daily continuous improvement*”, which far surpasses “*reduction through renewable energy, hydrogen use, etc (Incl. use of CO2 credits)*”. We are always curious when a company disclosure does something the small font. Note we put in the small font what Toyota put in smaller font. Its like they really didn’t want to highlight, but had to name it as it is probably not much different in contribution than renewable energy and hydrogen use. Its also worth reviewing Toyota’s ability to overcome the challenges for hydrogen cars. Its interesting, but when we read the brief script and the slides on it, we are left with the feeling that hydrogen vehicles will be tough to scale up to take big market share. Lastly, Toyota doesn’t talk CCS but that will also be one of the Big 5 areas for emissions reductions. Our Supplemental Documents package includes the Toyota June 11 transcript [\[LINK\]](#) and excerpts from the slide deck [\[LINK\]](#).

Figure 30: Toyota Path towards green plants

3. Advanced manufacturing for a new era

1) Path toward green plants



Striving for carbon neutrality presents an opportunity to fundamentally innovate manufacturing

Source: Toyota

Energy Transition – G7 just ending, expect reaffirmation moving to Net Zero

As of our news cut off of 7am MT (2pm Cornwall UK time), we just checked the official G7 UK 2021 site [\[LINK\]](#) the G7 leaders communique has not yet been posted. It should be out shortly given most of the leaders are to be in Brussels tomorrow for a NATO summit. There have only been more general reports on the G7 leaders move on climate change and the energy transition. This is not a surprise given all the leaders have specific other items such as China, Russia, global taxes, etc.. Unless there is a change in the norm, we do not expect the G7 Leaders communique to have a lot of detail on items like climate change and energy transition. Its just not what happens. In the reports so far on the G7, we have not seen any reports that the G7 Leaders will be rebuking or making any major changes to the climate change and energy transition 30-pg communique that their respective teams already signed off on May 21 with respect to the climate. Rather we expect to see more top level items in the leaders communique such as a reaffirmation of moving to Net Zero by 2050. We expect

G7 finishing up right now

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over the coming days to see some details leaked out on items that may change around the edges, but we do not expect to see any major backing off of what the G7 policymakers detailed on May 21. In fact, yesterday going thru the G7 UK 2021 site, they linked on the front page to the May 21 30-pg communique. We detailed our views on the May 21 30-pg communique in our May 23, 2021 Energy Tidbits. On a big picture, we believe the new commitments will cause companies to re-evaluate and reconsider capital allocation to major oil and gas capital expenditures in US and Canada. This is why we said that the G7 30-pg communique is more significant to oil and gas companies in 2021 than the IEA outlining the scenario of what is required to get to Net Zero. Our Supplemental Documents package includes what we wrote in the May 23, 2021 Energy Tidbits on the 30-pg communique and the key pages from the May 21 30-pg communique.

Energy Transition – Maersk carbon tax proposal is too much for many shipowners

No surprise, the rank and file shipowners aren't keen on Maersk's proposed carbon tax on shipping fuel. Last week's (June 6, 2021) Energy Tidbits highlighted the Maersk CEO Linked in article on Maersk's proposed a \$450/ton carbon tax on shipping fuel in order to make alternative cleaner fuels competitive relative to VLSFO. This represents a clear example that the energy transition will cost more, a theme we have long been highlighting. And another theme, the smaller companies will be left behind and many may not be able to survive the added costs of doing business under the energy transition. On Tuesday, Platts reported [\[LINK\]](#) that shipowners are nervous these taxes will further impact their bottom line at a time when owners are already bleeding. A senior executive at one of the largest tankers company said *"The message being given to shipowners is that here is another bill to be paid. If you are lucky, you can pass it on to the charterers or end users but if not, settle it yourself"*. According to Platts, executives managing tankers said earnings are already very poor and recover is unlikely in near-term. If the tax goes through it will make it difficult for them to pay off their debt. Crude prices and default bunker costs have gone up (currently about 5% higher than YTD average), cutting into profits. For example, VLCCs are losing almost \$3,000/day on the Persian Gulf-North Asia routes. If the tax is implemented, bunker costs would double. Shippers also assert that for a price signal to work as the tax intended, there must be a viable alternative to fossil fuels. That does not yet exist for large ships. Our Supplemental Documents package includes the Maersk LinkedIn post from last week and the Platts report.

Shippers are "bleeding", carbon tax would make things worse

Energy Transition – Woodside says Exxon should have seen it coming

We have been highlighting how Europe is the precursor to what will come to North America on the energy transition and climate change pressures and with the added warning that the move across comes a lot quicker than expected. On Tuesday, we tweeted [\[LINK\]](#) *"Reminder to US/CAN #Oil #NatGas co's. Re: shareholders wanting more from #Exxon, @WoodsideEnergy CEO "These are signals that the US producers should have seen coming from what's been happening to our European counterparts". Thx @angelamacd for reporting. #OOTT"*. There wasn't much sympathy from Woodside Energy for Exxon losing its shareholder votes that has led to a material change in Exxon's board. And that is coming from a former Exxon executive, Woodside Energy's Acting CEO Meg O'Neill. O'Neill Australia's Financial Review reported on O'Neill's comment at a sellside conference in Sydney. They wrote *"But Ms O'Neill, a former senior executive at Exxon, said the US companies should have been prepared for the ramp-up of investor pressure on climate change. "These are signals that the US producers should have seen coming from what's been happening to our European counterparts," she said. "In many ways this is a trend that we have been aware of for a very long time."* Our tweet is that the O'Neill comments are a warning to both Cdn and US companies. At least for now, there isn't any stop in the pressure on climate change on oil and gas companies. Note our comments below on BlackRock CEO

Exxon should have seen it coming

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Larry Fink's comments from last week. Our Supplemental Documents package includes the Financial Review report.

Exxon's board changes are more an abrupt change not board renewal

It was interesting to get some investor perspective in the week the shareholders voted against Exxon and that meant Exxon was forced to take on 3 new board members proposed by Engine No 1 on its 12-person board. Some seemed less concerned that the new board would result in dramatic changes to the Exxon game plan because the new board members are practical and understand the oil and gas business. We agreed that the new board members seemed solid. But we said that this is not normal board rejuvenation where the board replaces people on a regular basis due to some term limits or retirements and the new board members basically work in within the existing board/company direction. Rather this is an immediate change so there are now 25% new directors. And no one will disagree that these directors may understand the oil business, but they also know they are only on the board because there is shareholder demand for Exxon to change and catch up on the energy transition and improve on capital allocation. There isn't any allegiance to management or the existing board who invited them to join the board. So this is not board renewal, its board abrupt change and that would suggest change and not more of the same.

Energy Transition – Too late to stop policymakers now on aggressive climate goals

The increased G7 climate commitments reinforce global policymakers are locked in to more aggressive climate change goals. Last week's (June 6, 2021) Energy Tidbits highlighted the BlackRock CEO Larry Fink's clear warning "*we do not have the technology to do all this*" in reference to the aspirations of the energy transition and his clear warning to policymakers "*we're going to have much higher inflation, because we do not have the technology to do all this yet to have it equivalent to the cheapness of hydrocarbons. And so that's going to be a big policy issue going forward too. Are we going to be willing to accept more inflation if the inflation is to accelerate our green footprint? And that's going to be a big policy question*". Fink is clearly warning policymakers. Our concern is that its too late for the critical global policymakers to back off their more aggressive push for at least a year. We just don't see them backing off before COP-26 in November. And we worry companies and big investors like BlackRock made a strategic mistake in not very vocal about the energy transition aspirations being unrealistic. Rather they encouraged and pandered up to policymakers on the need to, and to be, more aggressive on climate change targets. They stoked the fire. Fink's comments on technology are not new, the IEA clearly warned on this a year ago that the critical technologies needed for Paris were nowhere near on track. We appreciate that Fink is now giving the reality check waning to policymakers and will be able to say he warned policymakers. And we expect to see other capital leaders have similar warnings on the energy transition. But, we wish they hadn't fueled the fire and created the momentum and that the problem is that its too late to bring policymakers off their plan. These warnings should have been last year and should have been loud. The major global policymakers have to the most part joined in the need to come out of Covid and be more aggressive on climate change and energy transition targets. Its like a supertanker, it just doesn't turn on a dime. And its almost impossible to believe they will jump off this more aggressive stance ahead of COP-26 Glasgow in Nov and then for at least some time thereafter they all make this new global commitment. Plus now that most everyone has built this Energy Transition theme, it is very difficult for policymakers to buck the trend and to try to deal with reality. We have highlighted the one example of a policymaker making a tough decision to deal with reality – Merkel in why she has pushed on Nord Stream 2. But she is the exception to the rule and its why we

**Too late to warn
policymakers
on climate**

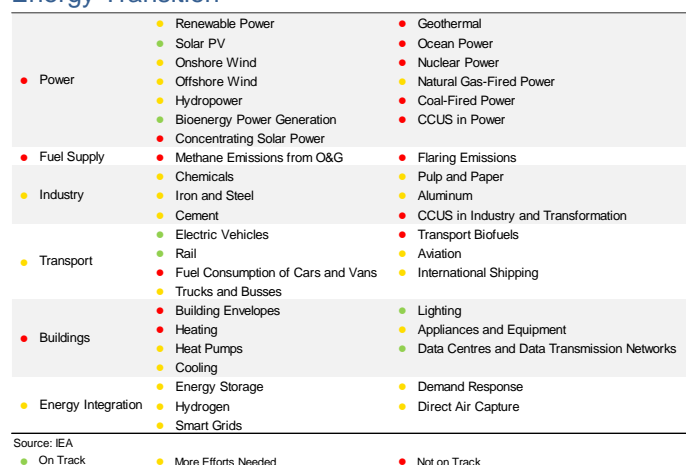
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believe the momentum from global policymakers will continue for at least year even if major capital providers start to warn. Its like we have said we have said for years, the Energy Transition will take longer, it will be a bumpy road and will cost more than expected. Our Supplemental Documents package includes Fink’s comments from last week on the energy transition.

Why didn’t people hammer policymakers a year ago on technology shortfalls

We just don’t get why its taken so long for people to hammer or try to convince policymakers that the world isn’t ready for the level of energy transition aspiration to meet Paris or Net Zero. This conversation should have been at least a year ago. The IEA tried to warn everyone in June 2020 in its report “Tracking Clean Energy Progress” [LINK] In that report, the IEA reviewed all of the critical technologies needed to hit Paris and reported on the status of each critical technology. Anyone who bothered to read the report couldn’t help see the IEA warning that critical technologies are nowhere near ready or available to hit Paris. The IEA June 2020 report was a key reason for the blog we wrote a year ago, our June 11, 2020 blog “Will The Demise Of Oil Take Longer, Just Like Coal? IEA and Shell Highlight Delays/Gaps To A Smooth Clean Energy Transition”. One of the items from that blog was “The IEA reminds the energy transition has many “critical energy technologies”, the vast majority of which are not on track. There was an excellent illustration of the many significant areas, or major pieces of the puzzle, involved in an energy transition by the IEA last week. The IEA also noted the progress of each of the major pieces and the overall conclusion is that the vast majority of the pieces are behind or well behind where they should be to meet a smooth timely energy transition. It is important to note that these are just what the IEA calls the “critical energy technologies” and does not get into the wide range of other considerations needed to support the energy transition. The IEA divides these “critical energy technologies” into major groupings and then ranked the progress of each of these pieces in its report “Tracking Clean Energy Progress” [LINK] by on track, more efforts needed, or not on track”. Below is the IEA June 2020 table for critical technologies. Our Supplemental Documents package includes our SAF Group June 11, 2020 blog.

Figure 31: IEA’s Progress Ranking for “Critical Energy Technologies” for Clean Energy Transition



Source: IEA Tracking Clean Energy Progress, June 2020

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Energy Transition – RBN: Update on announced hydrogen projects

There was another good RBN blog this week, its Wednesday blog [\[LINK\]](#) which was an excellent outline of the currently proposed green, turquoise, and blue hydrogen production projects. This is a good blog to add to reference libraries. They noted that since the last time they reported on hydrogen projects back on March 24 [\[LINK\]](#), all the projects tracked totaled about the same energy equivalent of one Haynesville gas well, but with this update the total increases to even a small basin if the largest projects go through. Of the green hydrogen projects, which generally use some form of electrolysis to generate hydrogen from electricity and water, only one project is in operation – Air Liquide’s Becancour facility in Quebec. RBN is tracking 6 planned projects, the two largest of which are by Plug Power. One will be in New York, capable of producing 45,000 kg/day of hydrogen, and the other in Texas, capable of producing 60,000 kg/day of hydrogen. The next category tracked is turquoise hydrogen, which Monolith Material’s methane pyrolysis facility in Nebraska falls into. Since the project uses methane, it’s not technically “green”, but RBN wrote *“since the carbon from the methane used in the process is captured as a solid, but as we see it that label doesn’t make it any less ‘green’”*. RBN estimates the project can produce 164,384 kg/day. Finally, there are the blue hydrogen projects, which are typically derived from natural gas. 6 of the projects RBN is tracking will use steam methane reforming to produce the hydrogen. The largest of which is a JV between Suncor and ATCO that could produce over 800,000 kg/day of hydrogen, which is quite substantial. This equates to ~90,000 MMBtu/day or about 10 medium-sized Haynesville wells. We have included RBN’s project tracking below. Our Supplemental Documents includes the RBN blog post.

RBN overview of announced hydrogen projects

Energy Transition – Ontario expands access to natural gas over renewables

No surprise, climate change side wasn’t happy with the Ontario government announcement of Phase 2 of the Natural Gas Expansion Program on Wednesday [\[LINK\]](#), which will support ~8,750 connections in 43 rural, northern and Indigenous communities. The last thing they wanted was expanding natural gas consumption in natural gas instead of renewable energy. From what we understand, the Ford decision was driven by doing their best to ensure energy reliability at low cost. More than \$234mm is allocated to 28 natural gas expansion projects and will create approximately 5,000 jobs within the Hamilton and Niagara areas. Premier Ford said *“Today we’re celebrating an important milestone in Ontario’s energy history with Phase 2 of the Natural Gas Expansion Program. We’re making good on our promise to deliver affordable energy and expand natural gas pipelines to more communities, while at the same time improving economic development and creating thousands of new jobs.”* Connecting these often-remote communities to natural gas will create significant cost savings. The average household could save between \$250-1,500 per year in energy costs by switching away from costlier fuel sources. Even more significant, businesses are expected to save up to 30% on energy costs per year. Phase 2 construction will begin as soon as this year, with all 28 projects expected to be underway by end of 2025. Our Supplemental Documents includes the Ontario Government’s release.

Ontario expands natural gas infra

Climate Change – Putin pushes protecting existing forests as key climate action

No one should be surprised that Putin, in his June 4 St. Petersburg speech, highlighted the role of forests absorbing emissions and methane. Our May 2, 2021 Energy Tidbits highlighted Putin’s speech at the Biden climate summit [\[LINK\]](#) that highlighted this same point. We believe this issue will be a major point of debate as to how much is saved by preserving forests, but that the climate change leaders will ultimately give in to Russia so they can get Russia onside for any COP-26 Glasgow agreement. This is what we tweeted on March 26, 2021 [\[LINK\]](#) *“Is this how @COP26 gets RUS, CN, BR, etc onside with #NetZero? A new #ClimateChange debate for 2021/22. Planting trees gets #Carbon offsets, but will*

Protecting forests the next debate

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RUS get offsets for protecting an existing massive forest? thx @d_khrennikova @LauraMillanL @world_reporter. Some of Putin's St. Petersburg words were "Now, regarding a second area in this context: an entire industry, a fundamentally new market for so-called 'carbon units' is being created almost before our eyes. Many people, especially those in power production, are aware of this, but I will explain. This is the amount of harmful airborne emissions that can be absorbed by a section of land or forest. So, if you have done some additional work on your land to increase its ability to absorb the emissions in the air, you have created a number of carbon units. Many countries and associations are already planning to accept these units from exporters to offset the emissions from the production of imported goods. Russia has enormous potential for emission absorption with its forests, tundra, agricultural lands and marshlands. Our country has a fifth of the world's forests; they occupy almost 10 million square kilometres. Specialists and scientists believe that they are already absorbing billions of tonnes of carbon dioxide equivalents every year. I repeat, the importance of Russia's potential in natural compensation is enormous, simply huge in terms of the planet's climate sustainability. Clearly, by virtue of its natural advantages, Russia can maintain a special place in the global market for carbon units. To achieve this, we need to use the forests and lands more effectively and enhance their absorption capacity." This is also an invitation for companies to invest in Russia's forest protection plans. Putin said much more on this in his St. Petersburg speech. Our Supplemental Documents package includes Putin's comments on this item.

Protecting forests would help other countries ie. Brazil, China, India, etc

Our March 26, 2021 tweet also included a mapsoftheworld.com map "top 10 countries with largest forest areas" [LINK](#) that noted the top 10 being: Russia at #1, followed by Canada, Brazil, US, China, Australia, Democratic Republic of Congo, Argentina, Indonesia, and then India at #10. The majority of these are considered climate change laggards. And clearly if its takes allowing offsets for Russia protecting its forests to get them onside for some sort of COP26 agreement, surely these other countries will want to get similar credit.

Figure 32: Back to the Future II (1989) Mr. Fusion Powering Flux Capacitor



Source: mapsoftheworld.com

Demographics – Most liveable city is Auckland, Cdn cities drop due to covid

The Economist posted their Global Liveability Index 2021 this week based on survey data collected from Feb 22 to Mar 21, 2021. Below, we created a table of the top 10 and bottom

Auckland is most liveable city

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10 cities. One thing that jumped out at us in the list of the bottom 10 is that half of them are major cities in key oil, natural gas or LNG exporting countries such as Algeria, Libya, Nigeria, Papua New Guinea and Venezuela. The Economist noted the key findings as: few of them key findings such as “• *The overall global average liveability score has fallen by seven points, as compared with the average pre-pandemic score. The extent to which cities were sheltered by strong border closures, their ability to handle the health crisis and the pace at which they rolled out vaccination campaigns drove significant changes in the rankings.* • *Auckland, in New Zealand, is at the top of The Economist Intelligence Unit’s Liveability rankings, owing to the city’s ability to contain the coronavirus (Covid-19) pandemic faster and thus lift restrictions earlier, unlike others around the world.* • *Six of the top ten cities in the March 2021 survey are in New Zealand or Australia, where tight border controls have allowed residents to live relatively normal lives.* • *Many European and Canadian cities have fallen down the rankings, having battled a second Covid-19 wave by restricting cultural and sporting events, and closing schools and restaurants.* • *The lower end of the rankings has seen less change, with the Syrian capital, Damascus, still the least liveable city in the world.* • *Healthcare scores fell after the onset of the pandemic in most cities across the world, with the least affected cities concentrated in western Europe and the Asia-Pacific region.*” Our Supplemental Documents package includes excerpts from the index.

Figure 33: The Global Liveability Index 2021

Ranking	Top 10 Best	Top 10 Worst
1	Auckland, New Zealand	Caracas, Venezuela
2	Osaka, Japan	Douala, Cameroon
3	Adelaide, Australia	Harare, Zimbabwe
4	Wellington, New Zealand	Karachi, Pakistan
5	Tokyo, Japan	Tripoli, Libya
6	Perth, Australia	Algiers, Algeria
7	Zurich, Switzerland	Dhaka, Bangladesh
8	Geneva, Switzerland	Port Moresby, PNG
9	Melbourne, Australia	Lagos, Nigeria
10	Brisbane, Australia	Damascus, Syria

Source: The Economist

Twitter – Look for our first comments on energy items on Twitter every day

For new followers to our Twitter, we are trying to tweet on breaking news or early views on energy items, most of which are followed up in detail in the Energy Tidbits memo or in separate blogs. Our Twitter handle is @Energy_Tidbits and can be followed at [\[LINK\]](#). We wanted to use Energy Tidbits in our name since I have been writing Energy Tidbits memos for over 20 consecutive years. Please take a look thru our tweets and you can see we aren’t just retweeting other tweets. Rather we are trying to use Twitter for early views on energy items. Our Supplemental Documents package includes our tweets this week.

**@Energy_Tidbits
on Twitter**

LinkedIn – Look for quick energy items from me on LinkedIn

I can also be reached on LinkedIn and plan to use it as another forum to pass on energy items in addition to our weekly Energy Tidbits memo and our blogs that are posted on the SAF Energy website [\[LINK\]](#).

**Look for energy
items on LinkedIn**

Misc Facts and Figures.

During our weekly review of items for Energy Tidbits, we come across a number of miscellaneous facts and figures that are more general in nature and often comment on sports.

Quick smart action by Denmark footballer Kjaer helped save Christian Eriksen

Huge shout out to Denmark footballer Simon Kjaer for quick action that helped save his teammate Christian Eriksen in yesterday's Denmark/Finland Euro 2020 match. Like any football fan, I had Euro 2020 matches on whenever I could. And saw what happened when Eriksen collapsed near the end of the first half. Kjaer jumps right in without hesitation to make sure Eriksen didn't swallow his tongue and kept in the right position before the team doctors arrived on the scene. It was very scary for probably at least 15 minutes if not longer before they were able to move him off on a stretcher. It sounds like Eriksen is okay in the hospital, but its not clear yet how he will be affected going forward. But big kudos to Kjaer for his fast response.

California 17 year old attacks bear to protect her dogs

We can't help pass on this 35 second video from June 1 of a California 17 year old (Hailey Morinco) who runs out of her house to protect her dogs from a bear on the fence in her backyard. Anyone who has seen a bear in person has to be hugely impressed by this California 17 year old running out to protect her dogs from a bear on the fence in her backyard. There is a California bear with her two cubs on her back fence, her 3 dogs (including 2 really small dogs) come charging out to protect their turf. The bear starts swatting at them and looks to be grabbing one of the small dogs and she comes charging out to shove the bear off the fence. Anyone who seen a bear in person knows this is one hugely impressive action. The USA Today clip is at [LINK](#).

Figure 34: Teen shoves a huge bear off a fence to protect her dogs



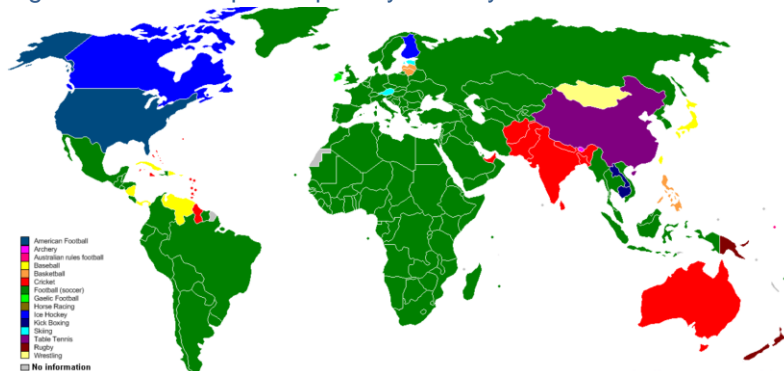
Source: USA Today

Football (not NFL type) reigns popular in most of the world

Upon reading last week's memo, one of my long time former client asked why do I only ever seem to mention European football or NFL or sports other than NHL. Then on the other hand, when I go back and forth with international readers, its always about non North American football. I keep forgetting that most in North America don't really care about European football. On Friday, Bloomberg's Kristian Siedenburg in Vienna sent me the below map that reminds that non North American football is the most popular sport pretty well everywhere except North America, India, Australia and China. Although the Chinese Super League is trying to build up football. Kristian is

part of the Bloomberg team providing valuable details and reports on the IEA Oil Market Report.

Figure 35: Most Popular Sport By Country



Source: Wikimedia

Greta tells policymakers “let’s speed up the process”

Earlier we noted how the global policymakers are locked in to their more aggressive climate change push for at least a year even if we finally start to see more warnings on the energy transition. But the policymakers keep getting pushed by the climate change side that they are on the right track and now is the time to push even harder. There was a good reminder of that from Greta. We recognize that some don’t care for her, but surely they at least have to be impressed that she is one of the very small number of people in the world who are known by their first name. On June 1, Great Thunberg tweeted [\[LINK\]](#) “It (the IEA report) is a sequel of the La La Land movie. Why should I take it seriously?” says the Saudi Energy Minister. Wow. We’re clearly witnessing the beginning of the end of the fossil fuel era. They’re starting to panic. Let’s speed up the process.”

Hot real estate market also hits Canmore, Alberta

We weren’t aware of the big increase in housing prices in Canmore, which is a small town in the Cdn Rockies approx. 1 hr from downtown Calgary. But do notice when around town how a For Sale sign on a house doesn’t stay that way for long. So but if you are not in the market, you really don’t pay attention. Yesterday the Calgary Herald posted a story “Housing prices rising, time on market shrinking as Canmore’s property market heats up” [\[LINK\]](#). It was surprising to see the Calgary Herald write “A report from Re/Max looking into recreational property prices across Canada shows the average price of non-waterfront properties in the community west of Calgary have increased by 26 per cent between 2019 and 2021, up to an average of \$1,360,594 from \$1,082,930. The report predicts a 20 per cent increase on such locations throughout the rest of the calendar year.” And they “noted the average amount of time a home listed between \$1 million and \$2.5 million in May 2020 was 53 days. By May 2021, that time frame shrank to 16 days.” Our Supplemental Documents package includes the Calgary Herald report.

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